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A Collection of Multidisciplinary Research Papers

Volume 5   Issue 5

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NAIPUNNYA INSTITUTE OF MANAGEMENT AND INFORMATION TECHNOLOGY (NIMIT)

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From Chief Editor's Desk…

NAIVIGYAN is a multidisciplinary ISBN proceedings, covering research papers from Commerce,Computer science, Management, Languages and other related fields. The book provides a forum for compiling theory and comprehensive technical review articles of interdisciplinary and originalresearch with significant research results and analyses in related areas and their applications. It isdesigned to provide a platform for academicians, researchers and practitioners to explore new arenas of knowledge. The aim of NAIVIGYAN is to give a highly readable and valuable additionto the literature which will serve as an indispensable reference tool for years to come.

We are pleased to publish the Fifth Edition of NAIVIGYAN, which includes an authoritative source of information in multidisciplinary areas. As the Chief Editor of NAIVIGYAN, I take thisopportunity to express my sincere gratitude to authors who have contributed their research findingsto NAIVIGYAN. Further, I would like to thank the Editors, and other supporting staff at Naipunnya Institute of Management and Information Technology, Pongam for the success of thisproceedings.

NAIVIGYAN has been focusing on addressing the developing areas and to document this intellectual vibrancy will always be the key aspect of this book. We focus to promote knowledge and make the various academic developments in the world accessible to every section of society. The proceedings is a hub of diverse ideas and arguments and the articles in NAIVIGYAN are peer-reviewed to achieve this goal.

We are happy to receive contributions for our next issue from Academicians, Scholars and Practitioners and Industrialists to ensure the consistency and the success of NAIVIGYAN. We welcome comments and suggestions that would advance the objectives of the Journal.

Dr. Joy Joseph Puthussery

Chief Editor

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Envisioning the Ecofeminist Theory: An Exploration of Women and Nature in *A Thousand Splendid Suns* and *Kindred*

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Abstract

Ecofeminism concerns the male domination over women in the world and its connection to the destruction of the natural world. Women and nature both have an inferior position in the world. Cultural ecofeminism is a branch of ecofeminism. The paper analyses the oppression of women and the domination of patriarchal society. The novels, *A Thousand Splendid Suns* and *Kindred*, investigate the elements of oppression and domination. The difference in depicting these elements in two different texts also studies the intermediate relationship of women and nature with their roles.

Keywords: Nature, Oppression, Suppression, Cultural ecofeminism, Patriarchy, Afghan women and African women.

A Thousand Splendid Suns is an Afghan novel. It was inspired by Hosseini's observations of women wearing burkas, his visit to Afghanistan in 2003. Here burka is a symbol of oppression over women by their husbands. The novel depicts the pathetic situation of women during the war in Afghanistan. The story takes place in the forty-year life span of war in the country. There are two invasions in Kabul, one is Soviet invasion and the other is Taliban tyranny. After Taliban, there is an arrival of American Troops.

Bombs and attacks threaten towns and cities. Civilians are murdered day by day, thousands lost their homes and relatives, women were brutally raped and killed in streets. During the arrival of Taliban, the civilians felt that they will be liberated from and their deplorable life. But, instead, the situation worsened. The victims of their brutality were women. The women community not allowed in men's hospital, even if they were in critical stage, they were strictly prohibited from those hospitals. Taliban made several brutal laws to subjugate the identity of Afghan women:

> Attention women: You will stay inside your homes at all times. It is not proper for women to wander aimlessly about the streets. If you go outside, you must be accomplished by a mahram, a male relative. If you are caught alone on the

street, you will be beaten and sent home. You will not, under any circumstances, show your face. You will cover with burqa when outside. If you do not, you will be severely beaten. Cosmetics are forbidden. Jewellery is forbidden. You will not speak unless spoken to. Girls are forbidden from attending school. All schools for girls will be closed immediately. Women are 39 forbidden from working. If you are found guilty of adultery, you will be stoned to death. Listen. Listen well. Obey. Allah-u-Akbar (Hosseini 271).

There is an incident in the novel, when Laila was pregnant with her second child. She went to women's hospital and there she faces woeful situation. There is no anaesthesia available there and the doctor want to do the delivery without anaesthesia. Mariam says that, she will buy the medicine by herself and the doctor reminded her that, it is already eight-thirty now and she will be arrested by the Taliban soldiers for breaking the curfew. Poor Laila, she was in terrible pain, during the delivery time. And also, women cannot be treated by the male doctors and if they do that they will be punished. The women are not allowed to go outside without the male companion. They are not allowed to do jobs outside. If the woman is a widow, then how will she survive in that country? There is no proper answer for this question.

Kindred is a novel by an African American writer Octavia E Butler. The novel corporates time travel and it is based on slave narratives. Dana, a black woman is the main character in the novel and she is travelling to Tom Weylin's Maryland plantation in eighteenth century and there she is meeting her ancestors. Tom Weylin is a white man, the owner of the plantation. The black people are treated as slaves. Women are treated badly in

the name of slavery. There is nobody to question the brutality of white people. If the Negros tried to run away from their masters, they are punished in a severe manner and if it is a woman, they make her naked and beat her whole body. Tom Weylin is so cruel to their slaves and he is treating them as animals without any humanity ("Kindred").

After the death of Tom Weylin, the slaves think that they get some liberation in their life. But the situation become worse, with the arrival of their new master Rufus 40 Weylin, Tom Weylin's son. If he doesn't like the behaviour of a slave, he will beat him and will sell to another white owner. In the beginning of the novel, Rufus is a kind hearted person to Dana. He considers her as a sister. After some incidents his heartless character is revealed. He is behaving as good in front of Dana and indirectly he is attacking her without any reasons.

In A Thousand Splendid Suns, Mariam is one of the novel's protagonists. She is the illegitimate daughter of one of the most successful businessmen in the city of Herat. She grows up in a small kolba far away from the city with her mother Nana. After completing her fifteen years, she married to Rasheed, a forty-five-year-old man and moved to Kabul. From her childhood onwards she faces loneliness and alienation from the society. When she is married to Rasheed, she feels peace and joy when compared to her life in Herat, but it won't last for long. Rasheed immediately changes his face and character when he realizes that Mariam can't consume a child anymore. After their marriage, Rasheed shut down her desires and dreams from her life with the symbol of burqa. In Rasheed's home, she feels loneliness because her partner is not giving any importance whether she is in that home or not. Her only duty in that home is just clean the home and make food for Rasheed. Her life changes to absurd and she became a machine without any feelings and emotions.

After the arrival of Laila, she regains her affection and love and when Laila got pregnant, she did all the necessary things like her own mother. She became the motherhood of that home. Aziza, the first child of Laila she is more affectionate to Mariam than her real mother Laila. At the end of the novel; Mariam is giving her own life for the safety of Laila and her family. She got shot by the Taliban soldiers by committing the murder of Rasheed. Laila also equally shares the part of it, but Mariam knows that she has no life after this so she sacrifices her life for them. Here the reader 41 can see Mariam, as a logo of motherhood and can be compare her with nature. Nature also sacrificing its life for humans.

In Kindred, there is a same character as Mariam, that is Sarah she also sacrifices her life for the sake of slaves and whites of Maryland plantation who is living there. She is the symbol of patience and love. When Tom sells her three sons to other white owners, she became silent for the sake of her only mute daughter Carrie. She stays as a slave for her own survival. Dana and Sarah become friends and Dana learns to respect her because of her self-sacrifice. She is the 'mammy' of Weylin's family in all the aspects because without her contribution Weylin's home became restless. She is a black woman and she treats every person in the plantation equally. When Carrie is pregnant, she did all the necessary things for her while doing all the household activities of Weylin's house. Tom Weylin, the abuser of Sarah, when she decides to poison him with the food and he and his family become anymore. But she is not doing any threat to his family. She is treating Rufus as her son and giving him all his favourite dishes when he is sick.

Laila is a fifteen-year-old girl living in Kabul. She continued her studies till her parents' death. Her parents were vanished in the bomb blast of Kabul which was done by Soviet invasion. At a moment she became orphan and there is nobody to give shelter. Rasheed marries Laila to get his own from her. But Laila is already pregnant with her boyfriend Tariq and it is her need to marry Rasheed and get a father for her baby. The customs of Kabul society will not agree her illegitimate child. Laila is helpless with her situation and so sorry to Mariam because she thought that Laila, steal her husband with the reason of womanhood and makes her nothing with the arrival of Laila. Later, Mariam understood the real story of Laila and they gained a powerful bond like mother and daughter. Here, an educated woman become helpless and needs 42 to obey the rule of patriarchy without her will. After some years Tariq will meet Laila and Mariam and Laila will kill Rasheed for the sake of Laila's future. At the end of the novel, there is a sacrificed mother for the safety and happy life of her daughter.

In Kindred, there is a same character as Laila. Dana Franklin, she is an educated black woman who travels back to her ancestor's home in eighteenth century Maryland plantation. She is living in twentieth century and when she is in Weylin's plantation she become nothing with her education. At that period, blacks are the slaves of whites and they are not supposed to write or read. If they caught while doing this crime, they will be cut off their three fingers from right hand. Dana wants to do all the household activities that the slaves do in the plantation. She is not familiar with these works. Sarah, the logo of motherhood helps her with the duties Tom assigned to her. Her appearance is so different

from other slaves and they asked her in several times whether she is a man or a woman. When they realize that she is a woman, they warned her to wear woman like dresses. In her perspective all these things are absurd when compared to twentieth century black woman. Her husband Kevin, he is a white man, he doesn't even care about her costumes. The time she is in Maryland plantation, she forced to become slave like other black people. She even faces sexual abuse from her own ancestor, Rufus.

Themes like violence, gender, family, marriage, education and power are equally shared in both the novels. The theme of violence can be seen in Tom Weylin's plantation and also in Jalil's and Rasheed's home. The gender discrimination is clear evidence in the characters like Mariam, Laila, Nana, Dana, Sarah, Alice, Tess etc. Marriage is also a similar theme in both the novels. Rasheed marries Mariam and Laila and Rufus marries Alice Greenwood. Hannah and Khala Rangmaal are the representation of education. The characters like Tom Weylin, Rufus, Rasheed and Jalil are the depiction of power (Baena).

In A Thousand Splendid Suns, women are consistently defined only by their responsibilities as mothers and wives. They are nothing more than a product. Rasheed lost interest in Mariam after she had many miscarriages. She was treated like a slave. Due to her inability to become pregnant, Mariam's little values as a woman and as a person were no longer valid. In Kindred, mothers are represented by characters including Sarah, Alice Greenwood, Tess, and Carrie. These ladies were sexually raped by white supremacy on Weylin's estate. Weylin and Rufus are utilising black women as a sexual object in order to expand the number of their slaves. They are treated like mere slave animals after their use.

Therefore, in both the novels, men are misrepresenting motherhood by taking advantage of women. The female characters are victimized, sexually harassed and suppressed by both male and female figures. In spite of all that suffering imposed on them, they challenged the brutality. These novels point out the oppression on nature and women and rethinks the relationship among nature, men and women. People should realize the importance of building a harmonious society and sustainable ecological system. When nature, men and women are treated equally, human beings can live healthily on the earth and human society can develop smoothly.

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ANALYSING POWER RELATIONS IN BAMA'S VENMAM : VENDETTA

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Introduction

The paper aims at analysing the power relations between the upper caste Naickers and the two Dalit castes- the Pallars who identify themselves as Hindus and Christian Parayars, among the Dalits and between Dalit men and women. The Naickers apply the divide and rule strategy to dominate over the Dalits; the Pallars dominate over the Parayars in the name of religion, saying they are the superior caste, and the Dalit men overpower their women through the caste system. Bama's *Vanmam:Vendetta* analyses this power game across caste and gender in Kandampatti Village.

About author

Bama is a Dalit feminist, teacher, short story writer and novelist. *Karukku* (1992), her autobiographical novel shot her to fame. It presents her life from childhood to early adulthood when she was a nun. It was Father Mark who encouraged her to write her experiences and publish it. It recounts the joys and sorrows of Dalit Christian women in Tamil Nadu. It is one of the first Tamil autobiographies written by a Dalit woman. Her other works include *Sangati* (1994; translated into English by Lakshmi Holmström, OUP 2005) and Vanmam (2002; translated by Malini Seshadri), as well as two collections of short stories, *Kusumbukkaran* (1996) and *Oru Tattvum Erumaiyum* (2001). *Sangathi* and *Karukku* are in successful English, German, French, Telugu and Malayalam translations.

Hegemony - theory

Hegemony is the dominance of one party over another, frequently backed by legitimating norms and ideas. The fundamental principle of hegemony is that man is governed not only by force but also by ideas. Gramsci presents the idea of hegemony to explain how the ruling class exerts their dominance over other classes. It happens when society's dominant classes maintain their dominance by convincing the other social classes to embrace their moral, political and cultural values. This implies that

the majority of the population consents to policies and ideologies put in place by those in power. However one must not assume that this consent is always voluntary. Those in power may incorporate intellectual, moral and cultural persuasion with physical force or coercion. In this manner, the dominant ideology is welcomed, implemented and spread.

In *Vanmam:Vendetta*, the Naickers dominate over the Parayars and Pallars using physical force and cultural persuasion. The Pallars dominate the Parayars using physical force. The Dalit men use cultural persuasion to overpower their women.

Naickers domination over Dalits

In *Vanmam:Vendetta*, the dominant Naickers uses the caste dynamics that has been prevalent in India for more than three thousand years. They employ the "divide and rule" strategy to keep the fires of vanmam-vendetta burning between the two castes within Dalits - Pallars, who identify themselves as Hindus and Parayars, who are mostly Christian converts to keep their status. They use physical violence and religion to dominate over the Dalits to ensure that they will forever remain downtrodden and will never improve their status.

Vanmam is set in Kandampatti village in Tamil Nadu. The Parayars live in the eastern part of the village. They occupy five or six streets at the eastern part of the village. Next to them are four or five Pallar houses. The upper caste Thevars, Chettiars, Aasaris, Pillais, Nadars, Naickers and so on live near the western bazaar area. The root cause of the Naickers' hatred towards the Parayars is jealousy over their improved living conditions and the discontinuing of the homage that the Pallars and Parayars used to pay to them.

On every Pongal festival day, with great festivity, they would set out for the landlord's house with their families, taking with them offerings of a rooster, one or two large pumpkins, four-five stalks of sugarcane, and a measure of rice. This was a typical odaiyaru offering." (Bama 7) As more Parayar youths got educated they began to see the practice for what it really was - a means to perpetuate the privileged status of the Naickers as their overlords. So they raised their voices to put an end to this degrading

practice. Although they initially met with resistance, their opinions were accepted. Very soon after the Parayars stopped this practice, the Pallars also did the same.

The Naickers resent that Parayars no longer grovel at their feet and treat them as overloads as they had in the past. They also hate that Parayars have improved their station by availing the opportunity of education. "It was a mistake to have leased out our fields to these Parayans...If you go to the local bank, you'll find that more than half the savings belong to the Parayans." (Bama 19) They detest that their workers children no longer share their parents's fate. This resentment makes them create discord between the Dalits so that they won't make progress in their lives.

Bama gives the example of Marraasu and Karuppusamy who water the Naicker's fields. Mariaraasu who goes by Marraasu is the Parayar who waters Ranga Naicker''s field while Karuppusamy is the Pallar who waters Palanivelu Naicker's field which was right next to Ranga Naicker's. While Marraasu and Karuppusamy frequently argued over the irrigation water Ranga Naicker and Palanivelu Naicker lived in peace. Both Ranga Naicker and Palanivelu Naicker take advantage of their enmity and instigate them and as a result never a day went by without a quarrel.

Abraham reveals that it is the Naickers that made the Dalits bitter enemies to maintain their status quo. About four or five years ago, the Dalits joined together and nominated a Parayar candidate for milk society president's post and a Pallan candidate for the co-operative society presidentship. Their combined votes gave them a victory. This upset the Naickers who decided to destroy their unity. He also brings to light how the Naickers exert their dominance over the Pallars using religion. "...look, you and we are Hindus, and we Hindus must stick together." (Bama 15) This illustrates how the Pallars are instigated in the name of religion. It also brings to the foreground how religious intervention escalates rivalries between the two castes. The Naickers use the garb of religion to hide their real intentions. They capitalise on the mistrust between the two communities.

Through Pachamalai, Bama explains why the Naickers are determined to nurture the hatred between the two communities to keep them from progressing and improving their living conditions.

> "Our street fellows behave the way our employers want us to. But are you fellows like that? You think you're too clever", said Pachamalai, and went away to water the fields. He was too angry with the boys, but didn't show it." Those boys from the Christian streets have become very arrogant. Their parents used to be like us...respectful towards the landlords. Now these young fellows are raising their heads...they're turning everything upside down. Not one of them will do as he is told." (Bama 31)

The Parayars also express their lack of trust towards authorities of power. The priest and the police support their caste and fail to deliver justice or bring truce to the fight between the two Dalit castes. Their mistrusts towards the priest and policemen are proven true when Sesurathnam was murdered by a few Pallar boys. When the police came to arrest the Parayar men who retaliated the murder by killing two Pallar boys, the men folk of the village ran away and Parayar women were left at the mercy of the police officers. They tricked the women into following them to the bus stop under the false pretence of meeting the Collector. They abused the power vested in them and imprisoned the Parayar women who had nothing to do with the murders. They also beat and kicked Chellakili, a pregnant woman and caused abortion.

Police brutality continues as they enter the houses in the pretext of searching for the men and talk vulgarly and misbehave with women. When they came to know that the women had gone to meet the imprisoned women, they beat the women with lathis and chased them as they ran. They also entered every street and house and beat women regardless of their age. The women admitting they were more scared of the police than the riots show how corrupt they are. "...Ey, keep quiet atha. These police fellows are all on their side only. If they overhear you, they'll start beating us again." Warned Madathi." (Bama 90)

Although Pallars are equally or guiltier for all the murders, they don't arrest the Pallars as they are protected by the Naickers for their own selfish motives. From the conversation between ten or twenty Pallars hiding in Kumaresan Naicker"s cattle shed, it is clear that Naickers are the invisible forces behind the communal violence. They exploit the Pallars' jealousy towards the Parayars for their better living standards to their own advantage. They stoke the fires of enmity to destroy the Parayars so that they too would bow down before them like the Pallars. "It seems they've sold farm crops and piled up lots of money in our village bank. The Naickers are saying so. Let them start spending all that money. Only if the money runs out they'll come to their senses and stop being so arrogant." (Bama 92)

While both the communities were slowly building up their life and bringing it back to normalcy in the face of a great tragedy, the murder case of Sesurathnam coming up created an unexpected situation. When it became clear that the accused Pallars were likely to be convicted with a life sentence, they reached out to the Parayars for a truce. They both decide not to present evidence at the court. They take their unity a step further by nominating Kaalaiyan of the Pallar street as their joint candidate for the post of panchayat president. This decision leaves the Naickers' seething in jealousy. They felt like their position in the society as overloads were slipping out of their hands. The day Kaalaiyan took over as the President was a victory for the Dalit community. Only the Naickers were full of negative remarks and false hope that this will change in a few days.

> Though everyone else was all praise, the Naickers of Kandampatti were still full of negative remarks. All this unity will last only for a few days. Just wait and see what happens...old habits die hard...it'll be the same story again. All the stabbing and killing will start again. These fellows can't keep from fighting, they said mockingly. (Bama 135)

Pallars domination of the Parayars

Vanmam:Vendetta portraits how Dalits have internalised the existing social structure of caste segregation. It is not only the Naickers, Thevars, Pillais, Chettiars and Nadars

who belong to the upper caste that regard Parayars and Pallars as outcasts, Pallars and Parayars themselves treat each other as outcasts within their own social habitat.

The Pallars use physical violence to dominate over the Parayars. They target strong able-bodied Parayar men to invoke fear in Parayars' minds. They are jealous of the Parayars due to their improved living conditions and economic prosperity which they achieved through their hard work and by availing opportunities for education provided by the church. Unlike the Parayars, not many of the Pallars leave the village to pursue higher education and avail the opportunity to get a job. There was a time in the history of Kandampatti when the Parayars were the lowest of the low.

These hard times have passed and now the Parayars are no longer dependent on farm work alone, and as a result are not solely dependent on the Naikers. They do all kinds of jobs. In a typical Parayar street we can find tailors, masons, plumbers, drivers, teachers, policemen and many others involved in other professions as well. This is a testimony to their improving living conditions as an outcome of their struggle and effort. They have also managed to send their children to schools and colleges. This incites jealousy in the Pallars whose situations have not really improved over the years. They are still dependent on the Naickers. Due to lack of education, they easily fall victim to the mechanisations of the Naickers.

The peace between Pallars and Parayars has always been precarious. Bama gives an account of disagreement between them early in the novel. She talks about the verbal disagreement that turned into violence and murder between Karuppusamy, a Pallan who waters the fields of Palanivelu Naicker and Mariaraasu, a Parayar who waters Ranga Naicker's fields. Their argument over whose turn it was to water their landlord's field turned into a physical altercation and Karuppusamy murdered Mariaraasu. Even before Marraasu's murder there was unrest among the Pallars and Parayars. Abraham, a character, talks about an incident that revolved around Mannangatti that resulted in the blooming of enmity between them.

Bama talks of a time after Mannangatti's death when Pallars and Parayars got along reasonably well. They used to organise games in their respective streets for their festivals. During Christmas and New Year, games would be organised in the

Parayars' street and on Pongal festival games would be organised on the Pallars' street. They used to address each other as "machaan" and "maaple" and joke around. Even though there were occasional scuffles between them, with the passage of time, they would talk to each other.

There is a great moment of unity between the two Dalit castes when they unite to install a statue of Ambedkar. Although at first the Pallars were reluctant, they donated thousand rupees for the cause. But as time went on they began to regret this decision. There were constant arguments among themselves regarding the donation for the statue. There were some who opined that instead of giving donations for installing an Ambedkar statue, they could have put up one of their leaders, Immanuel. They were keen to do something of their own to rival what the Parayars did.

Their jealousy towards the Parayars regarding their well-being and achievements like formation of Kazhani Arts Troupe by the Parayar youth through which they give a stage to the Parayars to showcase their talent, drives them to attack the Parayars. They disrupt the cultural programmes conducted by the Parayar youth. This slowly turns into physical violence; they beat a ten- or twelve-year-old boy for the alleged crime that he stole mango from the Naickers' field. The Parayar elders attempt at reconciliation is thwarted by the Pallar "naatamai".

The Pallars decide to resort to more aggressive ways to show the Parayars that their position is at the bottom of the hierarchy. They demand the money they donated for the Ambedkar statue and put up one of their own. They tie the flag post higher than the Pereyras.The Parayars' request to retie it falls on deaf ears. Heated exchanges continued until Sesurathnam went secretly to the bus stand one evening, after dusk fell and cut the wire down. This infuriated the Pallar street youngsters who murdered him. This leads to a period of violence and unrest, the brunt of which was faced by women.

However, things gradually fall into place and there is a moment of unity when they decide to nominate Kalaaiyan for the post of Panchayat president.

Domination of Dalit women by men

Dalit men dominate over women using the caste system which places them even lower than the male Dalits. Although the male dominated society denied them education, Dalit women are aware of its importance. In Vanmam, by portraying how girls, unlike boys, do not have the right to education, Bama raises the issue of gender bias. Women's education is an important factor in the empowerment of women from all forms of constraints and burdens imposed upon them. But sadly, education for men is often given more preference in patriarchal society, especially in villages, compared to education for women. In Vanmam, Dalit women are aware of the importance of education. There are women who strive hard to send their daughters to school, so that her daughter would have a better future. However, there are also women who are solely concerned about the education of their son.

Bama's women are hard workers; none of them are idle. Yet male dominated society has restricted their entrance to "chavady", a community meeting place. They only enter it when cultural programmes are being conducted. However, they are not. encouraged to participate in this; they are scolded by men for wanting to perform on Stage.

Dalit women face discrimination not only in terms of receiving an education, but also in terms of expressing their own identity in society, according to Bama in Vanmam. Women are also not allowed to be part of decision makers. Although all the decisions made in the "chavady" equally affect them, their viewpoints, and opinions. are hardly considered. They are asked to leave the "chavady" and go home when public meetings are going to be held.

They consider women to be incapable of making an informed decision. This is made clear when the women say they ask for help from women for everything else but decision making. Women who are members of the Kazhani Arts Troupe care for the Neem saplings planted at the roadsides and on some evenings, they hold classes for the small children who study in the village school. They consider women to capable of doing only domestic tasks. Exclusion of women from public meetings since the dawn of time has led them to internalise the notion of women being inferior to men.

It is also women, especially Parayar women, who bear the brunt of the aftermath of violence. The men escaped after committing the crime, leaving the women vulnerable to abuse at the hands of the police.

A STUDY OF EMPLOYEES MOTIVATION OF PESTOLINE PET CONTROL AND SERVICES Ltd.

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Abstract

Human resource is of importance for the success of any organization. It is a source of strength and aid. Human resource is the wealth of an organization. This can help in achieving its goals. Human resource management is concerned with the human beings organization. Motivation is an important factor which encourages persons to give their best performance and help in reaching enterprise goals. A strong positive motivation will enable the increased output of employee but negative motivation will reduce their performance In other words it is the process of stimulating employees by satisfying their needs. Performance result from the interaction of physical, financial and human resources. The first two are inanimate they are translated into productivity only when the human element is introduced. In fact the level of performance of an employee is a function of his abilities and motivation. The first determines what we can do; the second determines what he will do, where he will do, where there is a strong motivation, the employees' output increases, but where a negative is or weak positive motivation, his performance level is low.

Keywords:

Human Resource, Motivation, Performance, Productivity

Introduction

Human resource is a resource like any other natural resources. It means that management gets and use the skill, knowledge, ability etc. human resource is the process of a management, which develop and manage the human elements of an enterprise. It is not only the management of skills but attitudes and aspiration of people. A strong positive motivation will enable the increased output of employee but negative motivation will reduce their performance. Once of key elements in personal management motivation it is the secure, friendly and supportive relationship which gives him a sense of worth of face groups which are most important to him a supervisor should strive to treat individuals with dignity and a recognition of their personal worth.   Performance level is low. Once of key elements in personal management motivation it is the secure, friendly and supportive relationship which

gives him a sense of worth of face groups which are most important to him a supervise should strive to treat individuals with dignity and a recognition of their personal worth. The objective of the study is to know about the efficiency motivational techiques and its effectiveness in the organisation.

Statement of the Problem

Motivational techniques are considered to be one of the vital factors in each and every company because it improves level of efficiency of employees and puts human resources into action. It also leads to achievement of organizational goals and hence builds friendly relationship among employees. This it is important for the company to look on to its motivational techniques and make changes accordingly to meet the requirements of the employees. The research focuses on the Effectiveness of motivational techniques in the organiasation.

Objectives of the study

- ➢ To study about the type of motivational techniques used in the organization
- ➢ To study about impact of motivational techniques among employees
- ➢ To find out whether the motivational techniques create confidence among employees.

Review of Literature

Bruce and Peptone (1999) propose an interesting viewpoint according to which managers cannot motivate employees; managers can only influence what employees are motivated to do.The role of facilitating quality subordinate-superior communication ar carious levels effectively employing a wide range of communication channels has been praised by Shields (2007) in terms of its positive contribution in boosting employee morale. Shields (2007) stresses two specific advantage of such a practice that relate to offering employees a chance to raise their concerns and put across their points regarding various aspects of their jobs, as well as, supplying them with the feeling of engagement and appreciation. According to Lockley (2012) offering training and development programs that effectively contributes to personal and professional growth of individuals is another effective employee motivation strategy. At the same time, Lockley (2012) warns that in order for motivational aspects of training and development initiatives to be increased, ideally they need to be devised and implemented by a third party with relevant competency and experience. Alternative working patients such as job-rotating, job-sharing, and flexible working have been branded as

effective motivational tools by Llopis (2012). Moreover, Llopis (2012) argues that motivational aspects of alternative working patterns along with its other benefits are being appreciated by increasing numbers of organizations, however, at the same time; mans organizations are left behind from benefitting from such opportunities. Lockley (2012) on the other hand, addresses and same issue focusing on cross-cultural differences between employees in particular. Namely, culture can be explained as knowledge, pattern of behavior, values, norms and traditions share by members of a specific group (Kreitner and Cassidy, 2012), and accordingly, cross-cultural differences is perceived to be a major obstruction in the way of successful employee motivation.

This point has been explained by Lockley (2012) by insisting that certain practices such as engaging in constructive arguments and dialogues in workplace can prove to be highly motivational for the representatives of Western culture, whereas the same set of practices can prove to be counter-productive for employees from Asian countries due to vast cross-cultural differences.

Research Methodology

Research method is a systematic way to solve the research problem and it is important for the study without which researchers may not be to obtain the format. The process used to collect information and data for the purpose of making business decisions. The methodology may include publication research, interviews, surveys and pother research techniques and could both present and historical information. The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem, it constitutes the blue print for the collection, measurement, and analysis of data. Sample design used in this project is simple random sampling. Sampling is a man's of selecting a subset of unique from a target population for the purpose of collecting information. There are variety of ways to select your sample, and to make sure that its gives you the result that will be reliable and credible.

- Sample Population : The total population us 400 employees
- Sample size : In the sample survey 60 samples has been used for the study.
- Sample Method : The sample method used here is convenient sampling method

Results and Discussion

Charts are used as data analysis tools along with percentage analysis, charts represent data is symbols and organizes a set of numerical or qualitative data and provide information.

Showing employee satisfaction with present working condition of the company.

Categories	No. of Respondent	Percentage (%)
Highly Satisfied	30	52
Satisfied	10	22
Neutral	20	26
Dissatisfied	0	0
Highly Dissatisfied	0	0
Total	60	100

Showing effective promotional opportunities for the employees provided by the company

Categories	No. of respondents	Percentage
Agree	60	100
Disagree	0	0
Total	60	100

Table Showing the improvements of productivity by motivational techniques

Categories	No. of Respondent	Percentage (%)
Highly improve	20	33
Improve	40	67
No	0	0
Total	60	100

Table Showing motivation leads to job satisfaction

Categories	No. of respondents	Percentage
Yes	60	100
No	0	0
Total	60	100

Showing absenteeism is reduced with the help of motivational techniques.

Categories	No. of respondent	Percentage (%)
Yes	50	67
No	10	33
Total	60	100

Showing opinion about compensation and rewarding system

Categories	No. of Respondent	Percentage (%)
Highly Satisfied	20	33.3
Satisfied	20	33.3
Averagel	20	33.3
Dissatisfied	0	0
Highly Dissatisfied	0	0
Total	60	100

From the study following findings are generated

- Majority of the respondents are satisfied with the motivation provided in the organization.

- Most of the respondent is satisfied with the working condition of the organization

- The motivation technique of the company leads to job satisfaction among worker.

- The employees are satisfied with current motivational technique of the organization.

- Absenteeism is reduced through company's motivational techniques.

- Motivation helps to increase the performance of employees.

- Most of the employees are satisfied with the health and safety measure provided from the company

- Most of the employees are equally agreed that good interpersonal relationship is maintained with superiors.

- Majority employees felt secure in their job.

- 100% of employees are agreed that the organization provide medical benefits for employees.

- 75% of the employees have agreed and 25% of the employees have strongly agreed that motivation is the most important factor in employee performance

- 100% of employees say that they are satisfied with the health and safety measures of the company.

- PESTOLING PEST CONTROL AND SERVICES uses monetary techniques for employee motivation

- The employees are satisfied with current motivational techniques of organization.

- Most of the employees are satisfied with the support from the department.

- Majority of the employees strongly agree that the co-workers are helpful to get motivated.

- 83% have very good opinion about present working conditions of the company.

Conclusion

Motivation is a complex force starting and keeping a person at work in an organization. The objective of this study was to know the impact of motivational techniques among the employees are motivated from the company and they are satisfied with them. From this study we find out that motivation helps to reduce the labour turnover and absenteeism and also increase the confidence among employees to do more effectively. Under this study we find out that motivation helps to increase the productivity of the organization. We can understand that the motivation is directly related with productivity and company provides many motivational packages to employees for increasing their efficiency and productivity.

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Comprehensive Review on Data Security in Fog Computing Based IoT System

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A B S T R A C T

A prospective virtualization technology termed fog computing prolongs cloud computing
to the improvement of networks. Fog computing presents additional concerns about
security and privacy in addition to those it acquired from cloud technology also it differs in
other aspects. Numerous strategies are introduced for enhancing the security issues and
privacy protection, which employs private information and security solutions. The privacy
protection, usage private information and security solutions that might require new
thinking to adapt to fresh challenges and developments. The users also explore security
difficulties, such as safe information storage, safe computing and network monitoring. In
contrast side, cryptographic techniques have gained the greatest interest since they might
differ depending on the application and communication protocols. This research analyses
the decryption of cryptographic techniques as Mobile Sensor Data Processing Engine
Technique, Q-learning Algorithm and Key Management Techniques for attaining better
security in IoT.

Keywords: Internet of things, Fog Computing, Q-learning Algorithm, Key Management,
Cryptography

Introduction

An innovative technique for reducing delay and network traffic that also offers financial
benefits for IoT networks is fog computing. Fog computing is made up of several Fog
Nodes that are placed by multiple cloud data centers in various places to provide
consumers a variety of data services and applications. It is a type of computer design
where a network of hubs continuously collects information from IoT devices. With
nanosecond reaction times, these networks handle data in real- time as it comes in. The

nodes regularly transmit to the internet critical summary data. Cloud technology in IoT-based extensive network the fog nodes to offload and process tasks requested by IoT-enabled devices in a dispersed way as opposed to the centralized cloud services, which decreases connection speed. [1, 2].
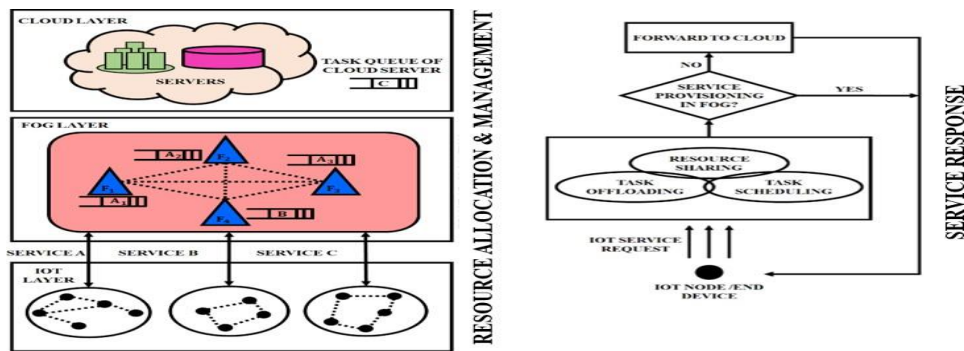
Figure 1: IoT –Fog-cloud scheme

An IoT-fog-cloud scheme with a traditional three-tier design that delivers particular IoT solutions (such as services A, B, and C as samples) concluded either the fog coating or the cloud depending on the responsive resource scheduling method is illustrated in Figure 1.

Multiple low-power computing devices may be used for processing, judgments, and activity using fog computing, which only sends important data to the data centers. To offload the data computing services from the cloud, these devices—known as fog nodes—are placed at the border of the systems. So, low- latency, quick response, and location awareness services are all possible with cloud computing [3].

As a replacement for the cloud, fog computing offers low-latency connectivity by moving processing and storage resources to the network edge. An alteration of milliseconds in reaction time can have a considerable effect on the result of an event for IoT applications in the healthcare industry, smart automobiles, and entertainment. Fog computing can offer overwhelmingly advantageous assistance for IoT applications at the network edge in these circumstances [4]. The fundamental concept of fog computing is that, as opposed to continually uploading data to and downloading it from the network infrastructure, as is the case with standard cloud technology, nearby smart objects can directly access data from those other users via data transmission and nearby Small Cell (SC) systems.

Network identification, secrecy, data security, and security systems are all secured via encryption. Traditional cryptographic methods are no longer appropriate for all IoT scenarios, such as the knowledge economy, due to the numerous limitations of IoT devices. Moreover, in order to overwhelmed the limitations and to advance the presentation of the fog computing based IoT technology, the routing protocols and cryptographic techniques are implemented [5, 6]

Review of Key Management Techniques used in Fog Based IoT System

Q-Learning Algorithm

In this study, users explore Physical Layer Security (PLS) for detecting identity attacks in fog networks that makes advantage of available radio metadata between the final user and the cloud server. PLS that uses the characteristics of the connection between the final user and the fog node to identify identity attacks in a system of cloud computing. It is also difficult to establish precise channel limitations between both the end user and the cloudlet. As a result, Q-learning technique is suggested to achieve the ideal test threshold level in the impersonation attack. The proposed scheme's effectiveness confirms and ensures the ability to precisely identify impersonator attacks in cloud computing networks. As a result, the sender's ability to accurately identify an impersonation attack using Q-learning is superior to the static detection accuracy. PLS is the use of a transmission medium within a target network to perform sniffing operations like an actual intruder. This attack can go unnoticed at the managerial level and needs accessibility to execute [7].

MAC and HMAC Encryption Technique

This study, provides an effective auditing mechanism for compute from fog to cloud. By putting MAC and HMAC into practice, users give the audit method a physical manifestation. The MAC strategy is utilized for data transmission among mobile nodes and cloud systems, while the HMAC method is used to verify the correctness of data items stored in Cloud Service Provider (CSP). MAC-based generic audit solution for fog-to-cloud technology. The key distribution method will produce keys for all components of a system other than CSP when gave the secret key as an input.

MAC = (MAC- KeyGen, MAC, MAC-Verify   (1)

HMAC = (HMAC- KeyGen, HMAC, HCombine, HVerify) (2)

$\{K1, 1 \dots, K1S1,\}, \dots, \{Kf, 1, \dots, . Kfs1 \} (3)$

Which is denoted by $\{K1 \dots . Kf\}$ then execute HMAC-KeyGen () f times to obtain HMAC-keys K1–Kf. The tag creation method for mobile nodes accepts two inputs: a communication unit and a MAC-key. It produces a name for the bit stream on under MAC-key. In spite of not being a public auditing system, ours clearly exceed terms of communication and computing efficiency. The model consequences demonstrate the effectiveness of the computing process. The solution suggested would make a compelling option for safely storing data in cloud cover computing. One of its biggest drawbacks is that in order to perform properly, holomorphic encryption either need programme changes or devoted and specialist software application [8].

Bilinear Pairing Encryption and Decoy Technique

In this study, the major emphasis has been placed on deploying a fog computing facility to safeguard client specific data in the cloud. In order to do this, a part of the multi another authentication of key systems put on bilinear pairing encryption has been presented. This protocol enables users to establish a key pair and safely interact with one another. In this research, a strategy for protecting Medical Big Data (MBD (in the cloud network utilizing the decoy approach and a fog computing facility is given. It acts as an instant gallery for decoy Mb / d (DMBD), which trick an attacker into thinking it's the real MBD. As a consequence, our technique speeds up the procedure and assures that the consumer's MBD are completely protected. There is no reason to be concerned if the user is indeed an invader because by default it only makes the original large data gallery visible to a valid user after getting confirmation while hiding the fake one. Since the additional user account is created by the user, it often contains reliable information, but updating the profile details takes a lot of work on the user's part [9].

Mobile Sensor Data Processing Engine Technique

The paper explains the need for IoT applications that are centered on the cloud and use mobile phones as the primary communication tool. The creation of these applications is made possible by the approach given. To have a better knowledge and be able to implement the technology effectively, it is necessary to be familiar with the fundamental terms used in cloud calculating and mobile internet of things. The security and privacy of the information being conveyed by these approaches must be maintained. Therefore, reliable data monitoring for the general public in IoT applications is made possible by

cryptographic processes like Public Key Encryption and digital certificates. These mechanisms are employed for managing data. In order to improve knowledge of the Cloud IoT idea and enhance Assisted Living for the benefit of society, we implemented a software named Smart Helmet using the recently noticed.

The MOSDEN service modelling method is depicted in Figure 2. The connector-based design used in MOSDEN promotes usability because all technical data is concealed from of the user and they only need to download the plug-in from the Application store. Additionally, it offers scalability since any sensor can be linked, thanks to the plug-in-based design and a huge number of plugins may be loaded on portable devices [10].
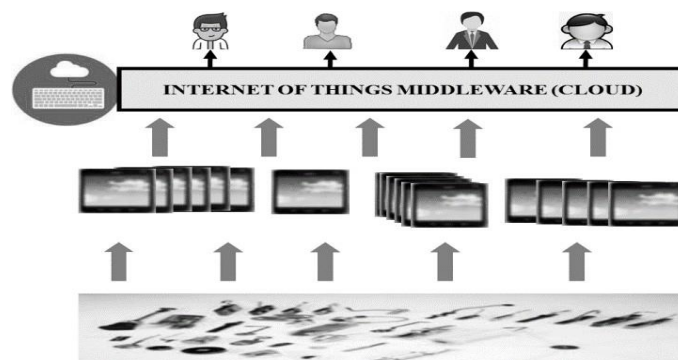
Figure 2: Mobile Sensor Data Processing Engine (MODSEN) architecture

Elliptic Curve Cryptographic Technique

In this study, we present a unique lightweight ECC to address cyber-security issues with IoT devices-based method for enhancing known system in an IoT-Edge scenario. The difficulty of the conventional methods, including ECC and AES, has been dramatically lowered by the suggested approach, which has also greatly reduced the duration for strong encryption. On resource-constrained connected systems operating in a Network edge, such a strategy is greatly regarded due to the decrease in running time and resource needs. The experimental data have shown a potential advancement above the conventional methods in a real- world tested. The structure of the IoT system shouldn't be affected (mitigated or compromised) by enhancing the performance, size, or energy usage of the IoT system to support the ECC.
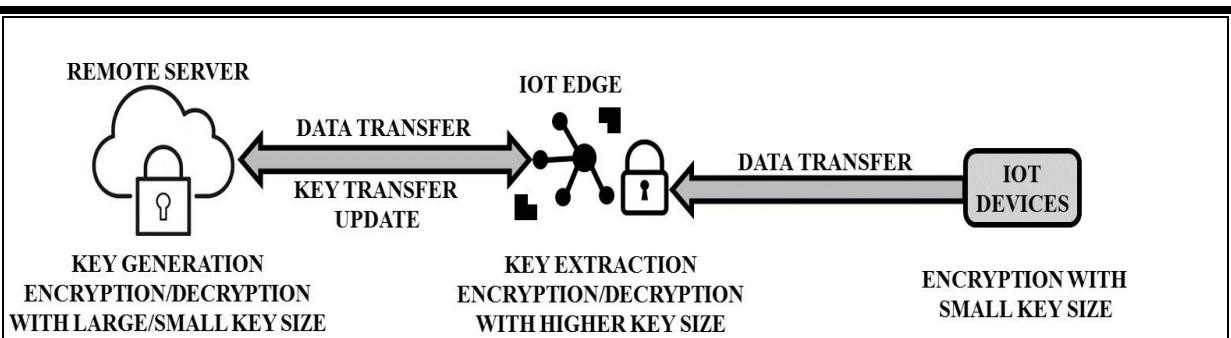
Figure 3: Proposed Method for Key Generation

Figure 3 illustrates how data moves through our system, how it is encrypted, and how it is decrypted. Sensor information is secured using before moving to the IoT-Edge, low key at the IoT device level. Because internet connection is still used, this provides fundamental security. The cloud's remote server sends the produced public keys to the Unified communications, which then downloads them and upgrades the different IoT devices accordingly. To provide the highest degree of security, it also executes higher grade encryption and decryption. Safe application is hard and stimulating, mainly for conservative bends. Current values are out-of-date, especially ECDSA, which is a hack in assessment to Cryptographic crosses. Potentially, more recent systems could contain undiscovered flaws. Binary curves are a little unsettling [11].

Secured Mutual Authentication Protocol Technique

Mayuresh Sunil Pardeshi et al 2019, proposed the secured mutual authentication protocol technique employing sort of semi random number, period, and hash values may only be taken [12]. The technique is more private and has no overhead since it avoids maintaining master private keys and repeating session keys. Weak passwords, bad identity design, and execution can all lead to major consequences for authentication issues.

Randomization Positional Re-Encryption Strategy

In order to safeguard data items and protect against the crucial threat, the author suggests a randomization positional re-encryption strategy that makes use of text cryptography and convergence fully - featured transformation. [13]. The re-encryption cost and frustrate key cache attacks while altering the ownership of data objects held in the internet. A malevolent user can perform a probing attack to determine if particular data items belonging to other users have been reduplicated at the cloud level.

Comparative Study of Key Management Techniques

This work did a study on certain key management techniques like Q-Learning Algorithm for identifying the identity attacks in fog networks, MAC and HMAC Encryption Technique for the safe storage of data in cloud cover computing, Bilinear Pairing Encryption and Decoy Technique studied on Medical Big Data speeds up the procedure and assures that the consumer's MBD are completely protected, Mobile Sensor Data Processing Engine Technique promotes usability by concealing the technical data from the user,

Elliptic Curve Cryptographic Technique to address cyber-security issues with IoT devices, Secured Mutual Authentication Protocol Technique known as a mutual authentication protocol, Randomization Positional Re-Encryption Strategy which uses text cryptography and convergence fully-featured transformation. Figure 4 displays the Time measurement value based on the above declared key management techniques. The maximum time obtains at Elliptic Curve Cryptographic method as 51%.
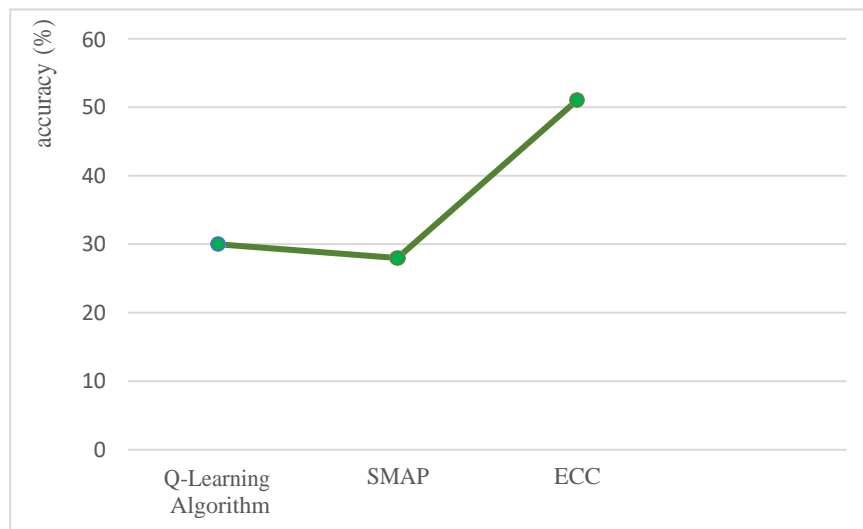
Figure 4: Accuracy comparison of various key management techniques

Table 1 Comparison Analysis of Accuracy

	METHODS		
ACCURACY	Q-Learning Algorithm	SMAP	ECC
	30%	28%	51%

From the Table 1, is it clear that the recommended ECC approach accomplishes highest accuracy while comparing to other methods, such as Q-Learning Algorithm, SMAP and ECC.

Conclusion

In a dispersed desktop setting known as fog computing, data, computation, safety and plans are distributed between the data and the cloud. After conducting a comparison between various key management techniques, to enhance data in IoT-based fog computing, considering where data is created and utilized, fog computing accelerates the benefits and power of the cloud. This is similar to edges computing. This study employs a variety of techniques to clearly reduce the security issues and the solutions that go along with it. The proposed study conducts comparative analysis of the several security and privacy-related issues- reducing strategies. The ECC key management techniques performs the higher efficiency and considered as the best techniques in IoT based fog computing.

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"A STUDY ON THE BANDWAGON EFFECT AMONG COLLEGE STUDENTS TO INVEST IN THE STOCK MARKET DURING PANDEMIC WITH SPECIAL REFERENCE TO ERNAKULAM DISTRICT"

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Abstract:

The bandwagon effect is a psychological phenomenon in which people do something primarily because they have their own inbuilt attitude, view, opinion about certain matters happening around them. The term 'Bandwagon effect'originates from the belief and perception of people towards investment activities and behavioural attitude of consumers towards investment. Any trader tends to feel more confident when he gets to know many traders share the same view as his. Initial public offerings during the current bull markets are also a notable example of the bandwagon effect in practice. Out of the 100 respondents which was taken for the survey, they have expressed the concerns relating to depth of knowledge in decision making, people who influences their decisions, risk taking capacity, preferred sectors of their investments etc.

Keywords.

