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A Collection of Multidisciplinary Research Papers

Volume 4 Issue 4

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NAIPUNNYA INSTITUTE OF MANAGEMENT AND INFORMATION TECHNOLOGY (NIMIT)

(Affiliated to the University of Calicut, Accredited by NAAC with B++, ISO 9001-2015 Certified)

Pongam, Koratty East, Thrissur District, Kerala State, India, Pincode - 680 308

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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 original research with significant research results and analyses in related areas and their applications. It is designed 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 addition to the literature which will serve as an indispensable reference tool for years to come.

We are pleased to publish the Fouth Edition of NAIVIGYAN, which includes an authoritative source of information in multidisciplinary areas. As the Chief Editor of NAIVIGYAN, I take this opportunity to express my sincere gratitude to authors who have contributed their research findings to 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 this proceedings.

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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Consumer's Attitude towards Environment-Friendly Products

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Abstract

Environmental degradation has increased the number of environmentally conscious people. Due to this, companies now have to redesign their products to be more environmentally friendly and offer them to those customers. This study investigates the consumers' Attitude towards Environment-Friendly Products, level of satisfaction of consumers, identify the most popular green goods among individuals of all ages and determine the factors that influence the buying of Environment friendly products. This study was conducted in Ernakulum district, Kerala with a sample size of 100. Data was collected by using questionnaires and Chi-square test was used as data analysis tool. According to the analysis, consumers are aware of the eco-friendly products and they having a positive attitude towards eco-friendly products. It was found that the lack of knowledge and not aware of the benefits are barriers for purchasing green products. Most of the consumers buy Environment-Friendly Products for health purposes. Green product features, environmental awareness, green marketing activities and quality affect green purchasing behaviours of the consumers in positive way. The healthiest products are those that are environmentally friendly because they do not harm the environment or human health. Previous studies about this area are comparatively less; hence, the purpose of this research is to learn more about how consumers feel about environmentally friendly items.

KEYWORDS: Environment friendly products, consumer's attitude, purchasing behaviour

1.INTRODUCTION

Increased consumer spending in previous years generated rapid global economic expansion, but this development also seriously harmed the environment by using up too many natural resources. Our ecosystem has been harmed, and it has already passed the line. As a result, we are struggling with significant environmental issues like global warming, acid rain, and ozone depletions etc. Environment friendly products are also known as green products and this has become a buzzword these days. However, defining what 'green' is very difficult. Government agencies, environmental organizations, business leaders, consumer interest groups and academic community are all keenly interested in knowing what exactly it means to be 'green'? (Gorman, 2010). According to Tobin (2009), green is anything that is environment friendly and have no or minimum impact on environment. Many Companies used the environment in a variety of ways to achieve their goals. Therefore, now it is there responsibility to compensate up for this harm. Companies must support the preservation of nature by producing environmentally friendly products and raising consumer awareness. The more consumers care about the environment, the more it influences their buying habits and it is very essential to conduct a study on attitude of consumers towards Environment-Friendly Products and factors influencing the buying behaviour of consumers. So this study is conduct to find out the attitude and awareness level of consumers and there buying behaviour of eco- friendly product in Ernakulum district Kerala.

2. STATEMENT OF THE PROBLEM

This study intends to learn the consumer's attitude towards environment – friendly products. With increasing environmental consciousness, consumers and companies need to understand the importance of using eco – friendly products. This study measure's the

attitude towards environment friendly products by the consumers in Ernakulum district.

3. LITERATURE REVIEW

There is growing interest among the consumers all over the world for protection of the environment. The green consumers are the main motivating force behind the green marketing Process. It is their concern for environment and their own well-being that drives demand for Eco-friendly products, which in turn encourages improvements in the environmental performance of many products and companies (Sachdev, 2011).

Consumers are becoming more concerned about the environment. This concern may lead to a higher level of environmental consciousness (Miller and Layton, 2001) and green product Purchasing behaviour (Roberts, 1996).

A wide array of issues concerning consumer's environmental awareness, attitudes and behaviour has been examined in the past. Studies undertaken in the area of consumer's environmental awareness and attitudes span from assessing environmental awareness/knowledge to analysing perceived importance of environment, importance of being environmentally friendly, perceived consumer effectiveness, or the degree to which an individual feel s/he can make a difference in the quality of environment and willingness to pay more for environmentally less harmful products (Jain & Kaur,2004).