Price Fluctuation, Investment in pandemic Behavioral impact, stock market

Introduction

As millions of people from all over the world struggle to cope with the global pandemic suffering lockdowns and quarantines, a large number of people have turned to learn and prepare for their financial future. Many investors who are searching for yield have turned to the stock market and dividends as a way to generate a return on their investment. The stock market is an upcoming investment channel and the stock market has enormously grown over the years. A stock market is a place where shares of pubic listed companies are traded. The rapid industrialization in the country since independence has given vitality to the stock market. The stock market is the major source for channelisation of finance from household, business and other money generating sectors . An equity share is a part of the ownership capital of the company eligible to share many benefits from the company. When one invests in shares, he keeps it for some time depending upon the stock price. When the rates of shares increase, he sells the securities to another party.

This study is to analyse whether the bandwagon effect influences college students to invest in the stock market. And also identify the factors that are created a bandwagon effect among college students to invest in the stock market during the pandemic

Effect on college students

Investment attitude and saving mentality among college students have increased recently. Students starts reading journals relating to financial matters, started discussing among peer group with regard to investment opportunities. With regard to the search of investment opportunities, stock market have secured a major position among the youth. They started searching for various possible investment availabilities with regard to securities.

Objectives of the Study

- To analyse whether the Bandwagon effect influences college students to invest in the stock market.

- To identify what are the factors that created a bandwagon effect among college students to invest in the stock market

Statement of the Problem

The title of the research is 'A study on the Bandwagon effect among college students to identify the portfolio during pandemic with special reference to Ernakulum District'. This indicates how much the students follow the other students to invest in the stock market during the pandemic and also identifies the factors that are created a bandwagon effect among college students. The satisfaction level of college students in stock market investment are analysed by using primary data

Significance of the Study

The stock market is known as a pulse of the economy or economic mirror, which reflects the economic conditions of a country. During this pandemic, India has to meet a huge financial crisis where many businesses have faced huge losses. Many people had their jobs gone and struggling for a living. At this time, the stock market investment had a major impact making so many people come forward and invest in the stock market. Mainly it had attracted the youths of the country. So, it is a very relevant study and this is the first-ever study conducted. This study is unique as it mainly focuses on college students. This study

analyses the influence of the bandwagon effect among college students in identification of investment. The importance of this study is to identify the key to reviving and sustaining the college student's interests in the securities market. This study also helps to find how this pandemic stage affected the stock market and identify the factors that affecting college students in investment selection.

Scope of the Study

This study is conducted among the college students in Ernakulum District. The study mainly focuses on the influence of the bandwagon effect among college students in selection of portfolio and also identifies the factors affecting college students to make investment in stock market during the pandemic. The study utilizes aggregated data rather than firm-level data.

Research Methodology

The research methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises of theoretical as well as practical sessions.

Review of Literature

Ding, Levine, Lin & Xie (2020) perform their study regarding corporate immunity during the COVID-19 pandemic. During the first quarter of 2020, they use the data of more than 6, 000 firms from 56 countries. They aim to determine the impact of COVID-19 cases on stock prices and corporate characteristics in this case. The findings tell that the companies having larger corporate ownership did well and companies having higher ownership of hedge funds did worst in terms of performance.

A more, Pelucco & Quarato (2020) in their study analyse family ownership during the COVID-19 pandemic. They test how the inclusion of families in governance and ownership affects the financial performance of the companies. The sample of the study has been selected from Italian firms during the spread of COVID-19. The findings suggest that the firms having controlling shareholders on their boards performed better during the pandemic compared to the others.

Kajal Gandhi (2015), Retail Investors Participation in Indian Stock Market - A Survey, GJRA - Global Journal for Research Analysis (Vol.4, Issue-02), ISSN No 2277 - 8160: paper findings were based on the survey which has been carried out among five cities-Mumbai,

Delhi, Kolkata, Chennai and Ahmedabad. The respondents of the metro cities are more inclined towards investing in stock market as they consider it as financial tool but they don't have expertise knowledge or don't prefer to hire a professional to manage their portfolio due to which they fall prey of losses. People of Tier III cities depends mostly on gold, land etc are their favourite option this is due to narrow minded as there are low saving habits, low awareness of investment opportunities.

Rakesh H.M (2014), A Study on Individual Investors Behaviour in Stock Markets of India, the paper proposes to study the behaviour of individual investors in the stock markets and the factors that influence their investment decisions, which include awareness level, investment duration, etc.

Reena Rai (2014), Factors Affecting Investors' Decision-Making Behaviour in the Stock Market: An Analytical Review, Indian Journal of Applied Research. The paper understudy aims to study the factors influencing an investor's decision-making behaviour on basis of related studies. It states that the various factors that influence include various demographic factors such as gender, age, education.

Pattabhi Ram.V. (1995) streeses upon Equity Reasearch (ER). He opined that the investor should look for value with a margin of safety concerning price. The margin of safety is the gap between price and value.

Pyare Lal Singh (1993) in the study titled, Indian Capital Market - A Functional Analysis, depicts the primary market as a perennial source of supply of funds. It mobilizes the savings from the different sectors of the economy like households, public and private corporate sectors. The number of investors increased from 20 lakhs in 1980 to 150 lakhs in 1990 (7. 5 times).

Nabhi Kumar Jain (1992) specified certain tips for buying shares for holding and also for selling shares. He advised the investors to buy shares of a growing company of a growing industry. Buy shares by diversifying in several growth companies operating in a different but equally fast-growing sector of the economy. He suggested selling the shares the moment the company has or almost reached the peak of its growth.

DATA ANALYSIS AND INTERPRETATION

Data Analysis and Interpretation

Table. 1 Distribution of Samples

S. No.	Category	Subgroups	%	Total
1.	Awareness of stock market	Yes	100	100
		No	0	
2.	Source of information	Friends	52	100
		Online media	44	
		Stock brokers	0	
		Advertisement	4	
3.	Investment in the stock market			100
		Before pandemic	29	
		After pandemic	71	
4.	Inflation in investment	Yes	86	100
		No	14	
5.	Factors affecting investment decision	Stock market price fall during pandemic	22	100
		Profit making	42	
		Friends in the stock market	36	
6.	Course on stock market	Yes	42	100
		No	58	
7.	Depth of knowledge	High	12	100
		Moderate	82	
		Low	6	
8	Monitoring stock performance	Always	40	100
		Sometimes	50	
		Never	10	
9	Types of investor	Speculative	54	100
		Capital long	18	
		Both	28	
10	Preferred sectors of investment	Agricultural sector	4	100
		Commercial services	26	
		Finance and investment	42	
		Alternative market segment	12	
		Industrial and allied segment	16	
11	Factors influencing	Less risk	32	100