4. Research Objectives

In the present research, the following objective has been researched upon:

- To study the level of satisfaction of consumers about Environment friendly products.
- To identify the most popular green goods among individuals of all ages.
- To determine the factors that influences the buying of Environment friendly products.
- To analyse the consumer's attitude towards environmental friendly products.

5. Testing of Hypothesis

- HO: There is no significant relationship between age and level of satisfaction of eco – friendly products.
- HO: There is no significant relationship between gender and level of satisfaction of eco – friendly products.
- HO: There is no significant relationship between income and level of satisfaction of eco – friendly products.
- HO: There is no significant relationship between educational qualification and level of satisfaction of eco – friendly products.
- HO: There is no significant relationship between source of awareness and level of satisfaction of eco – friendly products.

6. Research Methodology

In this study, both primary and secondary data were used. 100 respondents were included in the sample. Primary data has been collected from the various residents within Ernakulum district. The Questionnaire was used to collect the primary data; websites, journals, and other relevant sources of information were used to collect secondary data

7. Results & Discussion

The data issued for primary data collection is purely based on personal enquiry. Primary data are collected by conducting sample survey among 100 respondents, for this a pre – charted questionnaire is used. The data collected has been analysed with the help of Chi square test.

Table 1: Demographic Structure of Respondents

SL.NO	CATEGORY	SUBGROUPS	PERCENTAGE	TOTAL
1	Age	20 - 30	56	100
		30 - 40	30	
		Above 40	14	
2	Gender	Male	37	100
		Female	63	
3	Income level	Less than 20,000	48	100
		20,000 – 50,000	29	
		50,000 above	23	
4	Educational qualification	Secondary level	14	100
		Undergraduate	32	
		Postgraduate	46	
		Others	8	
5	Source of awareness about Environment friendly products	Advertisement	31	100
		Internet	40	
		Newspaper	14	
		Magazines	9	
		Others	6	
6	Level of satisfaction of eco-friendly products	Satisfied	70	100
		Not satisfied	30	

INTERPRETATION

Table I show the demographic profile of the respondents. According to this table, the profile of the respondent discloses that out 100 respondents, 56% respondents were between 20 to 30 years of age, whereas 30 % were between 30 to 40 years of age. Males comprised about 37%, while female constituted 63 % of the sample. The Income of the respondent are divided into three categories. In the first category the Income of 20k where 48%, in second its 20k-50k for which its 29% in third its 50k above the respondent are 23%. Then researchers divided educational level of the respondents into four categories, i.e. Secondary level, undergraduate post graduate and others. 46% respondents are post graduated, 32% were undergraduate, 14 % belongs to secondary level and remaining 8% were others.

Major source of awareness of sample consumer are internet (40%) and various advertisements (31%). Majority 70% of respondents agree that they are satisfied by using eco – friendly products.

Table 2: Nature and Factors Influencing Buying Decision.

1	Green products purchased by respondents	Paper bags	35	100
		Herbal products	22	
		Organic vegetables	27	
		Electrical appliances	10	
		Others	6	
2	Factors that influencing consumer's buying decision of Environment friendly products	Health benefits	47	100
		Environmental concerns	25	
		Reasonable price	14	
		Packaging, size &design	9	
		Others	5	
3	Willingness to pay higher price for green products	Yes	67	100
		No	33	

INTERPRETATION

As per the table two, Primary finding shows the use of several types of environmentally friendly items. Paper bags are the most common item respondents buy, followed by herbal goods (22%), organic vegetable (27%) and electrical gadgets (10%). This shows that paper bags are less expensive when compared to other products since consumers frequently choose goods with prices that are neither high nor low. Through this study Health benefits are a major component in the sample consumers' buying decisions for environmentally friendly items (47%). Even though the price is high, 67% of the majority responses are willing to purchase environmentally friendly products. Consumers that 33% are unwilling to pay greater prices. This shows that the respondents are aware of eco-friendly items.

Table 3: Relationship between age and level of satisfaction of eco – friendly products.

	20 - 30	30 -40	Above 40	Total

Male	20	10	7	37
Female	36	20	7	63
Total	56	30	14	100

Source primary data

Calculated value (O – E) 2/E =1.234
Degree of freedom = (2-1) (3-1) = 2
Table value at 5% level of significance = 5.991

INTERPRETATION

As the table value on 2 degree of freedom at 5% level of significance is greater than the calculated value, the hypothesis is accepted. There is no significant relationship between age and the level of satisfaction of eco-friendly products.

Table 4: Relationship between gender and level of satisfaction of eco – friendly products.

	Satisfied	Not satisfied	Total
Male	30	7	37
Female	40	23	63
Total	70	30	100

Source primary data

Calculated value (O – E) 2/E = 3.433
Degree of freedom (2-1) (2-1) =1
Table value at 5% level of significance = 3.841

INTERPRETATION

As the table value on 1 degree of freedom at 5% level of significance is greater than the calculated value, the hypothesis is accepted. There is no significant relationship between gender and the level of satisfaction of eco – friendly products.

Table 5: Relationship between income and level of satisfaction of eco – friendly products.

Source primary data

	Less than 20000	20,000 – 50,000	50,000 Above	Total
Male	25	8	4	37
Female	23	21	19	63
Total	48	29	23	100

Calculated value (O-E) 2/E = 9.716
Degree of freedom (2-1) (3-1) =2
Table value at 5% level of significance = 5.991

INTERPRETATION

As the table value on 2 degree freedom at 5% level of significance is lesser than the calculated value, the hypothesis is rejected. There is significant relationship between income and the level of satisfaction of eco – friendly products.

Table 6: Relationship between educational qualification and level of satisfaction of eco – friendly products.

	Secondary	Undergraduate	Postgraduate	Others	Total
Male	8	12	15	2	37
Female	6	20	31	6	63
Total	14	32	46	8	100

Source primary data

Calculated value (O – E) 2/E = 4.208
Degree of freedom (2-1) (4 -1) = 3
Table value at 5% level of significance = 7.815

INTERPRETATION

As the table value on 3 degree of freedom at 5% level of significance is greater than the calculated value, the null hypothesis is accepted. There is no significant relationship between educational qualification and the level of satisfaction of eco – friendly products.

Table 7: Relationship between source of awareness and level of satisfaction of eco – friendly products.

	Advertisement	Internet	Newspaper	Magazines	Others	Total
Male	10	10	7	8	2	37
Female	21	30	7	1	4	63
Total	31	40	14	9	6	100

Source primary data

Calculated value (O-E) 2/E = 14.205
Degree of freedom (2-1) (5-1) = 4
Table value at 5% level of significance = 9.488

INTERPRETATION

As the table value on 4 degree of freedom at 5% level of significance is lessor than the calculated value, the hypothesis is rejected. There is significant relationship between source of awareness and the level of satisfaction of eco-friendly products.

8**. Findings**

- Majority of the respondents of young age group (20-30) purchase and prefers environment friendly products.
- Females are always conscious about green products more than males.
- Education is not found as a factor for purchase decision on environment friendly products.
- There is significant relationship between the income and the level of satisfaction of eco – friendly products.
- Majority of the consumers enjoy high level of satisfaction in using eco-friendly products (70%)
- Major source of awareness of sample consumer are internet (40%) and various advertisements (31%)
- Majority of the respondents purchase the type of Environment friendly products that is paper bag (35%), herbal products (22%), organic vegetables (27%) and electrical appliances (10 %.)
- Major factors influencing the consumers buying decision of environment friendly products is benefit of health (47%)

- Majority of the consumers' willingness to pay higher price for purchasing green products (67%).

9. Conclusion

The study helps us to know the consumer's attitude towards environment friendly products. The most of the consumers are ready to purchase the eco – friendly products. But the availability of the green products is very less in the market. To overcome this situation, the companies must identify the customer's environmental needs then develop the products to address this issue and produce more eco- friendly responsible packages. Recycling, reuse etc. are good strategy for avoiding this problem. The marketers must try to understand the need of implications of green marketing. If the customers are not much concerned about environmental issues, then the marketers must provide awareness about the environmental problems and convey them to purchase the green products.

Green marketing is an on-going process that involves frequent input from suppliers, government legislation and regulations, and citizens. This is necessary in order for the company's green marketing strategy to be linked with the target markets and to acquire a sustained competitive advantage. It is critical that green product strategies and policies be established and executed in order to advise and assist merchants and customers in making green choices. Surely this is the right time to inject sustainable development into the marketing mix. The green marketing methods produce highly effective results. To get more information on this topic more research and study must be conducted.