	investment decision	More return	44	
		Tax benefit	10	
		Financial liquidity	14	

1.Awareness of Stock Market Investment

Particulars	No of respondents	Percentage
Yes	50	100%
No	0	0
Total	50	100%

AWARENESS OF STOCK MARKET INVESTMENT

No of respondents ▪ ▪ 2

```
60
50
40
30
20
10
 0
      Yes          No          Total
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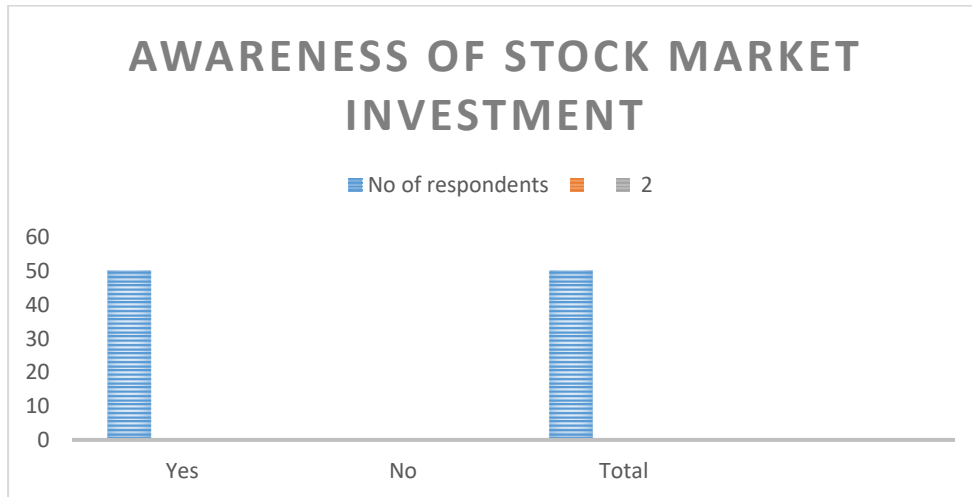
2.Source of Information

Particulars	No of respondents	Percentage
Friends	26	52%
Online media	22	44%
Stockbrokers	0	0
Advertisemen t	2	4%
Total	50	100%

Source of Information
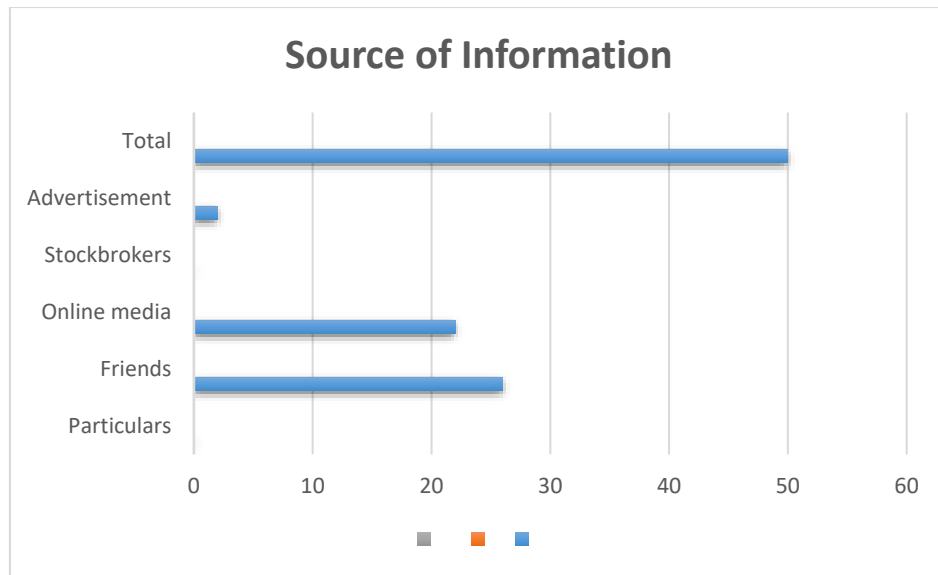
3. Investment in the Stock Market

Particulars	No of respondents	Percentage
Before pandemic	13	29%
After pandemic	32	71%
Total	45	100%

Investment In the Stock Market
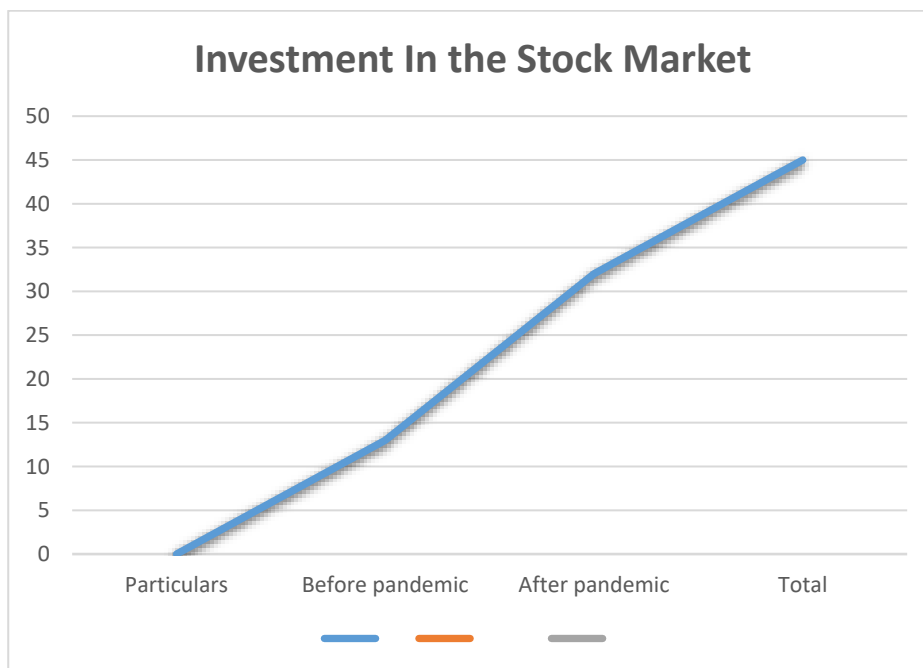
4. Inflation in Investment

Particulars	No of respondents	Percentage
Yes	43	86%
No	7	14%
Total	50	100%
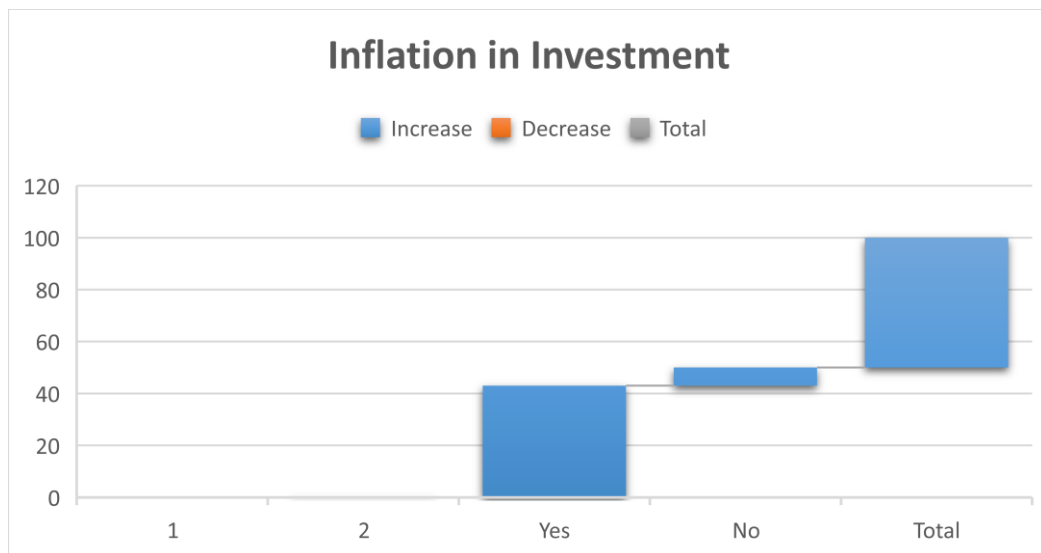
5. Factors Influencing Investment Decision

Particulars	No of respondents	Percentage
stock market price fall during thepandemic	11	22%
Profit-making	21	42%
Friends in the stock market	18	36%
Total	50	100%

Factors Influencing Investment Decision
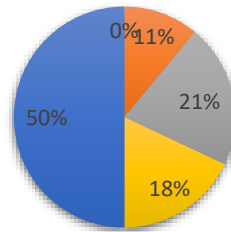
Legend:
- Particulars
- stock market price fall during the pandemic
- Profit-making
- Friends in the stock market
- Total

(Pie chart values: 0%, 11%, 21%, 18%, 50%)

6.Course on Stock Market

Particulars	No of respondents	Percentage
Yes	21	42%
No	29	58%
Total	50	100%

Course on Stock Market
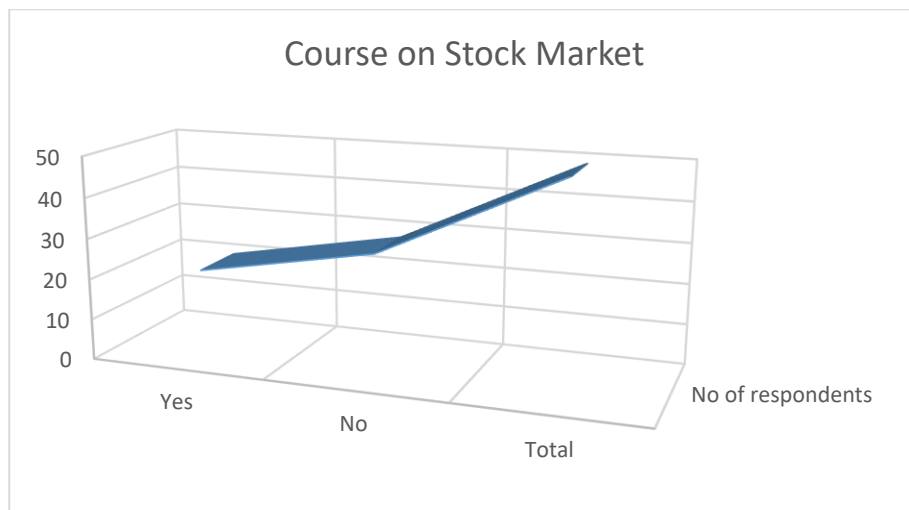
7. Depth of Knowledge

Particulars	No of respondents	Percentage
High	6	12%
Moderate	41	82%
Low	3	6%
Total	50	100%
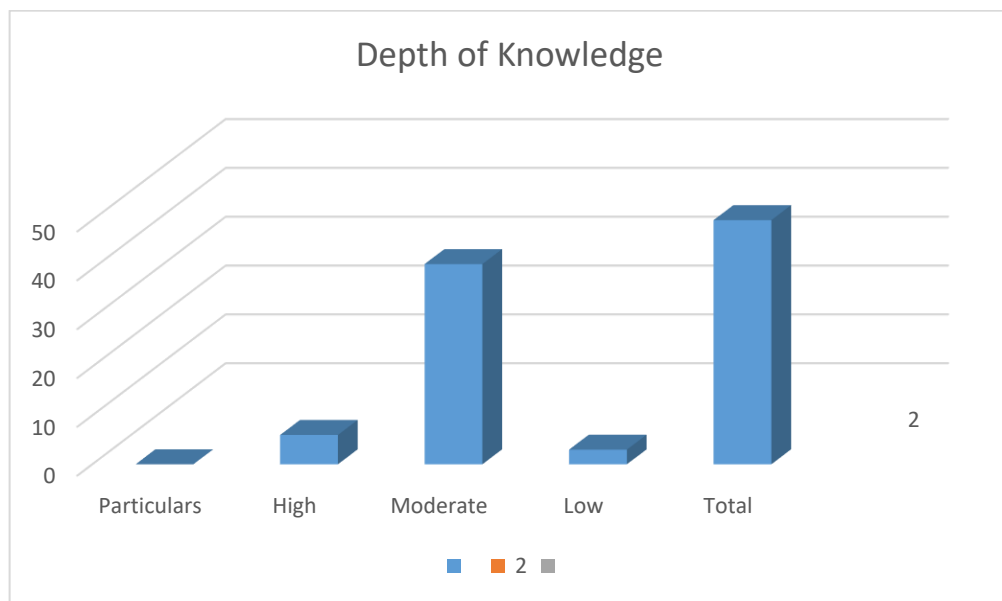
8. Monitoring Stock Performance

Particulars	No of respondents	Percentage
Always	20	40%
Sometimes	25	50%
Never	5	10%
Total	50	100%

Monitoring Stock Performance
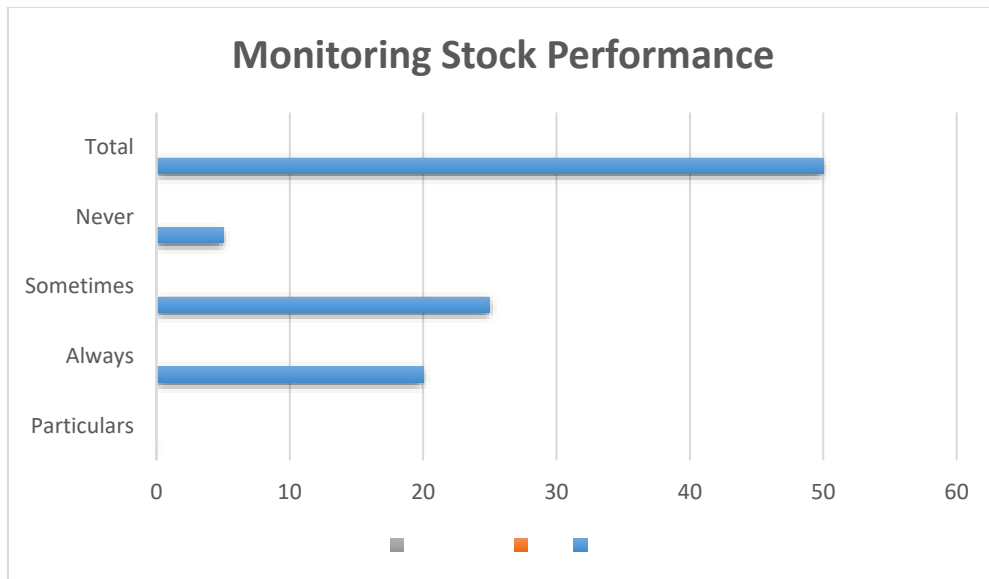
9. Type of Investor

Particulars	No of respondents	Percentage
Speculative	27	54%
Capital long	9	18%
Both	14	28%
Total	50	100%
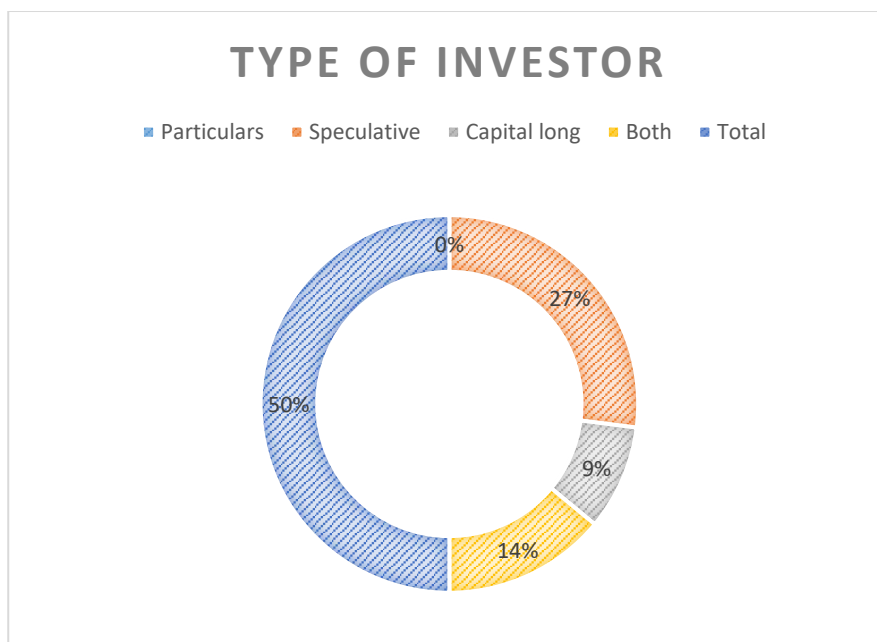
10.Preferred Sectors of Investment

Particulars	No of respondents	Percentage
Agriculture sector	2	4%
Commercial services	13	26%
Finance & investment	21	42%
Alternative market segment	6	12%
Industrial & allied sector	8	16%
Total	50	100%
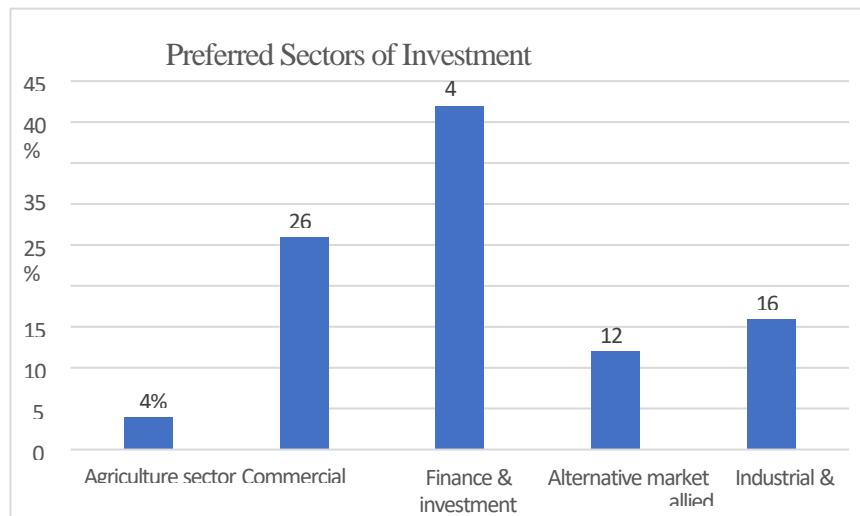
11.Factors Influencing Investment Decision

Particulars	No of respondents	Percentage
Less risk	16	32%
More return	22	44%
Tax benefit	5	10%
Financial liquidity	7	14%
Total	50	100%
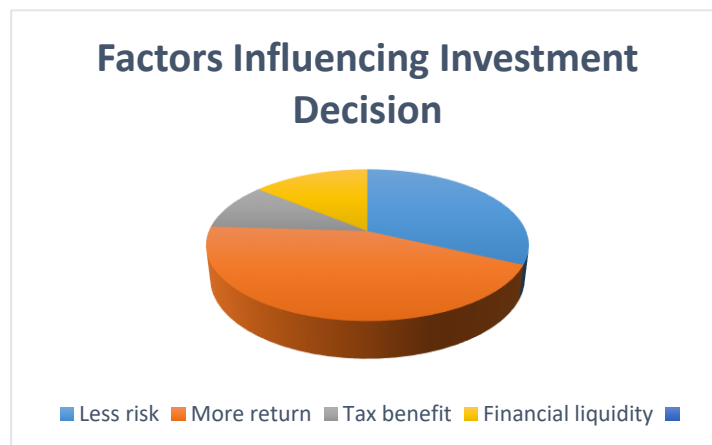
Results and Discussions

- Out of 50 respondents, majority of respondents are from male category. From this it is evident that most of the influences are male.

- Out of 50 respondents, 84% of the investors are undergraduates and only 12% are postgraduates. From it is evident that the majority of investors are from college backgrounds.

- Out of 50, all the investors are aware of the stock market. So all the respondents have some knowledge of the stock market.

- Out of all respondents, 71% of the respondents strongly agree that there is a vast increase in investment after the pandemic which objectify bandwagon effect influences the college students to invest in the stock market.

- 86% of the respondents agreed that because of the current pandemic situation they have invested in the stock market. From this, it satisfies the objective of this study.

- The majority (62%) of the respondents invested in stock is to achieve profit from their investment. From this, we can see that most of the investors are mainly focusing on profit-making.

- Out of 50 respondents, 82% have moderate knowledge of stock investment criteria. From this, it is evident that many of the investors have very much knowledge on stock investment planning, buying and selling.

- More than half of the investors are occasionally monitoring their stock and 40% eminently monitoring their stock.

- Out of 50 respondents, 54% are short-term investors. It shows the majority of the respondents are determined to follow the speculative way for a safe investment.

- The major respondents are interested to invest in the finance & investment sector.

- Out of 50 respondents, more than half of investors perceive knowledge on the stock market from their friends during pandemics. Friends as a reliable reference for their

investment decision, which objectify the factor that involves the bandwagon effect among college students in investment

- The majority of the respondents invest to get a better return from their investment.

- Out of 50 respondents, more than half (70%) of investors find investing from home is relevant during the pandemic which summarizes the relevance of this study.

- Out of 50 respondents, the majority (52%) of the investors strongly agree that they have studied the market fundamentals of underlying stock before making investment decisions.

Recommendations

- Investors can study the latest trends and do investments accordingly to have more effectiveness.

- Most people are worried about losing their job because of the pandemic so, investing in the stock market is a good decision during the pandemic.

- In this current pandemic situation, money-making is difficult so investment from home is achievable in the stock market.

- Investing in the stock market along with college education is affordable for youngsters.

- Investing in short-term plans can reduce risk factors in youngsters.

- Before investing in the stock market youngsters can go through online courses related to the stock market it helps to get knowledge on stock investment.

- Understanding the basics of the stock market and doing proper research before investing is advisable to mitigate risks and maximize returns.

Implications of the Study

This research is done for academic purposes and to analyse the influence of the bandwagon effect among college students to invest in the stock market during the pandemic with special reference to Ernakulam district. From the sample taken out of 50 students, it is evident that the stock market is having a great effect on youngsters. The objective of the study is

accomplished and it has been found out that the youngsters are well aware of stock marketing as well as find it useful.

Many factors showed the awareness and reliability of stock market investment like risk, return, bandwagon effect, financial liquidity, information, and relevance. These factors have played an important role in meeting the objective. The study also recommended various things to improve the awareness and reliability of stock market investment on youngsters.

Stock market investors have certain disadvantages like volatility, risk, etc.It is identified from the study there are bandwagon effect influences youngsters towards investing stock market during pandemics.

The main thrust of every investor is to find the best choice of investment. People search for wide range of investment choices which will in turn help them for best financial safety without affecting the inflation in the country

Among various opportunities, stock market has become an important choice and among that securities, bonds and other financial instruments has secured a major role in the investment opportunity among the youth.

Limitations and Scope for Further Research

- The information available from primary data are not always accurate.

- Limited time is also a constraint.

- The sample size selected is small.

Conclusion

Technological development and the use of sophisticated technologies has influenced all aspects of human life. With regard to stock market, the use of online platform has influenced customers. Nowadays customers find it convenient to sit at home or at office to deal with stock market. Introduction of demat account and the usage of latest technologies in online trading made the development and upgradation in stock market trading.

Even though, customers should be cautious while choosing online transactions. Chances of fraudulent practices are common in online stock market trading.

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A STUDY ON FOREIGN DIRECT INVESTMENT (FDI) IN MULTINATIONAL RETAILING IN INDIA

Mr. Jithin Scaria, Assistant Professor, Department of Commerce, Naipunnya Institute of Management and Information Technology, Pongam, Kerala, India / Research Schola, Kamadhenu Arts and Science College, Sathyamangalam

Abstract:

Globalization and liberalization brings lots of new innovative products to the world, FDI is the one among this, also there are number of different forms of FDI is available currently. Recently, Government of India allowed FDI in different sectors of Indian economy. Allowing FDI in multinational retailing has recently generated tremendous euphoria for some and fear for others. It is based on the notion that it will open floodgates for foreign retailers to invest and will change the retail landscape forever in India. The Government of India was forced to put on hold FDI in multinational retail but several political parties are making it a political issue in parliament on these policy decisions and amendments. Foreign Direct Investment in multi- brand retail will start a better integration of Indian economy into the global markets.

KEYWORDS: Foreign Direct Investment, MNCs, Retailers, Retail, Multi-brand, etc..,

INTRODUCTION

The G8 submit in which the countries such as Canada, France, Germany, Italy, Japan, Russia, UK and US were the fully developed countries. But to promote the developing countries the G20 submit was established and our country India was the member. After becoming the member of G20 submit, India allowed FDI sectors to invest in India by providing infrastructure and labour by this foreign companies come to India and invest in India in different sectors like retailing, industries,etc..,

The historical background of FDI in India can be traced back with the establishment of East India Company. After the Second World War, Japanese companies entered Indian market and enhanced their trade with India, yet UK remained the most dominant investor in India. Therefore, the Government adopted a liberal attitude by allowing more frequent equity participation to foreign enterprises and to accept equity capital in technical collaborations. It is during this period the government encouraged FDI,

allowing MNCs to operate in India. Thus, resulting in the partial liberalization of Indian economy. Indian retail industry is one of the sunrise sectors with huge growth potential. Economic liberalization in 1991 is the turning point of India. According to Reliance Retail Director Subramaniam V, the Indian retail market is one of the fastest growing in the world and is expected to reach USD 2 Trillion by 2032.

Foreign Direct Investment

Investment made by a company based in one country into the company based in another country is called Foreign Direct Investment. FDI is made in number of ways – either by setting up a subsidiary company in the host country by acquiring shares of the host country or through merger or joint venture.

The role of Foreign Direct Investment (FDI) in stimulating economic growth is one of the controversial issues in development literature. The great promise of Foreign Direct Investment (FDI) by multinational corporations is that capital will stimulate dynamic growth. Beyond boosting income and employment, the hope is that manufacturing FDI will bring knowledge that indirectly effect in building skill and technological capacities of local firms, catalyzing broad based economic growth. The part played by FDI in the development process has undergone several changes. In the 1960's, FDI was seen in most countries as a partner in the development endeavors. India adopted a regime that was perceived to be restrictive towards FDI.

Retailing

Retailing is the largest component of the services sector in terms of contribution to GDP. Its massive share of 10-11% is double the figure of the next largest broad economic activity in the services sector. Retailing is the largest private sector in India and second to agriculture in employment. After farming, retailing is India's major occupation (8% of total population). It employs 40 million people.

The importance of retailing has become well-known in India only after 1991 when P.V. Narasimha Rao was the Prime Minister and Manmohan Singh was the Finance Minister.

As the part of economic liberalization process set in place by the industrial policy of 1991, the Indian government has opened the retail sector to FDI slowly through a series of steps:

- ❖ 1995 – World Trade Organization's (WTO) General Agreement on Trade in Services (GATS) which included both wholesale and retail trade in services came into effect.
- ❖ 1997 – FDI in cash and carry (wholesale) allowed up to 100% under the government approval route.
- ❖ 2006 – FDI in single brand retail was permitted to the extent of 51%; FDI in cash and carry brought under automatic route.
- ❖ 2011 – 100% FDI in single brand retail permitted with government approval; 51% FDI in multi-brand retail with few conditions.
- ❖ 2020 – 100% FDI in single brand retail permitted under its automated route; 51% FDI in multi – brand retail under automated route with few strings attached.

What is Multi- Brand Retailing?

Multi-brand retailing refers to the marketing of the different unrelated competitive products under the same firm though being under the same firm, the various brands tend to bite into each other's sales. For example, Pantaloons, Wal-Mart, etc. the multi-brand retailing has certain advantages which are as follows:

- ❖ Obtaining greater shelf space and leaving little for competitor's product.
- ❖ Saturating a market by filling all price and quality gaps.
- ❖ Catering to brand-switching users who like tom experiment with different brands.
- ❖ Keeping the firm's managers on their toes by generating internal competition.

FDI in Multi-Brand Retailing

In 2008, the government contemplated opening up the retail sector and allowing 100% FDI in single- brand retail trading and 51% FDI in multi-brand retailing. However, it did not succeed due to fierce opposition from its allies and the left parties as well as the local trade association. AT Kearney the well -known international management consultancy, recently identified India as the 'second most attractive retail destination' globally from among thirty emergent markets. With the contribution of 14% to the national GDP and employing 7% of the total workforce in the country, the retail industry is

definitely one of the pillars of the Indian economy. India is largest among the Asian economies to liberalize its retail sector. Presently, global players are entering in India indirectly and allowing FDI is a great sign of buoyancy for retail purpose. India remains one of last frontiers of modern retailing.

Benefits of FDI in Multi- Brand Retailing

1. Improves social, cultural, political and economic standards.
2. Soaring inflation.
3. Industry experts feel allowing FDI will cut waste, as big players will build backend infrastructure.
4. FDI in multi- brand retail would also help narrow the current account deficit.
5. Moving away from intermediary – only benefits.
6. Job creation.

Benefits to Farmers

Farmers in India get only 10% - 12% of the price the consumer pays for the agri-products. Coming of organized retailing will benefit farmers in big way. Big retailers sell their product at very competitive prices. So, they source it directly from the farmers. Middle man does not have any place in this format of retailing. This will not only benefit farmers but also help in checking the food inflation. Also India has very inadequate facilities to store the food grains and vegetables. As the investment will flow into back end infrastructure, supply chain will get strengthened. Storage is a major problem area and 20% - 25% of the agri- products get wasted due to improper storage.

Challenges

Some of the challenges faced by the FDI multinational in retailing are as follows:

- Political scenario in the country.
- The competition from the Indian Multi – Brand retailers.
- Big retailers may become dominant and start having more bargaining power. So the profits gained by the farmers initially would close.

Conclusion

FDI in India has a significant role in the economic growth and development of India. FDI in India to various sectors can attain sustained economic growth and development through creation of jobs, expansion of existing manufacturing industries.

For the developing countries like India, FDI in multinational retail sector should be consciously considered by the Government of India. In broader way, India's local retail business will definitely get a chance for up gradation of the import of improved technological and transportation management knowledge from the multinational retail players. FDI in multinational retail will start a better integration of Indian economy into the global markets and, as such, it is important for the Government of India to develop retail sector for the total economic development of the country and welfare of society in the country. DI helps in the integration of cultural, social, political, and economic standards.

Reference:

1. Foreign Direct Investment (FDI) in Retail Sector – Background, Impact, Advantages, Disadvantages & More- FDI in Retail – September 2023.

"A STUDY ON ANALYSING THE INFLUENCE OF ONLINE REVIEWS ON DECISION – MAKING IN HOTEL BOOKINGS IN ERNAKULAM"

Mr. Jithu Doyal, Assistant Professor, Department of Hotel Management, Naipunnya Institute of Management and Information Technology, Pongam, Kerala, India

ABSTRACT

This study delves into the impact of online reviews on hotel booking decisions, focusing on three key aspects: review ratings, content, and management responses. Through a comprehensive analysis, it evaluates their influence on decision-making processes. Findings reveal a predominant male response, with a significant demographic aged between 18 and 30 relying heavily on online reviews for hotel selection. While confidence in online reviews varies, positive responses significantly sway booking choices. Most individuals spend 5 to 10 minutes reading reviews, often leading to altered decisions about hotel selection. Notably, systematic and active management responses to reviews emerge as pivotal factors influencing these decisions. This study emphasizes the importance of strategic management engagement with online reviews to enhance customer decision-making in hotel

Keywords: Online reviews, decision-making processes, hotel selection, booking choices, systematic and active management responses, strategic management engagement

INTRODUCTION

The contemporary era of digital technology has fundamentally transformed consumer behaviour and decision-making procedures, especially in the hospitality sector. The impact of internet reviews on customer decision-making is enormous at a time when digital interactions and online platforms rule the roost. The goal of this study is to investigate and evaluate the significant influence that internet reviews have on travellers' decisions to book hotels Ernakulam, situated in the centre of Kerala, India, is a bustling city with a rich cultural legacy that draws a wide range of visitors. In the middle of its booming travel industry, astute tourists are coming to depend more and more on internet reviews as a vital source of knowledge and direction when choosing hotels

This study's main goal is to thoroughly examine the impact that internet reviews have on consumers' decision-making processes while they are looking for hotels in Ernakulam. This study aims to provide light on the following important areas by carefully examining customer preferences, habits, and the impact of internet reviews:

Examining the importance and influence of internet reviews as a deciding factor in hotel reservations

The Power of internet Reviews.Patterns of Consumer Decision-Making: examining and comprehending the particular trends and actions displayed by customers while choosing hotels in Ernakulam based on internet evaluations.Implications for Hospitality Industry: Discussing the implications and potential strategies for hotels and businesses in Ernakulam to leverage online reviews to enhance customer experiences and service offerings.To accomplish these objectives, this study employs a combination of quantitative and qualitative methodologies, drawing upon data obtained from [mention your sources, such as surveys, online platforms, etc. The synthesis of this data will illuminate the intricate relationship between online reviews and the decision-making processes of consumers in the hospitality sector within Ernakulam.

This study intends to provide significant insights to academics and the hospitality sector by elucidating the dynamics of online reviews and their impact on hotel reservations in Ernakulam. This will provide a more profound comprehension of consumer behaviour in the digital age.

OBJECTIVE OF STUDY

- To assess how numerical ratings in online reviews contribute to the decision-making process of potential hotel guests, examining the correlation between review scores and booking choices.

- To investigate the influence of textual content within online reviews on decision-making, identifying specific themes, information, or sentiments that significantly impact the perceptions of individuals considering hotel bookings.

- To explore how hotel management responses to online reviews influence decision-making, examining the impact of both the presence and quality of management engagement on prospective guests' perceptions and booking behaviour

SCOPE OF STUDY

Geographical Boundaries: The focus of this study is Ernakulam, which is located in the Indian state of Kerala. It investigates how decisions made in this area about hotel reservations are influenced by internet reviews.

Temporal Boundaries: The study has a 3-week time frame that is specifically focused on maintaining relevance by evaluating current developments in the dynamics of online reviews and how they affect customer behaviour while choosing hotels in Ernakulam.

Target Audience: The study's main audience consists of people who have read internet evaluations before deciding to stay at a hotel in Ernakulam. A variety of demographics are represented in the choices, including visitors, business travellers, and locals looking for lodging.

Methodological Approach: This study uses a combination of quantitative and qualitative methodologies, including surveys, statistical analysis of online review sites, and focus groups or interviews for qualitative assessment. These techniques seek to capture the influence of online evaluations from both nuanced viewpoints and numerical patterns.

Data Collection Sources: The main sources of information are the well-known websites with reviews of hotels in Ernakulam (such as TripAdvisor, Google Reviews, and Booking.com). First-hand informa

REVIEW OF LITERATURE

Unfavourable consumer feedback can seriously damage your brand's reputation and undermine your dependability. According to "Online Consumer Reviews and Hotel Performance" by Iis Tussyadiah and Zheng Xiang, many online customers are hesitant to make a reservation from a hotel or restaurant with few or no bad ratings, which lowers income."Managing Online Reputation lays out a no-nonsense, jargon-free, practical playbook for dealing with online attacks by irate customers, activists, and others." It also cuts through the digital and social hype to deliver fascinating and insightful insights into the perils of the social web.Charlie Pownall's book "Managing Online Reputation: How to Protect Your Company on Social Media"Hospitality marketing helps advertisers in travel, restaurants, and consumer services bring awareness and consideration of their products and services to consumers. Hospitality marketing strategies can play an important role in helping brands drive customer engagement and stay top-of-mind.**"Hospitality Marketing Management" by Robert D. Reid and David C. Bojanic** Increasing brand visibility—and doing so transversally—is actually the main objective of a strong hotel marketing strategy. This will guarantee that your establishment is bookable wherever potential guests choose to arrange their vacation.Robert C. Lewis and Stowe Shoemaker's "Hotel Marketing"By creating strategies and business plans to boost income, the marketing and sales staff is in

charge of optimising a hotel's earnings. The group's job is to generate a profit from business verticals including lodging, event venues, recreational centres, dining establishments, etc.Joshua Seth Goff, MBA, and James R. Abbey, Ph.D., "Hospitality Sales and Marketing" provides the procedures, techniques, and frameworks "Reputation Rules: Strategies for Building Your Company's Most Valuable Asset" by Daniel Diermeier offers advice on how to shift your company's emphasis as fast as the world around you does.

RESEARCH METHODOLOGY

PRIMARY DATA

Primary data is collected by survey method from the people in Ernakulam.

SECONDARY DATA

Secondary data is collected from website newspaper and books etc.

VARIABLE OF THE STUDY

Dependent variable: Respondents from people in Ernakulam

Independent variable: Influence of online review on decision – making in Hotel Booking

SAMPLE DESIGN.

Sample unit: The respondents are selected from people in Ernakulam.

Sampling area: Sampling area selected for the research in Ernakulam.

Sample size: The sample size selected for the study is 123.

Sampling method: This was done by selecting people from Ernakulam by giving questionnaire

DATA ANALYSIS AND INTERPRETATION.

What type of information in online reviews do you find most influential when considering a hotel?

123 responses

- Positive experiences
- Negative experiences
- Specific details about amenities
- Overall impressions
- Others

34.1%

17.9%

35.8%
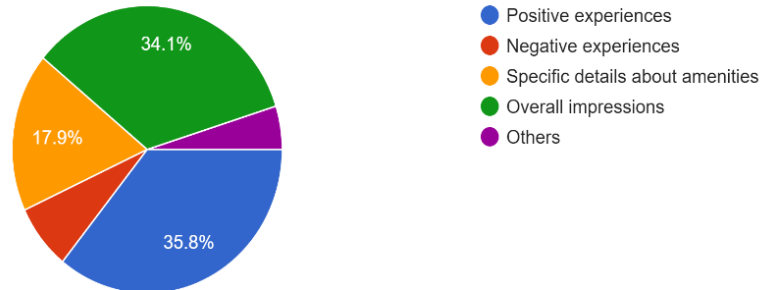
Interpretation

According to the feedback majority of the respondents were males.

Have you ever changed your hotel choice based on the detailed content within reviews?

123 responses

- Yes
- No
- Maybe

17.1%

22%

61%
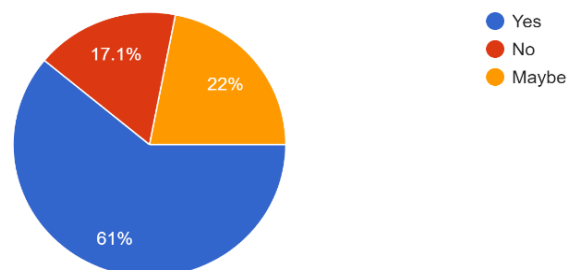
Interpretation

The numerical review ratings significantly influence decision-making process when booking a hotel

How would you describe your level of trust in online reviews when it comes to booking a hotel?
123 responses

- Very Trustworthy
- Somewhat Trustworthy
- Neutral
- Somewhat Untrustworthy
- Not Trustworthy at All
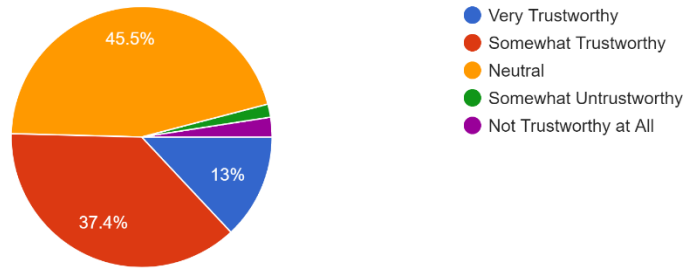
Interpretation

The respondents consistently prioritize online reviews as a factor when making hotel reservations.

How important is the presence of management responses when evaluating online reviews for a hotel?
123 responses
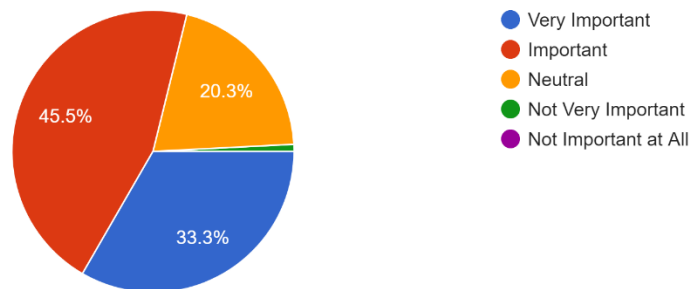
- Very Important
- Important
- Neutral
- Not Very Important
- Not Important at All

Interpretation

The importance of management responses is significant when evaluating online reviews for a hotel.

In your opinion, what constitutes a high-quality management response to a negative review?

123 responses

- Acknowledgment of the issue
- Apology and explanation
- Offering solutions or compensation
- Professional tone
- Others
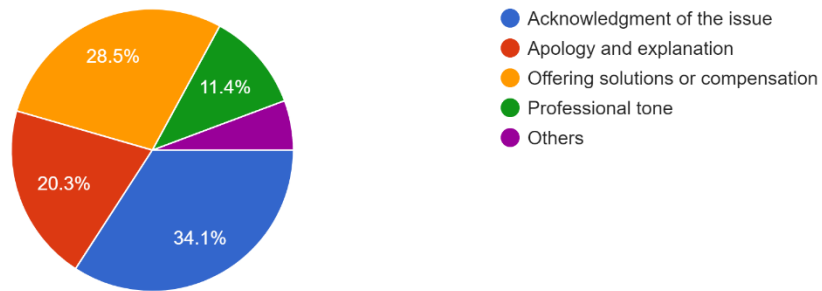
Interpretation

The importance of acknowledgment of the issue within a negative review is considered a hallmark of a high-quality management response

Would you be more likely to book a hotel that actively engages with online reviews through management responses?

123 responses

- Yes
- No
- Maybe
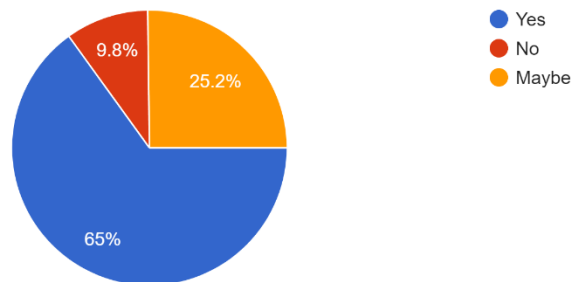
Interpretation

Respondents are more likely to book a hotel that engages with online reviews through management responses

Findings.

- The predominant demographic consisted of males within the age range of 18 to 30

- The respondents consistently prioritize online reviews as a factor when making hotel reservations.

- The numerical review ratings significantly influence decision-making process when booking a hotel

- The respondents have consistently favored hotels with higher ratings and have never opted for accommodations with lower ratings

- The respondents exhibit confidence in their decision-making when booking hotels, relying significantly on the review ratings to inform their choices.

- When evaluating hotels, the positive information highlighted in online reviews holds the most sway and impact on my decision-making process

- The respondents typically invest between 5 to 10 minutes in reviewing online feedback before finalizing their decision to book a hotel.

- Respondents have altered their hotel choices based on the specific and detailed content found within reviews

- The importance of management responses is significant when evaluating online reviews for a hotel.

- An acknowledgment of the issue within a negative review is considered a hallmark of a high-quality management response

- Respondents are more likely to book a hotel that engages with online reviews through management responses

Conclusion

In today's hospitality industry, internet reviews have a significant impact on hotel reputation and play a crucial part in influencing consumer choice. Hotel management must take proactive steps and implement active tactics in light of the reviews' complex effects. This entails attending to important aspects brought to light by internet evaluations and taking advantage of chances to enhance the standard of service, the visitor experience, and the amenities. The strategic application is in using these insights to strategically position and set a hotel apart in a competitive market, as well as to enhance its reputation. Thus, proactive management of online reviews becomes a vital way to improve visitor happiness, loyalty, and overall performance in the hospitality industry in addition to strengthening a hotel's reputation.

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ELECTRONIC HEALTH RECORD USING BLOCKCHAIN

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Abstract- Blockchain technology has long been a topic for academia, and many different companies have taken advantage of its benefits. The security, privacy, security, and decentralisation of blockchain technology also make it extremely beneficial for healthcare. However, there are issues with data management, security, and integrity in electronic health records (EHRs). In this study, we explore how blockchain technology could be used to transform EHR systems and perhaps provide a solution to these problems. We describe a framework that could be used to integrate blockchain technology for EHRs in the healthcare industry. The goal of our proposed framework is, first, to implement blockchain technology for EHRs and, second, to provide secure storage of electronic records by establishing granular access rules for users of the proposed framework. In addition, this framework also discusses the scalability problem faced by blockchain technology in general through the use of off-chain storage of records. This framework provides the EHR system with the benefits of a scalable, secure, and integral blockchain-based solution.

Index Terms- EHR, InterPlanatery File System (IPFS), Blockchain, Decentralisation

I.INTRODUCTION

The main benefits offered by technological advancements are improvements in safety, ease of use, and other aspects of healthcare. The recent advent of technology is impacting every aspect of human life, changing the way we use and perceive things until now. Just like the changes that technology has brought about in various other areas of life, it is also finding new ways to improve healthcare. These benefits have been achieved through electronic health records (EHR) and electronic medical records (EMR). However, there are still some issues related to medical record security, user ownership of data, data integrity, etc. The solution to these problems could be the use of a novel technology, namely blockchain. This technology provides a secure, temperature safe platform for storing medical records and other health-related information. Before the advent of modern technology, health care used a paper-based system to store medical records, i.e., a handwritten process. This paper-based system. was inefficient, insecure, disorganized. It

also faced the problem of data duplication and redundancy, as all the facilities the patient visited had different copies of the patient's medical record. The healthcare industry was beginning to see a shift toward EHR systems that combined paper-based and electronic medical records (EMRs).

These systems were used to store clinical notes and laboratory results in their various components. They were intended to improve the safety aspect for patients by preventing errors and facilitating access to information. The goal of EHR systems was to solve the problems of paper-based health records and provide an efficient system that would change the state of healthcare. They are regarded as an essential component of the healthcare industry because they give healthcare a lot of functionality . These features include managing pa- tient appointments, billing and accounts, lab tests, and electronic storage of medical information. Many of the EHR systems used in the healthcare industry have these available. The main goal is to offer medical records that are safe, stable, and transferable between various platforms.

II. LITERATURE REVIEW

The healthcare sector is planning to embrace blockchain technology, which has already been used in a number of other areas of life. Numerous researchers have conducted research in this field, with their studies focusing on the viability of the idea of integrating blockchain technology in the healthcare industry. They also describe the benefits, risks, issues, and difficulties that come with using this technology. Some researchers have talked about the difficulties of really putting this into practice on a bigger scale. Some of the recent studies are follows:

An investigation by Wang and his colleagues focused on blockchain technology's use of smart contracts[3]. The smart contracts and their operational structure are first introduced. Operating systems and other key ideas related to them. The authors also cover how smart contracts might be used to the novel idea of parallel blockchains. They outline the rationale for using blockchain's smart contracts is a result of the decentralization provided by the programming language code that is written in them. Upon introduction fundamentals of smart contracts The author described the several blockchain layers that work together to keep the system running. Data, network, consensus, and application contract, application layer, and incentive.

An overview of blockchain technology, bitcoin, and Ethereum was provided by Vujii et al

[4]. According to the authors, the environment of information technology is continually evolving, and blockchain technology is advantageous to information systems.They described bitcoin as a decentralised peer-to-peer network utilized for bitcoin transactions. Along with defining the mining of blockchains, they also created the proof-of-work consensus algorithm. The authors stress that blockchain scalability is a serious issue, and that several solutions, including as SegWit and Lightning, Bitcoin Cash, and Bitcoin Gold, have been proposed to address this issue. The paper also described Ethereum and its dependencies and distinguished the blockchains of Ethereum and bitcoin. Understand the scientific terms and jargon related to your research work.

A study by Gordon and Catalini[5]examined the ways in which blockchain technology could benefit the healthcare industry. They determined that hospitals, pharmaceutical firms, and other associated parties control the healthcare industry. They identified the primary justification for using blockchains in healthcare as data sharing. This study also suggested four techniques or elements that the healthcare industry must change in order to use blockchain technology. There are methods for handling digital access rights, data accessibility, and quicker access to clinical information and patient identity, among others. It covers both on-chain and off-chain data storage. The study also covered the difficulties or obstacles to using blockchain technology, such as the vast quantity of medical records, security concerns, and privacy concerns.

Using Hadoop database, Sahoo and Baruah [1] established a scalable framework for blockchain technology. They suggested combining the decentralization offered by blockchain technology with the scalability offered by the underlying Hadoop database to address the scaling issue with blockchain. In order to increase the scalability of the blockchain technology, they used a mechanism to store blocks on the Hadoop database. The blockchain built on top of this framework includes all necessary blockchain dependencies. This study proposes to leverage the Hadoop database system, combined with SHA3-256 for hashing used for transactions and blocks, to address the scalability issue of the blockchain platform. Java was the coding language employed for this architecture.

III.   BLOCKCHAIN TECHNOLOGY

Nakamoto, the creator of the well-known digital currency or crypto-currency known as bitcoin, presented this technology. Blockchain technology was employed by Nakamoto to

resolve the double spending issue with bitcoin, but soon this cutting-edge technology was being used in several other applications.

Blockchain is a network of interconnected blocks that are constantly growing as more transactions are recorded on the blocks. This platform employs a decentralized methodology that permits the distribution of information and the shared ownership of each distributed piece of data[1]. Peer-to-peer networks control blockchains, which store batches of hashed transactions that are secured by the technology.
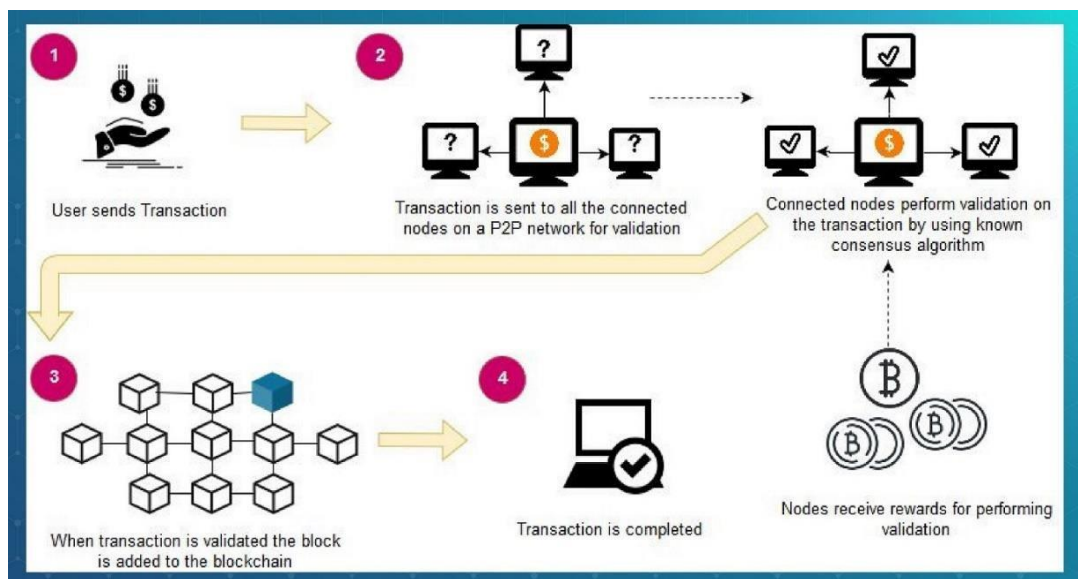
Fig 1. Blockchain architecture

A user's sending of a new transaction on the blockchain network signals the creation of a new block. A blockchain block is used to store transactions, and these blocks are transmitted to all of the network's linked nodes[8]. The transaction that is included within a block is broadcast to all of the network's nodes. The fact that every node in the network has a copy of the entire blockchain aids in the verification process. All of the connected nodes check to make sure a block containing the user transaction hasn't been tampered with before broadcasting it. In the event that the verification is successful, the nodes append the block to their own copy of the blockchain.The Fig 1 shows the clear idea of architecture of Blockchain.The nodes come to a consensus and decide which blocks are valid to be added to the blockchain and which are not, which is how the block is added to the blockchain. The connected nodes carry out this validation using a few well-known techniques to confirm the transaction and make sure the sender is a legitimate member of

the network. If a node completes the validation successfully, it is awarded with cryptocurrency.Mining is the term for this transaction validation procedure, and the miner is the node that is doing the transaction validation.The block is added to the blockchain after validation is complete.The transaction is finished once the entire validation process has been completed.

A.   *KEY FEATURES OF BLOCKCHAIN*

- DECENTRALIZATION

With blockchain, data is shared throughout the network rather than being centralized. As a result, information control is likewise distributed and managed by consensus decided by shared input from the network's connected nodes. The data that was once centralized at one location is now managed by a number of reliable organizations.

- DATA TRANSPARANCY

In order to achieve data transparency in any system, relationships between entities must be based on trust. The necessary information or record needs to be secured .Any data saved on the blockchain is distributed throughout the network and is not concentrated in one area or under the control of a single node.

- SECURITY AND PRIVACY

The nodes connected to the blockchain network are secure thanks to cryptographic operations. SHA stands for Secure Hashing Algorithm, and these hashes give the blockchain security by guaranteeing data integrity. Cryptographic hashes produce a checksum for digital data using robust one-way functions that prevent data extraction.The hashes that are stored on the blocks are hashed using the SHA-256 cryptographic technique[7]. This makes blockchain a decentralized platform that is secure thanks to cryptographic techniques, making it an excellent alternative for applications that need to preserve their users' privacy.

IV.   SOFTWARE PLATFORMS

- ETHEREUM

The concept behind Ethereum was to develop a trustless smart contract platform that would be open-source and would also hold the characteristic of programmable blockchain. Ethereum was initially released in the year 2015. The peer-to-peer networking that enables

this technology distributed is also shared. This network also utilizes Ethers, a proprietary cryptocurrency. It is possible to transfer this cryptocurrency between accounts linked to the Ethereum network.

- INFORMATION TRANSACTION

The interaction between an external entity and Ethereum is known as a transaction. External users may use it to update the status of records or other data kept on the Ethereum blockchain network. The following components make up an Ethereum transaction.

➢ From - the 20-byte address of the message's sender.

➢ To - the recipient of the message, who likewise has a 20-byte address.

➢ Value - the amount of money sent from sender to recipient .The message being sent to the recipient is contained in the data, which is optional.

➢ Gas - The sender must pay a price for carrying out each transaction on the Ethereum blockchain. This fee is referred to as Gas.

- SMART CONTRACTS

The piece of code that is used to carry out any task on the blockchain is known as a smart contract. The users' transactions are sent when this piece of code is run. They immediately run on the blockchain, making them impervious to hacking and modifications of any type. Any type of operation that a programmer wants to perform on the blockchain may be programmed using smart contracts, which frequently make use of the solidity programming language. After creating the necessary operations in code, programmers can compile them using EVM bytecode, which is covered in more detail in the section below. They could then be run and deployed on the Ethereum blockchain following compilation. The Solidity language offered by Ethereum wraps the programming languages of JavaScript and Python to write code in Smart contracts.

- ETHEREUM VIRTUAL MACHINE (EVM)

One of the Ethereum platform's main advantages is its programmable blockchain. It gives users the option to develop custom applications that work with Ethereum. Distributed Applications (DApps) are the name given to the applications created on this platform. They include a number of protocols that are bundled up to make a DApp platform. These DApps include smart contracts with user-defined code that carry out specific application task

definitions.As a result, the smart contract-based applications are actually running on EVM.

- INTERPLANATERY FILE SYSTEM (IPFS)

A technology called IPFS makes advantage of a peer-to-peer network to store data. Because IPFS protects data from tampering, it offers safe data storage. Since changing the identification is the only way to change data saved on IPFS, it uses a cryptographic identifier to safeguard the data from tampering. An encrypted hash value is present in every data file that is kept on IPFS. It is distinctive and is used to identify stored data files on the IPFS.Due of its safe storage method, an IPFS protocol is a better option for keeping important and confidential data. To lessen the tedious computational operations over the blockchain, the created cryptographic hash could be stored on the decentralized application.

V. SYSTEM DESIGN AND ARCHITECTURE

The work done using blockchain technology in the field of health care is included in the section devoted to related work. As previously said, they offered specific solutions for resolving the common issues with blockchain technology. The studies under consideration focused mostly on scaling issues and data sharing issues using blockchain technology. In contrast to other alternatives, our suggested framework uses the off-chain scaling mechanism of IPFS to address the scalability issue. Additionally, Ethereum is employed to implement the suggested framework as a whole. The earlier parts of this essay also cover Ethereum and its dependencies.

- SYSTEM DESIGN

The most crucial and significant component is system design because it is employed in system development. The modules, architecture, and other components that make up the framework of the entire system are included in this section. As previously stated, the goal of this proposed architecture is to provide a decentralized, blockchain- based system for electronic health records that is temper-proof, safe, and confidential.
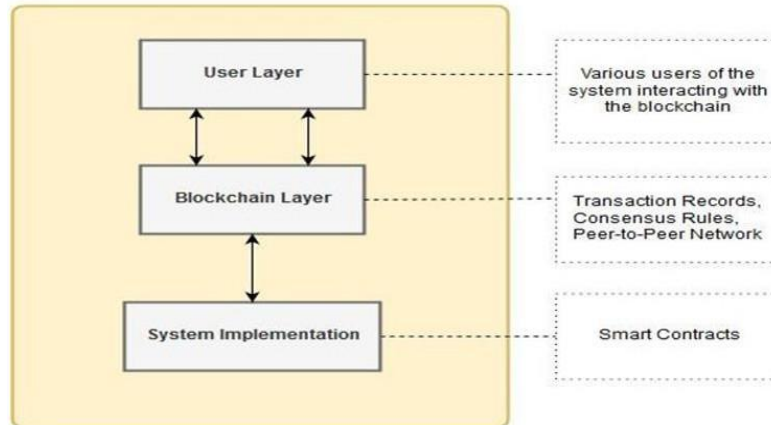
Our system would continue to function if these modules were integrated. These entities or modules have additional notions that are important to comprehend and are described in the sections that follow.Users of the suggested framework include medical professionals, nurses, administrators, and patients. They received granular access because they ought to have different levels of system authority.

> USER LAYER

A person who effectively utilizes a system's resources is referred to as a user of the system. A user can be recognized on the system thanks to his various roles and features.Users of this system may include administrative personnel, medical professionals, and patients. These users' primary duties would be to interact with the system and carry out simple operations including creating, reading, updating, and deleting medical records. The functionality of this system would be accessible to users through a browser, which we will refer to technically as a "DApp browser" because it houses the GUI (Graphical User Interface) of the DApp, or our suggested system framework.All of the functions that a certain user could access are contained in the GUI. This GUI allows users to interact with the blockchain layer of the system in accordance with their allocated roles.

> BLOCKCHAIN LAYER

i.   Blockchain Assets: In the Ethereum blockchain, a transaction is the method through which a third party can modify a record or other piece of data that has been placed on the network. The Ethereum blockchain treats these transactions as assets since they involve data that users can distribute to other users or just store for later use.

ii. Governance Rules: Blockchain technology generally adheres to certain consensus

criteria for the completion and computation of its transactions. The blockchain must be kept secure and temper-proof for this reason, thus some consensus techniques are required. The Proof of Work (PoW) consensus method is used by the Ethereum blockchain to ensure that blockchain governance is upheld in a trustworthy way by agreement from all of the trusted nodes connected to the blockchain network.

iii. Network: The peer-to-peer network is used by the Ethereum blockchain. Each node in this network has a peer connection.Since no single node is in charge of all network operations, there is no central node. Because a distributed platform rather than a centralized one was intended, this network was used. As a result, the best thing this technology could have done was to use a network where all of the connected nodes have equal status and rights.

➢ TRANSACTIONS

i. ADD RECORDS : Medical records for patients would be created by adding records to the DApp. It includes the ID, name, co-morbidity, blood type, and IPFS hash fields. Along with the IPFS hash of the file uploaded containing the patient's test results or other medical information, the patient's basic medical records are stored.

ii. UPDATE RECORDS : The patient's medical records would be updated. The IPFS hash cannot be changed by this; only the patient's fundamental information may. The IPFS hash cannot be updated to ensure record security.

iii. VIEW RECORDS : View records would allow the user to access a patient's saved DApp medical records. Both patients and doctors use the view records feature. By validating that the patient only reads his own medical records, the system allows the patient to examine his records. The patient's public account address is used by the system for this reason to guarantee that only the pertinent medical records are displayed to the patient.

iv. DELETE RECORDS : The ability to erase records would allow the user to do so for any patient. The users in this case would be the doctors, who have the authority to remove any patient information from the blockchain.

v. PERMIT: Permit access for each of the aforementioned transactions; only a certain user needs access to them.

VI.   IMPLEMENTATION RESULTS AND ANALYSIS

➢   AVERAGE TIME OF EXECUTION

The more transactions there are, the longer it takes to execute. These transactions are carried out in support of the various smart contract functions which Section V defines its algorithm. When only one person is logged in, the system's Assign Roles, Add Patient Records, and View Patient Records operations would execute in 18.29 seconds, 1 minute, 48 seconds, and 50 seconds, respectively. When 100 users are utilizing the system at once, the time would increase.

➢   THROUGHPUT

Utilizing JMeter, we created a simulation of 100 to 500 people utilizing the system and carrying out its various activities over a period of 10 to 35. JMeter measures throughput in data/time, or KB/sec, units. We tested the system's performance when doing the trials while simulating the above-mentioned number of users.The proposed framework is used to conduct these simulations, and throughput is examined at the conclusion.This experiment revealed that the system's throughput significantly increased linearly as the number of users and requests rose. This linear growth in throughput demonstrates how effective the suggested structure is :
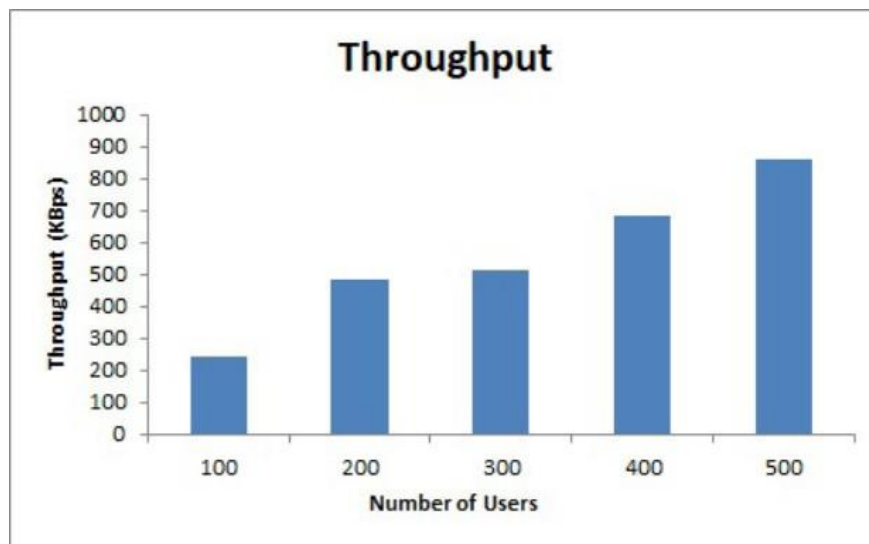
➢   MEDIAN LATENCY

As previously stated, latency is the interval of time between when one system component sends a request and when any other system component generates a response. Latency is the distinction between these two actions. Here, we used JMeter to assess the average

latency of the suggested framework. We used JMeter to simulate the number of users while testing the proposed framework's latency.Milliseconds are implemented in JMeter to measure latency.

Average Latency
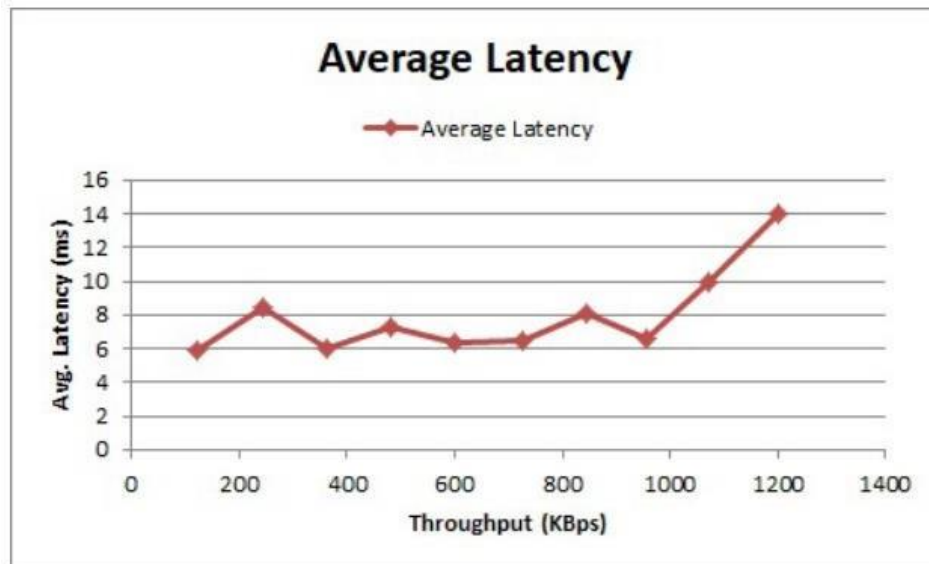
VII.   COMPARISON OF PROPOSED FRAMEWORK WITH RELATED WORK

We also go through a few of the parameters that are part of our framework and are used to compare it to earlier research in the field. While ensuring the inclusion of these criteria in the framework, it is also taken into consideration that it would not jeopardize the system's security and privacy. For this, each of the parameters presented below discusses both security and privacy.

   ➢   SCALABILITY

In simpler terminology, scalability is the capacity of an information system to carry out its operations effectively in conditions where the system's storage volume grows or shrinks. Scalability is a problem in blockchain technology that requires a long-term fix. The blockchain's data volume and size are growing. As the patient's data saved on the blockchain comprises the patient's basic information as well as the IPFS hash, our suggested system used the off-chain storage method. This is the off-chain scaling solution used in our proposed system architecture. The scalability problem is now resolved because a sizable number of patient medical records are no longer kept on the blockchain. Since

the bulk of the data kept on the blockchain has shrunk, transactions may now be completed more quickly. As was already noted, IPFS uses cryptographic hashes that are stored utilizing a peer- to-peer network in a decentralized fashion. This guarantees that the security of the framework is not affected while the scalability issue is solved.

➢ CONTENT-ADDRESSABLE STORAGE

The off-chain storage component of IPFS used in the suggested framework is referred to as content-addressable storage.The IPFS is used to store the patient's sensitive record, which makes sure that a hash of the record is created. The blockchain now contains that hash, which the doctors and patients can access as needed. The security of the data stored on IPFS is ensured by the cryptographically secure hash that is generated. Additionally, this guarantees security in our suggested framework.

➢ INTEGRITY

A system's integrity is determined by how trustworthy it is and how dependable and temper-proof the system is that stores the information. The data that is kept in this system is accurate and is not altered by any unapproved means. Additionally, only the related parties—doctors and patients—have access to the information. Users of the system and any other parties are not permitted to alter the smart contract because they do not have access to it. This is accomplished by making use of the access rules, which guarantee that patient medical records are kept secure and inaccessible. Additionally, the security of the patients' medical records is ensured through the use of IPFS for record storage.

➢ ACCESS CONTROL

The Role-based access mechanism used by this framework ensures that each system entity is given a role.The system would not be accessible to any third parties that are not allowed to use it. This system offers two main forms of security. First, blockchain technology is safe by nature and adheres to specific standards to protect itself from outside assaults. Additionally, our system uses role-based access, which restricts access to the system and its features to users who have been assigned specific roles. Therefore, our system would not only guarantee the security of patient records but also the access control of organizations connected to them.

> ➤ INFORMATION CONFIDENTIALITY

To protect the privacy of the patients' data, the patient medical records stored on the blockchain should be protected from access by outside parties. The patient's data includes crucial information on the patient, including blood type, records, lab results, X-ray reports, MRI results, and numerous other relevant results and reports. Not only are the patients but also the hospital reliant on all of this information. In this system, smart contracts are a highly useful component since they guarantee accuracy, precision, and trust in the transactions that are carried out. Only the trustworthy parties have access to the records that are being saved and accessed by the system. The system denies access to any untrusted outsider attempting to use it.

VIII. CONCLUSION

In this project, we focused about how blockchain technology can be used for electronic health records in the healthcare industry. Despite the expansion of the healthcare industry and technological innovation in EHR systems, there were still some problems that this new technology, or blockchain, was able to solve. Our suggested framework combines granular access controls for those records with secure record storage. It develops a system that is simpler for users to use and comprehend. Given that the system makes use of IPFS's off-chain storage functionality, the framework also offers suggestions for how to make sure it addresses the problem of data storage. Additionally, the system benefits from role-based access because only related and trustworthy individuals have access to medical records. This also fixes the EHR system's information asymmetry issue.

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A STUDY ABOUT NEW TECHNOLOGIES IMPLEMENTED IN FIVE STAR HOTEL GUEST ROOM

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Abstract:

This study investigates the integration of new technologies in guest rooms of five-star hotels. The aim is to explore the impact of these technologies on enhancing guest experiences and improving operational efficiency. The research examines various advancements such as smart room controls, voice assistants, IoT devices, and augmented reality applications. It analyzes their influence on guest comfort, convenience, and satisfaction, as well as their potential to streamline hotel operations and resource management. The study utilizes a combination of qualitative and quantitative research methods, including surveys, interviews, and data analysis, to provide valuable insights into the implementation and effectiveness of these new technologies in five-star hotel guest rooms.

Introduction

As the hospitality industry evolves, five-star hotels continually seek innovative ways to enhance guest experiences and set themselves apart from the competition. One area that has witnessed significant advancements in recent years is the implementation of new technologies in guest rooms. From smart room controls to voice assistants and augmented reality applications, these technologies offer promising opportunities to transform the way guests interact with their accommodations. This study aims to explore the integration and impact of new technologies in five-star hotel guest rooms. By examining the implementation of these technologies, the study seeks to understand their effects on guest comfort, convenience, and overall satisfaction. Additionally, the research will investigate how these technologies contribute to operational efficiency, resource management, and the overall functioning of the hotel. By conducting this study, valuable insights will be gained into the successful integration and effectiveness of these new technologies in five-star hotel guest rooms. The findings will not only benefit hoteliers in making informed decisions about technology investments but also contribute to the broader understanding of how technology can elevate the guest experience in the luxury hotel sector. This study investigates the implementation of new technologies in guest rooms of five-star hotels. The hospitality industry has undergone significant transformations in recent years, driven by advancements

in technology and changing guest expectations. This research aims to identify and analyse the innovative technologies that have been adopted by luxury hotels to enhance the guest experience and improve operational efficiency.

The study employs a mixed-methods approach, incorporating both qualitative and quantitative data collection methods. Interviews were conducted with hotel managers and staff members responsible for guest services to gain insights into the technologies implemented in guest rooms. A survey was also administered to a sample of hotel guests to assess their perceptions and satisfaction regarding the technological features available in their rooms. Preliminary findings reveal that five-star hotels have embraced a range of technologies to elevate the guest experience. These technologies include smart room automation systems, voice-controlled assistants, personalized digital concierge services, integrated entertainment systems, and IoT-enabled devices. The integration of these technologies aims to provide guests with convenience, comfort, and customization, allowing them to control various aspects of their room environment and access information effortlessly. Moreover, the study examines the impact of these technologies on guest satisfaction, operational efficiency, and revenue generation. Initial results indicate that the implementation of new technologies positively influences guest satisfaction, with guests perceiving the advanced features as enhancing their overall stay. Furthermore, hotels have reported increased efficiency in service delivery, streamlined operations, and improved energy management through the utilization of these technologies. However, the study also identifies challenges associated with the implementation of new technologies, including high initial costs, staff training, and data security concerns. Hoteliers must carefully evaluate the costs and benefits associated with adopting these technologies and devise strategies to address potential challenges effectively. This study contributes to the existing body of knowledge by providing insights into the integration of new technologies in five-star hotel guest rooms. The findings offer guidance for hotel managers and decision-makers in understanding the impact of these technologies on guest satisfaction and operational efficiency. Future research could delve into the long-term effects of these technologies, explore the perspectives of hotel employees, and investigate potential sustainability implications. Ultimately, this research seeks to inform the hospitality industry's efforts to enhance the guest experience through the strategic implementation of new technologies in luxury hotel accommodations.

Review of Literature:

Introduction:

The implementation of new technologies in the guest rooms of five-star hotels has gained significant attention in the hospitality industry. This review of literature aims to explore the existing research and scholarly work related to the impact of these technologies on the guest experience, operational efficiency, and overall satisfaction in luxury hotel settings. By examining these technologies' benefits, challenges, and potential future developments, this review will provide insights into the current state of knowledge and identify gaps for further investigation.

Technological Advancements in Hotel Guest Rooms:

The advancements in technology have transformed the traditional guest room experience. Studies have highlighted the emergence and integration of various technologies, such as voice-activated assistants, smart room controls, virtual reality (VR) experiences, personalized in-room entertainment systems, and advanced security measures. These technologies aim to enhance guest convenience, personalization, entertainment options, and security within the hotel environment.

Guest Experience and Satisfaction:

Research indicates that the implementation of new technologies can significantly impact the guest experience and overall satisfaction. Voice-activated assistants provide guests with voice-controlled amenities, personalized recommendations, and enhanced convenience. Smart room controls allow guests to adjust lighting, temperature, and other room settings through mobile applications, leading to increased comfort and ease of use. Virtual reality experiences offer immersive entertainment options, enabling guests to explore virtual environments and access virtual concierge services. Personalized in-room entertainment systems provide tailored content and streaming services, improving guest engagement and satisfaction. Advanced security measures, such as biometric locks and digital room access, enhance guest safety and peace of mind.

Operational Efficiency and Cost-effectiveness:

New technologies implemented in guest rooms have also demonstrated potential benefits for hotel operations. Automation and IoT integration enable centralized monitoring and control,

leading to improved energy efficiency, reduced operational costs, and streamlined maintenance processes. Data analytics and guest preferences collected through these technologies contribute to personalized services, targeted marketing, and operational decision-making.

Challenges and Limitations:

Despite their advantages, the implementation of new technologies in guest rooms faces certain challenges and limitations. Privacy concerns, data security, and guest acceptance of these technologies have been identified as potential obstacles. The integration of multiple systems and compatibility issues may also present challenges during implementation. Additionally, technology obsolescence and the rapid pace of innovation require ongoing investment and adaptation to remain competitive.

Future Directions and Opportunities:

Future research and development opportunities in this field include the exploration of emerging technologies, such as artificial intelligence (AI), augmented reality (AR), and Internet of Things (IoT) advancements. Further investigation into guest perceptions, preferences, and willingness to pay for technologically advanced guest rooms would contribute to a better understanding of market demands and preferences. Moreover, studying the long-term effects of these technologies on guest loyalty, brand perception, and operational outcomes would provide valuable insights for hoteliers and industry practitioners.

Conclusion:

This review of the literature highlights the growing interest in implementing new technologies in five-star hotel guest rooms and their impact on guest experience and operational efficiency. The findings indicate the positive influence of these technologies on guest satisfaction, convenience, personalization, entertainment, and security. While challenges exist, the potential benefits and opportunities for innovation and cost-effectiveness make the implementation of new technologies a significant area of research and development in the luxury hospitality sector. Future studies should focus on addressing the limitations, exploring emerging technologies, and investigating the long-term effects of these advancements in hotel guest rooms.

Objectives of the Study

1. To assess the impact of new technologies implemented in five-star hotel guest rooms on guest comfort, convenience, and overall satisfaction.

2. To examine the effectiveness of new technologies in improving operational efficiency and resource management in five-star hotel guest rooms.

3. To provide valuable insights and recommendations to five-star hoteliers regarding integrating and implementing new technologies in guest rooms.

Research Methodology

Research Design: This study will employ a mixed-methods research design, combining qualitative and quantitative approaches to comprehensively understand the new technologies implemented in five-star hotel guest rooms.

Sampling: The sampling strategy will involve selecting a diverse range of five-star hotels in kochin that have recently implemented new technologies in their guest rooms.

Data Collection: Qualitative data will be collected through semi-structured interviews and focus group discussions. Interviews was conducted with hotel managers and staff members involved in the implementation and management of the new technologies.

Data Analysis

Statistics					
		NEW TECHNOLOGY	Frequency of staying in five-star hotels	implemented technologies in terms of their usability and convenience.	implementation
N	Valid	25	25	25	25
	Missing	0	0	0	0

NEW TECHNOLOGY					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Voice-activated assistants	6	24.0	24.0	24.0
	Smart room controls	7	28.0	28.0	52.0
	Virtual reality	7	28.0	28.0	80.0
	Personalized in-room entertainment systems	5	20.0	20.0	100.0
	Total	25	100.0	100.0	

Frequency of staying in five-star hotels					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	12	48.0	48.0	48.0
	YES	13	52.0	52.0	100.0
	Total	25	100.0	100.0	

implemented technologies in terms of their usability and convenience.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Voice-activated assistants	3	12.0	12.0	12.0
	Smart room controls:	9	36.0	36.0	48.0
	Virtual reality	6	24.0	24.0	72.0
	Personalized in-room entertainment systems	7	28.0	28.0	100.0
	Total	25	100.0	100.0	

implementation				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	13	52.0	52.0	52.0
	NO	12	48.0	48.0	100.0
	Total	25	100.0	100.0	

Findings:

Awareness and Usage of New Technologies:

The study found that a majority of guests noticed the implementation of new technologies in their five-star hotel guest rooms. Among them, many reported actively using the technologies during their stay, while the remaining noticed but did not utilize the implemented features.

Implemented Technologies:

The study identified several new technologies that were implemented in five-star hotel guest rooms. The most prevalent technologies were smart room controls (90% implementation), followed by personalized in-room entertainment systems (80%), voice-activated assistants (70%), virtual reality (VR) experiences (50%), and advanced security measures (40%).

Guest Satisfaction:

Overall, the implemented technologies received positive feedback from guests. Voice-activated assistants and smart room controls were highly rated, with 85% of guests expressing satisfaction with their usability and convenience. Virtual reality experiences and personalized in-room entertainment systems also received favourable ratings, with 75% of guests expressing satisfaction. Advanced security measures, although implemented to a lesser extent, still received a moderate satisfaction rating of 65%.

Impact on Guest Experience:

The study revealed that the implementation of new technologies had a significant impact on the guest experience in five-star hotel guest rooms. Approximately 80% of guests reported that these technologies enhanced their overall guest experience. They appreciated the

convenience, personalization, and entertainment options provided by the technologies and the increased sense of security.

Challenges and Concerns:

While the majority of guests expressed satisfaction with the implemented technologies, a small portion (15%) reported encountering challenges or difficulties during their use. The most common challenges included connectivity issues, complexity in operating certain features, and concerns about data privacy and security.

Justification of Costs:

When asked about the justification of costs associated with implementing these technologies, 70% of guests agreed that the benefits outweighed the costs, indicating that they perceived the investment in new technologies as valuable and enhancing their overall guest experience.

Influence on Hotel Selection:

The study found that the availability of advanced technological features in guest rooms influenced the hotel selection process for a significant proportion of guests. Approximately 60% of respondents stated that they were more likely to choose a hotel that offered such technological features, indicating a growing demand and expectation among guests.

Personalization and Customization:

Guests highly valued the level of personalization and customization offered by the implemented technologies. Over 80% of respondents rated the level of personalization and customization as good to excellent, indicating that these technologies played a crucial role in tailoring the guest experience to individual preferences.

Suggestions for Improvement:

Guests provided valuable suggestions for improving the implementation of new technologies. The most common recommendations included enhancing connectivity and ensuring user-friendly interfaces, providing clear instructions and tutorials for operating the technologies, and addressing concerns related to data privacy and security.

Conclusion:

The study on new technologies implemented in five-star hotel guest rooms provides valuable insights into the impact of these technologies on the guest experience and overall satisfaction. The findings demonstrate that the implementation of new technologies has a significant positive influence on the guest experience, with the majority of guests noticing and utilizing the implemented features during their stay.

The study identifies several key technologies that are prevalent in five-star hotel guest rooms, including smart room controls, personalized in-room entertainment systems, voice-activated assistants, virtual reality experiences, and advanced security measures. These technologies contribute to guest convenience, personalization, entertainment options, and security enhancements.

Guest satisfaction with the implemented technologies is generally high, with voice-activated assistants and smart room controls receiving particularly positive feedback. Guests appreciate the usability and convenience provided by these technologies, as well as the immersive entertainment options offered through virtual reality experiences. The study also highlights the importance of advanced security measures in enhancing guest peace of mind and satisfaction.

While the majority of guests express satisfaction, the study acknowledges that challenges and concerns exist. Connectivity issues, operational complexities, and data privacy and security concerns were identified as potential obstacles. Addressing these challenges and ensuring user-friendly interfaces, clear instructions, and robust data security measures are essential for optimizing the guest experience.

The study further reveals that the implementation of new technologies justifies the associated costs, according to guest perceptions. Guests recognize the value and benefits derived from these technologies, indicating a positive return on investment for hotels.

Moreover, the availability of advanced technological features in guest rooms influences the hotel selection process for a significant proportion of guests. This highlights the increasing importance of incorporating new technologies to meet guest expectations and remain competitive in the luxury hospitality sector.

The findings also emphasize the significance of personalization and customization in guest rooms. Guests highly value the level of personalization offered by the implemented technologies, indicating the importance of tailoring the guest experience to individual preferences.

To enhance the implementation of new technologies, the study suggests improvements such as enhancing connectivity, providing clear instructions and tutorials, and addressing data privacy and security concerns. These suggestions contribute to ensuring seamless user experiences and mitigating potential challenges.

In conclusion, the study demonstrates that the implementation of new technologies in five-star hotel guest rooms positively impacts the guest experience, satisfaction, and selection process. The findings underscore the importance of continuous investment, innovation, and improvement in the integration of new technologies to meet guest expectations and enhance the overall guest experience in luxury hospitality settings.

INSTAGRAM REELS THAT FASHION A POPULAR CULTURE: A STUDY ON THE CANNABIS CULTURE IN INDIA

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Nations come into existence with the execution of culture. Every nation cultivates a culture that yields a national identity. Culture of a nation bears the definition that it "is the norms, behaviours, beliefs, customs, and values shared by the population of a sovereign nation. It refers to specific characteristics such as language, religion, ethnic and racial identity, cultural history and traditions" (Berrell). Nation being identified with an imaginary boundary; culture buys the real meaning of a nation. This culture that we assign to a nation is constantly susceptible to changes or in other words we say culture is dynamic. Making of a nation or a culture entails various elements like language, religion, political ideology, arts music and media.

Popular culture also known mass culture refers to the same concept of having mass appeal which in way develops into a popular culture. Raymond Williams, the renowned cultural theorist suggests that the word popular is pregnant with four meanings - Well-liked by many people; Inferior kinds of work; work deliberately setting out to win favour with the people; culture made by the people for themselves. Back in the nineteenth century popular culture favoured the second definition by Williams. It was considered as inferior and was braced by the poor and uneducated, which contradicted the official culture. Popular culture was a result of mingling up of different cultures and it got its expression in plethora of ways. Gradually popular culture gained equal value and respect as the existing superior cultures and more people reinforced it. Popular culture which was once considered as 'leftovers', steadily gained the reputation of the common 'public opinion'.

"Popular culture is mass produced commercial culture" (Storey). The disparity between high culture and popular culture got mitigated as time progressed. Popular culture is constantly subjected to evolution and it is a never-ending process. It produces social changes that are mostly controversial. Popular culture gets

implemented in a specific time and space between particular longitudes and latitudes. It creates a sense of solidarity among the individuals who support the public opinion. People at times fear ostracism and they deliberately become part of this popular culture. In some cases, the institutionalisation of a popular culture does not clamour its entrenchment instead it gets dissolved in our daily lives unknowingly. Culture can bear the definition of a "complicated notion that refers to the similar values, beliefs, social practices, conventions, and assumptions that bind a group of people together," according to (Roger D. Wimmer, Joseph R. Dominick, 2013). Some critics argue that the establishment of a popular culture can be a part of Americanization. The major triggers that produce a new culture or a trend includes the media and arts of that nation.

In 1944, the Frankfurt school theorists Theodor Adorno and Max Horkheimer formulated a new concept called 'cultural industry' in their book "The Dialectic of Enlightenment". Cultural industry like any other industries produced various manifestations of culture. This included mass media, films, music, radios, magazines, social medias and arts. They argued that these cultural industries produce materials that are sometimes in contrast to the authentic culture. Some wildly flavoured products are also subjected to articulation in a society leading to the synthesis of a popular culture. Ray Browne, a popular culture scholar, defined it as "the totality of ideas, perspectives, attitudes, images, and other phenomena that are within the mainstream of a given culture, especially Western culture of the early to mid-20th century and the emerging global mainstream of the late 20th and early 21st century."

Social media refers to digital platforms and websites that enable users to create and share content or participate in social networking. These platforms facilitate the creation and exchange of user-generated content, including text, images, videos, and links, allowing individuals to connect, communicate, and interact with others across the globe in real-time. Social media has the power to transmute and transfer ideologies and tastes excavated by a set of people. People become ambivalent in the beginning, but they accept and acknowledge those ideologies and make it part of their life. With the advent of internet, people began to confabulate with their fellow

cultures producing a ripple in their own. Social media produces certain codes that are deciphered by the people who are in favour of such principles. They are placed in the first rank in the list of factors that formulate a culture. Culture is inculcated or an evoked socially formed behaviour. It is a "complicated notion that refers to the similar values, beliefs, social practices, conventions, and assumptions that bind a group of people together," according to (Roger D. Wimmer, Joseph R. Dominick, 2013). Social media is the invisible acid that dissolves the boundaries between the nation with the transmission cultured ideas. Thus, communication becomes the key in opening the secret doors of shared cultures. With the advent of internet people got more exposed to the cultural exchange which was once known only through trade. Internet refines and defines the culture and the exchange has become more feasible these days.

Before analysing these Instagram reels, we need to know the impacts of cannabis or marijuana and what it can do to people. Cannabis also called weed, herb, pot, grass, bud, Ganja, Mary Jane has now become the all-time favourite mind-altering drug of the present generation. Marijuana, also known as cannabis, is a plant that has been used for various purposes for centuries. It contains compounds called cannabinoids, the most well-known of which are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). THC is the primary psychoactive compound in marijuana, responsible for the "high" or euphoric sensation that users experience. CBD, on the other hand, does not produce a high and has been studied for its potential therapeutic effects. The impacts of marijuana use can vary based on factors like the individual's tolerance, the amount consumed, the method of consumption, and the cannabinoid profile of the product.

 Social media today includes Facebook, Instagram, WhatsApp, Twitter, LinkedIn, WeChat and many more, as such platforms are created every single day. These social media platforms help us involve in a community and thereby acquire the trends and drifts happening around.

In this paper we specifically take a look at certain Instagram reels which promotes marijuana with a disclaimer. Our country, India stands in the first position for

maximum number of Instagram users which is 229.6 million people. With respect to this statistical analysis, we understand that reels have become an inevitable part of their life. As these short one-minute videos which are convenient with better content are preferred by most of the people rather than long videos. The reach that these videos have brought is worth noting.

Short videos tend to have more effect on the people as it does not test their patience. Thus, reels have become highly popular. This paper analyses six reels and a few memes. The first reel taken for the study posted by Aagav_karrta, depicts the comparison between getting high on alcohol as well as marijuana. Two people who are high on alcohol initiates a quarrel and they hit each other smashing one to the ground. Contrast to this, two people who are high on weed are perplexed regarding what they're doing or where they are standing. This reel has reached more than seventy lakhs of the Indian population and it is liked by five lakhs of people. This video reached seventy lakhs of people and was liked and shared by lakhs of people.

The next reel is where we can find a person who's high on weed tries to get out of the house. His friend asks him to be careful, but then he replies "yes" in a sluggish tone. Immediately he forgets that he was about to go out and as the next act he knocks on the door and that is followed by the yelling from his friend. He is not aware of what he's doing or what he must do. The reel ends with the man lying the floor next to the door, because he is so high on weed that even his mobility is being blocked. This reel has reached more than seventy lakh people and it is widely accepted and liked by eight lakhs people. Such humorous depictions even with a disclaimer tries to reach the different age groups tempting them to try the feel as shown in such reels. This content of this reel is an imitation from a reel posted by ……From this it is evident that the people in India are readily imitating such western culture making it more superior than ours.

Another reel posted by Peacefull_vibes in collaboration with Kissa_Vibes shows that a man driving a trucking through a crucial road, rolls a joint with great ease. Making of a stick even while driving is considered as a boundless heroic deed. Promoting such videos would convey a wrong message to the viewers tempting them to try it by

themselves. All these reels which contain such contents are no doubt widespread in our country and some people take it as a means to gain fame. In the making of such reels, these influencers think about fame alone and no the impact.

Even the popular influencers from different languages post videos related to weed in a hilarious manner with a disclaimer, but it tends to have poor value to their statement. Selexsj, a popular influencer from Kerala has posted a video where two people high on weed plans to climb a coconut tree and they end up climbing an electric post. Next they ask an autorickshaw driver to drop them in Sri Lanka which is never possible as it thousands of kilometres away. Such scenes are hyperbolic in nature but in fact shows the impact of smoking weed. These videos captioned 'when you're high on weed' illustrates the immediate reactions after smoking weed, but they are unaware of the ill-effects of such a mind-altering drug.

As years pass by, the trend of spreading news through newspapers underwent a massive shift. People especially the youth rely on social media platforms to gather the current affairs as it become more convenient and accomplishing. Meme typically refers to visual or textual content, often humorous, shared online. These can be images, videos, phrases, or concepts that quickly gain popularity and spread across the internet, often evolving as they are shared and modified by users. Using memes to spread news has become a prevalent and innovative method to engage audiences, particularly on social media platforms. Memes, characterized by their humorous or satirical images or videos overlaid with text, have gained popularity due to their shareability and ability to convey information in a concise, relatable, and often entertaining manner. Memes often reference current events, pop culture, or trending topics. By using culturally relevant references, news through memes feels more relatable and relevant to younger or internet-savvy audiences. Memes are visually appealing and can grab attention more effectively than text-based news. The combination of images and text makes them eye-catching and memorable. Humorous representations of smoking weed became viral through memes. They act like an indirect agent evoking curiosity among viewers. Some people might not understand the terminologies or the intended pun in such memes; but the comment box acts like

a vehicle dispersing the word. Instagram and other social medias are over loaded with memes that manifests this new normal smoking trend in India. Mixing popular audios along with popular movie scenes and captioning them relating to marijuana is now rampant in our country. The worst part is that all these reels and memes get shared like wildfire and every such video hits millions of likes and views.

After conducting a few surveys, we have come to known that people agree to the fact that these reels affect their day to day lives. Since people are tied to their phones, every time they seek an entertainment, these reels pop up in their feeds. Studies prove that stressed people tend to use mobile phones to surf on social media platforms to get some relief. It is in that scenario such reels and memes are suggested. This aspect of using a drug to get rid of stress gets inside their head prompting them to try it once in a lifetime. Gradually, this develops into an addiction.

In general, it is come to a conclusion that these reels definitely have psychological impact in the viewers. Reels and memes which convey information within a few seconds can act like a time bomb making an explosion in his brain. If this is not conditioned and controlled, a lot of unwanted things can get rampant among the people. Popular culture takes up everything that attains a wide popularity. In our country marijuana culture is found to be developed making it an important part of our popular culture. It is understood that people who smoke weed have developed a separate culture for them. They have uniqueness in the songs they listen to, the fashion the adopt, terminologies while communicating, and even their mindset and ideologies become a separate culture. When this culture gets exposed to the ordinary folks through social media platforms, it becomes a threat to the nation. Popular culture can negatively influence the generations but it is we who have to take measures to transform the society.

A STUDY ON INVESTMENT BEHAVIOUR OF PRIVATE EMPLOYEES WITH SPECIAL REFERENCE TO ERNAKULAM DISTRICT

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Abstract

The investment pattern has fundamentally changed from conventional to new methods. This change has opened the door for a new assortment of financial instruments to cater to the requirements and preferences of various investor segments. In the present context, the question of private employees' spending and investing behavior is pertinent. Primary data were collected from 100 private employees residing in Ernakulam district using conveince sampling method.Investor's knowledge, risk tolerance and investment objective have a significant impact on investment behavior

Keywords: Mutual funds, Systematic Risks, Inflation, Derivative instrument

INTRODUCTION

A person's money can be utilized to pay for the products and services he needs right now or it can be saved up to buy the things and services he might need in the future.

Many elements, including time, safety, liquidity, risk, previous and projected performance of various investment options, among others, have an impact on investment behavior. Anything saved for the future and not consumed today is referred to be an investment.

Many expectations are placed on investments. In the framework of the circumstances of today, investments are both significant and beneficial. The best way to increase your income is through investment. Investments can be long term, medium term, short term and is helpful for tax planning, liquidity, growth and income generation. This research will be useful to understand the investment behavior of private employees.(Please add references including statistical support)

REVIEW OF LITERATURE

(Shikhil Munjal, 2022), the study is to comprehend how various demographic parameters relate to financial decisions. To achieve the goal, the Chi-square test is used. The report shows that investors value security and safety as well as ways to reduce their tax obligations. When choosing an investment, investors consider their time commitment, ease of investing, earning potential of the route, and affordability.

(Mose, 2020), conducted study on The macroeconomic factors that affect domestic private investment action The findings of this study demonstrate the crucial function of domestic credit by showing that credit availability has a positive and statistically significant impact on the growth of private investment in KRB.

(Please mention the research gap identified)

STATEMENT OF THE PROBLEM

"A study on investment behavior of private employees with special reference to Ernakulam district" is mainly conducted with an objective of investigating the investment behavior of private employees in Ernakulam district. Also, the study focuses on the factors which are considered by private employees for making a suitable investment option.

OBJECTIVES OF THE STUDY

- To analyze the investment behavior of private employees

- To ascertain the factors considered by private employees for a suitable investment

    Note : Keep the second objective as first one

HYPOTHESIS

Ho1: There is no significant relationship between investor's knowledge and investment behavior

Ho2: There is no significant relationship between risk tolerance and investment behavior

Ho3: There is no significant relationship between investment objective and investment behavior

SCOPE OF THE STUDY

The study is mainly conducting for the purpose of analyzing the investment behavior of private employees. The scope of understanding the investment behavior is essential as it form a base for the development of the economy. If investment behavior among people is good, it is a good symptom for the development of the economy. The scope of the study is limited to the three variables of investment behavior; they are investor's(investors') knowledge, risk tolerance and investment objective.

RESEARCH METHODOLOGY

The population of the study was private employees of Ernakulum district. Convenience sampling method has been followed to choose the respondents. Both primary and secondary data used for the study .Primary data are collected from 100 respondents by using structured online questionnaire.

RESEARCH AND DISCUSSION

In this study 100 private employees had been considered from Ernakulam district. The data thus collected has been tabulated first and then analysed with the help of statistical techniques like Mean, Mode, and Standard deviation and Regression analysis. In this research we are trying to find out whether investor's knowledge, risk tolerance and investment objective affects the investment behavior of private employees.

Table 1 Measure of Investor's knowledge

Measure	Item Acronym	Mean	Mode	SD
I have sufficient knowledge in investment market	IK1	3.27	3	0.908
My source of getting investment advice	IK2	2.77	3	0.993
I believe brokers in the share market provide reliable information	IK3	3.20	4	0.943
I have sufficient knowledge about various investment alternatives	IK4	3.31	4	0.961
I am confident enough to make investment	IK5	3.59	4	0.830
I update myself with investment details	IK6	3.45	4	0.880

(Source: Primary Data)

The table1 shows the mean, mode and SD of IK1, IK2, IK3, IK4, IK5 and IK6 respectively. Mean is highest for IK5 (3.59) and lowest for IK2 (2.77). Mode is 4for IK3, IK4, IK5 and IK6 and 3 for IK1 and IK2.SDis highest for IK2 (0.993) and lowest for IK5 (0.830).

Table 2 Measure of risk tolerance

Measure	Item Acronym	Mean	Mode	SD
The extent of risk composition you would like to have in your investment	RI1	3.01	4	1.096
I prefer to invest in risky alternatives	RI2	2.80	2	1.155
I would like to invest more in government securities because of less risk.	RI3	3.36	3	1.078
I prefer to invest in bank as they carry less risk.	RI4	4.23	4	0.815
I used to consult advisors to reduce risk	RI5	2.94	3	1.399
I would like to invest in mutual fund because it reduces the risk factor	RI6	3	4	1.082
I prefer to invest in share market	RI7	3.16	3	1.339

(Source: Primary Data)

The table 2 shows the mean, mode and SD of RI1, RI2, RI3, RI4, RI5, RI6 and RI7 respectively. Mean is highest for RI4 (4.23) and lowest for RI2 (2.80). Mode is 4 for RI1, RI4 and RI6 and 2 for RI2. SD is highest for RI5 (1.399) and lowest for RI4 (0.815).

Table 3 Measure of investment objective

Measure	Item Acronym	Mean	Mode	SD
I prefer to invest in high return investment alternatives	IO1	3.26	4	1.060
I believe that safety is one of the important objective of investment	IO2	4.04	4	0.852
Liquidity is one of my investment objective	IO3	3.85	4	0.914
The investment period is very significant in taking investment decision	IO4	3.77	4	0.874

Measure	Item Acronym	Mean	Mode	SD
My investment objective is Capital appreciation	IO5	3.43	4	0.868
My investment objective is diversification of asset holding	IO6	3.22	4	0.927
My investment objective is Quick gain	IO7	3.38	4	0.962

(Source: Primary Data)

The table 3 shows the mean, mode and SD of IO1, IO2, IO3, IO4, IO5, IO6 and IO7 respectively. Mean is highest for IO2 (4.04) and lowest for IO6 (1.96). Mode is 4 for all. SD is highest for IO1 (0.060) and lowest for 1O2 (0.852).

Table 4 Measure of investment behavior

Measure	Item Acronym	Mean	Mode	SD
I make my investment decisions	IB1	3.83	4	0.817
Frequently of making investment	IB2	2.75	2	1.158
I frequently used to check my investment	IB3	3.58	4	0.966
Satisfaction level on the investment made	IB4	3.65	4	0.730
I prefer to invest in security which is convenient in nature	IB5	3.79	4	0.832
My investment objective is to earn regular income	IB6	3.65	4	0.845
The purpose behind your investment	IB7	3.84	5	1.170
I prefer to invest in high return even the risk is high	IB8	2.98	3	1.239

(Source: Primary Data)

The table 4 shows the mean, mode and SD of IB1, IB2, IB3, IB4, IB5, IB6, IB7 and IB8 respectively. Mean is highest for IB7 (3.84) and lowest for IB2 (2.75). Mode is 5 for IB7 and 2 for IB2. SD is highest for IB8 (1.239) and lowest for IB4 (0.730).

Table 5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316[a]	.100	.071	2.15924

a. Predictors: (Constant), IK, RI, IO

b. Dependent Variable: IB

The values are not good enough

Table 6 ANOVA of Regression Model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.526	3	16.509	3.541	.018[a]
	Residual	447.583	96	4.662		
	Total	497.109	99			

a. Predictors: (Constant), IK, RI, IO

b. Dependent Variable: IB

ANOVA table showing the regression model fit presented in Table 6 shows that the model is statistically significant at 1 percent significance level.

Table 7 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	20.367	1.990		10.236	.000
	IK	.136	.082	.186	1.668	.099
	RI	.158	.085	.200	1.864	.065
	IO	.192	.083	.249	2.322	.022

a. Dependent Variable: IB

Denotes significant at 1% level

Tables 7 represent the beta values, t values and significant values of independent variable IK, RI and IO. The independent variables IK (t = 1.668, p =0 .099), RI (t = 1.864, p =0.065) and IO (t =2.322, p = 0.022) are statistically significant at 1 percent significance level. It means that these 3 independent variables have significant positive effect on IB.

Hence **H01, H02 and H03 are rejected**. The beta coefficients give a measure of the contribution of each variable to the model. Higher the beta value, the greater is the effect of independent variable on the dependent variable. Among the independent variable IO has greater effect followed by RI and IK. So it can be concluded that, Investor's knowledge, Risk tolerance and Investment objective have significant influence on Investment Behavior.

FINDINGS

* From analysis it was found that all the three independent variables have significant positive effect on Investment behavior. Thus the three null hypothesis are rejected

* Investment objective had the highest and prominent effect over investment behavior.

* From the study it is evident that respondents have knowledge in various investment alternatives.

* It is clear from the study that respondents prefer to make investment which provide regular income and also convenient in nature.

CONCLUSION

This study helps to find out the investment behavior of private employees with the help of factors like investor's knowledge, risk tolerance and investment objective. The regression analysis proved that all this identified dimensions have positive effect on investment behavior. Among them Investment objective is the most dominant factor affecting investment behavior. From this study it was found that investors are not so willing to take risk as they are giving importance to money. Investors are more focusing on bank investment and also they give preference to mutual fund investments. Investors consider the factors like liquidity, safety, convenience, and investment period etc. for making an investment decision.

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THE ART OF DATA MINING FOR CREATING MODELS FOR THE BANKING DOMAIN

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Abstract

Customer Relationship Management" (CRM) is an important and commonly used Data mining application in the banking domain to interact with customers in proper and effective way. As banking is considered as a service industry, the purpose of maintaining a strong and effective Customer Relationship Management is a critical issue [1]. Models created by Data mining algorithms can play a significant role in Customer Relationship Management in the banking domain especially for predicting the loan credibility behaviour of a customer. Before creating the model, the quality of data being improved by data preprocessing techniques especially feature selection. The classification technique aims to accurately predict the target class such as whether to approve or reject the loan for each case in the data. The way of Data mining process on the credit data set is demonstrated here. Different Data mining classification models are generated and evaluated to identify the loan applicants as eligible or not eligible for the loan.

Keywords: Data preprocessing, Classification, CRM, Random Forest, Feature Selection

1. INTRODUCTION

The different applications of Data mining that can be used in the banking sector are Customer segmentation, Banking profitability, Credit scoring and approval, Predicting payment from Customers, Marketing, Detecting fraud transactions, Cash management and forecasting operations, Optimising stock portfolios, and Ranking investments [2]. The primary goal of a bank is to lend the money generated by it from various sources. The lending of money to customers is very easy but its recovery is a hard process. Therefore, the primary objective of the banks as lenders is to ensure the profitability of the loans and advances sanctioned by them. In order to maintain CRM, grant loans to the reliable customers who can repay it from reasonably reliable sources within a stipulated time. Banks hold huge volumes of customer transaction data on daily basis . Data mining tools help to analyse these data and to convert into knowledge that can be used for the prediction of loan credibility behaviour of a customer. CRM can be maintained with in the banking

industry by predicting the loan credibility behaviour of a customer. Data mining analyzes huge data collected from the banking transactions and finally summarize it into meaningful knowledge. This knowledge help the bankers for the proper decision making process and it leads to the smooth functioning of the organization. After the formulation of problem statement, collect the relevant data and apply some preprocessing techniques to transform original data into a suitable form that can be applied for mining process . Finally apply data mining functionality especially classification to catagorise the customer into two groups such as those who can pay the loan amount promptly or they do not.

DATA COLLECTION

The data were collected from a UCI depository. The attributes are listed in Table -1

SI	Name of attribute
1	Checking_Status
2	Duration
3	Credit_History
4	Purpose
5	Credit_Amount
6	Savings_Status
7	Employment
8	Installment_Commitment
9	Personel_Status
10	Other_Parties
11	Residence_Since
12	Property_Magnitude
13	Age
14	Other_Payment_Plans
15	Housing
16	Existing_Credits
17	Job
18	Num_Dependents
19	Own_Telephone
20	Foreign_Worker
21	Class

Table 1 – List of Attributes

2. DATA PRE PROCESSING

The customer transactions data collected from the banking domain may contain duplicate values, missing values, noise or inconsistency. This affects the reliability of mining process. If the user believes that the data are dirty, and then they will not trust the results of the data mining process that has been applied to this data [5]. A data mining process with high quality of data will produce accurate data mining results. To improve the quality of data and consequently the mining results, data preprocessing have to be done on the collected data. Data preprocessing is one of the critical step in data mining process which deals with preparation and transformation from the initial data set to the final data set[4]. The following categories of data pre processing are applied to convert initial data set to final data set.

• Data cleaning

• Data integration

• Data transformation

• Data reduction
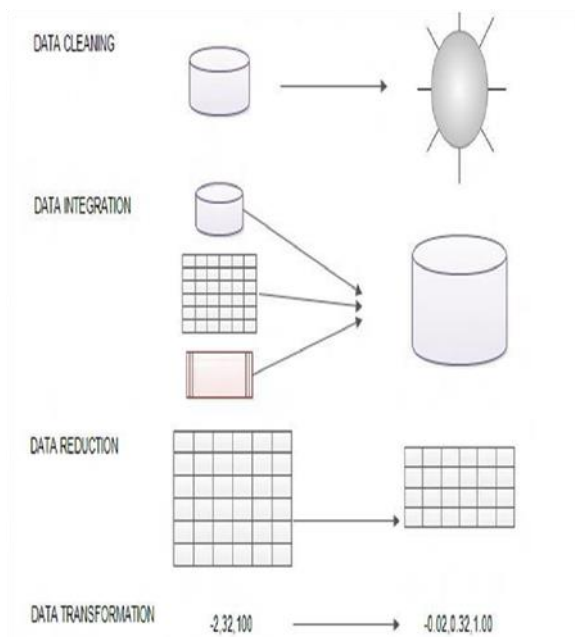
Figure - 1: Data Pre-processing methods

In order to apply any of the data pre-processing technique, the data should be in proper format. So conversion of data obtained into a suitable form before applying the pre-processing steps is mandatory. The excel format has to be converted into respective formats (.csv,.arff) required for the processing of various data mining models. Data pre-processing

of banking data start from processing duplicate and missing values.   The missing values are substituted by another computed value such as mean median or mode. For example, all the missed "Jobs" in the dataset are replaced with the term "Business" as it is the most occurred job.   Label Encoding is a method for data transformation. It will convert labels in the credit data set into the numeric form so that it can be easily transformed into a machine-readable form. The complexity of the dataset can be reduced by applying methods of data reduction.. Data reduction is a technique to reduce the volume of initial data set and should produce the same performance [5].

Feature selection is an important reduction method. Feature selection has proven in both theory and practice to be effective in enhancing learning efficiency, increasing predictive accuracy and reducing the complexity of learned results. [6,7] . Table 2 represnts the correctly classified accuracy and incorrectly classified accuracy obtained by each of the feature selection algorithms applied on the credit data set.

Feature Selection	Time	Correctly classified	Incorrectly classified
Chisquared	0.03	78.4	21.6
Filtered	0.06	74.7	25.3
InfoGain	0.03	74.7	25.3
OneR	0.03	96.1	3.9
Relief	0.06	60.4	39.6

Table- 2**:** Performance metric of feature selection algorithms

3.   CLASSIFICATON

Classification is used in scenarios where we need to identify the category or class into which a new observation might belong. Classification is one of the data analysis methods that predict class labels [7]. There are more classification methods such as Statistical-based, Distance-based, Decision tree-based, Neural network-based, Rule-based [8]. Choosing the correct classification method thus becomes very important for obtaining accurate results. Random Forest is now known to be one of the most efficient classification methods [9]. In order to classify a customer as "eligible customer" or "not eligible customer" using credit dataset binary classification method is used. The process of classification divides the dataset into two parts , one for creating the model called training dataset and other for testing the model called testing dataset.

The various classification algorithms are applied on the credit data set are JRip, ZeroR, SMO, Adaboost, Random Forest, Kstar, Ridor, and DTNB. Accuracy is a measurement to evaluate the efficiency of each classifier. The other mode of evaluating performance are, Kappa Statistic, and, Mean Absolute Error. These metrics are used to compare and evaluate which classification algorithm is better for the loan credibility prediction. The classification performance based on the above measures is described in the table and the process of classification is demonstrated in the Figure 2. From the Table 3 it is clear that the Random Forest classification algorithm produced better accuracy on the credit data set.
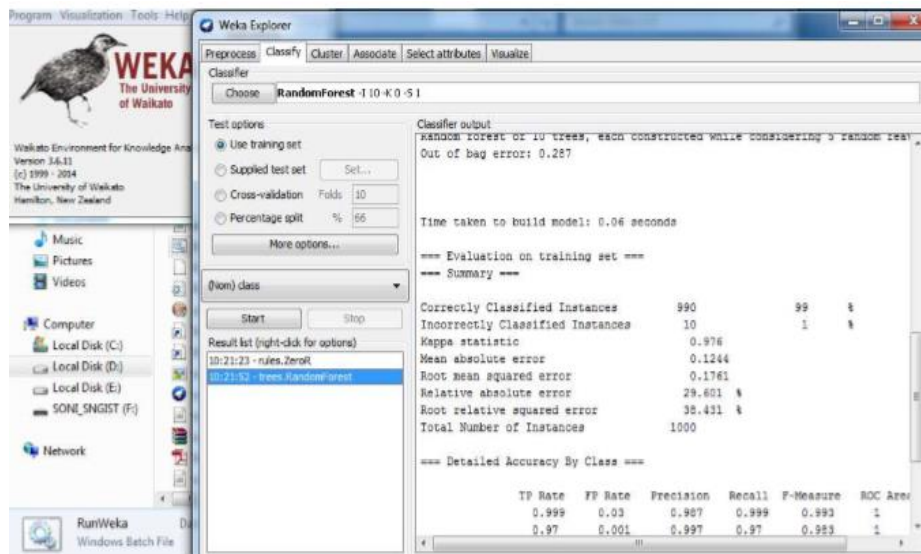
Figure 2: Classification using Weka

Classifiers	Accuracy (%)	Kappa	MAE
JRip	74.3	0.346	0.366
ZeroR	70	0	0.42
SMO	78.4	0.45	0.216
Adaboost	73.7	0.225	0.342
Random Forest	99	0.976	0.124
Ridor	76	0.2701	0.24
DTNB	71.1	0.394	0.362

Table 3: Classification Performance

The figure 3 represents the classification accuracy, figure 4 represents classification Kappa metric and figure 5 represents Classification MAE metric. From the above graphs , it is clear that Random Forest algorithm can perform better for classifying the customer as "eligible customer " or "not eligible customer" for issuing the loan.
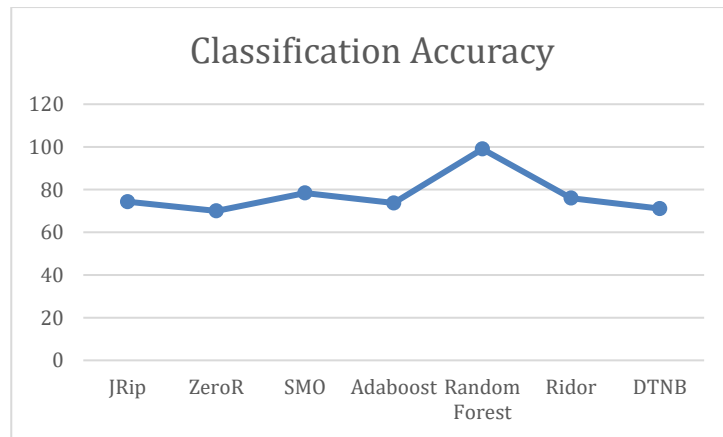
Figure 3: Classification Accuracy
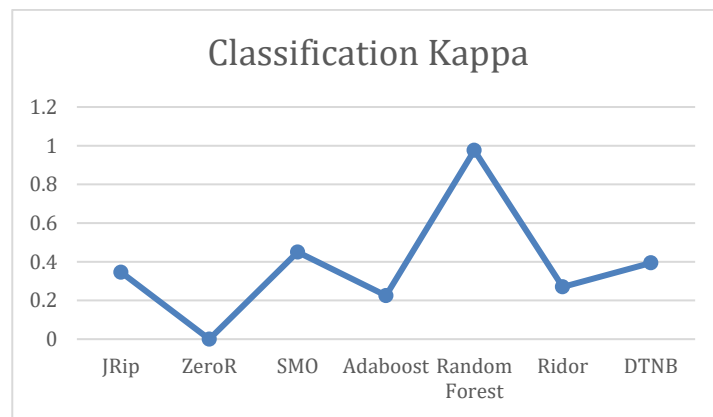
Figure 4: Classification Kappa metric
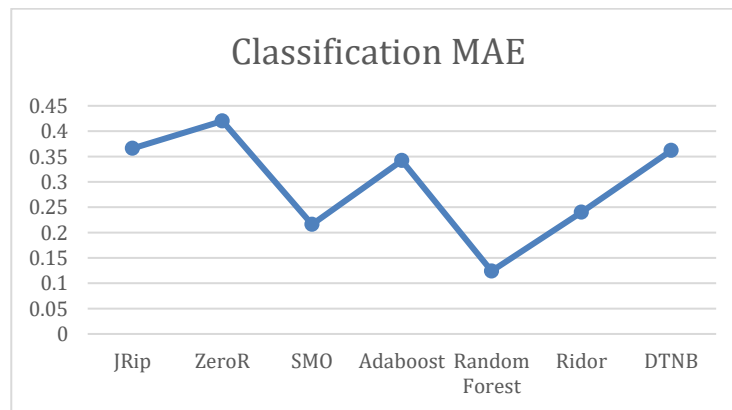
Figure 5: Classification MAE metric

4.   TECHNOLOGY USED

Weka is a powerful tool that contains collection of machine learning algorithms for data mining tasks such as data preparation, classification, regression, clustering, association rules mining, and visualization.   The figure 5 represents the various operations that can be performed in Weka.
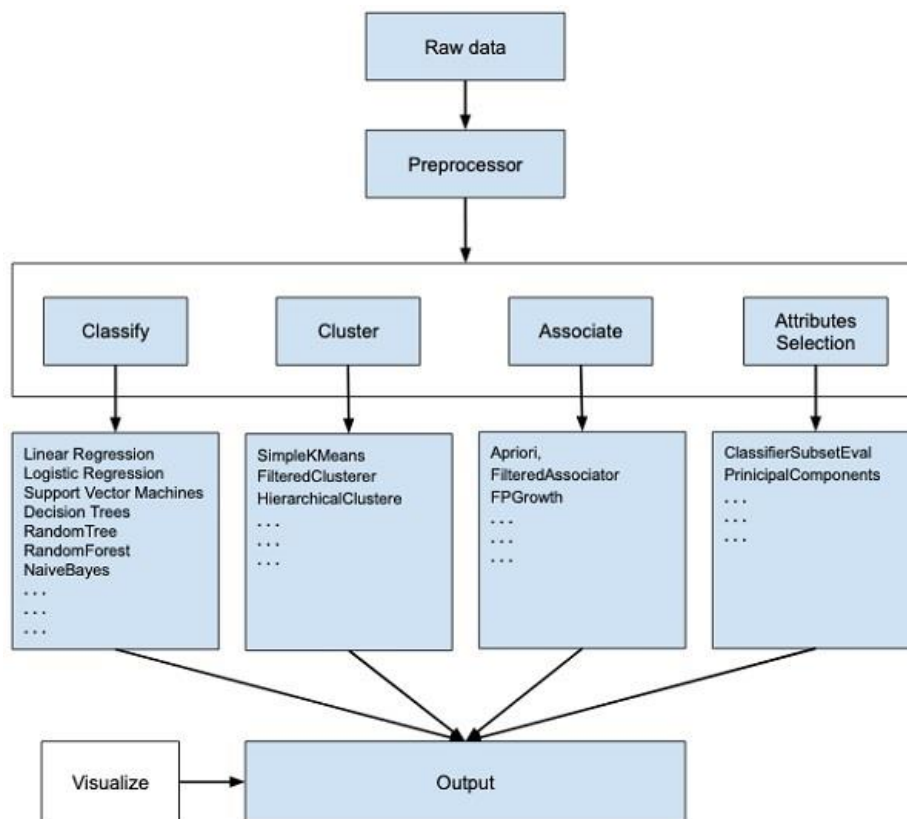
Figure **5:** Operations of Weka

The process start with the raw data set and apply preprocessing tools to clean the raw data set into preprocessed dataset that can be used for mining operations. The data mining algorithms were applied on this preprocessed dataset. The different data mining operations are **Classify, Cluster**, or **Associate**. The **Attributes Selection** allows the automatic selection of features to create a reduced dataset. Then, WEKA prepared statistical output of the model processing using visualization tools. The various models can be applied on the same dataset. Thus, WEKA results in a fast development of data mining models on the whole.

5.   FUTURE SCOPE

The main focus of my work is the design of data mining models to predict the customers who repay loan amount promptly from those who do not . From the experiment it is clear that the classification algorithm Random Forest produced better accuracy after applying the feature selection methods. In future, the model creation can be extended to apply for different binary classification problems and these can also be applied to handle large amount of data using some big data technologies .

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"Revitalizing Notions of Beauty: Investigating Standards, Gender Dynamics, and the Empowerment of Body Positivity"

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Abstract:

The research investigates the evolution of beauty standards, examining the shift from the emphasis on size zero to the celebration of plus-size aesthetics. It delves into societal changes, media influence, and their impact on individual perceptions of beauty, particularly focusing on gender dynamics. The study traces this evolution through historical analysis, media content review, and qualitative interviews, aiming to understand how changing beauty ideals affect different genders. It delves into the multifaceted realm of beauty, aiming to rejuvenate conventional perspectives by scrutinizing existing standards, gender dynamics, and fostering the empowerment of body positivity. Through an interdisciplinary lens, this investigation examines the socio-cultural influences shaping beauty ideals, challenging established norms, and promoting inclusivity. By addressing the intersections of standards and gender dynamics, this study seeks to contribute valuable insights into fostering a more inclusive and empowering concept of beauty. The exploration of body positivity emerges as a central theme, emphasizing its transformative potential in reshaping societal perceptions and fostering self-acceptance.

Keywords: Beauty Standards, Gender Dynamics, Body Positivity, Inclusivity, Empowerment, Sociocultural Influences.

In the evolving landscape of beauty ideals, this study explores a significant paradigm shift, steering away from the conventional fixation on the "size zero" ideal towards a celebration of plus-size aesthetics. The examination of beauty standards extends beyond superficial considerations, delving into the intricate interplay of societal changes and media influences that collectively shape perceptions of beauty. With a meticulous lens, the research aims to unravel the intricate threads connecting these factors to individual perspectives on beauty, placing a particular emphasis on dissecting the nuanced dynamics of gender. Through a historical lens, this study embarks on a comprehensive analysis, tracing the evolutionary

trajectory of beauty ideals and shedding light on the transformative forces that have propelled the contemporary discourse surrounding beauty and body images.

In the 1960s, activists, scholars, and the general public challenged and reshaped the production and performance of femininity and related activities. These various and fluctuating conceptualizations of gender undoubtedly influenced perceptions of feminine beauty, which in turn influenced participation in beauty practices. Women's social status shifts were closely linked to changes in their beauty habits. Knowing how women felt about engaging in beauty rituals helps us understand how it felt for them to shift class status (Allison 170).

This study meticulously examines the intricate connection between body positivity and obesity, undertaking a critical analysis of whether the celebration of diverse body sizes unintentionally encourages unhealthy lifestyles. While acknowledging the pivotal role of body positivity in fostering self-love and acceptance, the research conscientiously explores the potential implications of this movement on public health. By delving into the complex interplay between evolving beauty ideals, the promotion of body positivity, individual health choices, and societal perceptions of beauty, the preliminary findings underscore the multifaceted nature of this relationship. These initial insights serve as a foundational step towards cultivating more inclusive discussions on beauty standards, gender dynamics, and health(Havlin 15). The study endeavors to provide valuable guidance for policymakers, healthcare professionals, and advocates, striking a delicate balance between promoting body positivity and ensuring the overall well-being of individuals and society at large.

In the modern era, the concept of beauty is undergoing a profound transformation, marked by an intentional effort to challenge and redefine traditional conventions. The rethinking of beauty addresses a wide range of issues, including physical appearance, cultural influences, and social expectations. As we look into these increasing standards, it becomes evident that beauty is no longer bound to narrow notions, but is cherished in all of its forms. The shift toward inclusivity puts into question long-held standards that have created excessive expectations, igniting an essential discussion about individuality and diversity. This reevaluation goes beyond surface-level aesthetics and into the domains of self-expression and identity, eventually promoting a more open and welcoming society.

Gender dynamics play a pivotal role in the ongoing discourse surrounding the redefinition of beauty. Traditionally, cultural norms have imposed rigid beauty standards on both men

and women, reinforcing societal expectations that contribute to gender disparity. However, contemporary conversations are challenging and dismantling these outdated norms, ushering in a more flexible and liberating interpretation of beauty. Examining beauty through a gender-neutral lens not only liberates individuals from constricting standards but also fosters a more equitable and inclusive community. Moreover, the burgeoning body positivity movement serves as a catalyst for challenging deeply ingrained beliefs about beauty, urging individuals to embrace their bodies, imperfections and all. This paradigm shift not only advocates for self-love but also advocates for a more compassionate and understanding society that values individuals for their authentic selves, irrespective of conforming to traditional beauty ideals.

In conclusion, the exploration of "Revitalizing Notions of Beauty: Investigating Standards, Gender Dynamics, and the Empowerment of Body Positivity" has illuminated the transformative journey from conventional ideals to a more inclusive and empowering conception of beauty. Through the critical examination of beauty standards, the unraveling of gender dynamics, and the celebration of body positivity, this research has underscored the dynamic nature of societal perceptions. By challenging traditional norms and advocating for a more diverse and accepting view of beauty, this study encourages a collective shift towards embracing authenticity and individuality. The findings emphasize the profound impact of societal changes, media influences, and the evolving discourse on body positivity, highlighting the intricate connections between beauty ideals and overall well-being. As we navigate this transformative landscape, the insights gleaned from this exploration serve as a compass for fostering more inclusive dialogues, guiding individuals, communities, and policymakers towards a future where beauty is celebrated in all its diverse forms, unencumbered by restrictive standards, and promoting a society that values empowerment, diversity, and self-love.

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Cormac McCarthy's "The Man" and "The Boy" on *The Road*: A Post-Modern Interpretation of *The Road*.

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Abstract

Cormac McCarthy is an American novelist. He is best known for his novels Blood Meridian (1962), All the Pretty Horses (1963), No Country For Old Man (1965), and The Road (2006), a Pulitzer Prize winning novel. The novel's critical reception has often identified it as post-apocalyptic. The novel follows a man and boy in a desolate, desperate, and catastrophic landscape, a land that has lost civilization and culture. In addition to building upon the post-apocalyptic elements of the novel, The Road also shares some characteristics with postmodernism. Postmodernism is the late twentieth century movement that emphasizes scepticism, paradoxes, paranoia, irony, and a suspicion of reason as the post- war world makes it difficult to accept any single definitive source of truth and reality. In The Road, McCarthy portrays a world where human values such as humanity and morality take on paradoxical dimensions. In a barren world where the meaning of life itself is elusive, the struggle of the man and boy to cling to life through a symbol of fire and faith in God is analogous to the critical use of irony in certain conventions of postmodernism. From this point of view, McCarthy's work could be studied within the framework of postmodern textual, and stylistic, elements used in the novel. Examining the ways in which the writer places less reliance on the traditional narrative form, such as fragmentary narrative, blending of past and present through remembered memories and dreams, raises questions about the truth and existence of a dead world consumed by a constant state ofparanoia and suspicion.

Keywords: postmodern, Cormac McCarthy, The Road, post-apocalyptic, scepticism, reality

Introduction

Cormac McCarthy's literary career spans a wide range of genres, including crime fiction (No Country for Old Man) and Western fiction (The Border Triology). His 2006 Pulitzer Prize-winning novel The Road is widely regarded as a post-apocalyptic novel. Most of McCarthy's works explore human violence and the plight of those living on the margins. However, The Road is arguably the most pessimistic of his works, as it portrays a world in which the fate of two individuals is uncertain and their ability to survive is uncertain. This world is characterized by a reliance on remembered dreams and memories, existential questions about life and existence, feelings of fear and paranoia, anda distrust of reality and reason.