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An Review on Hybrid Algorithms Used For Secure Data Transmission

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Abstract
During last few decades, digital communication plays a vital role for various sectors such as healthcare departments, banking sectors, information technology companies, industries and several other fields. Nowadays, all data are transmitted over internet, which needs high protection for transmitting the original data from source to destination. In order to secure digital communication, cryptography and steganography methods are used to achieve data security over insecure and the open networks like internet. Cryptography is the method to encrypt the secret information in an unreadable structure. On the other hand, steganography is the technique to cover the secret data such as audio, image, text, and video. It can hide the message while transmitting the original information from one end to other end. In this paper, it gives an analysis based on the concept of cryptography and steganography. It also presents several data hiding approaches and its merits and demerits.
Keywords: Security, cryptography, steganography, data hiding.

1. Introduction

The fast progression of science and technology makes the task of data searching and transmission on the Internet much easier [1]. The digital multimedia documents including texts, images, videos and audios are more susceptible to hack due to the advancement of the internet. This problem increases the necessity of data security machineries for protecting the data from illegitimated access via shared medium. Nowadays, the cryptography and data hiding approaches play an important role in data security machineries. In cryptography, the secret data is converted into a ciphertext without any meaning and hence it allows the authorized user to decrypt the data [2]. However, the meaningless of the transmitting message indicates the presence of secret info in the message and hence it is susceptible to unauthorized persons to decode the secret data. Alternatively, data hiding approaches conceal the secret information into multimedia files that reduce the doubt of the presence of secret data [3].

One of the famous methodologies employed for the protection of secret data is known as data hiding. This hiding approach utilizes distinct media (e,g,. digital images, audio and video files) as cover elements for hiding secret data to generate stego-media [4]. A secured transmission system allows the transmitter to embed the data and the receiver to extract the data. The digital images are broadly utilized on the internet for different applications. Hence, one can utilize the digital images to make secure transmission. The data hiding approaches are utilized in the applications of military and medical data transmission for avoiding the third-party intervention or foraging [5].

For providing more data security, cryptography is utilized together with steganography technique. Both methods play an important part in information security. The encryption process is needed to be performed when the sensitive data is transferred from one device to another. This encryption technique helps to protect the data from hackers [6-7]. Some of the main goals of cryptography are integrity, authentication and confidentiality. Then, steganography process hides the encrypted data so that nobody can suspect that there exists a secret data. The

Steganography approach seems to be a good one if it considers three parameters for processing which means capacity, security and image quality. Cryptosystem is required to implement a cryptographic method specifically for security services. The basic block of secure data transmission that used both cryptography and steganography is illustrated in Figure 1.

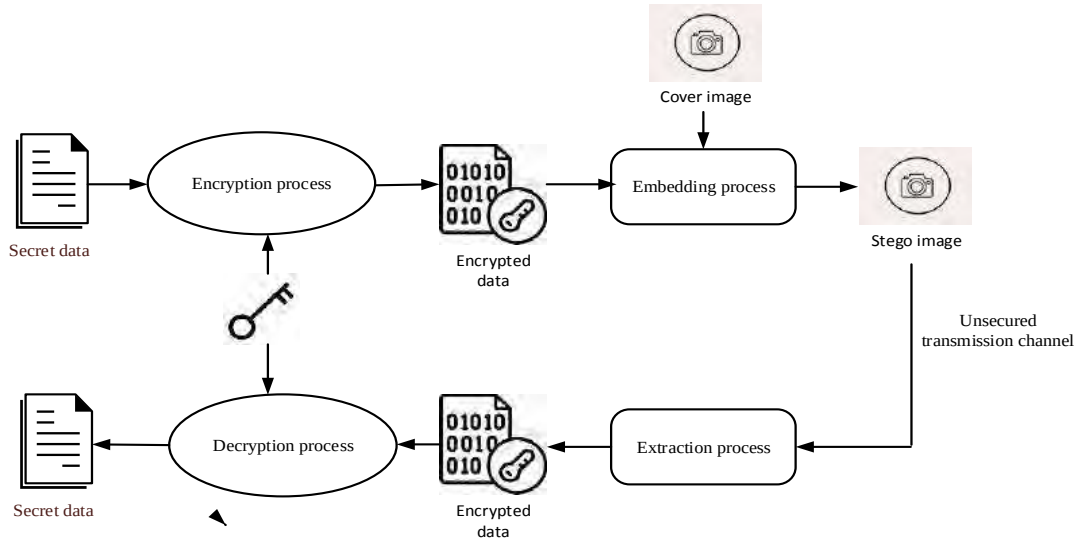

Figure 1 Secure data transission based on intelligent cryptosystem and data hiding process