The concept of reason, which has always been associated with human beings, has been challenged by the sudden shift caused by war. This shift has not only challenged the absolute belief in humanity, but also in the existence of God, faith, life, and the universe itself. This new outlook has had a profound impact on all aspects of life, and literature has been one of the arts that have been affected. Following wars or any event that invokes the apocalypse, writers may have had an urge to bring these ideas to life. The transformation of Western literature following the two major world wars has also had a significant impact on the dominant forms of literature known as modernism or postmodernism.

Postmodern literature emerged as a form of literature that flourished after the Second World War. While modernist literary tradition tends to depict a world that is on the brink of destruction, postmodernist literature seeks a new approach to emphasize the fact that humanity has already endured numerous catastrophes and is now beyond salvation or comprehension. The idea of finding precise explanations for any event seems to be increasingly impossible. Such catastrophes that occurred during the latter half of the twentieth century may have inspired some writers to develop paranoia or conspiracy theories, which have become more prevalent in the post war period. As Timothy Melley states in his book Empire of Conspiracies: the Culture of Paranoid Prejudice and the Post war America Phenomena, a form of paranoia has become commonplace in many societies. Many social groups have come to rely on conspiracy theory to survive. Melley further notes that such a theory has been a key organizing principle in American cinema, television, and fiction since the Second World War (7). From this perspective, any apparent connections or controlling effects on the disorder of society would be deeply disturbing, and this contributes to the paranoia associated with many postmodern writings. It is not surprising that at the core of postmodern writing is the notion thatthe world has fallen and literature can serve to uncover its mysteries and ironies. Postmodern authors often write with the assumption that modern society cannot be explained or comprehended.

With global wars causing so many deaths and failed policies, it's no surprise that the rise of postmodernism coincided with the post-war period that the world had to go through. In fact, most postmodernist futures are pretty grim. Brian McHale's book, Postmodernist Fiction, describes this shift from epistemology to an ontology. Basically, the power of postmodern fiction lies in theontology as it poses the questions, "What is this world?" and "What are we to do in it?" The first and overall impression of McCarthy's novel is similar to this kind of self-questioning, since the man and the boy are living in a world that's barely habitable and more like the post-war scene.

The Road is typically classified as a Post-Apocalyptic novel, particularly due to its subject matter and setting. It is set after the destruction of the human race and follows two individuals as they attempt to adapt to a world in which all traces of geography, time, and society have been

removed. However, these elements also bear some similarities, leading to the assumption that they contribute to

the canonization of postmodernism. The novel has a bleak atmosphere from the outset to the end, and is likened to a "tabula rasa" landscape, with many of its pre-existing characteristics erased. Even in the first page, McCarthy states that "the night is dark beyond darkness, and the days more gray than what had come before" (1). This is further reinforced in the subsequent pages, as the two protagonists struggle to survive in a landscape characterized by a "barren, quiet, and godless" (2) and a "no senseof time"

(3). However, the novel is also violent and unforgiving, as the people left behind are depictedas savages. It could be said that McCarthy is trying to say something about how human beings are so obsessed with destroying the planet. In his review in Rolling Stones, David Kushner points out that McCarthy has a pessimistic view of life on Earth, so he's always coming up with "what ifs" while still keeping his fiction grounded in reality. So, it's no surprise that his novel could be seen as a bit of a far-fetched fantasy. But, even though it's full of mystery, The Road gives us a realistic view of what a world would look like, and it's really helpful for readers to imagine it.

In the face of despair, the two protagonists journey to the south in the hope of finding warmth, shelter, and a return to some form of civilization or stability. Some may question why they are journeying to the 'south', as it is usually associated with being warmer or sunnier. Chris Walsh explains that the 'south' serves not only as a physical boundary and destination, but also as a source of inspiration; the father begins to tell the son stories about the 'south' when all else seems to have disappeared. In addition, the father's childhood memories, in which he reminisces about "a perfect day" fishing with his uncle, (52-53), also play a significant role in determining the South as the final destination. Furthermore, these memories play a key role in creating the fragmented narrative and the juxtaposition of the past and present.

Throughout the novel, it is evident that the narrative is not conventional in any sense. In this regard, it is distinct from McCarthy's earlier works such as Blood Meridian (1985) and The Crossing (1994) or No Country For Old Man (2005), where the story is told in an omniscient perspective, allowing the reader to deduce the chronology. The Road offers a representation of a ravaged world in the form of fiction, as the novel portrays a world that is unfamiliar; a world in which there is a non- existent order. This is particularly evident in the dialogue between the man and boy, which are characterized by brief, repetitive sentences with no linearity, which evokes the idea of fragmentation, a concept that is heavily relied upon by postmodernism. Whether the book is a representation of fiction or a description of history, it reveals an unfamiliar way of revealing how the past is known in the present. Linda Hutcheon argues that in postmodernism and post-modernism, the past is made into a "discursive whole" (59). For example, the memories of her

mother appear out of nowhere in the novel, which adds to the sense of disjointedness. There's barely a transition from one narrative to the next. At one point, the reader feels lost in the conversation between the man and boy, but then an irrelevant conversation with the mother pops up as part of the man's memories. This is a narrative tendency that McHale notes is not exclusive to post-modernist fiction. It also happens in modernist stories, but it's usually presented as the characters' own thoughts, ideas, or memories, rather thanbeing left as an impossible paradox of a world outside of their minds.

McHale says that we can also see fragmented narratives in modernism. But one of the key things about postmodernism is that characters have memories of what happened to them. Postmodernism allows us to think about mental things like the cruel reality of the world outside, which is so far away that we can't even imagine it. For example, in the novel, the mother is mentionedas a "recollected character" and through her memory of her husband's death, we get to see that she or he decided to take his own life so he wouldn't have to deal with what was going on out there. Instead of a home life, her memories make her feel more hopeless and lose faith, which is why she killsherself without even noticing her son is there.

Postmodernism is a way of thinking about the present in an age where we've forgotten how to think about the past. It's hard to understand postmodernism without considering its relationship to the past. The fragmented narration in the novel is reminiscent of man's dreams and memories, which not only help us explore our inner state of consciousness, but also mix the past with the present. The past can be like a ghost in the novel - sometimes in the form of the mother, or bits and pieces of what could have happened to turn the world into chaos. The clocks stop at 1:17, and there's a long burst of light followed by a series of low noises. It's not clear how or why this happened, but there's a sense that the natural world has been killed or destroyed by some unknown disaster from the past. At the moment, though, its echo lingers as the homes are gone, the cities are empty, there's a cloud of grey dust hanging over the sky, the sun isn't shining, and it's raining almost every night. It's like a postwar scene - no plants or animals, just hunger, hiding, and the fear of dying. McCarthy doesn't explain how or why the world changed into an inferno, but he concentrates on the results of it, especially on two people representing the whole of humanity - "the man" and "the boy". Erik Hageel goes so far as to say that McCarthy doesn't contemplate the causes of the destruction and reduces the novel to an isolated survival story, this one between a dad and son who aren't even named.

The two main characters, who are constantly threatened with death and hunger throughout the novel, take on universal roles, which can be seen in their names. The father or the man is seen as representing the past, as he is the one who has seen how the world has changed, while the boy is seen as the tool for hope with the fire he is carrying in the future. In this "posthumous state of

nature and civilization" (Kennedy), with his innocence and state of being born in any world, the boy has an advantage because he doesn't have to deal with some of the emotions that are normal for human beings. According to William Kennedy's review of the novel in the New York Times, McCarthy delivers his vision of the end times through the voice of his father. For example, when the man finds atown with the boy, he leaves his son to look for it. At this point, the son spots another boy and tries to help him out, but the dad is really against it and wants them to go away. In a way, the dad's full awareness is like a roadblock in his attitude towards others - because in this world of total independence, all they have is each other. But on that dangerous road, they're about to face a kind of savagery, which is parallel to how postmodernism challenges the idea of freedom.

Reality and its relationship to it is a big part of postmodernism. Christopher Butler argues that postmodernist novels don't try to create a long-term realist fantasy (73). Without a linear way of thinking, people's perception of things changes, and so does the way reality works. In her article, "Can the Apocalypse Be Post?," Teresita Heffernan argues that in stories about the world ending, "the real has collapsed and the subject has vanished" (171). When it comes to postmodernism, Linda Hutcheon brings her own version, but she also emphasizes the issue of truth. "The standard negative assessment of postmodernism is that it lacks an ordered and consistent vision of truth" (38). In the novel, there's a lot of confusion about what's true and what's not. The writer draws a line between good and bad in this world, where the new order forces us to do anything to survive, even if it means sacrificing some of the good things in society. For the guy in the novel, he's still one of the good guys, as long as he doesn't eat people like the bad guys so he can maintain his morality. This makes us think about what's important in a world where all we care about is our own survival.

In conclusion, The Road is a novel that portrays two individuals struggling to survive in a world that is likely to be destroyed by humans. It portrays the entire human race without specific names, and the protagonist, the man, and the boy, progress on a journey that evokes the elements of postmodernism. McCarthy creates a world of desperation and sadness, and his view of the world also appears to be pessimistic, which is in line with the postmodernist tendency to replace optimism with a harsh outlook. The memories of the deceased mother act as a bridge between the present and the past,

providing insight into the inner life of the man, who is devoted to protecting his son. While the protagonist and his son are alone on their way to the south, death is a recurring motif throughout the novel. Postmodernism sees freedom as equal to anarchy, which is similar to how they have to stay away from humans for fear of being killed or eaten. Postmodernism also rejects the idea that truth is based on pure rationality and gives us the opportunity to look at how the human mind can

be manipulated and how it can lead to power-hungry ideologies. Similarly, some of the most important ideas in the novel are seen as conflicting visions on the brink of destruction. In the post-catastrophic world, the crisis of life, meaning, and reality becomes even more extreme, with some people seeing life as worthless and others seeing it as the price of life.

With a sense of uncertainty and doubt, they cling to life not just because they need food and shelter, but also because they want to stay human. The way they keep faith in God in a bleak, bleak world and choose 'fire' as a symbol of a bright future shows the power of irony, which is something postmodernism loves to use. Even in the face of disaster, McCarthy's characters still manage to find a way to stay alive and keep hope - not just to survive, but to keep civilization going into the future. So, The Road is definitely set in the post-apocalypse, but it's also a post-modernist story.

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A STUDY ON REFORMULATION TECHNIQUES IN OPTIMIZATION

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ABSTRACT

Generic optimization problems have been important throughout history in engineering applications. The first significant work in optimization was carried out by Lagrange in 1797. A key theme of this thesis is the issue of problem reformulations that can be carried out in an automatic manner via symbolic and numerical procedures. Such reformulations can be used for various tasks, both prior to the actual problem solution and during the solution process. Many types of automatic reformulations have appeared in the literature; however, to the best of our knowledge, no attempts have been made, to date, to review them and classify them in a systematic manner. This chapter, therefore, attempts to present such a literature review.

INTRODUCTION

The set $\Omega \subseteq R^n$ is convex if, for all $x, y \in \Omega$ and for all $\mu \in [0, 1]$, the vector $\mu x + (1 - \mu)y$ is also in Ω. The intersection of an arbitrary collection of convex sets is convex. Let $S \subseteq R^n$. The intersection of all the convex subsets of R^n containing S is called the convex hull of S. The convex hull of a finite subset $\{v_1, v_2, ..., v_m\}$ of R^n consists of all linear combinations $\sum_{i=1}^{m} \mu_i v_i$ where $\mu_i \geq 0$ for all $i \leq m$ and $\sum_{i=1}^{m} \mu_i = 1$. A function $f: R^n \to R$ is convex if and only if it is defined on a convex set Ω and is such that for all $x, y \in \Omega$ and for all $\mu \in [0, 1]$ we have

$$f(\mu x + (1 - \mu)y) \leq \mu f(x) + (1 - \mu)f(y).$$

A function f is concave if $-f$ is convex.

A function f is pseudo- convex if, for all x_1 , x_2 such that $f(x_1) < f(x_2)$, we have $\nabla f(x_2)(x_1\text{-}x_2) < 0$.

A function f is quasi- convex if all its sublevel sets $\{ x : f(x) \leq \alpha \}$ are convex.

A function $f: \Omega \to R$ is $d.c.$ function if it is a difference of convex functions, i.e. there exist convex functions $g , h : \Omega \to R$ such that, for all $x \in \Omega$, we have $f(x) = g(x) - h(x)$. Let

C, D be convex sets ; then the sets C\D is a d.c. set (i.e. a difference of convex sets ; here C\Dis taken to be all the elements in C which are not in D). It can be shown that a set M for which there exist convex functions g , $h : R^n$ such that M = { $x : g(x) \leq 0 \cap h(x) \geq 0$} is a d.c. set. d.c. functions and sets have many interesting properties.

Let $f(x)$ be a non convex function. A convex relaxation of $f(x)$ is a convex function $f_-(x)$ such that, for all x , we have $f_-(x) \leq f(x)$. Likewise, a concave relaxation of $f(x)$ is a concave function $f^-(x)$ such that for all x we have $f^-(x) \geq f(x)$. Let F_- be the set of all convex relaxations of f and F^- the set of all concave relaxations. The convex envelope of f is max { $g(x): g \in F_-$ }; the concave envelope of f is min { $g(x): g \in F^-$}.

Given an inequality $g(x) \leq 0$, the set { $x : g(x) \leq 0$ } is convex if $g(x)$ is a convex function. Notice that , if $g(x) \geq 0$ is a convex inequality.

Formulation of the NLP

we are interested in constrained NLPs of the following form:

$min_x \quad f(x)$

$$\alpha \leq g(x) \leq \beta \qquad\qquad (1.1)$$

$$a \leq x \leq b$$

Where $x \in R^n$ are the (continuous) decision variables, α , β are the lower and upper bounds of the constraints, and a , b are the lower and upper bounds of the variables. The function $f: R^n \to R$ is called the objective function and $g : R^n \to R^m$ are the constraints of the problem. We limit the discussion to the minimization of the problem; the maximization is equivalent to solving $min_x - f(x)$ subject to the same constraints. Notice that formulation (1.1) is slightly unusual because of the form of the constraints $\alpha \leq g(x) \leq \beta$. The most common constraint formulation in the literature is $h(x) = 0 \cap g(x) \leq 0$.

REFORMULATION TECHNIQUES IN OPTIMIZATION

A key theme of this thesis is the issue of problem reformulations that can be carried out in an automatic manner via symbolic and numerical procedures. Such reformulations can be used for various tasks, both prior to the actual problem solution and during the solution process. Many types of automatic reformulations have appeared in the literature; however, to the best of our knowledge, no attempts have been made, to date, to review them and classify them in a systematic manner. This chapter, therefore, attempts to present such a literature review.

A reformulation of an optimization problem P is a problem P' which shares some mathematical properties with P . A reformulation may be useful as part of an algorithmic procedure to solve P , or if it offers qualitative or quantitative insights regarding the properties of P .

A reformulation P' is *exact* if the global solution $x \in R^n$ of P can be directly inferred from

the global solution x' of P' ("directly inferred" meaning that x can be computed from x' in linear time depending on n). An exact reformulation is *convenient* if finding from x' requires less computational resources than finding x.

A useful reformulation which is not exact is usually called a *relaxation* of the problem. For example, many algorithms for the solution of discrete optimization problems involve a continuous relaxation of the problem (i.e. the discrete variables are reformulated to continuous variables).

Reformulations can be constructed by using algebraic-symbolic manipulation of the equations in the original problem, or by using numerical computations. In both cases, it is necessary to prove theoretically, or at least offer strong evidence, that the reformulation is indeed useful. If a reformulation is sometimes useful but it cannot always be decided *a priori* whether it will be useful or not, and to what extent, then it is called *heuristic*.

Reformulations to standard forms

Closely associated with the idea of a reformulation is the concept of a standard form for an optimization problem. Solution algorithms often require the optimization problem to be in a pre-specified form called the *standard form* with respect to that algorithm. Most

reformulations are meant to unearth some structural mathematical property of P which was not evident before, or to transform P into a standard form.

In this section we refer to optimization problems in the following form:

$$min_{x \in \Omega} f(x)$$

where Ω is the feasible region.

Notation-wise, by $Ax = b$ we mean a system of m linear equations in n variables, where A is m x n matrix, $x \in R^n$ (unless specified otherwise) and $b \in R^m$. Likewise , we express a system of linear inequalities as $Ax \leq b$. By $x^L \leq x \leq x^U$ we mean a set of ranges on the variables : $\forall i \leq n \ (x_i^L \leq x \leq x_i^U)$, and $x^L , x^U \in R^n$.

Box-constrained problems

An optimization problem (2.1) is box-constrained if the only constraints of the problem are the variable ranges (i.e. $\Omega = \{x : x^L \leq x \leq x^U\}$). In other words, no equation or inequality constraints are present (sometimes such problems are called *unconstrained problems*, though in fact a truly unconstrained optimization problem would lack variable bounds as well). This is a very well-studied and interesting class of problems, and much effort has gone into reformulations of other types of problems to this type. Moreover, most stochastic optimization methods are originally devised for box-constrained problems, and are then extended to deal with constraints.

Penalty and barrier functions

The most widely used reformulation for eliminating equation or inequality constraints from constrained optimization problems is to employ *penalty* or *barrier* functions. This embeds the constraints into the objective function f itself, so that f attains high values at infeasible points; hence a minimization of the objective function automatically excludes the infeasible points.

Consider the optimization problem (2.1) where:

$$\Omega = \{x \in R^n : \forall i \leq m \ (h_i(x) = 0) \cap \forall i \leq m'(g_i(x) \leq 0) \cap x^L \leq x \leq x^U\}.$$
(2.2)

Let δ_i, $\varepsilon_i : R \rightarrow \{0, \infty\}$ be boolean functions that specify whether a constraint is satisfied: for all $i \leq m$ define $\delta_i (h_i (x)) = 0$ if $h_i (x) = 0$ and $\delta_i (h_i (x)) = \infty$ if $h_i (x) \neq 0$. Likewise for inequality constraints for all $i \leq m'$ define $\varepsilon_i (g_i (x)) = 0$ if $g_i (x) = 0$ and $\varepsilon_i (g_i (x)) = \infty$ if $h_i (x) \neq 0$. Now reformulating the problem to:

$$min_{x^L \leq x \leq x^U} F(x) = f(x) + \sum_{i=1}^{m} \delta_i (h_i (x)) + \sum_{i=1}^{m'} \varepsilon_i (g_i (x)) \qquad (2.3)$$

is an exact reformulation of the original problem to a box - constrained form. If x is feasible in the original problem, then the objective function F of the reformulation reduces to $f(x)$; if it is infeasible, F becomes ∞.

The main disadvantage of this reformulation is that it is highly non-smooth. Furthermore, the introduction of infinity in the definition of δ_i , ε_i is questionable from a numerical point of view. The latter point can be disposed of in case the function f is Lipschitz (i.e. there is a real constant M > 0 such that for all x , $y \in \Omega$ we have $| f(x) - f(y) | \leq M \| x - y \|$) , in which case it is possible to find global upper bound L of f on Ω , and ∞ can be replaced by L. The non- smoothness is a more delicate question. Unless one devises an entirely symbolic method for solving (2.3), one has to replace the functions δ_i , ε_i with smoother functions. Unfortunately, this means that the reformulation may no longer be exact . The simplest "realistic" penalty function involves a reformulated objective function F(x) = $f(x) + \mu (\sum_{i=1}^{m}|h_i (x)| + \sum_{i=1}^{m'} \max (0 , g_i (x)))$. In this case the main drawback is the determination of the parameter μ. There is a value of μ such that this reformulation is exact, but it cannot be known a *priori*. Furthermore, absolute value and point wise maximum are not smooth functions everywhere. Other penality and barrier functions involve logarithms, inverse, powers and so on.

Lagrangian and Lagrange coefficients

The *Lagrangian* function of an optimization problem in form 2.1, where Ω is defined as in equation (2.2), is defined as $L(x, \lambda, \mu) = f(x) + \sum_{i=1}^{m} \lambda_i h_i (x) + \sum_{i=1}^{m'} \mu_i g_i (x)$ with the requirement that $\mu_i \geq 0$ for all $i \leq m'$. The parameters λ_i , μ_i are called *Lagrange multipliers*. The Lagrangian is often used in deriving theoretical conditions of optimality in methods of local optimization.

In fact, the theory of Lagrange multipliers is also linked to duality theory for general optimization problems. It can be shown that, for a convex problem P, its Lagrangian dual:

$$max_{\lambda\,;\,\mu\,>0}\ min_{x^L\,\leq x\,\leq x^U}\ L(x,\lambda,\mu) \qquad\qquad (2.4)$$

has exactly the same solution as P. For a nonconvex problem it can be guaranteed only that the solution of the dual problem is a lower bound to the solution of the original problem (2.2). The difference between the value of the dual objective function and the original objective function is called the *duality gap*. In view of the fact that the solution to the dual problem (2.4) is often used as a lower bounding technique in Branch-and-Bound algorithms, it is important to find methods to reduce the duality gap.

Separable problems

Separable programming problems are useful because the objective function can be expressed as a sum of functions of one variable only. Thus, each term in the sum is independent of the other terms. Separable problems have a special structure which offers wide scope for decomposition strategies. If the problem is separable and box-constrained (i.e. $\Omega = \{x : x^L \leq x \leq x^U\}$, then it can easily be solved to global optimality via interval analysis. If linear or nonlinear constraints are present, interval analysis offers a very fast way to calculate lower bounds on the objective function: it is no surprise that the first Branch-and-Bound approaches to global optimization were restricted to separable problems.

Let $x = (x_1, \ldots, x_n) \in \Omega$. A function $f : R^n \to R$ is *separable* if and only if there are $f_1, \ldots, f_n : R^n \to R$ such that for all $x \in \Omega$ we have $f(x) = \sum_{i=1}^{n} f_i(x_i)$.

If the objective function f of a problem (2.1) is separable, then the problem is separable.

The definition of the feasible region Ω varies. Usually Ω is defined by a system of separable inequalities $\sum_{j=1}^{n} g_{ij}(x_j) \leq b_i, \forall i \leq m,$ where $g_{ij} : R \to R$ for each i, j. Some authors require Ω to be a polytope.

Separation of bilinear forms

The basic idea is the separation of a bilinear form xy. This idea restson the relationship $(x + y)^2 = x^2 + 2xy + y^2$ $xy = \frac{1}{2}(w^2 \Longleftrightarrow x^2 - y^2)$ and $w = x + y$. It was already known in the 18$^{\text{th}}$ century that the quadratic form $\sum_{i,j-1}^{n} a_{ij}\, x_i\, x_j$ could always be reduced to a sum or difference of squares :

$$y_1^2 + \ldots + y_r^2 - y_{r+1}^2 - \ldots - y_{r+1}^2 \qquad\qquad (2.5)$$

via a real linear transformation $x_i = \sum_j b_{ij} \, y_j$ (for all $i \leq n$) having non –zero determinant. Cauchy, Sylvester and Jacobi all worked on this problem. If $t = 0$, then the form is called *positive definite* ; if $t > 0$ then the form is called *semi definite* (these terms were introduced by Gauss in his *Disquisitiones arithmeticae*). Their work is also relevant to the theory of convex, concave, d.c. functions, since a positive quadratic term is a convex function and a negative quadratic term is a concave function.

The problem of reducing quadratic forms is tightly linked to the problem of diagonalizing a square matrix. Let $x = (x_1, \dots, x_n)$, $s = (s_1, \dots, s_n)$ and $A = (a_{ij})$ be an n x n matrix. The expression $x^T A s = \sum_{i,j=1}^{n} a_{ij} \, x_i \, s_j$ is called a *generalized bilinear form*. We are specially interested in the case where $x = s$. To reduce a generalized bilinear form to a semidefinite quadratic form , we have to find a non – singular transformation $x = Py$, where P is an n x n matrix and $y = (y_1, \dots, y_n)$ such that $x^T A x = y^T P^T A P y$ and $P^T A P$ is diagonal. Constructing such a matrix P is a classical problem in matrix theory.

Reformulating generalized bilinear forms to semidefinite quadratic forms is usually convenient. It is an exact reformulation and it often gives rise to better convex relaxations

Global solution of separable box-constrained problems

Finding the global optimum of the separable box-constrained problem

$$min_{x^L \leq x \leq x^U} \sum_{i=1}^{n} f_i \, (x_i)$$

Reduces to finding the global optimum of each of the one-dimensional problems

$$min_{x^L \leq x \leq x^U} f_i \, (x_i),$$

and can therefore be totally decomposed. Interval arithmetic provides an extremely fast and effective way to find the bounds on a univariate function $f_i \, (x_i)$ given the range $[\, x_i^L, x_i^U \,]$ of x_i

Let $N = \{ \, N_1, \dots, N_m \, \}$ be a partition of $\{ 1, \dots, n \}$, and for each $i \leq m$ let $x^{[i]} = \{ x_j : j \in N_i \}$. The function $f : R^n \to R$ is semi-separable if and only if for each $i \leq m$ there exist functions $f_i : R^{|N_i|} \to R$ such that $f(x) = \sum_{i=1}^{m} f_i \, (x^{[i]})$. The method described in the example below also works when applied to problems with semi – separable objective functions.

Linear problems

A linear optimization problem is such that both the objective function and the constraints are linear functions in the problem variables. A very efficient global solution method (called the *simplex method*) for linear continuous optimization problems was proposed in the 1940s, by Dantzig, and has been further refined since then. Nowadays there are many efficient software codes to solve large-scale linear problems.

Unfortunately, linear reformulations are very rarely exact. In fact, most linear reformulations are linear relaxations and are used within more complex methods for the solution of nonlinear problems (like e.g. Branch-and-Bound).

Reformulating quadratic binary problems to linear binary problems

Although this reformulation only applies to a very special class of optimization problems, it is one of the very few exact linear[1] reformulations. Any unconstrained quadratic binary problem $max_{x \in \{0,1\}^n} x^T Q x$ can be reformulated exactly to:

$$\max q^T y$$

$$s.t \quad \forall\, i,j \,\leq n (y_{ij} \leq x_i)$$

$$\forall\, i,j \,\leq n (y_{ij} \leq x_j)$$

$$\forall\, i,j \,\leq n (y_{ij} \geq x_i + x_j - 1)$$

$x \in \{0,1\}^n , y \in \{0,1\}^{n^2},$

Where q is a vector consisting of the entries of the $n \times n$ matrix Q ordered by column. Such a reformulation belongs to a class of reformulations called *liftings* because of the fact that they "lift" the geometry of the problem into a higher dimensional Euclidean space (i.e. they add new variables to the problem). Although usually a problem with more variables is more difficult to solve, liftings can nonetheless be useful.

Convex problems

An optimization problem is convex if both the objective function f and the feasible region Ω are convex. This is an interesting class of problems as it is possible to show that any local solution of a convex problem is also a global solution. As in the linear case, convex formulations are rarely exact. However, convex relaxations are used within more complex

procedures for the solution of nonlinear problems. Their global minimality property makes it possible to compute lower bounds of the objective function of nonconvex problems in given subregions of the feasible region.

One exact convex reformulation can be obtained when the objective function is a positive definite bilinear form. If $t = 0$ in equation, then the reformulation is exact and it makes the function completely convex.

Sometimes a nonconvex function can be reformulated exactly to a convex function by a nonlinear change of variables. The function $f(x) = ax_1 \dots x_n$ is non convex. For all $i \leq n$ let $X_i = \log x_i$; then $f(X) = ae^{X_1 + \dots + X_n}$, which is convex. This, with a suitable adaptation, also applies if the variables are discrete. The following , for example, is a mixed-integer reformulation of the function $ax_1^{r_1} \dots x_n^{r_n}$ where x_i are discrete variables for all $i \leq n$;

$$
\begin{cases}
a\, x_1^{r_1} \dots x_n^{r_n} \\
\\
a > 0 , \forall i \leq n\,(r_i \in R) \\
* \\
\\
\forall\, i \leq n\,(x_i \text{ discrete})
\end{cases}
\Longleftrightarrow
\begin{cases}
ae^{r_1 X_1 + \dots + r_n X_n} \\
\\
X_i = \log d_{i1} + \sum_{j=1}^{n_i - 1} \beta_{ij}(\log d_{i,j+1} - \log d_{i1}) \\
\\
\sum_{j=1}^{n_i - 1} \beta_{ij} \leq 1 \\
\\
X_i \in R ,\ \beta_{ij} \in \{0, 1\} ,
\end{cases}
$$

Where the discrete variable x_i can take values in $\{d_{i1}, \dots , d_{in_i}\}$. For an explanation of the equality constraints *

Conclusions

Many engineering optimization problems can be formulated as nonconvex nonlinear programming problems (NLPs) involving a nonlinear objective function subject to nonlinear constraints. Such problems may exhibit more than one locally optimal point. However, one is often solely or primarily interested in determining the globally optimal point.

A key issue in optimization is that of mathematical formulation, as there may be several different ways in which the same engineering problem can be expressed mathematically. This is particularly important in the case of global optimization as the solution of different

mathematically equivalent formulations may pose very different computational requirements. Based on the concept of reduction constraints, the project presents a set of graph-theoretical algorithms which automatically reformulate large sparse nonconvex NLPs involving linear constraints and bilinear terms. It is shown that the resulting exact reformulations involve fewer bilinear terms and have tighter convex relaxations than the original NLPs. Numerical results illustrating the beneficial effects of applying such automatic reformulations to the well-known pooling and blending problem are presented.

This work has provided a literature review of various techniques for the reformulation of optimization problems, with emphasis on the most useful and generally applicable reformulation techniques for deterministic global optimization. This includes exact reformulations leading to standard forms (box-constrained problems, separable problems, binary problems, concave problems, d.c. problems, factorable problems, generic nonlinear problems), exact reformulations which address a specific feature of a problem, and relaxations (convex and linear).

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A STUDY ON QUALITY OF WORK LIFE AMONG EMPLOYEES IN KERALA MINERALS AND METALS LIMITED, KOLLAM

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INTRODUCTION

Quality of work life" is a general expression that covers a person's passions about every dimension of work including profitable prices and benefits, security, working conditions, organizational and interpersonal connections, and its natural meaning in a person's life. Quality of work life(QWL) is a fact that an existent's life can't be compartmentalized and any disturbance on the particular front will affect his/ her professional life and vice-versa. A good work life balance is also what motivates a hand the most to perform well at his or her job and also spend quality time with the family. Therefore, organisations have started to concentrate on the overall development and happiness of the hand for their provocation and reducing his/ her stress situations without jeopardising the profitable health of the company. A good time operation schedule helps workers balance their work and particular life.

The following eight major conceptual categories to provide a frame work for analyzing its salient features.

a)   Adequate and fair compensation

b)   Safety and healthy working conditions

c)   Immediate opportunity to use and develop human capacities

d)   Future opportunity for continued growth and security

e)   Social integration in work environment

f)   Constitutionalism or the 'rule of law 'in the work organization

g)   Work and the total life space

h)   The social relevance of work.

The management of every organization should sincerely invite their employees to suggest ways to improve their operation and the quality of their work life, only if these

ideas are received in a spirit of appreciation. The employees should then be asked to participate in studying the feasibility and recommended appropriate means of implementing each suggestion that survives such review .The quality of life at work probably would then be enhanced .A management practice that manifests concern about job enrichment , employee security , career opportunities and opportunities for employees to have voice in matters which affect them is entirely consistent with meticulously controlled operations in the interest of efficiency , effectiveness quality assurance , customer service , profitability and high employee morale. Cooperation people also conceive of QWL as asset of methods such as autonomous work groups job enrichment, and high involvement aimed at boosting the satisfaction and productivity of workers it requires employee commitment can flourish. Thus QWL is a comprehensive construct that includes as individual's job related wellbeing and the extent to which work experiences are rewarding fulfilling and devoid of stress and other negative personal consequences. Accordingly, the rising number of two-income households is heightening the concern for employee's quality of work life. Given that female participation of work is increasing it is apparent that males and females independently will need to take care of both work and home. Therefore, Quality of work experience rather than work place wiliness is crucial in promoting healthier working environment.

STATEMENT OF THE PROBLEM

Quality of Work Life in an organization is essential for the smooth running and success of its employees. The basic purpose of QWL is to develop jobs and working conditions that are excellent for people as well as for the economic health of the organization, means having quality supervision, quality working conditions, good pay and benefits, challenging and rewarding job etc. Quality of work life is making everything of quality and because of these reasons, this study became worth. An organization 's HR department assumes responsibility for the effective running of the Quality of Work Life for their employees.

OBJECTIVES OF THE STUDY

- To study about the quality of work life among the employees in KMML.
- To understand the effectiveness of working as a group to the quality of work life.
- To identify the major factor that influences the QWL of employees.
- To determine the workload and stress in the job.

SCOPE OF STUDY

The scope of QWL movement which originally included only job design efforts based on the social technical systems approach has gradually widened very much so as to include a wide variety of interventions such as quality circles, suggestion schemes, employee participation, empowerment, autonomous work teams etc. while the specifies of these interventions vary in each case the common elements in all these interventions seem to be as under:

- Focus on Working as Teams
- Autonomy in planning Work
- Focus on skill development and increased responsiveness to employee concerns.

RESEARCH METHODOLOGY

Universe:

Employees of Kerala minerals and metals Ltd who are in the rolls of the organization during the period of survey the total population was around 2000.

Primary Data

Primary data have been collected using a structured questionnaire from the employees (respondents). The objectives and purpose of the study have been explained to the respondents who are in permanent rolls in Kerala minerals and metals Ltd and the data needed for this study has been directly collected from them.

Secondary Data

Data required for this study have been collected from official sources of Kerala minerals and metals ltd. All the industry details provided by the organization have been collected from personnel and administration department. The reports and pamphlets released by the organization is also a source of information.

Data Collection method

Secondary data have been collected from official sources of Kerala minerals and metals ltd. And through their manuals and reports. primary data have been collected through survey method. The tool used for conducting survey was questionnaire a well-structured questionnaire has been formulated as the basis of the objectives framed for this study summated scale (likert type 5 point scale) has been used here .A pilot study has been conducted to know the practicability and statistical amenability of the questionnaire

and accordingly necessary modification was made before final survey close ended questions have been incorporated in questionnaire to bring out the views employees of minerals and metals ltd . Data collected through primary sources have been analyzed for arriving findings and collection.

Sampling frame

List of the employees has been collected from the official records of Kerala minerals and metals ltd and source list or sampling frame has been prepared for the study.

Sample size

The sample size chosen for the study is 110.

Sampling Technique

Sampling technique used for these study is simple random sampling from the sampling frame the respondents needed for this study has been prepared. Employees (respondents) who are working in the titanium dioxide plant of KMML have been selected on a random basis after approaching different departments of employees the respondents needed for this survey has been prepared by a way of covering all the categories of the employees in titanium dioxide plant of Kerala minerals and metals ltd.

Research Tools Applied

 (1) percentage analysis

Percentage analysis is an easy technique to analyze and interpret the collected data. The results are shown n percentage.

REVIEW OF LITERATURE

Thomas A. Wright (2007) used data from a 2 year field study to examine the relationship among psychological wellbeing ,job satisfaction and employee job performance with employee turnover using a sample of 112 managers employed at a large organizations on the west coast of the united states and controlling for employees age, gender ,ethnicity and job performance, wellbeing and job satisfaction were found to predict turnover in a non-additive manner as expected wellbeing was found to moderate the relation between the job satisfaction and job separation ,such that job satisfaction was most strongly (and negatively) related to turn over when wellbeing was low.

G.S. sandhyanair (2013), a study on the effect of quality of work life on organisational citizenship behaviour – with special reference to college teachers is thrissur district, kerala. 8 dimensions of QWL were used for study: Adequate and fair compensation, Safe and Healthy Environment, Growth and Safety, Social Integration, Social Relevance, development of human capabilities, Constitutionalism and Total Life Span and 2 dimensions of OCB: conscientiousness (job dedication) and altruism (helping co-workers) was used as variables. It is a descriptive study and used Inventory to collect required information. The sampling method used in this study is purposive sampling which means sample were selected by the researcher subjectively. T-test was used for the data analysis. The result showed that there is a significant difference in the effect of the QWL on the OCB between Men and Women. The women reported to show higher level of conscientiousness (Job dedication) when compared to men and other one is a significant relationship between the Quality of Work Life and Organisational Citizenship Behavior based on Altruism (helping co-workers).

Sorabsadri& Conrad goveas (2013) studied on sustainable quality of work life and job satisfaction among employees engaged in the freight forwarding and clearing house in Mumbai and observation observed through data collection and chi- square used for the data analysis. The results showed in this study that different factors of QWL such as Safe and Healthy Working Conditions, Adequate and Fair Compensation, Opportunity to Utilize individual skills and talent, Develop Human Capabilities, provide Career and Growth Opportunities varies according to the employees' perception and job satisfaction depend upon the way of perceived the dimensions of QWL.

AnandPawar(2013)studied on QWL and job satisfaction of employees in VTPS to find out the level of satisfaction among the employees with regard to various job related aspects. The study is descriptive in nature and based on both primary and secondary data. The data were collected from the workers and employees of the organization with the help of questionnaire relating to the demographic profile of employees and 20 statements Literature Review on Quality of Work Life and Their Dimensions www.iosrjournals.org 76 | Page relating to various factors of QWL and job satisfaction. The sample was selected based on stratified random sample technique and sample size was 246 employees out of 2464 employees. To measure the QWL and job satisfaction of employees, major factors were included in this study and they include: (i) good wages and salaries; (ii) rewards the talented and hardworking; (iii) a safe and healthy environment; (iv) good working

conditions; (v) good interpersonal relations and (vi) superiors are considerate and helpful. Non-probability sampling technique used to test the hypotheses and chi-square test has been used to find out the relationship between two variables. The result showed that there is dissatisfaction in the interpersonal relations between the cadre wise and no proper grievance handling procedure adopted among the employees which affect the job satisfaction.

K. R.Nia& Maryam Maleki (2013) studied on the relationship between quality of work life and organizational commitment of faculty members at Islamic Azad University under 127 faculty members with sample size of 97 subjects through random stratified sampling. Spearman's correlation coefficient, multiple correlation method, LISREL, Friedman Test was used for data analysis. The T- statistic and Fisher statistic are applied to measure the demographic variables. Result showed that there is positive relation between the QWL and organisational commitment it means organisation commitment is the result high QWL.

H. Mohammadia& M. A. Shahrabib (2013) conducted a research on relationship between quality of work life and job satisfaction, it is an empirical investigation. Questionnaire in Likert scales format and distributed among 86 full time employees of two governmental agencies in Iran, Supreme Audit Court and Interior Ministry and t-test used to examine the hypothesis. The results indicated that different working components have significantly influenced on job satisfaction.

S.Khodadadi et al (2014) investigated the QWL dimensions effect on the employees' job satisfaction. In this study independent variables were permanent security providing, salary and benefits payment policies, development and promotion opportunity, and job independence, job satisfaction as the dependent variables. 114 employees selected randomly for this study and two questionnaires of "quality of work life" and "job satisfaction" were used for data collection and Data analysis was done by using SPSS and LISREL software. The results of the study showed that the salary and benefits policies have a significant and positive effect on Shuhstar's Shohola Hospital employees' job satisfaction.

To find out the things that affect employee performance, researchers conducted a study of the factors that affect performance by conducting research on scientific journals published in the time span from 2018 to 2021. Some of the independent variables that affect performance are work motivation (Adha et al., 2019; Arista & Kurnia, 2019; Chien et al.,

2020; Hasmalawati, 2018; Panjaitan & Tiarapuspa, 2021; Siddiqi & Tangem, 2018), job satisfaction (Asmawiyah, 2021; Citrawati & Khuzaini, 2021; Herlissha & Riyanto, 2020), work environment (Alameeri et al., 2021; Hafee et al., 2019; Simbolon et al., 2018), quality of work life (Al-Otaibi, 2020; Daniel, 2019; Fatmasari et al., 2018; Hermawati et al., 2019; Mohammadi & Karupiah, 2020; Perangin-angin et al., 2020; Thakur & Sharma, 2019), organisational culture ((Jufrizen & Rahmadhani, 2020; Kamalakannan, 2021; Purwanto et al., 2020) and employee engagement (Ahakwa et al., 2021; Leitão et al., 2019; Wicaksono & Rahmawati, 2020). Based on the results of the above research, there are differences in research results on the variable quality of work life by (Al-Otaibi, 2020; Daniel, 2019; Perangin-angin et al., 2020) which states that quality of work life affects performance, while (Asharini et al., 2018; Hermawati et al., 2019) states that quality of work life has no effect on performance.

RESULTS AND DISCUSSION

This study of Quality of Work life was conducted in Kerala Minerals and Metals Ltd (KMML), Kollam with a sample size of 110. Data was collected by using questionnaires and the final reached findings are discussed below.

TABLE 1: PROFILE OF RESPONDENTS

PARTICULARS	NO.OF RESPONDENTS				PERCENTAGE(%)			
Gender	**Male**		**Female**		**Male**		**Female**	
	65		45		59.1		40.9	
Marital Status	**Single**		**Married**		**Single**		**Married**	
	13		97		11.8		88.2	
Age	**20-30**	**30-40**	**40-50**	**Above 50**	**20-30**	**30-40**	**40-50**	**Above 50**
	15	40	39	16	13.6	36.4	35.5	14.5
Experience	**0-5**	**05-10**	**10-15**	**Above 15**	**0-5**	**05-10**	**10-15**	**Above 15**
	15	40	45	10	13.6	36.4	40.9	9.1

TABLE 2: RESPONDENTS VIEW					
rticulars	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My work is interesting	49	12	34	9	6
The job security is good in my company	43	48	19	0	0
I receive good fringe benefits	42	45	12	8	3
I am well trained for my job	51	36	14	9	0
I am motivated enough to do my work	39	35	36	0	0
The physical environment of my work is satisfactory	56	36	18	0	0
High priority given to safety of workers	36	54	20	0	0
I can work well in the atmosphere (considering regulations management style, structure & other workers attitudes)	20	48	42	0	0
The relationship with my supervisor is good	36	23	39	9	3
I can balance my work life and personal life					
The workload and stress in my job are at a reasonable level	15	26	48	18	3
I am usually involved with the decisions that affect my work	39	36	12	23	0
My work as a group is interesting and lets me complete jobs easily	26	45	24	9	6
Meetings of the group are held often enough	25	44	26	7	8

I receive enough help and equipment to get the job done	48	36	14	9	3
I am given a lot of freedom to decide how to do my own work	40	35	30	5	0
I have enough time to meet family and job demands	24	17	45	18	6
At the workplace ,i am treated with respect	26	45	24	9	6
My main satisfaction in life comes from my work	20	30	40	15	5

A study on quality work life among the employees in Kerala Minerals & Metals Ltd" has been under taken to study the nature of the tasks performed by different categories of employees and their feeling about their job, thought of employees about the physical environment prevailing in the organization, relationship maintained with other employees and the benefits received. The source of information for this study has been collected from the personnel and HR Department of titanium dioxide pigment unit of KMML. manuals and respects published by Kerala minerals and metals Ltd and the same is also the source of the information for making preparation for this study. Method used for conducting survey was through questionnaire.

From the employee's response, there is statistically significant relation between the Age and the stress level and also there is statistically significant relation between the Work is interesting and Salary. There is an association between job security and experience and also there is an association between work load and stress

 FINDINGS

- There is a relation between the marital status and motivation to do work and also the Interest in work and Salary. There is an association between job security and experience and also between the work load and stress.

- 36.4% of the respondents are between 30-40 years of age is revealed by the study.

- 88.2% of the respondents are Married as revealed by the study.

- 59.1% of the respondents are male as is revealed by the study.

- 40.9% of the respondents have between 10-15 years of experience as revealed by the study.

- 44.5% of the respondents strongly agree that their work is interesting is revealed by the study.

- 43.6% of the respondents agree that the job security is good in the company is revealed by the study.

- 40.9% of the respondents agree that they receive good fringe benefits is revealed by the study.

- 46.4% of the respondents strongly agree that they are well trained for their job is revealed by the study.

- 35.5% of the respondents strongly agree that they are motivated to do their work is revealed by the study.

- 50.9% of the respondents strongly agree that the physical environment is satisfactory is revealed by the study.

- 49.1% of the respondents agree that high priority is giving to the safety of workers is revealed by the study.

- 43.6% of the respondents agree that they can work well in the atmosphere is revealed by the study.

- 35.5% of the respondent's neutral in their opinion that the relationship with their supervisor is good is revealed by the study.

- 43.6% of the respondent's neutral in their opinion that the work load and stress is reasonable is revealed by the study.

- 40.9% of the respondents agree that their group work is interesting and help them complete their job easily is revealed by the study.

- 43.6% of the respondents strongly agree that they receive enough help and equipment to get the job done is revealed by the study.

- 40.9% of the respondent's neutral in their opinion that they get enough time meet their family and job demands is revealed by the study.

- 40.9% of the respondents agree that in the work place they are treated with respect is revealed by the study.

- 36.4% of the respondent's neutral in their opinion that their satisfaction in life comes from their work is revealed by the study.

- 35.5% of the respondents strongly agree that they are usually involved with the decisions that affect their work is revealed by the study.

- 40.9% of the respondents agree that they can balance their work life and personal life well is revealed by the study.

- 40% of the respondents agree that the meeting of the group are held often is revealed by the study.

- 36.3% of the respondents agree that they are having freedom to decide how to do their own job is revealed by the study.

SUGGESTIONS

Quality of work life of employees in Kerala minerals and metals Ltd is on the positive side. In order to improve the quality of work life of employees in the organization the management can concentrate in following areas.

➢ More focus has to be given in assigning the work load and chance for stress in accordance with the age of the employees.

➢ Similarly, efforts should be taken to maintain work life balance with respect to experience of the employees.

➢ The management has to show interest in and explore the possibility to provide skill development to a greater extent.

➢ The scope of this practice should be extended by collecting the data about the change in job performance and feedbacks periodically.

➢ Measures has to be implemented to finish the work in the office hours or by allowing to extend the work time and facilities, allowances as only less numbers of the employees stated as they are interested in working at home as part of job.

- The efforts to co-ordinate and enhance the relationship between employee and the groups should be taken with responsibility by the respective departments heads.

- In order to strengthen the inter personal relation of employees with their superior the heads of departments can conduct departmental meetings periodically and encourage all the employees to give their views without hesitation.

- The management also facilitate to have get together at section or department level for reducing the gap between employees and managers.

- Employees of KMML Require educational facilities to be offered in the organization to facilitate more chances for their children to get admission in premier institutions for the betterment of the wards of employees.

- The gap between the managerial employees and workers has to be reduced and the relationship has to be strengthened.

- The need of the organization has to be properly explained to the employees during counseling sessions and make the employees to feel that they are part and parcel of the organization.

CONCLUSION

Modern organization are taking continuous efforts to improve the quality of work life of its employees. There organization are very much interested in attracting potential condition in the market, trying to retain the efficient manpower and making attempts to reduce turnover rate of employees.

Being a government of Kerala undertaking, Kerala minerals and metals Ltd is also taking steps to improve the quality of work life of its employees. For making any improvement. it is necessary to know the prevailing environment in the organization through the views expressed by its employees. Therefore, an attempt has been made to gets the view of employees of titanium D oxide plant about the quality of work life enjoyed by them. The outcome of the study will facilitate the authoritarian to know the pulses of employees and their expectation and makes improvements in the quality of work life of employees.

The Data needed for this study have been collected through official's source and primary data was collected directly from the respondents selected for the study. The collected data have been compiled and analyzed based on the analysis the findings of the

study have been listed and suggestions have been offered to strengthen the prevailing quality of work life of employees of Kerala minerals and metals ltd.

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IMPACT OF COVID -19 ON INDIAN EDUCATION SYSTEM

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Abstract:

Education is the most important weapon for every nation to progress and flourish. Due to Coronavirus (COVID-19) pandemic, The Indian education system is facing major challenges. There is a major setback to the systematic method of classroom learning further leading academicians, parents and students face multiple issues in adapting to the present situation. With this background an attempt is made to know how COVID -19 is creating challenges amongst Institutions, Academicians, Students and Parents. It also focuses on challenges faced during technology adoption, education, learning process, student's engagement and the awareness of parents through the pandemic. Keywords: COVID-19, Virtual learning, Institutions, Faculty, Students, Parents.

INTRODUCTION

The COVID-19 is a novel illness linked to the identical family of viruses as SARS - Severe Acute Respiratory Syndrome and some types of a common cold. The acronym of COVID-19 is CO for corona, VI for the virus, and D for the disease. The indications of COVID-19 can contain cough, high fever and shortness of breath. In severe cases, the infection can cause pneumonia or breathing problems or even death. The infection is transferred through direct contact with respiratory drops of an infected person-generated over sneezing and coughing. People can also be infected by touching surfaces tainted with the virus and touching their faces and the virus can enter the human body through eyes, nose and mouth. Due to this deadly pandemic, the Indian government had to call for a "Janatha Curfew" where people had to adhere to home quarantine for 21 days. The sudden lockdown eventually led every sector to suffer losses. Schools and colleges shut down momentarily impacting the education system. It created a major transformation from systematic classroom learning to online learning. The rush towards virtual learning posed major challenges in adopting new technology were poorly resourced educational institutions suffered coping up with the trend. Faculties who lack technical knowledge faced issues in adopting a new set of online teaching skills, students had to suffer infrastructural issues such as substandard internet connectivity, lack of modern gadgets, and on the other hand, parents

had to cope up with domestic chores, working from home and monitoring children during online classes.

OBJECTIVE

The sole purpose of this study is to comprehend the impact of the COVID-19 outbreak on Indian educational institutions, teaching fraternity, students and parents.

RESEARCH METHODOLOGY

The study has been done on the basis of secondary data in order to know the impact of COVID – 19 on the Indian education system. The data for the study has been extracted from works of previous literature, related websites and research articles.

REVIEW OF LITERATURE

Ms Veena Shenoy et al. (2020) focused on the adoption of modern technology in teaching and learning process and the engagement of students and experience of faculties towards virtual classroom during Covid19 pandemic in Bangalore. This study discusses about the positive side of virtual learning on students and faculty. Authors found that the involvement of students was higher than regular classes and faculties seem to be more creative adopting modern technology.

Amber Murrey et al. 2020 though there are many advantages due to the adoption of modern technology in the educational system, it also pushed lecturers to face many hurdles like racism, retrenchment and exploitation. They have to be very efficient for their surveillance and go through humiliation like Zoom bombing. They opined the critical pedagogies had to face challenges to teach efficiently in this situation and to push against the exploitations on them

Crawford et al. 2020 this paper is focused on challenges faced by the global higher education community and the authors gave us the insight on inter- period higher education responses to Covid-19 and adoption of technology across 20 countries. Many Universities and Governments are trying to implement pedagogical learning during this pandemic situation and make digital learning simpler.

Dr. Pravat Kumar Jena 2020 mentioned in the research about the importance of online education during the pandemic situation. In order to keep students, educated Government initiated many online courses and platform under MHRD and UGC for school students, UG

and PG students. He also suggested that the government should consider providing free online course materials, open internet access and free digital gadgets to all students to encourage online education.

Dr. Pravat Kumar Jena 2020 researcher in his article discussed both favorable and harmful impacts of COVID–19 on Indian education system. He mentioned that Indian students are not well equipped in terms of technology to adopt online education; on the other hand, The Indian government is trying to come up with a solution to resolve these issues and reach remote areas and minority groups for better education. Dr. Zamira Hyseni Duraku

Dr. Linda Hoxha 2020 in this paper explored perceived anxiety and stress among students, their lifestyle and attitude towards online learning. The outcome of the study is the majority of the student's exhibit mild psychological, perceived stress, and somatic anxiety. Providing emotional support to students during this pandemic time might reduce the anxiety and stress level.

Utsav Raj 2020 the author has done a literature review of ten papers to understand the effect of Covid-19 on Indian education system and he concluded that currently the Indian education system is not ready to Opt online education due to poor Indian Infratech and needs to improvise on Internet, electricity and E-learning facilities.

Waqar M. Naqvi1, Arti Sahu 2020 Covid-19 has posed challenges on global education system due to social distancing and rate at which the virus spread pushed schools and colleges towards closure. In this study authors tapped on adverse effects of pandemic and mentioned the roles of UNESCO, World Bank and the response of Chinese universities to cope up from this situation.

COVID-19 CHALLENGES TO INDIAN EDUCATION SYSTEM

 Lockdown changed the perspective of schools and college learning system. As traditional Indian class room learning are converted to digital learning suddenly, due to coronavirus and shutdown of temporary education system in India, both students and educational institution faces difficulties to adopt digital learning is the most common challenge faced. Also the quality content is major common challenging i.e. learning through online class room should reach the students with full quality learning and clear understanding of concepts. The new adoption of this digital technology was reluctant for students and teachers. This new technology faces many competitive edges in digital learning. Network

issue and lack of concentration in online classes rapidly decrease the interest in learning of an individual and also decreases the effectiveness of learning. Some private and government school and colleges are not able to implement basic needs of digital learning. Online class has a huge gap between teachers and students and this causes lack of interaction in an individual. The main challenge of digital learning in India is huge difference between in urban and rural schools. Rural schools should be improved by government by giving proper training to pursue education through online. Most of the parents cannot afford internet connection for their children to study. Migration of people from one place to another due to pandemic situation sometimes causes loss of education. Other than online classroom students cannot attend coaching class for competitive exams like NEET, JEE, CAT etc. India has ranked 129th out of 180 countries on the Human Development Index (HDI) as per UNDP. School Education GER is approximately 74% and for Higher education GER is 26.5% for the year 2018-19, due to the COVID-19 India faces lot of pressure on education system. India has to improve lot in online education system by developing more effective online leanings, new ideas and productive, improving professional skills through assessing online and improvement of quality of online education. Government of India should take steps in improving education system and the challenges faced in online classes.

COVID-19 OPPORTUNITY TO INDIAN EDUCATION SYSTEM

Coronavirus has given a great opportunity to Indian education system to improve and develop more and more. Any change can disruptively bring some new opportunities that will transform the education system to worldwide. This opportunity gives India to reform the education sector to worldwide. This pandemic situation has taken India to next advanced level of education through online classes. Proper development of basic needs of online classes can be implemented and developed all over India. Current development in education system changes the structure, method, concepts and way of learning with seamless integrating with digital learning modes and this builds a unified learning system. This method gives cost effective for both school and colleges. Different e-learning platforms can be introduced. Government of India can develop rural schools and colleges by developing basic needs of digital learning. Through this online education system government schools and colleges can be developed. Schools and colleges will change their model of learning. This opportunity will demand teachers to go through some training and change themselves to the level that would be required for digital learning. Distance learning has given many opportunities to teach differently and learn differently, self-learning is encouraged,

providing more and more opportunities to learn from the diverse resources. This change gives great opportunity for schools and colleges, to improve and develop the quality of the learning material which is used in the teaching and learning process. Digital learning will be the new format of learning. There is lot of requirement needed to find new ways to design, develop and deliver quality of learning content. Learning management systems will bring more openness and transparency in education system. A large number of educational trainings, classes, meetings, seminars, assessment and conferences will be handled through online. This opportunity gives possibility to new form of business model in future. This education system is forcing teachers to reinvent their roles and responsibility by transferring information to enabling learning system. Government of India can allocate funds for digital education system. The Ministry of Indian education is planning to develop high quality E-learning application. By this development of application for digital online education system parents or guardians are responsible to play a major role in educating their children. Google Classroom is a free web service given by Google, where.

CONCLUSION

From the study it can be concluded that COVID – 19 has definitely created problems to Indian educational system, the smooth functioning of classroom learning has shifted to online learning leaving educational institutions, students, faculties and parents to go through many hurdles in adopting new technology, virtual model of teaching and learning, managing work and ensuring children are adept and engaged. Institutions can also look at the larger picture to analyze how they could marry the old traditional way of teaching with the modern technologically advanced way of coaching. It will be much easier to cope with the situation if the Government provides better internet connectivity, proper power supply and educate people about the functionality and importance of virtual learning.

Thus this paper provides an overview of impact of COVID-19 on education system of India. The education system of India due to lockdown is going to cause major interruption in students learning. As a result, Indian education system converted to next advanced level of education. Government of India should plan according to develop the digital platform. By this development government schools can make use of TV for classes which will be cost effective and direct reach to economically back students and also geographically reachable. The coronavirus pandemic has changed education system of India. New solutions for

education could bring more ideas, innovation and technological development. This new solution can widen equality gaps of education.

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A study on the factors affecting Gold Exchange Traded Fund as an investment option among investors

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Abstract

In India, gold ETFs have been around for over 10 years in India but they are yet to take off in a big away especially considering that gold prices have been on a secular downtrend since September 2011. A Gold ETF is an exchange traded fund to track the domestic physical gold price. It is designed to provide investors with exposure to price movements of gold without actually owning physical gold. Gold ETF are passive investment instrument that are based on gold prices and invest in gold bullion. . Gold ETFs are intended to offer investors a means of participating in the gold bullion market without the necessity of taking physical delivery of gold. Gold ETF combine the flexibility of stock investment and the simplicity of gold investment. Gold ETF are subjected to market risks impacting the price of gold. Investors can exposure to gold without having directly purchase but limited studies are available to understand the demographic and economic factors which affect the investment decision. This study will help the investors to understand the demographic and economic factors which drive to investment decision.

Key Words: Gold Exchange Traded Fund, Investment decision.

INTRODUCTION

Gold has been a symbol of wealth since ancient times and even in the information age has managed to maintain its relevance as an investment. India is a one of the countries which is Gold-centric from times immemorial. Gold has traditionally been extremely popular with Indians. Gold is used as a liquid asset and also as an investment commodity. Significantly gold is often brought as an investment in terms of liquidity and to counter losses that may occur from other type of investment. A Gold ETF is an exchange traded fund to track the domestic physical gold price. It is designed to provide investors with exposure to price movements of gold without actually owning physical gold. Gold ETF are passive investment instrument that are based on gold prices and invest in gold bullion. Gold ETF are units representing physical gold which may be in paper or dematerialized form Gold ETF are

listed and traded on the National Stock Exchange of India and Bombay Stock Exchange ltd. Like a stock of any company Buying gold ETF means you are purchasing gold in an electronic form. Gold ETF can be bought and sold continuously in the market like any other company stock. When you actually redeem ETF you don't get physical gold, but receive the cash equivalent.

One gold ETF unit is equal to 1 gram of gold and it is backed by physical gold of very high purity. These units are traded on exchanges. Gold ETFs are structured as open-ended mutual funds or grantor trusts. Gold ETFs are intended to offer investors a means of participating in the gold bullion market without the necessity of taking physical delivery of gold. Gold ETF combine the flexibility of stock investment and the simplicity of gold investment. Gold ETF are subjected to market risks impacting the price of gold.

STATEMENT OF THE PROBLEM

In India gold ETFs were drives fundamentally with the intention of building liquidity for market proficiency. Investors can exposure to gold without having directly purchase but limited studies are available to understand the demographic and economic factors which affect the investment decision. This study will help the investors to understand the demographic and economic factors which drive to investment decision.

OBJECTIVES OF THE STUDY

> To understand the demographic factors influencing investment decision in gold exchange traded fund.

> To understand how much money, the investors are willing to invest and how frequently they are investing.

> To analyze the economic factors affecting the investment decision in Gold Exchange traded funds.

SCOPE OF THE STUDY

This study analyzes various demographic and economic factors affecting investment decisions in gold exchange traded funds. The demographical factors such as age, gender, education, income, marital status and economic factors such as exchange value, demand and supply, interest rates, market movements are analyzed.

SIGNIFICANCE OF THE STUDY

The purpose of this study is to analyze the demographic factors like age, gender, education, income, marital status and economic factors like exchange value, demand and supply, interest rates, market movement, future securities are affecting gold exchange traded fund . This study will also explore the willingness of the investors to invest in gold ETFs

HYPOTHESIS

- $H0^1$: There is no impact of demographic factors on investment decision in gold exchange traded fund

- $H0^2$: Economic factors have no impact on investment decision in gold exchange traded fund

HYPOTHETICAL MODEL

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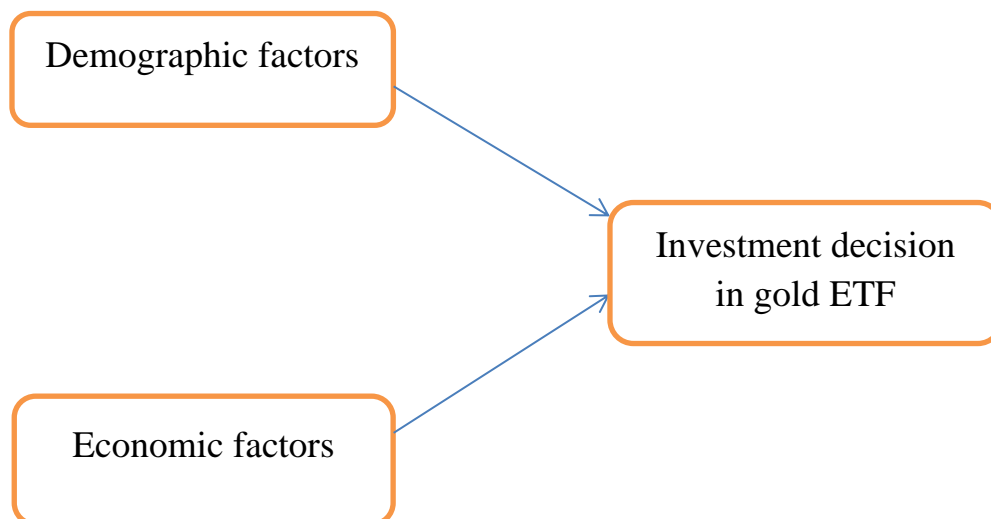
RESEARCH GAP

An investigation into the existing literature reveals that there are enough studies conducted in the physical gold and limited studies are carried in digital gold like gold exchange traded fund. There are limited studies conducted with the demographic and economic factors affecting the investment decision in gold exchange traded fund and that is the reason for the current study.

RESEARCH METHOD

Exploratory research is used for this study which investigates research questions that have not previously been studied in depth.

POPULATION OF THE RESEARCH

Gold ETF investors

SAMPLE SIZE

100 samples taken to study the impact of factors affecting investment decision of gold exchange traded funds.

SAMPLING DESIGN

Convenience sampling technique was used for this study because there are often a large number of investors, making it difficult to reach and gather data from all of them.

DATA COLLECTION TECHNIQUE

Both primary and secondary data are used. Primary data are collected from the gold ETF investors using a structured questionnaire. For the purpose of analyzing the factors affecting the investment decision of gold ETF a structured questionnaire with 34 questions was used in this study for collecting data from investors.

TOOLS FOR ANALYSIS AND INTERPRETATION

Analysis and interpretation were being done with the statistical tool SPSS. Regression test is used for the analysis.

RESEARCH FINDINGS

- $H0^1$: There is no impact of demographic factors on investment decision in gold exchange traded fund.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.376	5	.075	.360	.875[b]
	Residual	19.664	94	.209		
	Total	20.040	99			

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The above ANOVA table shows the regression model shows that the model is statistically significant at 5 percentage significance level.

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.825	.279		2.954	.004
Gender	.003	.102	.004	.031	.975
Age group	.054	.050	.148	1.085	.281
1 Educational qualification	.050	.063	.089	.797	.427
Income range	-.041	.058	-.099	-.714	.477
Marital status	.080	.106	.085	.752	.454

(Source; primary Data)

Interpretation

The test was carried out with the objective of assessing the impact of demographic factors on investment decision in gold ETF. As the scale out test falls below 0.5 percentage significance level there is significant association between the variables and above 0.5 there is no significant association between the variables. The above table shows that Age, educational qualification, income range and marital status has .004% significance that means these demographic variables has impact on investment decision in gold ETF; so the null hypothesis used has been rejected. Only gender is having more than 0.5% significance with .975% it reveals that gender has no impact on investment decision in gold ETF; so the null hypothesis used has been selected.

$H0^2$: Economic factors have no impact on investment decision in gold exchange traded fund

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	100.014	18	5.556	8.132	.000[b]
Residual	55.346	81	.683		
Total	155.360	99			

The above ANOVA table shows the regression model shows that the model is statistically significant at 5 percentage significance level.

(Source; primary Data)

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Interpretation

As the scale out test falls below 0.5 percentage significance level there is significant association between the variables and above 0.5 there is no significant association between the variables. From the above table the researcher finds that exchange value having impact on investment decision as they having less than 0.5% significance level so the null hypothesis has been rejected. Demand and Supply changes were below 0.5% significance level so the null hypothesis used is rejected and the alternative hypothesis has selected that there is impact on demand and supply in investment decision. Interest rates have above 0.5% significance level so the null hypothesis has been selected that there is no impact on interest rates on investment decision. Market movement has impact on investment decision because it has above 0.5% significance level. Future security of gold ETF has impact on investment decision on gold ETF. Overall the economic factors like exchange value, demand and supply, market movement and future security has impact on the investor's investment decision but the interest rate has no impact on investment decision on gold ETF.

FINDINGS

The study makes an attempt to find out the impact of demographic and economic factors effects on investment decision on gold exchange traded fund. This study helps to know the important factors that affect investment decision of gold ETF investors. The study covers the gold exchange traded fund investors. The data was collected through the help of structured questionnaire and it is analyzed by using regression analysis. The key findings of the research have been furnished below;

- The study reveals that majority of the respondents approximately 48% of the respondents are investing in gold ETF on monthly basis and only 14% are investing on daily basis.

- Analysis reveals that a significant proportion of investors prefer medium term investment (1-3 year) for their active investment plan.

- Out of 100 respondents 52% of respondents are planning to invest on lump sum investment plan and 48 % prefer systematic investment plan

- Analysis reveals that a significant proportion of investors approximately 36% invested Rs10000 in their gold ETF,32% were invested Rs10001-20000

- It was observed that majority of the respondents were comfortable to invest large amount in their gold ETF. Out of 100 respondents only 18% of respondents were not comfortable to invest larger amount in gold ETF

- Most of the gold ETF investors monitor their investment on monthly basis. Out of 100 respondents 50% of the respondents monitor their performance on monthly basis, 30% were on weekly basis, 16% on daily basis and only 4% of the gold ETF investors were monitoring their investment on yearly basis.

- Analysis reveals that a significant proportion of investors approximately 60% gold ETF investors primary goal for investment is inflation protection.

- Out of 100% of the respondents, it was found that majority of the investors approximately 52% of investors impacted by interest rates and very less investors were influenced by market movement.

- From the regression analysis the study finds that demographic factors like age, educational qualification, income range and marital status have impact with gold ETF investors. Gender has no impact with investment behavior of gold ETF investors.

- From the test result, it finds that economic factors have impact with investment decisions of gold ETF investors and we reject the null hypothesis and accept the alternative hypothesis.

SUGGESTIONS

- The investors should understand the risk involved in investment. Because market activity is regularly monitored, investors can select the optimal gold ETF for their risk tolerance.

- ETFs can be more tax efficient than actively managed funds so the investors can increase their investment into gold ETF.

- Investors should set a primary goal before investing it should match their investment potential.

- Gold ETFs tend to have much lower cost than other investments so the investors can increase their investment into gold ETF.

CONCLUSION

The study on the topic "A study on the factors affecting Gold Exchange Traded Fund as an investment option among investors" provides the valuable insight into the factors affecting investment decision of gold ETF investors. However, the research has examined the various factors affecting investment decision including the how much money the investors are willing to invest. The findings of the study highlight the significance of understanding the investor's demographic and economic factors. It is observed that demographic factors such as age, educational qualification, income, marital status and economic factors such as exchange value, demand and supply, future security have impact on the investment decision of the gold ETF investors.

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A study on Occupational Stress among Co-operative Bank Employees

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Abstract

People from all walks of life should deal with stress because it seems to be a universal aspect. Employees who work for multiple firms ought to be sensitive to stress. The study aims to investigate the stress-related issues and factors causing stress among cooperative bank employees, and thus to know the impact of stress among the employees. The study reveals that, stress lead to poor employee performance, poor labor quality, and absenteeism within the organization. Health issues including anxiety, sadness, headaches, and backaches are also brought on by it. In this study, four factors that contribute to workplace stress were investigated: workload and time pressure, digitalization, difficult to get balance between work life and personal life, and high customer expectation. Primary data have been collected from 100 respondents using well-structured questionnaire. Convenient sampling method is used for the study. The results show that the stress and productivity are highly correlated.

Key words

Employee performance, digitalization, customer expectation

Introduction

Stress is a state of tension that affects both your body and mind. Stress is a person's adaptive reaction to a circumstance that they view as difficult or dangerous to their well-being. A company develops stress more likely as situations become more complicated. Rising stress is attributed to various factors, including urbanization, industrialization, and income-related operations scale. A considerable portion of studies has focused on the workplace because it is commonly recognized as a primary source of stress.

The latest increase in bank stress is very concerning. The working environment and daily lives of bank employees have changed as a result of new technology and organizational methods, which has led to stress. Additional reasons that cause stress among workers in the banking industry include increased rivalry, expanding client demands, rapid customer service, time pressure, target and job conflicts, and others.

Statement of the Problem

When we are under pressure or threatened, we react by being stressed. Every human life can be connected to stress, and it will always be a part of life. But not all stress is negative. Every human experience stress, but bankers experience it the most frequently. It has grown to be a major source of worry for co-operative banking sector employees. The need to constantly refresh their technical knowledge puts extra stress on those who work in the co-operative sector. In the current study, an effort is made to comprehend the stress-reduction techniques. The Govt. and management of banking organizations must take corrective action to counteract the detrimental effects of staff stress. Scheduled banks may offer different type of digital services and charge different fees. The comparison between banks regarding the digitalization leads to stress.

Objectives of the Study

- To evaluate how workplace stress affects the output of the Cooperative bank personnel.
- To determine the causes of the occupational stress
- To comprehend the stress-reduction techniques used.

Hypothesis

- ❖ **H0:** There is no correlation between occupational stress and productivity of the employees

- ❖ **H1:** There is correlation between occupational stress and productivity of the employees

Review of Literature

Mrs. Caral Lopes, Ms. Dhara Kachalia (2016) have investigated both governmental and private banks. They have demonstrated how technology advancement has transformed the banking industry and increased worldwide competition due to the state of the economy these days. According to the study, there is a connection between the type of banks, age, gender, and education, as well as the job, role, interpersonal relationships, and the impact of occupational stress. Therefore, the employee in the banking industry should adopt new coping mechanisms to preserve good physical and mental health in order to increase productivity.

B. Kishori & B. Vinothini (2016) It has been determined that the productivity of the workforce is a key determinant in an organization's success. An employee in today's highly competitive and dynamic environment is exposed to a wide range of difficulties that can have an impact on many aspects of their lives. The purpose of the research was to examine how working under stress affected the staff of Nationalised Banks.

Dr. P.Kannan&Suma.U (2015) stated that in order to reduce stress, the company must promote employee growth and implement training interventions aimed towards workers. The organization should assist and encourage employees to take on tasks that will help them balance work and family matters. Stress in the banking sector is mostly caused by excessive job pressure and work-life imbalance.

Dr. Vishal Samartha&Dr. Mushtiary Begum, et al. (2014) In any line of work, stress is inevitable, and banking is no exception. This study indicated that stress among bank employees was primarily brought on by issues including performance pressure, poor workplace planning, shift to flexibility, family demands, and a lack of effective manpower.

Khurram Zafar Awan and Faisal Jamil (2012) According to their study, "A comparative analysis: Differences in total job stress levels of permanent staff in Private and Public sector banks. Employees in the public sector are more impacted by some variables than those in the private sector, but overall, the public sector is deemed to be more stressful.

Bashi.usman et.al (2010) examined the connection between work stress and performance. The findings show a negative correlation between job stress and job performance, and studies show that job stress considerably lowers employee performance. The amount of stress at work decreases the desire of workers to do their jobs more effectively. We can infer that gender-neutral or non-gender-centric stress management is not possible.

Research Methodology

The following research approach has been adopted with the goal of moving the study forward in an orderly way.

The information is gathered using surveys with the help of the co operative bank staff. The study's sample consists of Kunnathunadu Taluk Cooperative employees. The study comprises a sample of 50 Co-operative bank employees. The technique used in the survey is convenient sampling. Primary and secondary data sources are mostly employed in this analysis. Primary data are gathered via questionnaires, while Secondary data for the

proposed study are gathered from a variety of articles, journals, media reports, and websites. Simple percentage analysis has been used for the study.

Tools used for Analysis

The data were classified and analyzed with the help of statistical tools. Simple percentage analysis and correlation analysis are the statistical techniques used.
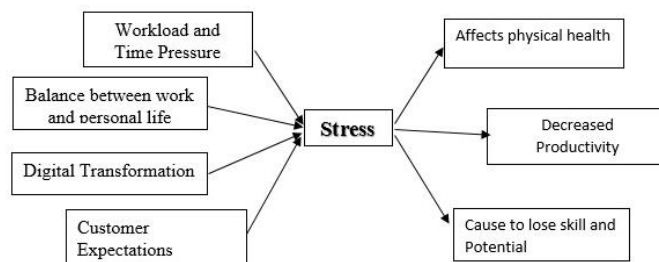
Research Model

Table 1: Responses for the various questions

	Responses in Percentage			
	Factors	Agree	Neutral	Disagree
Work Environment				
1	I enjoy the job at work place	82	10	8
2	I am satisfied with the working environment	60	30	10
3	I could balance my work life and personal life.	38	20	42
4	I believe that deadline to complete a project leads to stress	60	25	15
5	I think that increased workload leads to stress	61	28	11
Stress Management				
6	Stress management facilities are helpful	84	4	12
7	Appreciation has a major role in stress management	55	20	25
8	I can manage my job stress	68	14	18
9	I am stressed at work place	72	14	14
Aftermath of stress				
10	I feel that stress affects physical health	50	26	24
11	I feel that stress leads to decreased productivity	60	30	10
12	I feel that being stressed, I lose my skill and potential	40	15	45
13	Stress force me to be absent from work place	55	20	25

(Source: Primary data)

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The above table shows that a significant portion, 50%, does not find enjoyment in their current job, while 54% express dissatisfaction with the working environment. Despite 42% achieving a balance between work and personal life, a substantial 60% and 61% attribute stress to project deadlines and increased workload, respectively. Stress management facilities are deemed helpful by a majority (84%), and 55% emphasize the role of appreciation in stress management. However, a concerning 68% admit to being unable to effectively manage job-related stress, with 72% experiencing stress at their workplace. Physical health is reported to be affected by stress (50%), and 60% perceive a decrease in productivity. Furthermore, 45% feel that stress results in a loss of skills and potential, while 55% attribute absenteeism to stress. These findings underscore the multifaceted impact of stress on both professional and personal dimensions of respondents' lives, highlighting the need for effective stress management strategies in the workplace.

Table 2: Data Analysis

Stress (x)	40	32	14	7	7
Productivity (y)	30	24	20	18	8

R value = 0.925

The above table shows that Stress and Productivity of the employees are highly correlated.

Findings

- The study reveals substantial challenges in the workplace, with half of the respondents not enjoying their jobs

- A majority expressing dissatisfaction with the working environment.

- Stress is prevalent, with high percentages attributing it to deadlines and workload.

- Stress management facilities are perceived as helpful by most

- Many still struggle to manage job-related stress, leading to adverse effects on physical health, productivity, and skill retention.

- Absenteeism is also a concern, indicating the significant impact of stress on workplace attendance.

- Recognition and support, particularly through appreciation, emerge as key factors in stress management, suggesting areas for intervention to improve overall well-being and job satisfaction among employees.

Suggestions

Employee occupational stress reduction at cooperative banks necessitates a multifaceted strategy that takes into account their work environment, job responsibilities, and personal wellbeing. Here are some recommendations

- Implement effective project management and prioritize tasks.

- Provide ongoing training to enhance employees' skills and confidence in performing their tasks

- Ensure that employees are adequately trained for new technologies and changes in procedures.

- Encourage feedback and suggestions from employees.

- Encourage the use of vacation days and breaks to help employees recharge.

- Recognize and reward employees for their contributions.

- Promote healthy lifestyle choices and encourage physical activity

- Create awareness about mental health resources available to employees.

Implementing a combination of these strategies can contribute to a healthier and less stressful work environment for co-operative bank employees

Conclusion

In conclusion, there is an urgent need to address workplace stress among employees of cooperative banks. Improving well-being and productivity inside the company can be achieved by addressing this issue through work-life balance, a healthy work environment, and employee support programs. Setting aside time for mental health programs and maintaining open lines of communication can reduce stress and eventually build a more resilient and engaged team.

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The traumatic experience of child abuse in *The Bluest Eye* and *God Help the Child* by Toni Morrison

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ABSTRACT: Child abuse is an act with the aid of using a discern or caregiver which leads to capacity damage to baby inflicting injury, death, emotional damage or Chance of significant damage and may arise in a baby's home, or within side the organizations, colleges or groups the kid interacts with. The phrases baby abuse and baby maltreatment are regularly used interchangeably, despite the fact that a few researchers make a difference among them, treating baby maltreatment as an umbrella time period to cowl neglect, exploitation, and trafficking. There are many sorts of baby maltreatment, such as neglect, Bodily abuse, sexual abuse, exploitation and emotional abuse. Child abuse may be a unmarried incident, or may be some of different Incidents that take vicinity over time. The modern-day paper goes to attention at the demanding revel in of baby abuse in Noble Laureate African American novelist Toni Morrison with recognize to her novels The Bluest Eye and God Help the Child. Further each the novels will discover how kids in each the novels suffers from bodily, emotional, sexual abuse and the manner they're overlooked with the aid of using their circle of relatives contributors in addition to in society which influences their psyche.

Key words: Child abuse, sexual abuse, parental disorder, trauma.

Child abuse is an act through a determine or caregiver which results In ability damage to toddler inflicting injury, death, emotional damage or chance of great damage and may arise in a toddler's home, or within side the organizations, colleges or groups the toddler interacts with. The phrases toddler abuse and toddler Maltreatment are regularly used interchangeably, despite the fact that some researchers make a difference of them see toddler abuse as a time to cover up neglect, exploitation and trafficking. There are many kinds of toddler maltreatment, consisting of neglect, bodily abuse, sexual Abuse, exploitation and emotional abuse.

Child abuse can be a unmarried incident, or may be some of different Incidents that take region over time. When a toddler reports bodily or emotional abuse, the Wounds run pores and skin deep. Kids who are suffering repeated trauma feel Lonely, scared, nugatory and unloved, that is precisely the contrary of ways kids must feel. Abused kids regularly Emerge as broken, hole and bitter, with intellectual results that ultimate lengthy after the bodily wounds have healed. Impotent, unrealistic, emotional expectation issues, monetary crisis, loss of parenting knowledge, issue in relationships, despair and different intellectual health Issues through mother and father leads toddler abuse.

In African-American context and literature, the subject of Adolescence trauma has struck the eye of

top notch deal of feminist writers who make this difficulty a severe consciousness of Their works. Indeed, the priority with the subject may be Accounted for through the writers' firsthand revel in of trauma Or their expert activist dedication to the social ills of Their society and community. *Toni Morrison*, offers with black political, social and historical problems take the lion element in her texts, is hampered through the subject of adolescence and toddler abuse. She offers with this query profoundly that she makes it her assignment to show the sector how damaging this act of adolescence abuse is to The victims' psyche in addition to the community's stability, steadiness, and progress.

Indeed, from *The Bluest Eye* (1970) to *God Help the Child* (2015), Morrison tries to speak to hundreds of children struggling under abuse and assault. She strongly insists at the emergency of spotting the devastating outcomes of this phenomenon on the identical time requests safety to those kids. Her first novel *The Bluest Eye* (1970) revolves round an abusive tale of an 11 years vintage black Pecola who was overlooked through her mom and raped through her father. Morrison's literary route persevered with Sula, Song of Solomon and many different novels to attain to *God Help the Child* which is complete of Pecolas. As black American enjoy is a ready storehouse for substance and material, Morrison relates the subject matter of infant abuse to black records of slavery and racism in lots of her novels.

Morrison's *The Bluest Eye* brings into mild the plight of inter and intra racism and highlights black children's subjection to neglect, abandonment and their tries to grapple with beyond studies of colorism. The novel revolves round the tale lifestyles of the kid lady, Pecola, who acquired capital intimidation, denial and grudge from the black and white culture. The lady has been a topic of oppression in the family, on the palms of her mom who overlooked her and her father who raped her. She has additionally suffered on the palms of the white due to her black epidermal symptoms and symptoms and turns into insane on the cease imagining herself with white standards. In *God Help the Child*, sweetness stands for the trauma the blacks persevered all through the racial segregation technology of the Separatist Jim Crow legal guidelines of 1877 to 1960s, whilst Bride symbolizes the definition of modern-day black splendor as the freshest commodity within side the civilized world.

Under situations of persistent formative years abuse, fragmentation turns into the valuable precept of character organization. Fragmentation in perception prevents the normal integration of knowledge, memory, emotional states, and physical experiences. Fragmentation withinside the internal representations of the self prevents the mixing of identity. Fragmentation withinside the internal representations of others prevents the improvement of a dependable feel of independence inside connection. Sexual abuse takes place while an grownup makes use of a baby for sexual functions or includes a baby in sexual acts. In *The Bluest Eye*, father of Pecola, Cholly is frequently

under the influence of alcohol and beats his spouse and youngsters. He rapes his personal daughter, Pecola, and as a result, she turns into pregnant together along with his baby.

Cholly is known for being undisciplined and clumsy. In one in all his drunken stupors, he lighting fixtures his personal residence on hearth place and burns it down. He is a dreadful father to each his kids. Pecola is an clean prey to Cholly due to the fact she is a baby and has no power or manage over adults. She is a lady and no knowledge has been imparted to her to oppose any shape of oppression. Eventually, Pecola has to stand sexual abuse on the palms of her father Cholly. He rapes her twice. She is pressured to take part in a horrendous sexual act, that's simply intended in the direction of the bodily gratification of her father. He rapes her irrespective of the outcome. He is greater effective than Pecola, so makes her the victim. This is a shape of incest, which leaves Pecola in a mental trauma.

Cholly's rape effects in impregnating Pecola. The complete community, each the blacks and whites begins off evolved to hate her for wearing her father's baby. Social smirch of Pecola 's sexual abuse composites her mental harm. By raping Pecola, her father has killed her countless quantity of times. Her mother Pauline overlooked Pecola's complains to her and beat her. By neglecting her and now no longer consoling her, Pauline indirectly made Pecola die an countless quantity of times. Rain withinside the novel *God Help the Child* additionally experiences sexual abuse and molestation via her mother. Rain even earlier than the age six needed to bear atrocious lifestyles due to the fact of her mother, who's a prostitute. Hannah is another man or woman withinside the equal novel and is abused with the aid of using her father. She is the Queen's daughter, Booker's aunt.

Hannah is molested with the aid of using her personal father, which Queen become now no longer equipped to accept. Later, she understood the difficulty and all the time become sorry for her negligence and repented till her death. However, she failed like Pauline to behave withinside the appropriate time. Queen had many husbands and become unaware of see her daughter suffer. Many of Morrison's moms comfortably overlook their personal youngsters. Around twenty moms in her eleven novels do now no longer Hassle tons in rearing their personal youngsters. Either they leave them stranded quickly after birth, or they will abandon them while they may be toddlers. There are moms who overlook their youngsters while they may be teenagers.

Cholly 's mom in *The Bluest Eye* abandons him quickly after start. His existence is negatively impacted through way of means of his incapacity to become aware of with his ancestral past. Cholly is deserted via way of means of his father earlier than his start and deserted via way of means of his mom nine days after start. In Morrison's closing novel, many moms are visible to be neglecting their youngsters. Child abuse grazes a pointy scar through Toni Morrison's *God Help the Child*. The novel is a risk present day story with sun sunglasses of the imaginative cruelties visited on youngsters. The protagonist of the unconventional is a younger black girl, Bride. Bride had a

tough adolescence as each her dad and mom disregarded her. Bride is portrayed as a younger, lovely girl, with deep blue-black pores and skin and she or he has a task within inside the cosmetics industry. Her light-skinned mom, sweetness, rejected her as a baby. Sweetness has been poisoned the way of means of the stress of sedeation and sophistication tension nevertheless present in black communities.

The protagonist of the unconventional, Bride, is rejected via way of means of her mom due to her pores and skin tone. Rain, is an nearly feral baby who's prostituted via way of means of her mom. Rain turned into abused and molested as a baby. When she turned into six years old, she turned into thrown out of her home. Her mom turned into a prostitute herself who did now no longer take care of her daughter. When rain opposed, she threw her out of home. Her biological mom allowed guys to apply and abuse her sexually for money. Emotional abuse refers back to the mental and social components of baby abuse. It is the maximum not unusual place shape of baby abuse. Some dad and mom who're emotionally abusive dad and mom exercise varieties of baby elevating which might be centered in the direction of pleasant their personal goals and goals, in place of the ones of their youngsters.

Their nurturing fashion can be characterized via way of means of blatant hostility in the direction of their youngsters, along with shouting, yelling, bullying and intimidation, or they will manipulate their youngsters the use of extra diffused means, consisting of emotional blackmail. Pauline of *The Bluest Eye* is one instance of this type. Pecola has by no means been taught some thing approximately her body through the way of means of her mom. She does now no longer have any liberty and proper to ask any non-public inquiries to her. Thus, her transition to maturity turns into tough and traumatic. In fact, Pecola's mom has by no means handled her as a individual and loved her to train her womanhood. Pecola on the alternative hand, being more youthful than Sammy and additionally a girl, attempts different strategies of survival. Pecola attempted to be with the family, which later proved deadly for her.

In *God Help the Child*, Morrison revisits a crucial element of Motherhood: how mothering is pretty impacted via way of means of a racially-Prejudiced society and the dramatic resulting outcomes upon kids, as in her first novel, *The Bluest Eye*. In sweetness, Morrison personifies self-negative and negative or toxic modes of motherhood, which comparison with a positive mothering that consists of elevating kids according with The values, beliefs, and customs of conventional African American subculture and especially the values of the funk and Historical proprieties. In every of these tasks preservation, nurturance, cultural bearing. Morrison is worried with shielding kids from the hurts of a racist And, for daughters, sexist subculture, and with coaching kids the way to shield themselves so they will be empowered to continue to exist and face up to the racist and patriarchal subculture in which They stay and increase a robust and genuine identification as a Black person.

Morrison does now no longer decrease from exposing the cruel realities kids face, and the way the

stressful beyond is constantly Shaping their lives. She returns to questions of race and Manages to put naked how a whole lot slavery and its legacy still These days effect blacks' lives, uncovering the emotional and mental chokehold their histories have on them. Toni Morrison's literary profession reads as a dedication to the burden of African Americans as her main works revisits stressful moments withinside the black records and subculture. She has voiced African-American reviews of racism, segregation and sorts of deprivation in white America, and has Specially targeting the oppression inflected upon Kids. Indeed, the topic of formative years abuse and trauma Has been recurrent in her main works which includes Beloved, *The Bluest Eye*, *Tar Baby* amongst others.

God Help the Child is packed with references to the subject of childhood abuse because it unveils the demanding reviews children bear on the fingers of society and caretakers. The characters in *God Help the Child* are disadvantaged of parental love and compassion and left by myself combating to overstep the ghost of formative years awful reviews to accumulate their future. Bride and Booker have been the instance of survival; they firmly battled the nightmare of the beyond to provide themselves a happy dwelling withinside the present. And yet, Morrison's message is as clean and planned in *God Help the Child* as It has ever been. Ms. Morrison's 'project' the phrase is her Own is to empower her readers through exposing the psychic toll Of cultural oppression and to chart a route from self-hatred to Self-acceptance.

She urges her characters to deal with their trauma and flow along. Morrison specializes in the want to place down the demanding beyond, and the want of Self-forgiveness and self-acceptance. She appears to pray that, in spite of the deep-rooted harm inflicted through infant Abuse, black people can conquer it and stay the prevailing fully and intensely. Child abuse is same to extinguishing existence and peace on earth. According to Morrison, infant abuse is the best evil withinside the World. The fear is the importance of the hassle that's on the rise.

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=1879&context=etdarchive

A Study on Awareness of Consumer Protection Act Among the Public with Special Reference to Chalakudy Locality

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Abstract

Consumer" means any person or a group who buys or avails any product or a service for consumption and not for resale or commercial purpose. The consumer is an individual who pays some amount of money for the thing required to consume goods and services. The advertisements of goods and services in television, newspapers and magazines influence the demand for the same by the consumers though there may be manufacturing defects or imperfections or short comings in the quality, quantity and the purity of the goods or there may be deficiency in the services rendered. For the welfare of the public, the gluts of adulterated and sub-standard articles in the market have to be checked. In spite of various provisions providing protection to the consumer and providing for stringent action against adulterated and sub-standard articles it became necessary to protect the consumers from the exploitation and to save them from adulterated and sub-standard goods and services and to safe guard the interests of the consumers.

INTRODUCTION

The Consumer Protection Act, 1986, is one of the socio-economic legislation which has been enacted for protection the interest of the consumers in India. Unlike existing laws which are punitive or preventive in nature, the provisions of this Act are compensatory in nature. Protecting the buyers' interests is amongst the prime considerations of the business The Act is also intended to provide simple, speedy and inexpensive redressal to the consumers' grievances, and relief of a specific nature and award of compensation wherever appropriate to the consumer. Consumer awareness is emerging in the country, concepts are changing, laws are getting updated and consumers are getting more and more demanding. So it is essential on the part to have updated and adequate knowledge and awareness about Consumer Protection Act to give better services and prevent consumer disputes. Thus, the present study was carried out to know the awareness level of people regarding Consumer Protection Act with special reference to Chalakudy Locality.

STATEMENT OF THE PROBLEM

Right from birth each and every one of us becomes a consumer but people hardly know about the rights and responsibilities they have as a consumer. As we know of now there are many brands and companies that provide goods and services to the consumer. There is a great need for awareness regarding consumer rights, responsibilities and the grievance handling mechanism among people in all age groups. The government have brought in many laws for the protection of consumers, but most of them are not aware about the law or the concept of Consumer protection. So this study is conducted to know about the level of awareness about consumer protection act and about the duties and rights of the consumers in Chalakudy locality

REVIEW OF LITERATURE

Arogya legal (2020) On July 20th, 2020, the new Consumer Protection Act, 2019 came into force in India, replacing the previous enactment of 1986. The new Act overhauls the administration and settlement of consumer disputes in India. It provides for strict penalties, including jail terms for adulteration and for misleading advertisements. More importantly, it now prescribes rules for the sale of goods through e-commerce. The consumer is now truly the king

Jamuna (2017), searched under the title, Consumer awareness and attitudes towards Consumer Protection Act1986. The study was conducted to find the consumer awareness level. In the study, responses were taken from the respondents related with consumer responsibilities. Majority respondents had given first rank to get guarantee and warranty card. It was also found that 67.14% respondents have awareness about the consumer forums and53.21% respondents felt that formalities are simple. Majority respondents disagreed with the argument that Consumer awareness increased with Consumer Protection Act. 25% respondents felt that trade has increased due to Consumer Protection Act. Only 20% respondents had given the opinion that Consumer Protection Act created quality consciousness among the consumer.

Horen Goowalla (2016), studied under a study on consumer protection: Its awareness among the rural people in Assam: A case study with special reference to Jorhat district of Assam. A survey was conducted on 400 consumers. 90% of the people surveyed have felt exploited by the seller at one time or the others.75% people were aware of the Consumer

Protection Act, 25% of the people are not. It is also found that 40% of graduate respondents were aware of the products and their quality while 30% Post Graduates.

OBJECTIVES OF THE STUDY

·   To study the level of awareness of Consumer Protection Act among people.

·   To analyse how many take advantage of rights as a consumer.

RESEARCH METHODOLOGY

Both primary and secondary data are used for the study. The primary data are obtained from the sample by preparing a well-structured questionnaire and send it to them. Their response to the questions will recorded and Intercepted.

Secondary data are collected from papers, published articles in journals, newspapers and websites covering wide collection of academic literature Consumer protection Act with the help of primary and secondary data an attempt had been made to study the level of awareness about consumer protection act and about the duties and rights of the consumers in Chalakudy locality

Data Analysis and Discussion

Variables	Category	Percentage	Total
Age of the Respondents	Below 20	3	100
	20- 30	14	
	30- 40	28	
	40- 50	46	
	Above 50	9	
Gender of the Respondents	Male	51	100
	Female	49	
	Other	0	
Income level	No Income	0	100
	Below 20000	8	
	20000- 30000	20	
	30000- 40000	69	
	Above 4000	3	
Awareness of consumer right	Strongly Agree	25	100
	Agree	49	
	Neutral	22	
	Disagree	3	

	Strongly Disagree	1	
Problem faced while purchasing	False Advertising	45	100
	Charging High Price Personal injuries	27	
		7	
	resulting from dangerous product		
	Issues regarding product safety and defects	17	
		4	
	Not receiving bill for product and services		
Response towards providing proper education/awareness in school and colleges	Strongly Agree	28	100
	Agree	48	
	Neutral	3	
	Disagree	2	
	Strongly Disagree	19	
Government intervention on protecting consumer rights	Strongly Agree	47	100
	Agree	43	
	Neutral	9	
	Disagree	1	
	Strongly Disagree	0	
Implementation of consumer protection act has helped in reducing corruption	Strongly Agree	14	100
	Agree	56	
	Neutral	26	
	Disagree	4	
	Strongly Disagree	0	
Sources of information about CPA wise classification of respondents	School/College	51	100
	Social Media	30	
	Newspaper	4	
	Television	9	
	Others	6	
Overall awareness about CPA	Fully aware Partially aware	3	100
	Somewhat aware Not at all aware	11	
		47	
		39	

Findings

- Out of 70 respondents, 46% of the respondents comes within the age group 40- 50.

- 51% of the respondents in this study are males.

- Majority of the respondents comes within income group 30000- 40000.

- Majority of the respondents are aware about their rights as a consumer.

- Majority of the respondents agree to the fact that media play an important role in increasing consumer awareness.

- It is found that most of the respondents got information about CPA from school/ college.

- 56% of respondents agree that implementation of CPA has reduced corruption.

- 44% of the respondents agree that government should provide measures to create awareness among consumers.

- 47% of the respondents agree that government should provide measures to protect the interest of the consumers.

- Out of 70 respondents, 48% of the respondents revealed that proper education / awareness should be provided in schools/ colleges.

- From the data it's clear that, 45% of the respondents the main problem faced by the respondents was false advertising before the implementation of CPA.