1.1 Cryptographic algorithms

Cryptography keeps the transferred data more secure in a scientific way. A data encryption is provided by this approach to make secure transmission. Here, the data is encrypted before the transmission and the encrypted data is decrypted after the reception. Cryptography uses secret key to generate cipher text from the plain text and this ciphering approach marks the plain text as unreadable format. Hence, the deciphering process can be performed only by the person who hold the secret key [8-10]. Cryptographic methods can be categorized as symmetric key and public key methods. In symmetric key method, a single key is used to perform both encryption and decryption task [11].

The speed of Symmetric encryption is high even for huge numbers of data as images. But their usage is limited due to the problems of key management and distribution. The key might be intercepted by the adversaries while distributing the key in the network at the time of transmission. Furthermore, the number of keys will be incremented intensely while increasing the number of users, which signifies a trouble on the network. To tackle this issue, an asymmetric key encryption approaches have been developed. They utilized two distinct keys: public key and private key [12-13]. Here, the public and private keys are used for encryption and decryption processes respectively. The derivation of private key from the public key is not an easy task. However, the public key/asymmetric key encryption methods cannot be used for transmitting long-length data. Also, they provide lesser efficiency while handling with random length messages. This issue can be tackled by the use of randomly selected keyed symmetric encryption for encrypting the data and by the usage of a public key encryption method for encrypting the key utilized in the symmetric encryption method. This approach is named as the Hybrid encryption (HE) method [14-15].

Generally, the cryptographic systems use block encryption methods including Data Encryption Standard (DES), Advanced Encryption Standard (AES) and other systems. But the conventional encryption approaches faced complications in scrambling huge quantity of data. Chaos holds several natural relationships with cryptography due to its randomness in nonlinear systems. Chaos system offers a suitable source incredibly to generate abundant pseudo-random

sequences and construct nonlinear encryption mechanisms as well [16]. Hence, huge amount of keys can be generated rapidly with the use of chaotic systems. The security of any block cipher system is heavily influenced by S-Boxes (substitution boxes) because this is the nonlinear element in a block cipher system. Applying chaotic system for generating S-boxes and applying them to image encryption is the most promising field of chaos system.

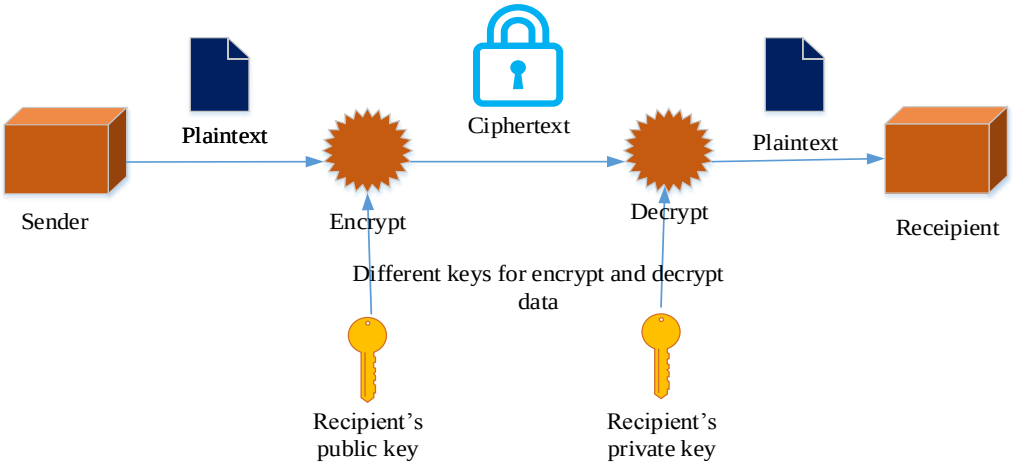

Figure 2. Encryption and decryption process

1.2 Steganography algorithms

Steganography methods embed significant data into regular files for enhancing the security of transmitting data [17]. The secret data is embedded into selected cover image for obtaining the stego-image. The cover and stego-images are identical to each other and hence an unauthorized person is unaware about the presence of secret data on stego-file. Hence, it allows safe transmission between the transmitter and receiver [18]. Generally, the steganography methods such as least significant bits (LSB) conceal equal number of secret bits into each pixels of cover image [19-20]. Hence, they cause equal degree of embedding distortion in the cover image. But, the individual pixels of any digital image exhibit complex statistical dependencies between them. Thus, the quality of image is automatically reduced while performing equal number of bits changes in all pixels of cover image. One of the most popular adaptive embedding process is pixel difference histogram (PVD) steganography [21]. This method embedded more secret data into edge portions and less data into smooth portions. But, the pixel difference histogram (PDH) analysis could attack the PVD methods.

In the last few decades, research priority of adaptive steganography has abruptly increased because of its greater undetectability. Nowadays, the steganography approaches are developed by minimizing the additive distortion that allocates an adjustment cost for every cover element and describes the distortion function by summing cost of all the cover elements. Data hiding method can be categorized as reversible data hiding and non-reversible data hiding based on restoration ability of the original image. The non-reversible data hiding approach allows the receiver to extract secret data alone. Hence, the receiver can't use the stego-image for any other purposes due to the distortion of significant data in the image. Alternatively, reversible data hiding method recover both the secret data and original version of cover image. Hence, it can be applied for wider range of applications than that of non-reversible method [22-23].

Furthermore, the data hiding method that generates single stego-image has very less embedding capacity. Hence, the embedding capacity can be improved by producing two stego-images. The data hiding method that generates two stego images are named as dual data hiding method. The total number of bits that are saved in one pixel is represented as embedding rate

(stated as bpp). Alternatively, the total number of bits that are inserted into entire image is termed as embedding capacity. When the secret data is embedded into cover image, the visual quality of the cover image will be automatically decreased. Peak signal to noise ratio (PSNR) and structural similarity index measurement (SSIM) metrics are utilized for measuring the visual quality c2hanges.

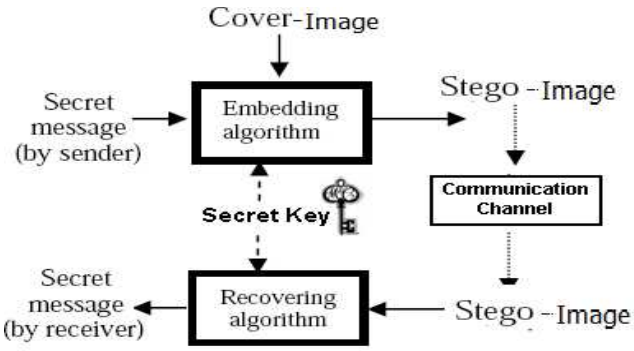

Figure 3 Steganographic approach

2. Literature review

Individually cryptography and steganography provides confidentiality to the data but they have some vulnerability. So as a third option we can go for a combination of cryptography and steganography.Some of the recent research works related to the secure data transmission using hybrid approach to data hiding in image processing are listed as follows:

Patani et al [25] proposed a 3-bit LSB method to embed secret data into cover image. Also, ECC algorithm has been utilized for keeping the data more secure while transmitting the stego images over internet. Wang et al [24] proposed a Compressed Sensing approach to perform joint selective encryption and data hiding for secure transmission. Here, the sign bits of the compressed sensing quantities have been specifically encrypted at the time of its quantization phase. Also, a non-separable histogram-shifting basis data embedding strategy has been proposed for inserting the authenticated data. Here, the sign encryption approach has been considered due to its randomness in Compressed sensing measurements based on random subspace projection.

Zhang et al [26] presented a new data hiding approach by considering a multidirectional line encoding (MDLE) and integer wavelet transform (IWT). Initially, IDWT has been used to separate the image into four wavelet sub-bands. Subsequently, the wavelet bands have been split into 3 ×3 coefficient blocks for exploiting the embedding portions. Then, MDLE model has been developed for embedding data into blocks of 3×3 sizes. In addition, an edge detection approach has been proposed for embedding more data in the edge portions of the image. Kadhim et al [27] proposed a DT-CWT based image steganographic method for embedding the secret data into the suitable coefficient planes of cover image. Here, a super-pixeling and intensity mapping approach have been introduced to increase the embedding capacity without causing any embedding error. The embedding error has been minimized by measuring the similarities of secret data and DT-CWT planes through template matching. They adopted machine learning models to select the optimal cover coefficient planes. The embedding process also generates a secret key to make support for the retrieval of secret data at the receiver.