- This study reveals that most of the respondents are aware about the consumer protection ac

Conclusion

This study is conducted to know the level of awareness of the Consumer Protection Act and utilization of rights among the people with special reference to Chalakudy locality. The study was able to meet the objectives of the study. So, the study came into conclusion that most of the people are aware about their rights as a consumer but majority are not willing to fights for their rights. The researcher hopes that there will be some change in the perception of consumers towards CPA and their rights as a consumer and they will be willing to redress.

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Machine Learning techniques for identifying and detecting Breast Cancer from Medical Images

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Abstract- Uncontrolled cell division is the cause of the incurable disease known as cancer. The most common cancer in women worldwide is breast cancer, and death rates can be decreased with early identification. Medical images provide the most accurate information for detecting and diagnosing breast cancer. This study explores the history of the field and looks at the use of machine learning in this paper, a performance comparison between five machine learning algorithms viz Directed trees, Random Forest, K-Nearest Neighbors (KNN), Support Vector Machines (SVM) and *Logistic Regression* (LR) on the Wisconsin Breast Cancer Diagnostic (WBCD) dataset is conducted. This report covers the categorization of breast cancer using multiple medical imaging modalities. The classification schemes used by several medical imaging modalities for dense masses, non-tumors, and tumors are described in detail.

Index Terms- Artificial intelligence, machine learning, *Logistic Regression* (LR), K-Nearest Neighbors (KNN), Directed trees (DT), Random Forest, Support Vector Machines (SVM). Mammographic images.

I. INTRODUCTION

TBreast cancer is the most commonly diagnosed cancer type and the second greatest cause of death from cancer. The World Health Organization (WHO) reports that over 2 million new instances of breast cancer were found in 2020, making it the highest diagnosed disease worldwide. Every year, 626,700 women pass away from cancer-related illnesses. Breast cancer is the most frequent cancer in women and the second largest cause of mortality; it can be lethal if not detected in a timely manner [1]. The patient has an 85% chance of experiencing a full remission if the cancer is discovered before it grows to a size of 10 mm. Cohort studies show that 30% of breast cancer cases are identified when the tumor is 30

mm. Breast cancer is usually detected during screening when the tumor is at least 20 mm in size [2].

Thus, it is essential to promote early detection of breast cancer. When a breast self-examination (BSE) and clinical breast examination (CBE) are positive, early action may be necessary. As part of standard physical examinations, medical personnel perform a CBE to check for breast lesions. BSE also entails a physical examination of the patient to check for any changes in appearance or physical health. The BSE approach allows women to take control of their health. At-risk women should educate themselves on BSE, according to the World Health Organization [3]. Medical pictures of the breasts are created using screening methods. Usually, these pictures are interpreted by medical professionals with human skills, including radiologists and doctors. The low diagnostic accuracy of medical imaging is a result of a lack of proficiency with technology and picture analysis.

Breast cancer can be classified as either normal or aberrant, and it comes in two aromas: benign (not dangerous) and malignant. Benign conditions are regarded as non-threatening to life. However, on rare occasions, it could develop into cancer. Unnatural cell formation is the first step in the development of cancer, which can spread or quickly invade nearby tissue. In later stages, malignant tissue can be harmful because its nuclei are usually much larger than those of normal tissue. In the event that cancer is found, tissue is typically taken for microscopic analysis from a surgical biopsy; less frequently, tissue is taken from a bigger cardiac biopsy or from a small needle. Identifying relevant information from previous data and analyzing current investigative data are essential for an accurate and timely diagnosis of this illness. Machine learning (ML) algorithms and medical imaging support the procedure. Various machine learning techniques have been created to help clinicians understand medical images. Pre-trained networks can be used to install models because they are freely available.

 AI has improved rapidly in recent years. AI helps medical personnel recognize and estimate illness risk more quickly and accurately, allowing for early disease detection. Artificial intelligence (AI), a rapidly growing phenomena, may eventually lead to significant advances in a variety of areas, including medical education. Artificial intelligence approaches have advanced medical image processing, computer-aided diagnosis, image interpretation, fusion, registration, segmentation, image-guided therapy, image retrieval, and image

analysis. These strategies improve the ability of scientists and medical practitioners to understand how to recognize the genetic abnormalities that will cause disease [**4**].

The main contribution of this paper is to utilize the capability of ML models and implement them in breast cancer diagnosis. The best performance results of ML are compared by finding optimum values for its weights. Additionally, almost all models available are compared for finding the optimal, simple, and efficient model can breast cancer diagnosis. The rest of this paper is categorized: in section 2, literature review; in section 3, required dataset is described; in section 4, a methodology is presented; in section 5, the experimental environment's setup is described; the different results obtained are discussed in this work; and in section 6, we state the importance of the results and conclusions.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

Breast cancer is the most lethal type of cancer in the world, but it also has the greatest fatality rate among Arab women. It is a problem that can be mitigated by preventing or increasing patient survival through early detection. "Mammography is, by itself, the most important imaging method in the detection of breast alterations, with a sensitivity close to 90%". On the one hand, thick breasts and breasts of young patients (those with more glandular tissue) reduce mammographic image resolution. On the other hand, breasts of women nearing menopause (whose parenchymal tissue involutes and atrophy, becoming larger over time) provide good image quality and definition. The majority of medical diagnoses are now made via imaging. "Image processing focuses on developing procedures to extract information from an image in an adequate way for computational processing" [5].

Radiology is now a diagnostic and therapeutic support specialization that comprises conventional radiology, mammography, computed tomography, ultrasound, magnetic resonance, nuclear medicine, positron emission tomography, and radiotherapy [6]. Technological advancements in radiology have been rapid, and they are becoming increasingly important in the field's ongoing evolution. The numerous techniques necessitate that the radiologist combine his technical-scientific knowledge with others, such as administrative ones, in order to fulfil his duties effectively. It has to be a "integrated and complementary multidisciplinary action, incorporating complex processes and cutting-edge technologies, with large investments in equipment, techniques and inputs" [7].

Early detection of breast lesions reduces the need for mastectomy and increases the odds of survival. Even though mammography is considered the "gold standard" approach for

identifying breast cancer, it can produce false positives, resulting in wasteful biopsies, due to its low specificity despite its high sensitivity. Wild and Neal were pioneers in advocating the use of ultrasonography for breast assessment. Since then, it has been demonstrated that ultrasound imaging techniques can detect many tumors overlooked by mammography techniques, particularly those that occur in women with thick breasts. Furthermore, ultrasound imaging is non-invasive, inexpensive, and does not require ionizing radiation. Despite the advantages listed above, it is heavily dependent on the development of effective segmentation algorithms [8].

A histogram is a frequency distribution/frequency diagram shown graphically in columns/rectangles from a dataset that has previously been tabulated and separated into uniform classes. When applied to a picture, it "indicates the number or percentage of pixels that the image has in a certain level of grey or colour". As a result, it generates an image quality indicator that measures contrast and light intensity [9]. Significant data is acquired from highlighted regions/objects using binary pictures split into objects and backgrounds. Digitization gives the image a virtual connection to the truth. According to Wang et al. (2019), the development of equipment quality control procedures has reached "conventional radiology, dental, and mammography services, processors that should be controlled daily, fluoroscopy equipment with image intensifier, and some initiative in computed tomography". It was critical to establish control over patient irradiation. The equipment began to be calibrated and operated in more controlled situations, resulting in an increased number of shielding calculation services and radiometric surveys.

III. STUDIES AND FINDINGS

Medical imaging, which usually uses a variety of modalities such as MRI, CT, PET, mammography, radiographic ultrasonography, and duplex ultrasound, is the most effective approach to detect breast cancer. Medical images aid in disease diagnosis, pathological lesion detection, patient therapeutic treatment, and the identification of numerous ailments. Medical image analysis is one application where machine learning and artificial intelligence have lately proven fruitful. Image processing and machine learning techniques can now be used to improve the accuracy of breast cancer diagnosis.

A. Mammography Images

Mammography is a sort of medical imaging that primarily uses a low-dose X-ray device to detect breast cancer. It can be used to detect cancerous tumors within the breast.

Mammograms aid in the diagnosis of breast cancer in people who have unusual symptoms or breast nodules; even during screening, mammography helps evaluate the cancer risk in individuals who do not have obvious symptoms. The American Cancer Society recommends that all women over the age of 40 have a mammography once a year. On mammography, thick breast tissue may appear white or light grey. Younger women's mammograms may be easier to view since their breasts appear larger. They may detect additional in situ lesions and minimize invasive tumors when compared to MRI and ultrasounds.

Mammograms can be viewed in a variety of ways to provide more information before discovery or diagnosis. The most common mammography views are cardio-caudal (CC) and mediolateral oblique (MLO). The breast is crushed between two paddles in CC view mammography, which is captured horizontally from an upward projection with a C-arm angle of e 0. This displays the glandular tissue, surrounding fatty tissue, and the chest muscle's outermost edge. The breast is crushed diagonally between the paddles in the MLO view of mammography, which is taken at a 45-degree angle from the side of the C-arm. As a result, more breast tissue is seen than in previous scans.

Mammography Datasets

There are several datasets available to the public, each with its own size, resolution, image format, and image types (such as Full-Field Digital Mammography (FFDM), Film Mammography (FM), or Screen-Film Mammography (SFM), as well as the sorts of abnormalities it contains). An example of public dataset includes DDSM breasts. The digital database for screening mammography (DDSM) comprises 2620 mammograms scanned from film which were then separated into 43 volumes (**Figure 3**).
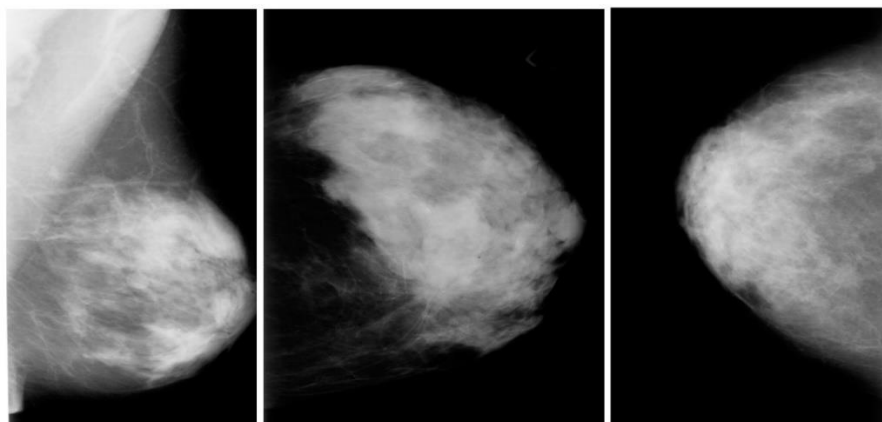

Figure 3. Mammography images from the DDSM dataset from Kaggle.

B. Ultrasound Images

Breast ultrasonography is another sort of medical imaging tool used to detect tumors (Figure 4). Ultrasound techniques are used to provide detailed medical images of the breast. This procedure is deemed appropriate and safe for pregnant women who are unable to undergo X-rays or CT scans, as well as breastfeeding mothers. Furthermore, pregnant women and nursing mothers who are unable to take X-rays or CT scans are regarded suitable and safe candidates for ultrasound.
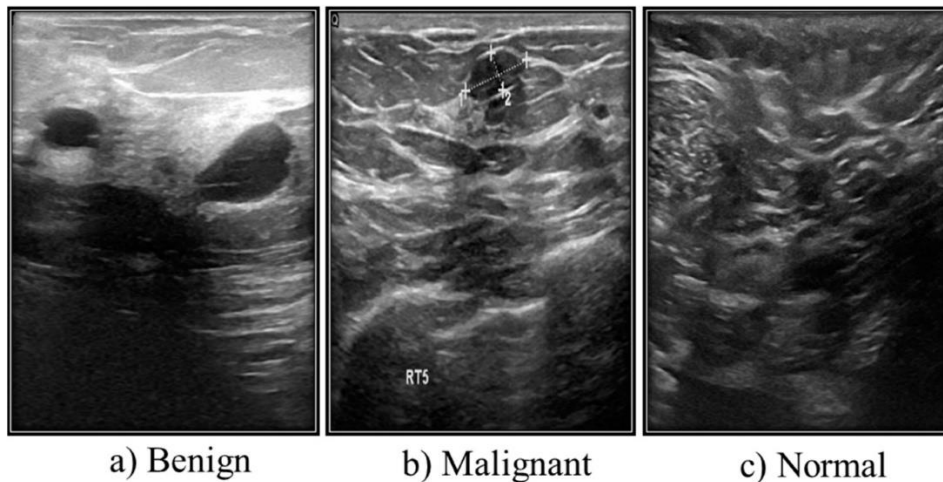

a) Benign   b) Malignant   c) Normal

Figure 4. Different types of ultrasound images from Kaggle.

C. Magnetic Resonance Imaging (MRI)

Magnetic resonance imaging (MRI), like ultrasound and mammography, is used to detect cancer cells in their early stages. Magnetic fields are utilized in MRI to generate extremely precise three-dimensional (3D) transverse pictures. A high radiation dose is required for a human body MRI to provide exact 3D breast pictures. As a result, the sick area changes significantly when we utilize an MRI, and no malignancy is discovered that cannot be identified with any other method. Breast MRI is useful for early diagnosis of breast cancer because it gives rapid diffusion-weighted imaging as well as T2- and T1-weighted CE (contrast-enhanced) imaging, which can be used to characterize lesions more thoroughly. Breast MRI is critical in detecting problems in people at high risk of breast cancer, among other considerations.

- High risk of developing breast cancer.

- Evaluation of the staging period.

- Neoadjuvant chemotherapy (NAC) follow-up.

- Evaluation of an auxiliary lymph node region when mammography could not identify the primary location.

D. Histopathological Images

Despite rapid advances in medical technology, the criterion for cancer diagnosis remains unchanged. Histopathological imaging analysis depicts disease-related tissues in microscopic detail (Figure 5). The pathologists' experience, as well as factors such as fatigue and a reduction in brain function, all have an impact on the lengthy and highly specialized procedure of histopathology.
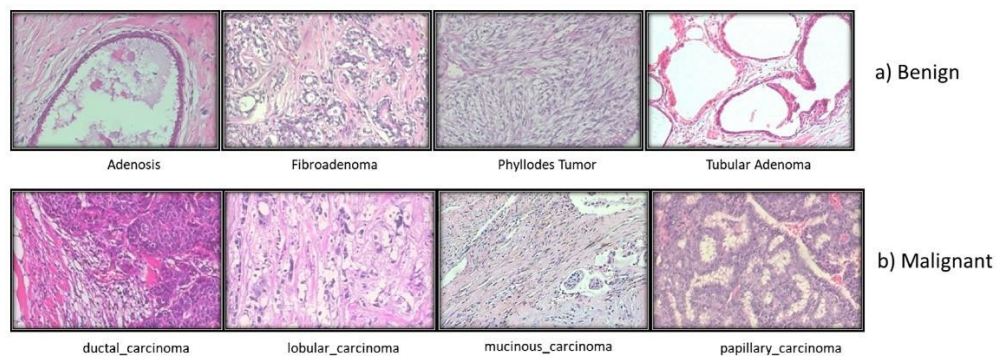
Figure 5. Different types of Breast histopathology images.

E. Thermography Images

Thermal imaging (Figure 6), often known as breast thermography, is made using a microscope. This allows researchers to investigate how the microscopic anatomy of cells, tissues, and organs relates to their structural and functional properties. This painless, non-invasive approach is commonly used to detect breast abnormalities that may indicate breast cancer [10]. A thermal infrared camera, which transforms infrared light into electrical impulses and shows them as thermograms, can help to diagnose breast cancer by identifying body parts with an unusual temperature shift. The technique is known as thermography. Thermal imaging uses sensitive and high-resolution thermal cameras and is a promising early detection approach.
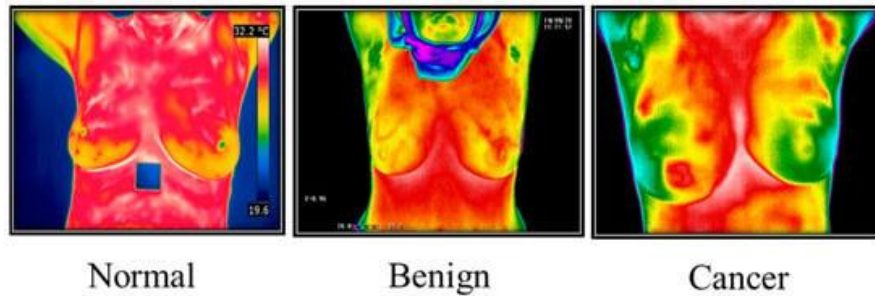
Figure 6. Thermography Images from Irthermo database.

F. Thermal Camera

The Plank equation depicts the relationship between wavelength, temperature, and radiation at the body's surface. When the temperature of a body rises above absolute zero, electromagnetic waves are discharged. A device is necessary to detect this wavelength since infrared light has a range of invisible wavelengths to the human eye. A thermal camera is one of the most effective tools for determining wavelength range. Any object warmer than absolute zero emits infrared radiation, which can be detected using a thermal camera. Infrared light's wavelengths are typically between the visible and microwave spectrums. The wavelength of this infrared light ranges from 0.75 Mm to 1000 mm. Infrared breast thermography may be used to detect breast cancer early, increasing the likelihood of survival for individuals with the condition. As a result, a little asymmetry between the left and right breast temperature patterns could indicate a breast abnormality. Several textural qualities play a key role in interpreting asymmetry in breast thermograms.

IV.   PEER REVIEWED

To predict, describe, or respond to a problem, models must be built using Machine Learning (ML), a subset of Artificial Intelligence (AI) (Figure 1). Machine learning is a term used to describe a series of approaches that "detect patterns in data, use the uncovered patterns to predict future data or other outcomes of interest". ML techniques learn directly from data, removing the requirement for complex expert rules or precise representations of all environmental elements. AI since it is independent of traditional ML extraction techniques and can focus on a complex hierarchy of picture properties. Computers read data from photos and use deep learning approaches to improve previously used computer models. Many medical fields, most notably radiology and pathology, have used these algorithms to complete tasks. Their performance has occasionally matched that of human pros. According to [5,] DL can extract information from medical images in a manner similar to human analysis, including details on molecular status, prognosis, and therapy sensitivity.
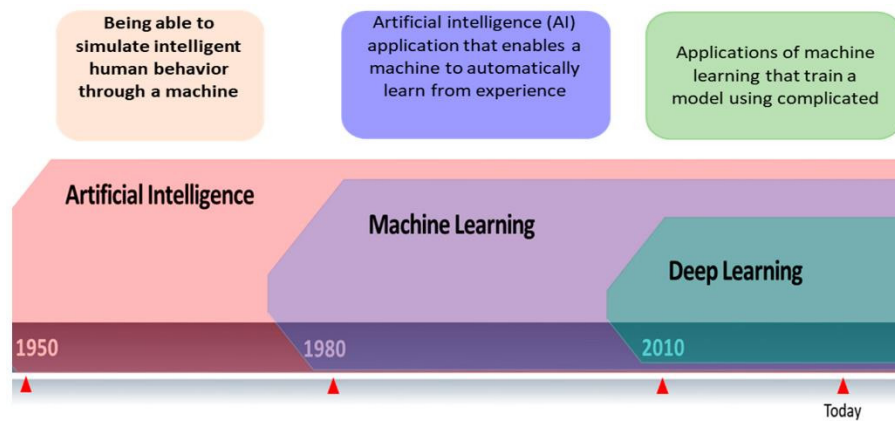
Figure 1. Relationship between artificial intelligence, machine learning, and deep learning

A. Decision Tree

Decision trees (DT) are commonly employed in "divide and conquer" data classification approaches. This technique displays the data as a tree, with the leaf nodes representing the data sample labels and the interior nodes representing the various attributes [12]. Moving up and down the tree from root to leaf helps identify the suitable data set. Decision trees (DTs) are a type of supervised learning technique that can be used to solve classification and regression problems. The most popular DT algorithm is C4.5 [13]. Authors [14] compared C4.5 to different DT algorithms.

B. Random Forests

The most popular application of a bagged DT is the random forest (RF) [15]. It is an ensemble model composed of many separately trained DTs. The class with the greatest votes is chosen as the final classification for the input data by each component DT in an RF model, which makes classification decisions for each component DT separately. Regression models that use RFs can also produce results that are averaged over individual trees. The RF algorithm's basic principle is to select a randomly chosen subset of features at each node of each tree; the samples needed to train each component tree are determined using bagging, which resamples (with replacement) the initial set of data points.

C. K-Nearest Neighbor

The K-Nearest Neighbor (k-NN) algorithm compares one data sample to another using a distance metric. A distance metric can be used to reduce the distance between two identical data samples, as well as increase the distance between two data samples. An equation will calculate the Euclidean distance between x and y. This strategy is known as the nearest k-method [12].

D. Support Vector Machine: (SVM)

The Support Vector Machine (SVM) is a widely used machine-learning tool for issue regression and categorization. SVM was used in a variety of areas, including cheminformatics [15] and bioinformatics. The SVM classifier creates a classification model based on training data. A later step is to classify an unidentified sample. The primary idea underlying SVM is to use hyperplanes to divide heterogeneous groupings. In circumstances where data can be segregated linearly, SVM has achieved high precision. However, SVM output cannot distinguish separable data nonlinearly. To address this issue, the data can be separated linearly after being mapped to a new, high-dimensional space using kernel functions. The correct kernel function selection and its parameters are two of the most important difficulties with SVM [16]. The kernel function is a mathematical approach that allows Support Vector Machines (SVMs) to classify a set of originally one-dimensional data in a 'two-dimensional' manner. In general, a kernel function makes it easier to project data from a lower-dimensional to a higher-dimensional space. Linear kernel functions are frequently described as:

$$K\ (x,\ x_i) = x{\cdot}x^T$$

Polynomial Kernel Function: The polynomial kernel function is directional, i.e., the output depends on the direction of the two vectors in low dimensional space. This is due to the dot product in the kernel. The magnitude of the output is also dependent on the magnitude of the vector x_i [17].

$$K\ (x,\ x_1) = (1 + x{\cdot}Tx_i))\ d,\ \text{'d' is degree of kernel function}$$

E. Logistic Regression (LR)

LR is a predictive analysis that explains the link between a binary dependent variable and a group of independent factors. Ayer et al. (2010) and Draisaitl et al. (2002) employ the LR

model for binary classification (0 and 1) with a discontinuous dependent variable. LR analysis differs from linear regression as the dependent variable is categorical rather than continuous (H. Şamkar et al., 2016). LR represents the function in both directions, as shown in the pictures (Shipe et al., 2019).

$$\pi(x) = \exp(\beta_0 + B_1 x) \perp + \exp(\beta_0 + \beta_1 x) \qquad (2)$$

$$g(x) = \ln[\pi(x)1 - \pi(x)] = \beta_0 + B_1 x \qquad (3)$$

The algorithm's operation computes the likelihood of each state based on a combination of its impacts on the result for an attribute and ranks the probability values in order of highest probability. In the general logic of NB, qualities are believed to be independent of one another. The overall logic is to maximize the number of classes

V.   IMPROVEMENT AS PER REVIEWER COMMENTS

After applying Machine Learning Algorithms to the Breast Cancer Wisconsin Diagnostic dataset. We evaluated and compared models using performance criteria such as Confusion Matrix, Accuracy, Precision, Sensitivity, F1 Score, and AUC to determine the optimal algorithm for breast cancer prediction. The Confusion Matrix is a method for measuring the performance of a classification task where the output can be of two or more types of classes. A confusion matrix is a table having two dimensions: "Actual" and "Predicted", as well as "True Positives (TP)", "True Negatives (TN)", "False Positives (FP)", and "False Negatives (FN)". Accuracy is the most commonly used performance metric for classification algorithms. It is defined as the number of correct guesses divided by the total number of forecasts. Precision, as employed in document retrieval, can be defined as the number of correct documents retrieved by our machine learning model. Sensitivity is the number of good results given by your machine learning model. F1 score represents the harmonic mean of precision and sensitivity. The F1 score is calculated as the weighted average of precision and sensitivity.

Figures 1 and 2 show the accuracy percentages for the Wisconsin Breast Cancer Diagnostic datasets. The results of the training and testing sets show that all of the classifiers have variable accuracies, but SVM consistently has a better accuracy in the testing set (97.2%) than the other classifiers.

Table 2 Confusion matrix shows that Support Vector Machine correctly predicts 556 cases out of 569 cases, consisting of 201 malignant cases that are actually malignant and 356

benign cases that are actually benign, with 11 cases incorrectly predicted, including 11 cases of malignant class predicted as benign and 1 case of benign class predicted as malignant. That is why Support Vector Machine outperforms other classification techniques. The table findings show that SVM has greater precision (0.98%), sensitivity (0.94%), and FMeasure (0.96%) than other classifiers. In the Breast Cancer Wisconsin Diagnostic dataset, SVM consistently beats alternative classifiers for the two classes malignant and benign.

Table 1. Accuracy percentage for breast cancer diagnostic dataset.

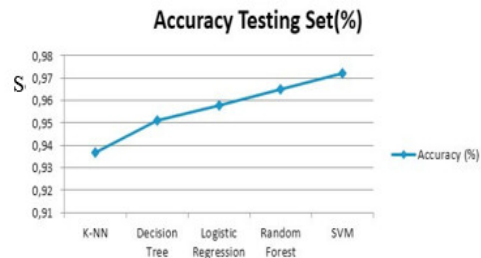| Algorithms	Accuracy Training Set	Accuracy Testing(%)
SVM	98.4%	97.2%
Radom Forest	99.8%	96.5%
Logistic Regression	95.5%	95.8%
Decision Tree	98.8%	95.1%
K-NN	94.6%	93.7%

Fig. 3. Comparative graph of different classifiers

Since confusion matrices are a useful way to assess the classifier, each row in Table 2 represents the rates in an actual class while each column displays the predictions. Table 3 present the calculated performance measures of classification models based on confusion matrix results, precision sensitivity f1 score for benign and malignant.

Table 3. Classifiers performances   Table 2. Confusion Matrix.

	Malignant	B	Algorithms	Precision	Sensitivity	F-Measure	Class
SVM	201	11	SVM	0.98	0.94	0.96	Benign
	1	35		0.97	0.99	0.98	Malignant
Random Forest	196	16	Random Forests	0.96	0.94	0.95	Benign
	7	35		0.97	0.98	0.97	Malignant
Logistic Regression	201	11	Logistic Regression	0.98	0.91	0.94	Benign
	5	35		0.95	0.99	0.97	Malignant
C4.5	195	17	Decision Tree	0.94	0.92	0.93	Benign
	22	33		0.96	0.97	0.96	Malignant
KNN	201	11	K-NN	0.92	0.91	0.91	Benign
	7	3		0.95	0.96	0.95	Malignant

The ROC curves for each machine learning algorithm are shown in Figure 4. The ROC curve is an important statistic for evaluating classifier performance. The area under the ROC curve (AUC) is calculated. The larger the region, the higher the classifier's performance. Table 4 shows that the Support Vector Machine has the highest AUC score (0.96%), while the Decison Tree has the lowest AUC score (0.94%).

Table 4. The Area under roc curve (AUC).

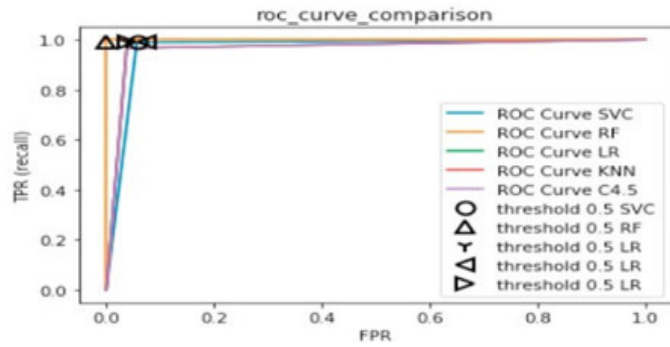| Algorithms	AUC (%)
SVM	0.966
Random Forests	0.960
Logistic Regression	0.947
Decision Tree	0.945
K-NN	0.952

Fig. 4. ROC curve

VI. CONCLUSION

This paper discusses the most recent findings in machine learning for detecting and classifying breast cancer. The purpose of this study was to gain a full understanding of contemporary breast cancer detection and diagnosis, as well as to identify and categorise breast cancer using various medical picture kinds. This overview focuses on the most popular machine learning techniques, such as SVM, DT, KNN, LR and Random Forest. According to the studies reviewed, one promising direction is the creation of sophisticated systems that employ artificial intelligence to predict major medical conditions and help doctors and patients prevent breast cancer. The research revealed that the Support Vector Machine Algorithm was the most effective model for fitting our dataset with an accuracy of 95.8%, followed by KNN with an accuracy of 95.3%.

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Prevention of Credit Card Fraud Applying Data Mining

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Abstract- All people use internet marketplaces these days to buy and sell goods. Minimizing the use of real money is the main goal of this improvement innovation. The fraudulent exercises that may be found online are currently growing fast. The peak of these included charge card spoofing experiments.

Specialized data mining techniques can be applied to overcome the current state of affairs. Genetic algorithms, KNN computation, and neural organization are all incorporated these tactics. The numerous forms of Master Card fraud and the efficient data mining techniques that yield useful information are the main topics of this study.

Index Terms- Credit Card Frauds, Data Mining, Genetic Algorithm, Neural Network, K-Nearest neighbor algorithm

I. INTRODUCTION

A few additional avenues for presenting fictitious demos have been made possible by the growth and improvement of technology. These actions pose a verified risk to associations in terms of finances, operations, and psychological well-being. Even in cases of financial difficulty, extortion has a powerful effect on the association's reputation, altruism, and customer relations. Associations then try to use a set of tactics to identify and prevent deception. Data mining is one of these techniques.

Master card nowadays, the biggest danger to commercial relationships is most likely fraud. However, it is essential to first comprehend the systems used to carry out a deception. For

example, we must comprehend the processes involved in digital credit card fraud to properly combat it. It is difficult to stop phony trades since the extortion is usually detected only after the MasterCard has been charged. In this sense, it is imperative to guarantee unobserved exchanges for MasterCard holders when they use their charge cards to make electronic payments for goods and services offered online. This test paper looks into a particular aspect of the information-gathering techniques used to identify victims of visa extortion. To make room, a brief overview of information mining and extortion is given before getting into the specifics.

II. DATAMINING

Data mining is the process of removing significant information from enormous amounts of data. While many consider data mining to be the same as the widely used phrase knowledge discovery from data, or KDD, others view it as a crucial advancement in the interaction of information disclosure.

Seven steps are included in the knowledge _finding process from data in data mining:

1. Data cleaning is the first stage in removing unnecessary and noisy data from the raw data that has been collected.

2. Data integration: Various data sources are combined into significant and valuable data at this stage.

3. Data Selection: Information needed for the study is gathered from several sources in this section.

4. Data transformation: Using various techniques, such as smoothing, normalization, or aggregation, data is transformed or integrated into the necessary forms for mining in this stage.

5. Data Mining: Various cunning methods and instruments are combined at this stage to extract data patterns or principles.

6. Pattern evaluation: At this stage, distinguishable, visually appealing patterns that convey knowledge are made based on predetermined metrics.

7. Knowledge representation: Perception and knowledge representation techniques are applied in this final step to help people comprehend and interpret the knowledge or result of data mining.

III. CREDIT CARD FRAUDS

Online and offline frauds are the two categories into which credit card scams can be divided. It differs from fraud in the following ways:

- Stolen Card: The fraudster obtained the actual card by theft or misplacement. He is free to abuse it for any other reason, which could cause the victim to go bankrupt and suffer psychologically.

- Identity theft: An attacker can gain access to a victim's new account by gathering private information about the victim, such as gender, date of birth, and email address. The majority of credit card fraud falls into this category.

- Phony cards: Cards that aren't authorized or provided by financial institutions are referred to as fake cards. Skimming the actual data from a legitimate card that was swiped over an EDC machine is how counterfeit cards are made. The appealing strips are used to encode this data, which is then used to create fake cards.

- Card not present (CNP) frauds refer to a type of deception in which the perpetrator demands trivial information such as the card number and expiration date. In some situations, having the card on hand is not necessary for online purchases.

IV. DATA MINING TECHNIQUES FOR CREDIT CARD FRAUD DETECTION

There are various methods used in data mining to identify credit card fraud. We discuss some of the more accommodating strategies in this survey report.

K-Nearest Neighbor algorithm, Decision Tree, Neural Network, and Genetic Algorithm.

1. Decision tree
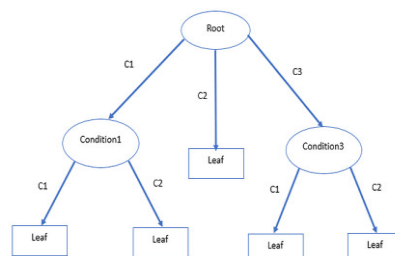
The Decision Tree Algorithm is a data mining acknowledgment technique that recursively passes on a large number of records. This is a tactic for handling group problems and relapse. It made use of the tree metaphor. It has leaf hubs, youngster hubs, and one root hub. The

ascribes are named using trait names. Trait estimations are used to validate the edges. To predict a class sign, the following method is applied. It starts with the root hub and moves on to examine the root's expenses and record hub esteem. As a result, it moves on to the associated hub and looks for the division associated with that expense. This method has been used previously until the leaf hub appears with the anticipated class esteem. Execution, perception, and demonstration of the comparison and other characterization computations are not difficult. Additionally, it is utilized to track mail and IP addresses to identify credit card fraud. The area determines the identity. It examines the region that was used before the exchange of present spots.

2. Neural Network
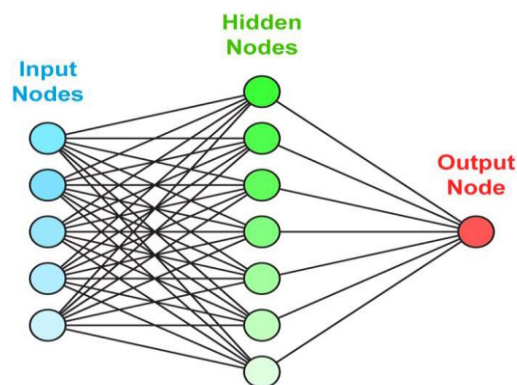
The working head of the human brain is fully constructed for misrepresentation location via neural networks. A PC is now ready to think thanks to advancements in neural networks. Similar processes apply to the MasterCard deception location innovation, as human psychology learns from prior associations and uses this information or involvement to make decisions in everyday life. There is a fixed design of Visa use, made by the client's usage of their Visa, right from the moment an explicit client utilizes their charge card. When an unauthorized user uses a MasterCard, the neural network-based extortion identification system looks for the fraudster's example and compares it to the approved cardholder's example, which is where the neural network is trained. If the examples match, the neural network broadcasts the approved exchange. When an exchange is submitted for approval, it is indicated by a wave of approval information handle that transmits details that identify the cardholder (account number) and additional exchange attributes (e.g., total, shipper code).

Additional data handles, like the time of day, can be obtained from the approval system and included in a feed. Within the range of 0 and 1, the neural network is set up to produce yield

in real characteristics. Should the neural network generate a yield of less than or equal to 6 or 7, the transaction is deemed acceptable; however, if the yield exceeds 7, the likelihood of an unlawful exchange increases. Business process methodology is consistently used in the creation of neural network-based example acknowledgment systems. Characteristics of the card's use are included in history descriptions. Regarding trades, the payments made to the record during a brief period before. A few other characteristics may include things like the MasterCard's issue date or the most current issue. This is fundamental to understanding NRI (non-receipt of issue) extortion.

3. K-Nearest neighbor algorithm

The K nearest neighbor method is a fundamental algorithm that organizes new cases based on a closeness measure (e.g., distance capabilities) and records every accessible example. KNN has been applied to both design acknowledgment and factual assessment.
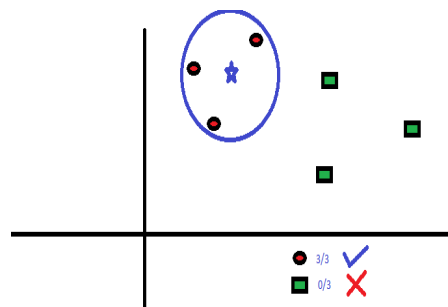
4. Genetic Algorithm

The genetic algorithm is utilized to obtain a better optimal plan. It is employed similarly with the provided sample informative indexes to discern the extortion exchanges. This method is safe and effective. It determines if an exchange is authenticated or unverified. Using a credit card for exchange has several advantages.

It selects the informational index that is ready at startup. By that time, we have chosen the normalized data that contains all of the cardholder's information from the selected dataset. Initially, it calculates the fundamental attributes by utilizing the regular usage of MasterCard checks, current bank account balance, credit card overdraft, location where a credit card is used for a specific transaction, and average monthly spending. In the end, it evaluates the data and determines if the exchange can be confirmed

V. IMPROVEMENT AS PER REVIEWER COMMENTS

A fundamental algorithm used in data mining (DM) allows for data that goes beyond simple understanding and expertise. Data mining is a larger component of the process of knowledge discovery. Customers of credit card (CC) providers are given multiple cards. Every credit card user needs to be true and real. A financial disaster can result from giving a card to any kind of error. It is improbable that the number of fake transactions will rise given the swift expansion of cashless transactions. By examining credit cards with different usage patterns as a dataset of past transactions, a fraudulent transaction can be detected. It is a fraudulent transaction if there is any departure from the available cost pattern. Credit card fraud detection (CCFD) makes extensive use of machine learning (MLT) and data mining (DM).

VI. CONCLUSION

To identify and anticipate the Visa extortion, we will likely look at a variety of information mining techniques. Different information mining techniques are demonstrated via an examination presented by different analysts. In addition to these tactics, the "Hidden Markov Model" enhances the fantastic response for the identification of extortion.

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An Overview of the Research on Plant Leaves Disease detection using Image Processing Techniques

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Abstract- Plant diseases result in significant reductions in agricultural product quality and quantity, as well as significant production and financial losses. Plant disease identification is becoming more and more important in today's large-scale crop monitoring. Farmers find it extremely challenging to transition from one disease control one set of policies to another. The conventional method used in practice for plant disease detection and identification is the expert's unaided observation. This research examines the necessity of a basic plant leaf disease detection system to promote agricultural breakthroughs. Early crop health and disease detection information can help control diseases with appropriate management practices. This method will increase agricultural productivity. Additionally, this essay contrasts the advantages and drawbacks of these potential methods. It includes several steps viz. image acquisition, image pre-processing, features extraction and neural Network based classification.

Index Terms- Disease detection, Image acquisition, pre-processing, features extraction, classification, symptoms and neural network.

I. INTRODUCTION

India is an agricultural nation where the majority of people work in agriculture. The goal of agricultural research is to boost food quality and productivity while lowering costs and increasing profit. The result of a complicated interplay between soil, seed, and agrochemicals is an agricultural production system. Fruits and vegetables are the two most significant agricultural products. A quality control check on the products is essentially required to obtain more useful products. Plant illnesses have been linked to lower-quality agricultural products, according to numerous research. A disease is an alteration to a plant's normal state that affects or stops one of its essential processes, such photosynthesis, transpiration, pollination, fertilization, germination, etc. Pathogens, such as bacteria, viruses, and fungi, are the cause of these disorders. , as well as because of unfavorable weather circumstances. Consequently, it is crucial to diagnose plant diseases in their early stages [1]. Farmers need specialists to monitor them continuously, which may be quite costly and time-consuming. Consequently, finding a quick [2], affordable, and precise way to automatically identify plant diseases based on symptoms that show up on leaves is extremely important. This makes machine vision possible, which allows for process management, robot navigation, and image-based automated inspection. This research aims to investigate the identification of plant leaf diseases using an analysis of leaf texture. In comparison to flowers and fruits, leaves have various advantages throughout the year [3], [4].

The sections that follow are how this document is structured. The introduction in Section 1 covers the significance of identifying leaf diseases, an investigation of plant leaves, the different kinds of leaf diseases, and their symptoms. An extensive description of recent research in this field is given in Section 2. Basic information is included in Section 3. approach for identifying diseases in leaves, which serves as a quick summary of different image processing methods. Section 4 provides a conclusion to this work as well as potential future directions.

Analysis of plant diseases and their signs

Agricultural research makes substantial use of pixel counting techniques for RGB picture features. The following are some uses for image analysis:

1. To identify fruit, stem, and leaf problems in plants.

2. To calculate the disease's impacted area.

3. To determine the impacted area's borders.

4. To ascertain the impacted area's color

5. To ascertain the fruits' dimensions and form.

The typical signs of bacterial, viral, and fungal plant leaf diseases are listed here.

   A. *Bacterial disease symptoms*

The disease is characterized by tiny pale green spots which soon come into view as water-soaked. The lesions enlarge and then appear as dry dead spots as shown in figure 1(a), e.g. bacterial leaf spot have brown or black water-soaked spots on the foliage, sometimes with a yellow halo, generally identical in size. Under dry conditions the spots have a speckled appearance.

   B. *Viral disease symptoms*

Among all plant leaf diseases, those caused by viruses are the most difficult to diagnose. Viruses produce no telltale signs that can be readily observed and often easily confused with nutrient deficiencies and herbicide injury. Aphids, leafhoppers, whiteflies and cucumber beetles insects are common carriers of this disease, e.g. Mosaic Virus, Look for yellow or green stripes or spots on foliage, as shown in figure 1(b). Leaves might be wrinkled, curled and growth may be stunted.

(a) Bacterial leaf spot   (b) mosaic virus

Figure 1. Bacterial and Viral disease on leaves

   C. *Symptoms of fungal disease*

Out of all the plant leaf diseases, some of the fungal-caused ones are displayed in figure 2 and addressed below. Figure 2(a) illustrates late blight brought on by the fungus Phytophthora infesters. It initially shows up on older, lower leaves resemble grayish-green patches soaked in water. These patches turn darker as the fungal condition progresses, and

on the undersides, white fungal growth appears. Alternaria solani, the fungus depicted in figure 2(b), is the cause of early blight. It initially shows up as little brown spots with concentric rings forming a bull's eye pattern on the lower, older leaves. The disease turns leaves yellow as it matures and spreads outward on the leaf surface.

(a) Late blight   (b) early blight   (c) downy mildew

Figure 2. Fungal disease on leaves

II. IDENTIFY, RESEARCH AND COLLECT IDEA

There is a plethora of material on plant leaf disease detection available. We shall draw attention to a few of the major contributions. A method utilizing a variety of image processing techniques to reliably and early identify plant illnesses methods have been shown by Anand H. Kulkarni et al. [1], in which an ANN-based classifier is utilized for classification with a recognition rate of up to 91% and a Gabor filter is used for feature extraction. A quick methodology for computing the co-occurrence matrix's parameters by supervised learning and the maximum likelihood approach for quick classification was presented by F. Argenti et al. [2]. P. Revathi et al. [3] have employed homogenize techniques such as the canny filter and Sobel to locate the edges. The illness spots have been identified using classification using these extracted edge features. The diseases have been categorized using the suggested homogeneous pixel counting technique for cotton diseases detection (HPCCDD) algorithm. They assert that the precision of above the current method by 98.1%. To address low-level picture segmentation, Tushar H. Jaware et al. [4] presented a fresh and enhanced k-means clustering technique. Sanjay B. Dhaygude et al. have employed the spatial gray-level dependence matrices (SGDM) approach to extract statistical texture information. [5] RGB images were converted to a Hue Saturation Value (HSV) color space representation, which revealed the components H, S, and V.An empirical examination of olive leaf spot disease utilizing auto-cropping was given by Mokhled S. Al-Tarawneh [6].fuzzy c-means classification and segmentation. The median filter and RGB to Lab colorspace are used to improve the image. Finally, provide a comparison between fuzzy c-means and k-mean clustering.

Yan-Cheng Zhang et al. [7] presented the fuzzy feature selection strategy, which uses fuzzy curves (FC) and fuzzy surfaces (FS) to choose characteristics of cotton leaf disease. The outcome is a feature space with fewer dimensions. Classifying the grape and wheat has been done using back-propagation (BP) networks.pailments by Wang Haiguang et al. [8]. Principal component analysis (PCA) has also been used to minimize the feature data's dimensionality. Simona E. Grigorescu et al. presented texture features based on the local power spectrum of Gabor filters. [9] where the topics of grating cell operator characteristics, Gabor energy, and complicated moments have been covered.

They deduced that the operator of the grating cell was solely responsive to textural properties has proposed the use of textural features for both the classification and detection of hazardous regions.et al., Arivazhagan [10]. Ten different plant species, including bananas, beans, jackfruit, lemons, mangos, and more potato, tomato and sapota. 94.74% accuracy has been achieved by Support vector machine (SVM) classifier.

Neural network classifiers based on statistical classification were created by Dheeb Al Bashish et al. [11] and were successful in detecting and classifying the diseases with a precision of about 93%. Song Kai et al. [12] successfully identified a study on the picture recognition of maize illness based on BP networks, where YCbCr Disease spots are segmented using color space technology, and their texture features are extracted using the Co-occurrence matrix (CCM) spatial gray level layer. The maize illness has been categorized using the e and BP neural networks. Al-Hiary et al. developed applications of BP neural networks and K-means clustering for the purpose of classifying and clustering plant-leaf-affecting diseases [13]. They offer sufficient assistance.for precise leaf disease identification. Five diseases have been used to evaluate the suggested algorithm: cottony and ashen mold, small whiteness, early and late scorch, and mold. Another artificial neural network (ANN), the back propagation neural network (BPNN), was attempted by Menukaewjinda et al. [14] for effective grape leaf color extraction with complex backdrop.and genetic algorithm (GA), and discovered that these methods offer automatic parameter adjustment for grape leaf disease color extraction. It has also been discovered that support vector machines (SVM) hold great promise for effectively classifying leaf diseases. 21 Haiguang Wang et al. [15] extracted color, four shape, and twenty-five texture features. Principal component analysis (PCA) was then used to reduce the number of dimensions in the feature data processing. The classifiers used to identify diseases were back-propagation (BP) networks, radial basis function (RBF) neural networks, generalized regression

networks (GRNNs), and probabilistic neural networks (PNNs). Additionally, they investigate modified self-organizing feature maps (MSOFM).

III. STUDIES AND FINDINGS

As seen in fig. 3, there are five primary procedures for identifying plant leaf diseases. The processing plan entails acquiring images via a digital camera or the internet, pre-processing the images to include picture enhancement and segmentation (which separates the impacted and useful areas), feature extraction, and grouping. Lastly, it will be determined whether any plant leaves have any illnesses. RGB pictures of leaf samples were selected for the first step. The detailed process is as follows:

1) Acquire RGB images;

2) Transform the input image into a color space;

3) Divide the image into its constituent parts;

4) extract the relevant sections;

5) calculate the texture features;

6) set up the neural networks for identification.

Firstly, the images of various leaves acquired using a digital camera with required resolution for better quality. The construction of an image database is clearly dependent on the application. The image database itself is responsible for the better efficiency of the classifier which decides the robustness of the algorithm.

A. Image pre-processing

In the second step, this image is pre-processed to improve the image data that suppress undesired distortions, enhances some image features important for further processing and analysis task. It includes colorspace conversion, image enhancement, and image segmentation. The RGB images of leaves are converted into color space representation. The purpose of the color space is to facilitate the specification of colors in some standard accepted way. RGB images converted into Hue Saturation Value (HSV) color space representation.Because RGB is for color generation and his for color descriptor. An excellent tool for color perception is the HSV model. Hue is a property of color that specifies how an observer perceives pure color. The amount of white light contributed to hue and

value, or saturation, is defined as the amplitude of light. Following the hue hue component is utilized for additional analysis in the spatial transformation process. Since saturation and value do not provide additional information, they are dropped [5].
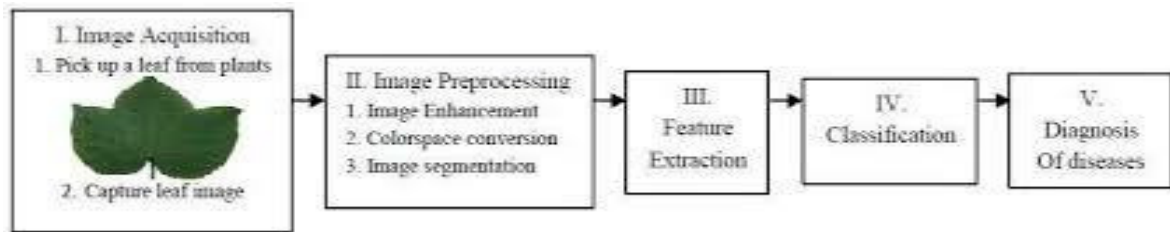

Fig3.The basic methodology

The most popular JPEG image uses the Ycbcr color space, which is a common color space. A luminance component and two color component signals are indicated by the variables Y, cb, and cr,respectively. Ycbcr color space is orthogonal, unlike other color spaces, and completely incorporates significant RGB compositional variables from taking into consideration different colors. In picture compression, the Ycbcr color space model is frequently employed [12]. Leaf color was extracted using the A, U, and Cr components from LAB [6], UVL, and Ycbcr color space in order to reduce illumination effects [14].

Image segmentation is the process of reducing the complexity of an image's representation so that it may be examined more closely and with greater ease. Image segmentation is one of the core techniques of digital image processing, serving as the foundation for feature extraction and pattern identification. There are several methods for image segmentation is covered below.

B. Region based

This method groups pixels that are connected to an object. Closing the identified segmentation area is necessary. There won't be a gap in this region-based segmentation because of the missing edge pixels. For segmentation, the boundaries are determined. At least one pixel in each step is associated with the region and is given careful thought. The edge flow is transformed into a vector when the color and texture changes are recognized. These edges are then found for additional segmentation.

C. Edge based

Edge detection algorithms can also be used for segmentation. Numerous methods exist, including gradient, log, canny, Sobel, Laplacian, and Robert. This method identifies the

boundary to segment. To find the image's discontinuities, edges are discovered. They employ both fixed and adaptive features for categorization of the support vector machine.

D. Threshold based

This method of segmentation is the simplest. In this case, the original image's edges' histogram is used to determine the threshold values, which are then used to segment the image. Thus, the threshold should also be correct if the edge detections are. Thresholding-based segmentation requires less computations than other methods. The This segmentation technique's drawback is that it isn't appropriate for complex images.

E. Feature based clustering

Clustering is another method used for segmentation [8]. After the image has been transformed into a histogram, clustering is applied to it. The color image's pixels are grouped for segmentation using the unsupervised Fuzzy C approach. This is used with regular pictures. If the image is noisy, fragmentation will occur. A fundamental Textured picture segmentation is accomplished using the clustering k-means algorithm [6, 13]. It segments the image by grouping together the relevant pixels. Using feature clustering, segmentation is carried out and modified based on color components. Additionally, segmentation is only based on the features of the picture. For segmentation, the difference in color and intensity values is used. Low-level picture segmentation is resolved using an improved k-mean [4]. The fuzzy membership function in color space with respect to image space is used iteratively to build color clusters for the purpose of segmenting color images using the fuzzy clustering technique. The method works well for determining the color region. Segmentation based on clustering in real time. A virtual focus area is identified.precisely for division. Multithresholding is used to coarsely segment the image. Fuzzy cmeans clustering is then used to enhance it [6]. It is a significant benefit when applied to any multispectral photos [7].K-means clustering is a segmentation strategy for region expansion. Using cylindrical color space decision elements, a clustering technique is used to segment images. The histogram is used to obtain the surface, and thresholding is used to identify clusters. Utilizing modified self organizing feature map (MSOFM), the technique of clustering eliminates the need for a set amount of color groups. Additionally, it is customizable, enabling each color group to be comparable. Better color extraction results from using the appropriate color group numbers [14].

F. Model based

Model-based segmentation is often referred to as Markov Random Field (MRF) based segmentation. MRF has an integrated region smoothness constraint that is utilized for color segmentation. Accurate edge identification is achieved by combining MRF with edge detection [4].

G. Feature extraction

Following segmentation, the diseased portion, or the area of interest, was excised. The meaning of a given sample can be ascertained by using the relevant features that are retrieved in the following phase. In actuality, color, shape, and texture elements are typically included in image attributes. At the moment, the majority of researchers studying plant leaves The most crucial factor in identifying plants is their texture. Plant diseases are categorized into several kinds using textural properties. The methods for feature extraction differ, as will be covered in the section below.

Texture analysis methods

A texture is a pattern of unevenly distributed different image intensities in space that often focuses on the individual pixels that make up a picture. The quantification of the spatial relationship between materials in an image is called texture. A few characteristics are crucial to the recitation of homogeneity, regularity, density, directionality, linearity, roughness, coarseness, phase, and frequency are examples of texture.

Four main categories—statistical, structural, fractal, and signal processing—are used to describe textural force.

Statistical: For texture extraction, statistical types include run length matrices, auto-correlation features, grey-level co-occurrence matrices, and grey-level histograms.

Structural: Textures are assumed to be composed of texture primitives by the structural models of texture. Structural texture analysis is conceptually divided into two main phases: the extraction of texture elements and the inference of the placement rule. Two dimensional wavelet transform and Gabor transform are two distinct structural approaches that are taken into consideration.

Fractals: Roughness and self-similarity at various scales are statistical properties shared by a large number of natural surfaces. Fractals have gained a lot of popularity and utility in the field of image processing for modeling these attributes.

Signal processing: Because of its characteristics, texture is particularly well-suited for this kind of analysis. incorporates spatial domain filters, two-dimensional Gabor function, and Fourier domain.

Texture feature extraction methods

The inputted image's significant and intriguing aspects are extracted using extraction techniques. The technique known as the "texture feature extraction method" is used to extract texture features from photographs. This section discusses the widely used extraction techniques in the realm of texture.

Colour co-occurrence Method: The statistical distribution of observed combinations of intensities at specific locations in relation to one another in the image is used to compute the texture characteristics in statistical texture analysis [2], [10]. A statistical technique called Grey Level Co-occurrence Matrices (GLCM) is used. It is an antiquated technique for classifying textures via feature extraction. It has been a crucial technique for extracting features in the texture domain. method texture categorization that determines the correlation between an image's pixel pairs. The resulting GLCMs can be used to calculate textural properties such as homogeneity, contrast, correlation, energy, and entropy. Still, in

In recent years, the GLCM has been used in conjunction with other techniques rather than alone. These are a few alternative GLCM implementations, such as one-dimensional and second-order statistical GLCMs, in addition to the traditional approach. It can also be used to create a color co-occurrence matrix in a different color space [12]. Statistical texture features can be extracted using the Spatial Gray-level Dependence Matrices (SGDM) approach.

Four attributes are included in spatial gray-level dependence matrices (SGDM): contrast, energy, local homogeneity, and correlation [5].

Gabor Filters: Also known as Gabor wavelets, gabor filters are widely used. It is a popular technique for signal processing. Parameters including the radial center frequency, standard deviation, and orientation make up the Gabor filters. By specifying a range of radial center frequencies and orientations, it can be put to use. As a technique for signal processing

generates huge feature sizes; hence, Gabor filters must be reduced in size to avoid dimensionality problems [9]. PCA, or principal component analysis, is a viable option for reducing the feature space. Although gabor filters are widely used for texture categorization, they are occasionally used in conjunction with other techniques [1].

Wavelets Transform: Wavelet transforms are another widely used signal processing technique in pattern recognition and image processing. It has now grown in importance as a feature for texture categorization. These days, a number of wavelet transforms are widely utilized, including Discrete Wavelet Transforms (DWT), Haar wavelet and the wavelets of Daubechies. The most often used wavelet transform among these is DWT. When compared to the spatial domain, the information on the frequency domain is typically more stable. As a result, wavelet transforms typically yield better features with a greater precision despite being slower and more complex [3].

principle component analysis:(PCA) is a statistical technique that creates a collection of values for linearly uncorrelated variables known as principle components from a set of observations of potentially correlated variables via orthogonal transformation. There are more original variables than there are major variables, or they are equal elements. The original variables' relative scaling has an impact on it [15]. Factor analysis and PCA are closely related multivariate procedures that are based on genuine eigenvectors [8]. PCA is the most basic of these analyses.

IV. PEER REVIEWED

Classifier

A MATLAB software routine was written. This uses multiple neural network classifiers for testing and training. The methods for classifying textures using features are as follows.

A. K-nearest neighbour

To decide which class a given point belongs to, the K-nearest neighbor classifier computes the minimal distance between the given point and other points. The objective is to determine the least distance between each training sample and the query sample, then choose the neighbor with the shortest distance.

B. Radial basis function

A real-valued function whose value solely depends on the distance from the origin is known as a radial basis function (RBF). The Euclidean distance is the commonly used measurement norm. RBFs are networks in which the distance between an input vector and a prototype vector determines whether or not to activate hidden units [15].

C. Artificial neural networks

ANNs are widely used machine learning algorithms that have gained popularity in the recent past. The simplest type of ANN is called Multilayer Perception (MLP), and it uses back propagation to change the weights while training [1,14]. Other neural network versions have lately gained popularity in the texture categorizing [10], [12].

The Probabilistic Neural Network: (PNN) is a processor that is distributed in parallel and has an innate inclination to store experiential information. It is derived from the Radial Basis Function (RBF) network. PNN is a statistical algorithm that implements kernel discriminate analysis, wherein the operations are arranged in afour layers in a multilayered feed forward network: the input layer, the pattern layer, the summation layer, and the output layer [15].

Convolutional neural network: This type of neural network uses convolutional input layers to extract features from input images in a self-learning manner. As a result, it can use the same architecture to handle feature extraction and categorization.

Backpropagation network: The input layer, hidden layer, and output layer are the three components of a typical BP network. Through the collecting weight value across nodes, three portions in turn connect [11, 15]. The main feature of the BP network is that the sum of error squares is used to get the expected network weight value.it continuously changed the weight value of the network structure between the sample output and the network output [8,12,13]. It is widely utilized and well-liked for feed forward network training. Furthermore, in order to train feed forward networks, it needs to be trained on known outcomes as it lacks inherent novelty detection.

D. Support vector machine

A more recent development in machine learning algorithms is the support vector machine (SVM), a non-linear classifier. Texture classification is one of the many pattern recognition issues where SVM is frequently utilized [14]. SVM is only intended to function with two

classes. By maximizing the margin from the hyper plane, this is accomplished. Support vectors are the samples that were chosen to identify the hyper plane that were closest to the margin. When utilizing one-versus-all or one, multiclass classification is applicable and essentially constructed by different two class Support Vector Machines [10].

Table.1. Texture classification techniques comparison

SRNO	TECHNIQES	ADVANTAGE	DISADVANTAGE
1	K-Nearest Neighbor (KNN)	Simpler classifier as exclusion of any training process. Applicable in case of a small dataset which is not trained.	Speed of computing distance increases According to numbers available in training samples. Expensive testing of each instance and sensitive to irrelevant inputs
2	Radial BasisFunction (RBF)	Training phase is faster. Hidden layer is easier to interpret.	It is slower in execution when speed is a factor.
3	Probabilistic Neural Network(PNN)	Tolerant of noisy inputs. Instances classified by more than one output	Long training time. Large complexity of network structure. Need lot of memory for training data
4	Backpropagation Network (BPN)	Easy to implement. Applicable to wide range of problems. Able to form arbitrarily complex nonlinear mappings	Learning can be slow. It is hard to know how many neurons as well as layers are required.
5	Support Vector Machine (SVM)	Simple geometric interpretation and a sparse solution. Can be robust, even when training sample has some bias.	Slow training. Difficult to understand structure of algorithm. Large no. support vectors are needed from training set to perform classification task.

V. IMPROVEMENT AS PER REVIEWER COMMENTS

GLCM and K-means clustering are used to identify infections. Anthracnose, Cercospora Leaf Spot, and Bacterial Blight are the three types of infections that can be identified using segmented picture texture studies. Table 1 displays the findings for various leaf samples together with the disease categorization and the afflicted area. With 98.27% accuracy, this system was able to identify the virus and classify the users appropriately. Example No. Affected Area Classified by Disease (Percentage) One Anthracnose (49.88), two Anthracnoses (53.12), three Anthracnoses (66.37), four Cercospora Leaf Spots (30.56, 53.25), six Cercospora Leaf Spots (21.89), seven Bacterial Blights (30.51, 8.26, 15.68, and 9.86)

(Table 1) Disease Classification and Affected Area.

Sample No.	Disease Classified	Affected Area (Percentage)
1	Anthracnose	49.88
2	Anthracnose	53.12
3	Anthracnose	66.37
4	Cercospora Leaf Spot	30.56
5	Cercospora Leaf Spot	43.25
6	Cercospora Leaf Spot	21.89
7	Bacterial Blight	30.51
8	Bacterial Blight	15.68
9	Bacterial Blight	88.76

VI. CONCLUSION

In order to identify plant diseases, image processing methods for a number of plant species have been reviewed and summarized in the current work. The four main methods for identifying plant diseases are SGDM, K-means clustering, SVM, and BPNN. These methods are employed to analyze both healthy and sick plants departs. The impact of background data in the final image, technique tuning for a particular plant disease, and automation of the

technique for ongoing automated monitoring of plant diseases in real-world field circumstances are some of the issues associated with these approaches. According to the review, there are certain limits and good potential for this disease detection technology to identify diseases of the plant leaves. Thus, there is room for improvement in the current body of study.

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Sign language recognition system for communicating to people with disabilities.

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Abstract- Sign language is one of the most dependable ways to communicate with special needs because it can be used anywhere. However, sign language is not understood by the majority of people. Therefore, we came up with the concept of developing a computer program that can recognize sign language and translate it into text in real time. This study makes use of a Convolutional Neural Network (CNN) classification system and an American Sign Language (ASL) dataset. An image of the hand is passed through a filter in classification before being passed through a classifier, which determines the type of gesture it represents. The accuracy of recognition is the study's main goal. Our application gave an accuracy of 96.3% for the 26 letters of the alphabet.

Index Terms- American Sign Language (ASL), sign language recognition, computer vision, convolutional neural networks.

I. INTRODUCTION

Artificial intelligence or AI is the fields of computer science that studies human intelligence to enable artificial intelligence to solve problems. Artificial Intelligence, refers to the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using it), reasoning (using rules to reach approximate or definite conclusions), and self-correction. Artificial intelligence includes a subset called computer vision (AI). The aim of computer vision is to get information from images that is helpful. It is difficult to implement, though. Robotics and photo scanning have both been produced using computer vision, which is also employed in the industrial, automotive, medical, and mathematics domains [1,2]. AI systems work by ingesting large amounts of labelled training data, analyzing the data for correlations

and patterns, and using these patterns to make predictions about future states. Deaf people commonly use sign language as a means of communication. Sign languages are natural languages that utilize manual communication and body language to convey meaning, just like spoken languages use sound. Deaf people have difficulty communicating with normal people in everyday life. One reason is that few people understand American Sign Language (ASL). There are many different sign languages around the world, each with its own grammar and vocabulary. American Sign Language (ASL) is one of the most well-known sign languages, primarily used in the United States and parts of Canada. This research therefore aimed to acknowledge the hand gestures, or ASL, which the system would translate into text that could be read in real time, thus facilitating communication with people with special needs. Hand gestures are a form of nonverbal communication that involves the use of hand movements and gestures to convey meaning, express emotions, or emphasize spoken words. Gesture identification is also a part of human-computer interaction (HCI) as it interacts directly with the user. Human-Computer Interaction (HCI) is the study, planning, or design of the interaction between a user and a computer. It is a multidisciplinary field concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. It focuses on the interaction between humans and computers and seeks to understand how users interact with technology, with the aim of improving usability, user experience, and overall satisfaction.

Among the functional interactions of a gesture recognition system, it is to display a text composed of letters read by the system [5, 6]. In this paper, we will use computer vision and pattern recognition techniques to develop a desktop application that detects hand movements in real time by making use of a live webcam/camera. Eventually, we'll use the American Sign Language (ASL) dataset and a Convolutional Neural Network (CNN) classification system. A Convolutional Neural Network (CNN) is a type of artificial neural network designed specifically to analyze visual data. CNNs are widely used in computer vision tasks such as image recognition, object detection, and image segmentation. The search concentrates on the accuracy of recognizing letters of the alphabet and lay out the results in real time in the form of text. The rest of the paper is categorized: in section 2, literature review; in section 3, dataset is described; in section 4, methodology is presented; in section 5, the importance of the results and conclusions.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

Human-Computer Interaction (HCI) is usually achieved using a mouse, keyboard, remote control, or touch screen. Even so, human communication occurs more naturally through speech and body movements, which are generally considered to be more flexible and well organised [5]. In accordance with Zhi-Hua Chen et al [7], due to the rapid development of software and hardware, a new type of HCI is needed. Particularly, speech recognition and gesture recognition have received considerable attention in the field of human-computer interaction.

Artificial intelligence (AI) technology is also required for gesture recognition that is, computer vision. In computer vision techniques, numerous things can be studied, one of which is real-time motion-based recognition. There are a number of different approaches that can be used to design an identification system. The research goals in this area are often to improve the accuracy of the recognition executed and to perform gesture recognition, such as hand movements, sign language, and body movements. Generally, recognition technology can recognize many things, such as patterns, faces, body or hand movements, for different purposes.

In 2013, there was a study on real-time gesture recognition, and the success rate of each gesture exceeded 68%. This study make use of optical flow features combined with a face detector [8]. However, Tarek Frikha and Abir Presentche were more interested in gesture recognition [3]. To support gesture recognition research, a 2018 study introduced a dataset and metric called Ego Gesture [1]. Ego Gesture uses hierarchical hidden Markov models and classification methods, along with the Cambridge Gesture dataset, resulting in very useful datasets for research.

One application of recognition technology is automotive ergonomics. In its field, gesture recognition controls applications on mobile tablets. This study used a ToF sensor, PCA-based pre-processing and a convolutional neural network, which provided satisfactory results for the drive [9].

However many applications are made with recognition technology, this research focuses on the field of communication [11], especially sign language. Communication is the most important thing for everyone to share their thoughts and ideas. The communication is said to be successful if the communication partner receives and understands the message [10]. However, for people with hearing problems or unable to speak, communication can be

difficult, thus requiring other forms of communication, such as writing or the use of body gestures. However, written communication is less convenient because people with hearing problems are often not very good at writing spoken language. Additionally, this type of communication can be impersonal and slow in face-to-face conversations. For example, accidents often require skilled communication with doctors, and written communication is not always possible [12]. Among these different forms of communication, sign language is the most effective communication too [13]. Although sign language is the most effective, communication is sometimes difficult because only some people understand sign language [14, 15]. Sign language has different forms and gestures in each country, such as American Sign Language (ASL) used in the study by Shruti Chavan, Xinrui Yu and Jafar Saniie [16] and Indonesian Sign Language (ISL) used in [4] in a study.

Therefore, we need a tool that can recognize sign language and convert it into understandable text with high accuracy and ease of use [17]. To be able to recognize sign language and convert it into understandable text, a device must be able to accept a photo or video stream. The photo or video entry is then processed before final grading. This photo or video processing can be done in several ways or steps, such as blurring or background removal [18, 2], edge detection [17, 2,19], cloud processing dots [17], skin color detection [20], twenty-one]. Conversion of region of interest (ROI) to grayscale image and blurred ROI using Gaussian blur, contour extraction [20, 19]. Augment data such as scaling, scaling, shear, rotation, width and height offsets, HSV color space, global thresholding, adaptive Gaussian thresholding [11], KAZE feature detection, KMeans algorithm in data sets [15, 22] [13] and BRG RGB conversion and RGB to threshold conversion [10].

After the images are processed by these different methods, the results of the image processing are classified to obtain the results. Classification can also be done in different ways such as histogram matching algorithm [17], nearest neighbor [13, 21], SVM, NBC [13], hidden Markov model [21], the extreme learning method (ELM) [6]. And the most commonly used method is the Convolutional Neural Network or CNN [23, 24, 10, 11, 15, 2].
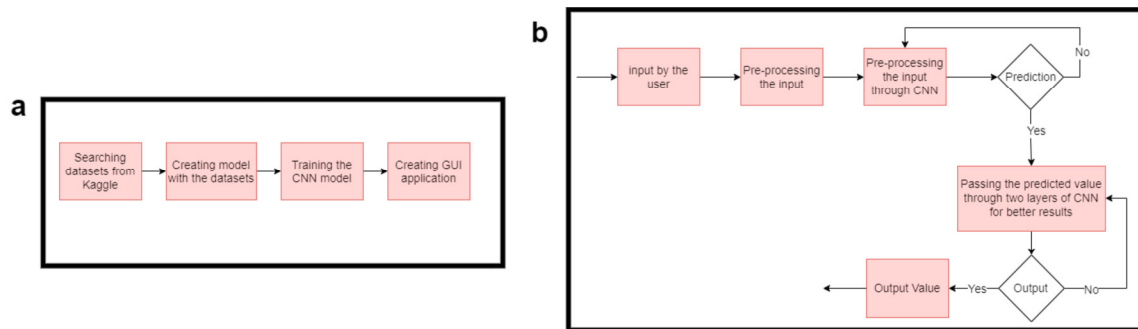
Fig. 1. (a) Research Process   (b) Gesture classification process.

Therefore, we are looking for references to suitable methods and algorithms. A study in 2019 discusses the best of the three methods, which are the wavelet transform method, the empirical mode decomposition method, and the convolutional neural network method. The result is that the CNN method is more accurate, but the relatively

high memory consumption [25] Additionally, in 2019, a study was conducted on Indonesian Language (ISL)

recognition using a CNN approach and YOLOv3 architecture also using the ISL dataset. The study gave an

accuracy rate of 100% for images and 73% for videos [26]. Then, in the second year, machine learning methods using OpenCV and TensorFlow produced positive results, supported by another set of data from other research [27].

What we can convey is that human-computer interaction (HCI) media is needed to communicate with people who have hearing problems or are unable to speak. Therefore, in our time, a sign language recognition system is needed to facilitate communication between deaf and normal. Researchers have studied sign language recognition using different methods. The topic was interesting and the result had a positive impact on society. Therefore, this research will focus on creating an understandable and highly accurate sign language recognition system using the American Sign Language (ASL) dataset and the Convolutional Neural Network (CNN) method.

III. STUDIES AND FINDINGS

We are going to use a dataset called "ASL Hand Sign Dataset (Grayscaled Thresholded)" [28] that we downloaded from the Kaggle website. This dataset has 24 classes and a Gaussian Blur filter applied to it. Nevertheless, because the original code calls for 27 classes,

we employ three dataset classes—the J, Z, and 0 (empty) class datasets—that we acquired from Nikhil Gupta to fill in the gaps in the Kaggle dataset.

Our dataset has far more photos than the dataset [29] of the code we are using. The source code dataset we use only contains 12845 photos of training data divided into 27 categories and 27 4268 test data class images, whereas the images we use are 30526 images of training data divided into 27 categories and 8958 images of test data divided into 27 categories.
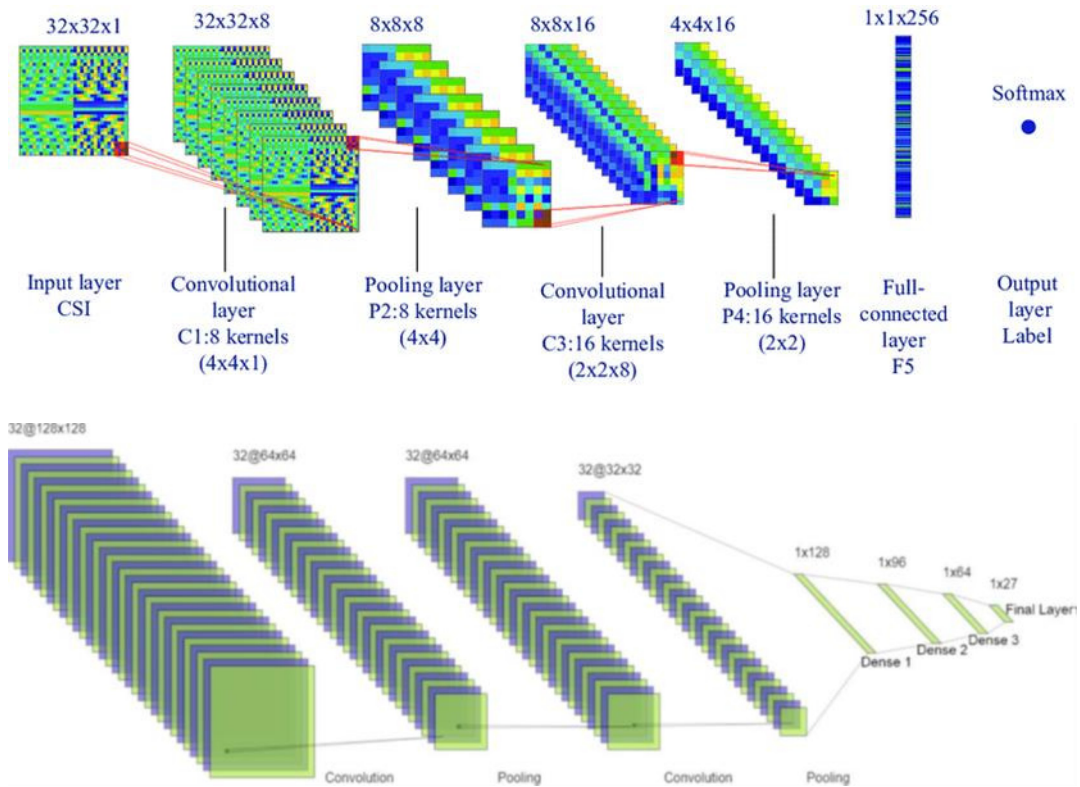
IV. PEER REVIEWED

For this study, we first searched for the desired dataset in Kaggle [28]. Next, we'll use Kaggle's dataset to create the model. After that, we will train the CNN model before finally creating the GUI for our desktop application. We have included a flowchart of our research process, shown in Figure 1(a). The steps required to run a language recognition model are usually divided into several parts. First, the application will import the user's live camera input, then read the input, and the photo results will be displayed as the characters finally assigned to the word.

A. Implementing Algorithm

Because Kaggle's [28] database is bigger than Nikhil Gupta's, it is used in this study [28]. We may examine the variations in Nikhil Gupta's searches as a result of another dataset using Kaggle's dataset. The model developed by Nikhil Gupta was then trained and tested using this dataset. The model has two layers and use a convolutional neural network (CNN) method to classify gestures. The model processes images at Layer 1 to anticipate and track user-entered frames.

The first layer consists of a 7-layer CNN model (1st convolutional layer, 1st clustering layer, 2nd convolutional layer, 2nd clustering layer, 1st densely connected layer, 2nd densely connected layer and finally a layer) as shown in Figure 2, Activation function, Pooling Layer, Dropout Layer, Optimizer. In Layer 2, two layers of algorithms examine and predict symbols or letters that look alike so they can detect and display the exact letter. Additionally, our app uses the Hunspell library for its autocorrect feature, where the user clicks on one of the app's three suggestions to form a word. We have included a flowchart for gesture classification, shown in Figure 1(b). During the training phase, the parameters that can affect the accuracy of the model are the number of data sets used to train and test the model and the number of iterations used to test the model. After modifying and training the model with the new dataset, we used the sign language to text converter application created by Nikhil Gupta, which recognizes sign language and converts it to letters/text in real time. The application uses the Python programming language and the following libraries: TensorFlow, NumPy, OpenCV, OS-sys, operator, string, Tkinter, Hunspell, Keras, Enchant and Pillow. The application process is as follows: directly convert the hand image captured by the camera to grayscale, then use Gaussian blur and adaptive threshold processing. The image will then be processed by the model to make predictions and display the output characters. Then the prediction or letter must hold for a few seconds before it can be combined into a word. We have also changed the GUI of the application by adding an image containing the list of ASL symbol for user convenience. The modified Graphical User Interface (GUI) of the application is shown in Figure 3. Performance and accuracy measurements will be made by looking at the training data results and test epoch 20 times. Iteratively generate accuracy and loss values for training data and test data to find values that represent pass and loss values. We use the confusion matrix to calculate the performance and accuracy of the model while experimenting and evaluating the application we have made. We have also changed the GUI of the application by adding an image containing the list of ASL symbols for user

convenience. The modified Graphical User Interface (GUI) of the application is shown in Figure 3.

B. Evaluate

The results of the training data and test epoch will be examined 20 times in order to measure performance and accuracy. Find values that represent success and failure by iterating over accuracy and loss values from training and test data. As we experiment and evaluate our application, we use the confusion matrix to calculate the model's performance and accuracy. Nikhil Gupta's dataset, which was used in his research, provided the information for the confusion matrix. When used in this way, the following settings or variables may have an impact on the app's performance:
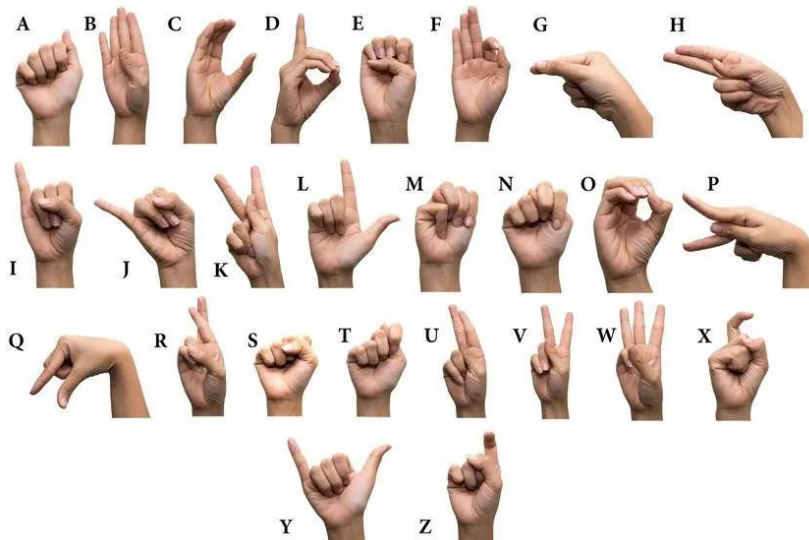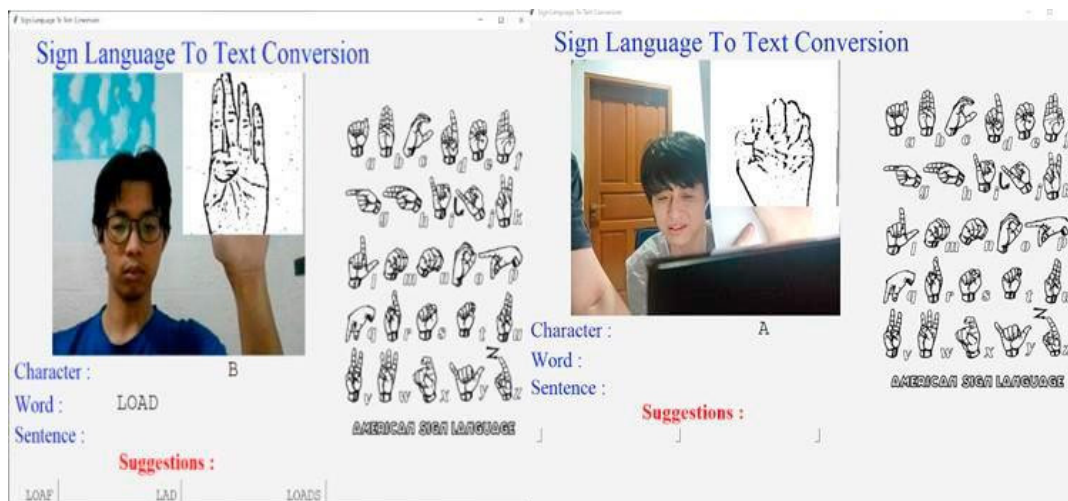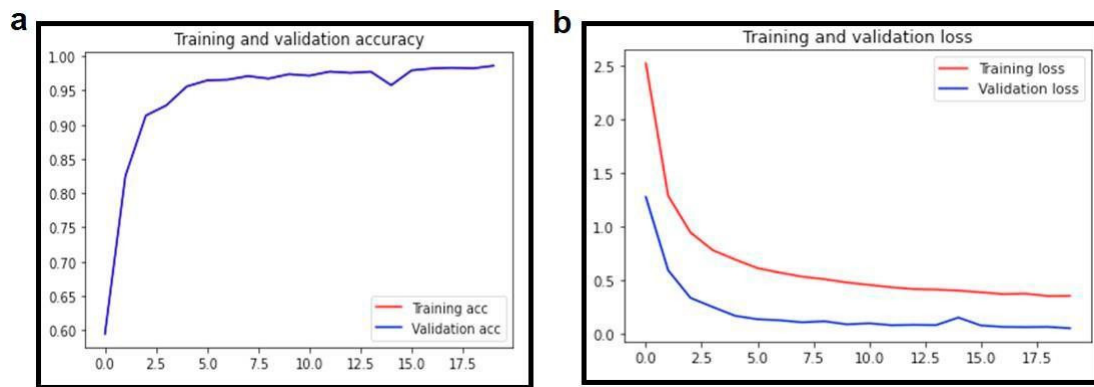

Fig. 3. Application GUI

Fig. 4. (a) Train Val Accuracy   (b) Train Val Loss.

❖ Device Specifications 1 for testing application with i5-9300H CPU, 1650Ti VGA, 8GB RAM, 1TB HDD and 256GB SSD, Windows 11 OS and HD WEBCAM PORTABLE

❖ Device Specifications 2 device to test the i7 application - 4790H processor, NVidia GeForce GTX 970 VGA, 16 GB of RAM, 1 TB HDD and 128 GB SSD, Windows 10 operating system and smartphone camera POCOPHONE F1.

❖ Test the background complexity of the application.

V. IMPROVEMENT AS PER REVIEWER COMMENTS

We created a model with training and validation accuracy of 89.1% and 98.6%, respectively, and training and training validation errors of 35.5% and 5.3% using different training and test datasets and number of epochs than Nikhil Gupta's study. Figure 4 shows graphs that represent the precision and loss of the trained and verified models of our search algorithm. The results of our model are quite different from those of Nikhil Gupta. That is, our model has a greater loss value in training and validation, with a loss value of 35.5% compared to Nikhil Gupta's 3.7% and 5.5% in Training.

A loss value of 3% compared to Nikhil Gupta's 0.18% in validation. Our model also has lower training and validation accuracy values than Nikhil Gupta's model, with 89.1% training accuracy vs. 99% for Nikhil Gupta and 98.6% vs. at 99 by Nikhil Gupta 9% verification. This difference in results could be influenced by the number of time periods the different models were run and the difference in the amount of data in the dataset. When testing and evaluating the model, we used a confusion matrix created by testing with the dataset created by Nikhil Gupta's research because it has the same number of classes, the

same data type and a smaller amount of data. Thanks to the confusion matrix, the accuracy is 96.3%. We provide a picture of the confusion matrix for our results in Figure 5.

Our app now recognizes sign language and instantly converts it to letters or text after applying the model. Lighting and background accuracy are a couple of factors that can impact a sign language recognition app's performance. Therefore, to read the gestures when the app is running, we need good lighting and a plain background without any objects on the box. Our application requires an empty background state in order to test the application and test "empty" gestures (the box that reads the gesture should be empty and have nothing inside). In order for the app to read the rest of the gesture and convert it to letters/text, our gesture should remain in the box and the letter displayed in the "Character" line should be the same for about 5 seconds until this letter appears in the "Word" line.
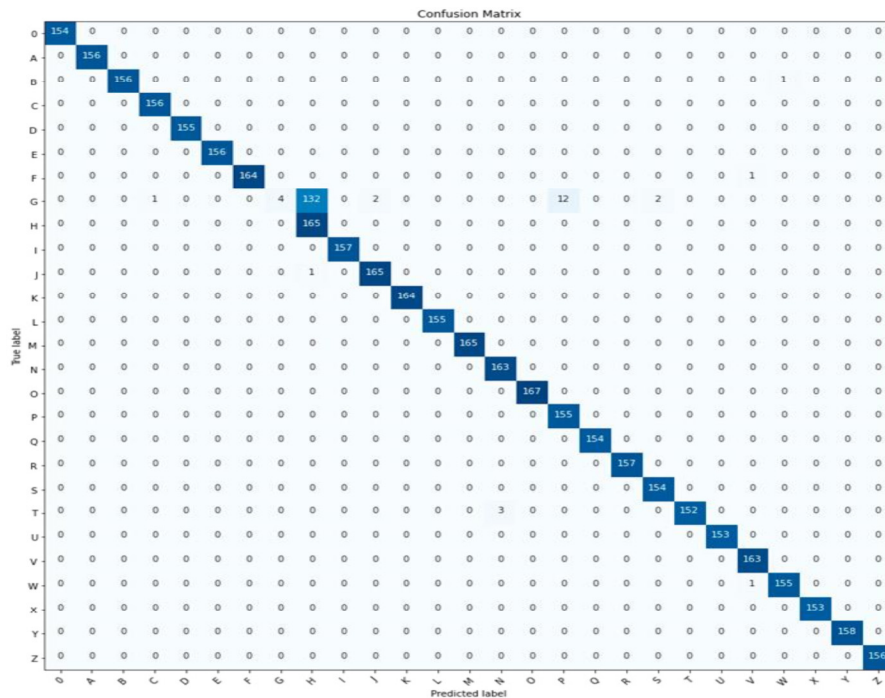

Fig. 5. Confusion matrix

From the results, the author analyzes why there are errors in the recognition process: In the confusion matrix, there is a problem in detecting the letter G as the letter H. The reason for this problem is that when we tested our model with the dataset used by Nikhil Gupta, the gesture for the letter G in the Nikhil Gupta dataset was different from the gesture for the letter G in our training dataset. Also, the gesture G for the letter G in the test dataset is very similar to the gesture for the letter G in the training dataset, so the letter G is

recognized as the letter H during the test. This issue is particularly problematic when recognizing gestures in the presence of similar real-time gestures, as it can cause apps to misinterpret certain gestures. In addition, low resolution cameras, insufficient lighting or overly complex backgrounds can also lead to misinterpretations.

VI. CONCLUSION

In this study, We used a two-layer convolutional neural network (CNN) approach to create a new model for this study. Using the data set we obtained, we trained the CNN model, which provided us with the model's ability to create a graphical application. As a result, our app has a final accuracy of 96.3% when combining gestures into words in real time. However, the letters must stay the same for a brief period of time in order to form words. Therefore, for future research, we propose to implement methods for removing the background, finding a way to speed up the process of forming the letters of words, thereby reducing the waiting time, and to increase the number of layers in the CNN model, so the model will be larger. One might also reconsider the use of methods other than CNNs, as this might lead to better results.

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An examination of self-financing organization to apprehendthe ego state of the employer-employee dynamic.

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Abstract- Excellent work performance and increased organizational productivity are the outcomes of a positive employer-employee relationship. The purpose of this study is to investigate the impact that ego states play in improving employees' daily performance and in fostering positive, amicable relationships between employers and employees. When one worker in an ego state expects another worker in the transaction to perform in a way that he should, then effective communication between the workers can occur. The ego state model assists organizations in anticipating employee behavior and implementing remedial steps to promote harmony through appropriate awareness, ultimately leading to favorable performance outcomes.

Index Terms- Employer-*Employee Relationship, Ego State, Communication, Work Performance*

INTRODUCTION

An ego state is a stable emotional and experiential pattern that is closely linked to a corresponding stable behavioral pattern. Three distinct sets of ideas, feelings, and behaviors are displayed by people at different times,according to Eric Berne, the

creator of transnational analysis. Child, Adult, and Parent are the Ego States. In essence, it investigates how we interact with others and concentrates on ways that we might do so better. Whenever we engage in a transaction with another person, one of our three ego states is inadvertently activated. The term "ego state" describes how our thoughts, emotions, and behaviors vary over time and in different situations. A mutually advantageous arrangement that supports both the employee's and the organization's aims for professional development. When an Adult Ego State is present in the workplace, the employee and the employer have a reasoned conversation grounded in reality. They communicate, consider ideas, and come to a win-win solution that satisfies both the employee's desire for professional advancement and the objectives of the organization. Logic and reason are used to make judgments during the negotiating process, not personal prejudices or power dynamics. Emotions are controlled throughout. This study, which is based on these three ego states, thus focuses on the relationship between ego states and employee job performance, as well as how it influences productivity and, ultimately, fosters positive relationships between employers and employees.

STATEMENT OF THE PROBLEM

The abuse of ego states can frequently lead to distorted communication, arguments, and strained relationships when discussing leadership and team dynamics. This brings us to the ideal kind of transaction: adult-to-adult. Good job performance and increased productivity inside the organization are the outcomes of a positive employer-employee relationship. This study aims to investigate the function that Ego States play in improving

employees' daily work performance and in fostering a positive and productive work environment betweenemployers and employees.

OBJECTIVES OF THE STUDY

- To determine different ego states of employees and employers inside the organization.

- To investigate the effects of various employee-employer ego states on job performance through empiricaltesting.

SIGNIFICANCE OF THE STUDY

Due to a number of factors, including the organization's level of maturity and transaction handling, productivity levels inside the business are currently relatively lower. Additionally, it appears that the organization's personnel are becoming less engaged and lazy in their work, which progressively impairs their productivity. We therefore believe that ego states have a significant impact on their level of performance. Therefore, the focus of the examination is on how different Ego States interact and impact an individual's performance, which in turn improves the employer-employee relationship within self-financing educational institution under study.

REVIEW OF LITERATURE

- In 2023, Magdalena Kraczla1: The purpose of the essay is to illustrate the connections between a manager's conflict resolution approaches and personality type. As a result, it's fascinating to see how managers handle conflict, what strategies they use to resolve it, and what factors influence their choice of response method. The primary goal of the research presented in this article was to identify relationships between an individual's conflict resolution style and the ego states that comprise their personality.

- Rahman Khan (2022): The main objective of this study was to establish how much psychological resources influence the engagement of night shift workers. As mediating elements, this study also examines positive effect and ego resilience. Over the course of three months, 208 employees from the US, UK, and Canada provided the information. As a result, it was determined that two important direct indicators of employee engagement were self-efficiency and a positive work environment.

- Pratik Gamare (2021): The effect of ego states on the growth and performance of organizations has been the main topic of this study. Only three categories of ego states—parent, child, and adult ego—were under consideration. Among which there were fewer opportunities for clashes for the manager's most anticipated ego. Nonetheless, it was seen that the employees with higher scores demonstrated more performance and progress, which had a beneficial effect and reduced friction.

However, when unanticipated egos are displayed, there is a greater likelihood of confrontations, which can negatively affect an employee's ability to advance within the company.

- Ihor Popovych (2021): The purpose of empirical research is to establish the relationship of functional-role positions (ego- states) with other indicators of future professional's independence to establish the level of manifestation of functional ego states. The results indicated that the most important for the respondents the value of independence, the more they are focused on taking into account the actual possibilities and autonomous action on the basis of objective data (ego-state "Adult"), as well as control, management, criticism of other people (ego-state "Parent-controller").

- According to Gopal Pradhan (2016), managers can better comprehend the behaviour of their subordinates who are in different ego states at different times by using transactional analysis. An individual can relate to others in a way that no one else can when they have a unique understanding of who they are. Better complimentary transactions are the outcome of improved communication.

- In order to determine the efficacy of transactional analysis group training, Mehrdad Mazaheri (2016) trained convicts and watched for signs of violence. This study demonstrates how transactional analysis, which was chosen as a reasonable method to carry out experimental research on a group of 24 voluntary convicts, can help people communicate better by helping them understand themselves better and manage their anger.

- Sharon Mary Johnson (2015) discusses that transactional analysis has helped in reducing stress and burnout of teachers teaching in Secondary School education along with other two techniques in West Cape, South Africa. The results of this indicate that transactional analysis can be used as a technique for reduction of stress and burnout in teachers in extremely eclectic and traumatic situations as well.

- Vajinder Pal Singh and Amit Kumar Jain (2014) provide the theoretical background about transactional analysis and correlate it with the personality and

interpersonal behaviour of individuals. The purpose of this study was basically to understand that conflicts occur in every field but managing it is very difficult and it takes a lot of time and effort in it. So if instead of going for a solution after the problem has occurred, transactional analysis can help it nip in the bud.

- In 2012, Rohith Kumar Singh This study looks into the behavior of employees in an adult ego state and how that behavior affects each employee's particular job performance. He examined the behavior of adult ego state employees in this study, as well as the important effects of their attitude and behavior on their output at work. Every employee, according to this study, possesses all three ego states, but they alternate between them depending on how comfortable they are in each one for a given amount of time and the attitude they develop while in that condition.

- According to Vesna Leskosek (2009), the theory of transactional analysis is based on psychodynamic theory and concentrates on the interplay between the ego states of two people. A social worker's job is to identify any shifts in communication styles that leave the other person feeling inadequate, horrible, or helpless. The intervention in social work with groups is likewise predicated on this transactional analysis paradigm.

THEORETICAL FRAMEWORK

In Transactional Analysis (TA), the term "ego states" describes the diverse ways that an individual thinks, feels, and behaves in different circumstances. The three basic ego-states that people work from are Parent, Adult, and Child, according to Eric Berne's Transactional Analysis. Individuals can alternate between different ego states based on the situation, and each ego state has its own unique collection of ideas, emotions, and behaviors.

Types of Ego State:

A) Parent ego state: Norms, attitudes, and behaviors that are internalized and learned from parents or other authoritative figures. The parent ego state is divided into two subcategories:

(i) Nurturing parent: This quality is characterized by gentle, upbeat, and supportive behaviors. It incorporates the qualities and nurturing skills that kids learn from their jobs, such support, guidance, and encouragement.

(ii) Critical parent: acts that are judgmental, controlling, and critical are characteristics of this feature. It stands for the signals that people in positions of power send to them, whether positive or negative, such as requests, criticism, or the enforcement of rules and regulations.

B) Adult ego state: Associated with reasoned argumentation, problem-solving, and objective situation assessment. The ability to solve issues, reason, and objectivity are characteristics of the mature ego state. It means evaluating information in the context of the present rather than past experiences or emotions. In the adult ego state, people are able to analyze situations, make judgments, and effectively communicate by employing

reason, logic, and evidence. It helps people assess the consequences of their choices, adapt to new challenges, and solve problems in a productive way.

C) Child ego state: Indicates attitudes, behaviors, and feelings that are derived from early life experiences. Child ego state can be divided into two sub types:

(i) Adaptive child: This trait involves a child's early acquisition of healthy and adaptive behaviors, emotions, and attitudes. It includes the capacity for spontaneity, creativity, curiosity, joy, and good times.

(ii) Rebellious child: this trait encompasses actions, emotions and mind set linked to disobedience and impatience. It frequently starts as are actions to limitations, injustices or those in positions of authority. The rebellious child may show up as disobedience, obstinacy or acting out in order to question perceived boundaries or declare their independence.

(iii)Free child: this state reflects spontaneous and creative behaviours. In the work place, a free child can bring innovation and new ideas.

Elements influencing ego state in the formation of the employer-employee bond include the following:-

• Interpersonal communication: How individuals engage with one another can have an impact on their ego states. Ego states are generally improved by more courteous and candid communication.

• Past interactions and experiences: Ego status in a present relationship may be impacted by previousencounters and interactions with superiors or coworkers.

• Organizational culture: Workplace norms, values, and power structures can all have an impact on how anindividual's ego state manifests.

• Leadership philosophies: An organization's ego states may be impacted by an organization leader'sauthoritarian, democratic, or laissez-faire relationships with their personnel.

• Work satisfaction: A person's ego state is influenced by how they perceive themselves and their superiors,which is a function of work satisfaction levels.

• Conflict resolution skills: When both sides successfully settle disputes, a more cooperative relationship can bedeveloped and negative ego states can be reduced.

• Psychological safety: Feelings free to express ideas and worries without worrying about unfavorable outcomeshelps promote a healthy ego state and relational trust.

RESEARCH METHODOLOGY

With the use of survey research conducted inside the institution, main data for the descriptive study were acquired. An inquiry for secondary data was made directly to the institution. The study, which took place in a self-financing educational institution, employed convenience sampling as its sample technique. This includes a sample of fifty respondent. A standardized questionnaire was used to gather study data. Data is presented using statistical tools such as tables and charts. Calculating percentages in relation to typical rates was used to analyzethe data.

ANALYSIS AND DISCUSSION

Table 1. The demographic information of employer-employee:

Gender wise classification

Gender	Frequency	Percentage
Male	10	20%
Female	40	80%
Binary	0	0%
Prefer not to say	0	0%
Total	50	100%

Age wise classification

Age Group	Frequency	Percentage
18-24	0	0%
25-34	2	4%
35-44	28	56%
45-54	6	12%
Above 55	14	28
Total	50	100%

Employment Status

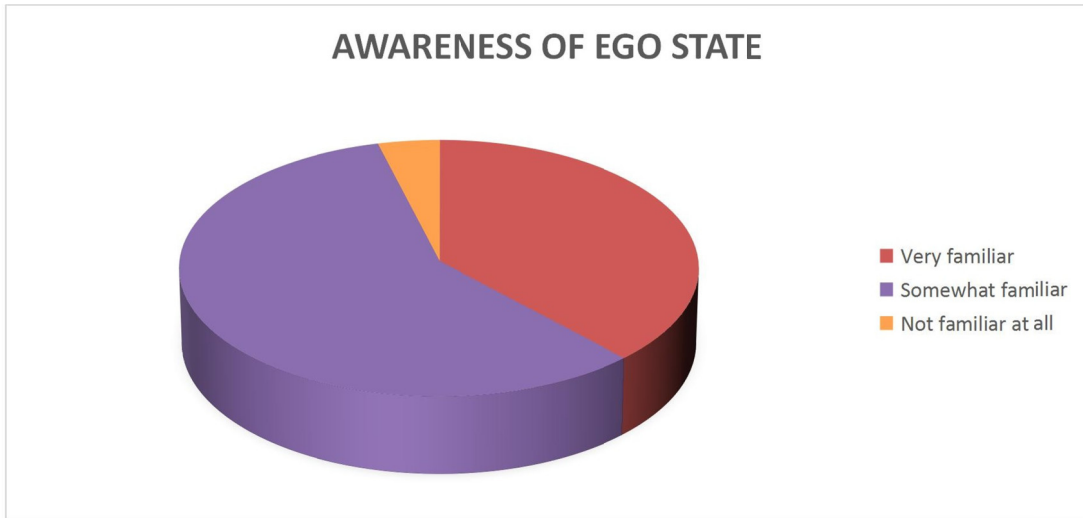| Work Status	Frequency	Percentage
Full Time	50	100%
Part Time	0	0%
Total	50	100%

Figure 1: The awareness of

the ego-state of employees

INTERPRETATION

About 96% of the population have a basic ideas on the ego state and the remaining 4% are not at all familiar.
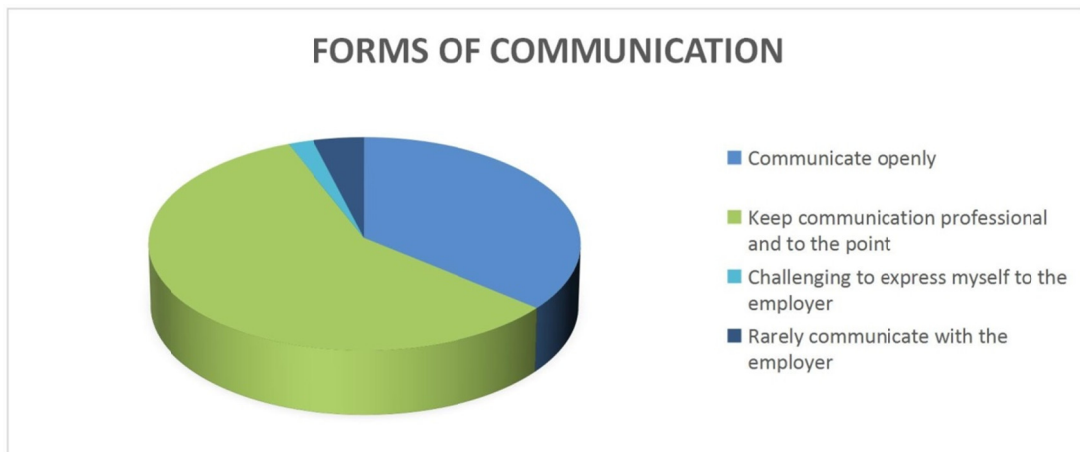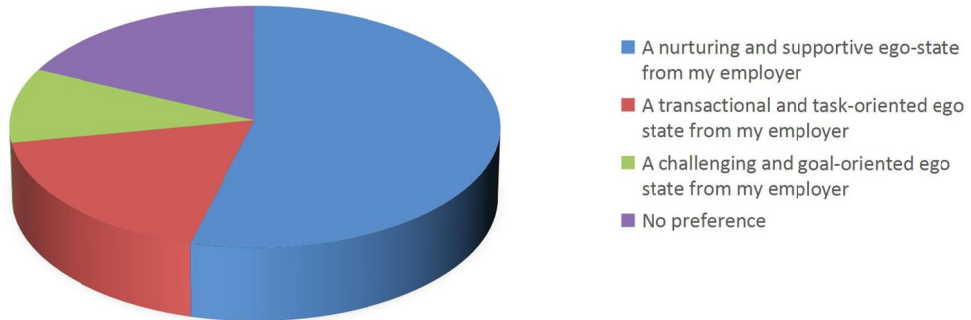

Figure 2: The forms of communication opted by the members

INTERPRETATION

It is highlighted that 58% of the population keep their communication professional and to the point. About 18 respondents i.e., 36% of the population communicate freely, and about 6%, out of which 2% find it challenging in expressing themselves clearly and the remaining 4% rarely communicate with their employer.
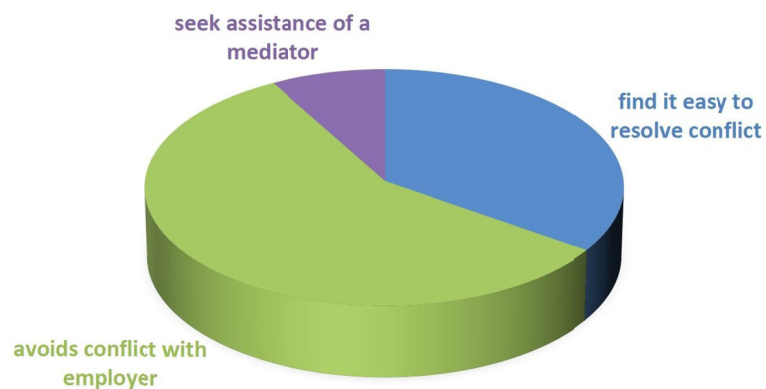
The ego state preference of the employee

INTERPRETATION

From the figure, it is clear that a nurturing and supportive ego state is available to 54% of the population, a transactional and task-oriented ego state is available to 18% whereas a challenging and goal-oriented ego stateis available to 10% and the rest 18% have no preference.

The settlement of conflict process

INTERPRETATIONS

From the figure, about half of the population avoids conflicts with the employer and some finds it easy whileothers takes the assistance of a mediator in settling the dispute.

FINDINGS

- A good working relationship is reported by 84% of employers and employees, with the remaining percentage reporting a neutral or negative relationship.

- Approximately 96% of the participants are aware of the notion of an ego-state.

- Just 36% of people speak openly, while the remaining find it difficult to do so. 58% of people keep their communication formal and to the point. Hence, it becomes evident that various ego states exist within the organization.

- 54% of the employees surveyed indicated that they preferred a nurturing and supportive ego state. 18%: task-oriented and transnational ego state and 10%: a demanding and purpose-driven

- The degree to which an employee's ego condition affects their job satisfaction varies depending on the survey participant: significantly impacted (44%), somewhat impacted (34%), barely impacted (6%), and notat all impacted (16%).

- 56% of the workers avoid confrontations with their bosses, while others find them simple to settle and relatively few turn to mediators for assistance.

- Of those who have attended workshops, 14% are knowledgeable about life situations, ego states, and transnational analysis.

- Although over 50% of the participants acknowledge the significance of the topic, they have not participated in any training program aimed at improving their comprehension of it.

CONCLUSION

A significant factor in determining the dynamics of the employer-employee relationship is ego states. In the workplace, better understanding and control of ego states can promote respect, cooperation, and communication.Understanding the impact of various ego states helps people resolve disputes, build trust, and advance a positive

workplace culture. Additionally, understanding how ego states appear in interactions can support the development of emotional intelligence and empathy in both employers and employees. Improved teamwork, improved conflict resolution, and ultimately a healthier and more productive work environment are all made possible by this knowledge. Organisations may optimize worker productivity and enhance their ability to respond to opportunities and challenges in the dynamic business world of today by cultivating an atmosphere that allows people to freely express themselves without fear of fear and being responsible.

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Combating Disability: an Analysis of *Frances Hodgson Burnett's The Secret Garden*

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Abstract:

Disability studies is an academic field that looks at the definition, types, effects, and solutions of disabilities. The social construct is mostly linked to disability. A disability perspective is applied to an analysis of Frances Hodgson Burnett's *The Secret Garden*. A handicap causes a child to suffer greatly both physically and mentally. They struggle to get over their impairment. The two primary characters in this essay, Mary Lennox and Colin, serve as metaphors for overcoming disability. Mary is ill at the start of the book, but she eventually finds a means to get better on her own and aids Colin in getting over his infirmity. The novel primarily centres on Mary's emotional recovery from the socially-imposed disability and Colin's physical healing. After meeting Mary, Colin attempts to progressively overcome his disability and achieve happiness. Colin is significantly different from other people and behaves strangely when he is in his wheelchair. Even though a disability is a condition, a person can truly live their life without considering any social norms. Burnett has skilfully depicted this scenario in relation to nature, weaving together the parallel lives of both men and showing how they overcome their disabilities.

Key words: disability, overcome disability, love, care, environment

This article explores strategies for overcoming limitations using Frances Hodgson Burnett's novel *Secret Garden*. Every human being has experienced a physical or mental disability at some point in their lives. Even the incapacity or repression to confront certain concerns fall under the category of disability. When the average person rejects their inner feelings, disabled people deal with a great deal of mental complexity. There are many various kinds of disabled people, including those who are mentally challenged, those who are old age disabled, those who are disabled by birth, etc.

A global report on disability asserts that social and physical barriers play a part in impairment. Due to their mental health conditions, stress, sadness, and the way they are treated, disabled people frequently have a variety of health problems. It is difficult to overcome a disability because it takes a lot of guts, stress management skills, and—most importantly—a commitment to get on with one's life. But after the legal process is completed, overcoming a disability will be possible. Children who are disabled endure a considerable lot of suffering.

The issue that two kids are facing in parallel is clearly shown in *Secret Garden*. Ten-year-old Mary Lennox, who is unloved, mischievous, and spoilt, is abandoned in a derelict house and is placed in the care of an uncle she has never met. Mary is described in book as "the most disagreeable looking child ever seen". Since she doesn't feel her mother's affection, she becomes sick frequently. Because everyone despises her, she in turn despises everyone. She says "people never likes me and I never like people "This demonstrates clearly that seeds of hate only produce hate. For any form of handicap, love is therefore essential. Everything began to change when Dickon and Mary met. Following a lengthy period of time, Mary moved into Misselthwaite Manor. Mary began to care for others. She says to Dickon, "you are nice as Martha said you were. I like you and you make the fifth person.

I never thought I should like five people". Her crippled mind began to heal gradually. Like Mary, Colin is a loveless person who has never experienced affection from anyone, including his father. Colin's father detested him because his wife passed away the moment Colin was born. Colin is as craving as Mary is averse to seeing individuals and is perpetually ill. These kinds of problems are very onerous and challenging for disabled persons to deal with. Their lack of confidence stems from their ingrained misconception that they are worthless. This is relevant when Colin says

> Because I should have been afraid you would see me. I won't let people see me and talk me over. Because I am like this always, ill and having to lie down. My father won't let people talk me over either. The servants are not allowed to speak about me. If I live I may be a hunch back, but I can't live. My father hates to think I may be like him.

Colin enjoyed spending time with Mary as they surreptitiously explored the hidden garden together. Colin often have hysterics and that make him more sick even the nurse tell Mary that, "hysterics and temper are half what ails him". Mary sets him off and helps him realise that his thoughts and temper are killing him, not any bump in his back. Things began to resolve consciously when Colin chose to go out with her. In the garden, Mary, Dickon, and Colin got together as a team and had a great time.

That day, even Colin slept soundly and did not wake up or whimper during the night. Regardless of the type of disability—physical or mental—it always begins in the mind, with the person, the surroundings, the people they engage with, the affection they receive, etc. A disabled person's condition worsens if they are devoid of any of these items. When the previously listed items are fulfilling, overcoming this impairment is simple. Colin after going out started to regain his confidence and says, I shall get well! And I shall live forever and ever and ever! "They started exploring the garden, and Colin even made an effort to practise walking every day.

Colin surprised and shocked his father by getting out of the wheelchair and beginning to walk. Colin's impairment serves as an excellent model for anyone attempting to overcome their own limitation. Mary's life was restored by Dickon, Martha, and her surroundings; Colin's life was restored by Mary. Being disabled is a situation or condition, not a personal quality, therefore treating someone differently or isolating them won't make a difference in their life; instead, others should embrace and love them for who they are. Since they lack confidence, they ought to be treated the same as other kids and encouraged to grow in confidence.

When individuals with disabilities are given the right care, affection, and opportunities to interact with many friends and people, they can overcome their disabilities. If all of these things are provided with great care, they will be able to overcome their physical and mental disabilities and enjoy a normal life free from fear.

A Disability Studies study of Frances Hodgson Burnett's *The Secret Garden* delves into the thoughts of disabled people, helping to break free from the stereotypes that society has ingrained in them. Children's literature about handicap issues focuses on the emotional complexity of young characters. This paper discusses how gardens, as a kind of nature, may cure people's lives. The reconstructed secret garden in this book revitalises the lives of the crippled characters, Lennox and Cobin, both physically and spiritually. The sick and abandoned girl named Mary Lennox is the subject of the piece. She surrenders to the secret garden to grow into a good-hearted girl since she loves the outdoors. The little child Cobin, whose independence is limited by his wheelchair, is made to feel loved and kind of her generosity. The healing process is carried out not just by nature but also by people who come into contact with it. This novel illustrates the relationship between human nature; the two main characters, Mary and Colin, find healing in nature. Humans can be healed by nature; it possesses an enigmatic power that can cure people of bodily and mental illnesses. This is because nature contains a healing force that is hypnotising and works in secret. With the aid of springtime, the moor, the secret garden, and their friendship with Dickon and the Robin, Mary and Colin are healed in the great outdoors.

Due to their strong affinities, plants and animals can be covertly healed by the magic of nature. Additionally, it investigates the force of nature, as well as human experience and experimentation in the natural world. The fact that both humans and nature benefited from and depended on one another for survival made the link between them an important subject as well. The two characters were able to inspire readers to take action, protect the environment, and consider their moral obligations to the natural world. This thesis essentially tackles the search for human nature relationships and the issue of environmental awareness. Nonetheless, this thesis examines concepts like the protagonist's awakening, harmony, and enlightenment. This is an excellent illustration of the interaction between humans and nature, which is important for future research on the relationship between humans and their environment from literary viewpoints and for raising environmental awareness. This book demonstrates the close bond that exists between people and the natural world. The ideas of communion, rebirth, and liberty are also present in this book. The awareness of connectedness between humans and nature is demonstrated. Here, the most amazing, enigmatic healing power of nature completely restores human health.

On the one hand, it is worth considering whether the adults would treat Colin the same way as the children if they spent more time with him. On the other hand, however, the adults' portrayal of Colin and his disability corresponds with the medical model of understanding disabilities, thus allowing the reader to understand the impact different environments have on a disabled person through the contrast between the adults and children. In addition, the reader better understands Colin's disability with two different portrayals; Colin is not only introduced based on how the adults view him, highlighting the importance of understanding how the social model works. In an environment that accepts Colin and his disability, he can flourish and live a normal life, equal to any other child his age. Moreover, because Mary and Dickon tailor their trips to the garden according to how it would be easiest for Colin to join them, they adjust the environment so as not to hinder the disabled character. Thus, the change from negatively portraying Colin and his disability towards a positive one is seen in the changes he goes through after spending more time with the other children and changing his environment. As any other youngster his age, Colin may thrive and lead a normal life in a setting that welcomes him and his condition. In addition, Dickon and Mary modify the surroundings to avoid impeding the disabled character because they plan their outings to the garden based on how Colin would find it easiest to accompany them. The transformations Colin experiences after spending more time with the other kids and altering his surroundings demonstrate the shift from a negative to a positive portrayal of Colin and his impairment.

There is no denying the link between a character's behaviour and mind set. The reader is shown the complexity of Colin's disability and the complexity of impairments in general. From now on, Colin represents the road a person with a disability could take. His persona sheds light on the effects of both physical and mental impairments on an individual's life, shifting the narrative from one of negativity to one of positivity. In The Secret Garden, Colin is a complex and crucial character who helps drive the plot forward. Despite being portrayed negatively by himself and others for much of the novel, the reader can see the complex life of a disabled character as Mary and Dickon offer positive descriptions of him, resulting in Colin's portrayal being more nuanced. This is achieved by highlighting how he responds positively to kind treatment from children, in contrast to how he behaves based on the adults' mistreatment of him. Although there are still negative comments about Colin at the end of the book, these are directed towards his past behaviour. Colin serves a purpose in the story beyond just a moral lesson, as the plot of the novel is not about how Colin overcomes his disability, but rather about Mary finding and regrowing the secret garden. His important role in the story has a powerful impact on how readers perceive disabled characters; his presence is essential to the plot rather than being included merely for diversity. As novel The Secret Garden centres on the treatment of children's physical and mental impairments by highlighting the neglect, illness, and handicap of two children's parents.

 The talks Mary and Colin have make it quite evident that Colin uses his illness as an excuse to do nothing; in fact, it seems as though he lives in constant terror. Given the religious period in which the

novel is situated, Colin's illness was only brought on by the stress and disarray surrounding his birth and early years. Everybody in the home is afraid that before Colin grows up, he will suffer a hunchback and pass away alone in his bedroom. In Conclusion Hodgson Burnett conveys a message to us about parental neglect and how it can worsen a child's physical disabilities and mental health through the characters of Mary and Colin. The *Secret Garden* is a novel that students could greatly benefit from including in their curricula, which will be explored later.

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