Zhang et al [28] proposed a spatial image adaptive steganography approach on the basis of Zernike moment. Initially, the cover image has been processed to obtain its Zernike moment. After that dithering process has applied to get alternative cover image. They used Spatial UNIversal WAvelet Relative Distortion (S-UNIWARD) and syndrome-trellis codes for

minimizing the distortion of embedding process. At last, the Zernike moment has been changed based on the altered amplitude of cover image to get stego image. Yeung et al [29] minimized the flipping distortion over the measurement of local texture pattern (LTP) to construct a variable STC code in binary image steganography

Jiang et al [30] proposed an encrypted image-based data hiding (EIRDH) algorithm with homomorphic public key cryptosystem. Here, the image has been encrypted using Paillier homomorphic public key cryptosystem. Also, the cover pixels have been exploited based on difference expansion (DE) approach for the construction of pairs of pixels to hide data. Bhardwaj et al [31] developed a block basis joint EIRDH method that performs the embedding process by considering m secret bits for each block. This improved the embedding rate and visual quality as well. Shaji et al [32] proposed an RDH approach based on dual encoding with sequence folding for the generation of dual stego images. Here, the data has been encoded using two encoding tables which included the index and message intensity based code series. When the previous or following half portion of the encoding tables have coordinated with one another, the code series in the 2^{nd} encoding table would have been folded. Moreover, the extreme intensity of the codes in both encoding tables should be positioned at the most succeeding end to perform folding process. This procedure has been imitated for entire message intensities. Finally, the encoded data has been embedded into cover image to get dual stego images.

Lu et al [33] proposed a JPEG steganographic approach on the basis of auto encoder with flexible Bose-Chaudhuri-Hocquenghem (BCH) encoding. Initially, the autoencoder has been pretrained for fitting the conversion relations among the original and compressed JPEG image. Furthermore, BCH has been flexibly used based on the content of the cover image for decreasing the error rate while extracting the secret data. In addition, the robustness and statistical security have been improved due to the adjustment of Discrete Cosine Transformation coefficients on the basis of the real-time properties of JPEG channel. Lu et al [34] analysed and encoded the secret information by regulating the level of pixel distortion based on two factors namely, NC and MXD. The number of codes required for re-encoding a secret data has been controlled by the factor NC. As a result of this, the amount of code combinations has been limited. Furthermore, the distortion level of every code combination has been specified using MXD factor. The occurrences of the secret numeric messages were used to assign a digital combination pairs for improving the encoding efficiency.

References	Method	Contribution	Advantages	Disadvantages
Patani et al [25]	Steganography and cryptography	3-bit least significant bits for embedding; ECC algorithm for data security	It improved the security level.	Degrade the stego image quality because it conceal equal number of secret bits into each pixels of cover image.
Wang et al [24]	Steganography and cryptography	Compressed sensing based sign bits encryption; non-separable histogram-shifting based data hiding	Robust against known error concealment attacks.	It degraded the visual quality level while considering image application.

Zhang et al [26]	Steganography	Introduced edge detection approach to embed different number of bits using MDLE	Improved visual quality of the stego image due to the embedding of more bits into edge pixels.	Not minimizing the distortion due to the lack of an efficient distortion cost analysis.
Kadhim et al [27]	Steganography	Introduced DT-CWT, super pixeling, intensity mapping, machine learning for optimised embedding	Reduced the embedding error using super-pixeling and intensity mapping	Extremely complex due to the stacking of more signal and image processing methods
Zhang et al [28]	Steganography	Zernike moment and Dither modulation for cover extraction; minimized distortion embedding using S-UNIWARD	Robust to scaling attack	S-UNIWARD embedded a single bit per pixel. Hence, the detection probability of such approach is increased.
Yeung et al [29]	Steganography	Local texture pattern (LTP) to minimize distortion	Improved embedding efficiency due to the use of STC coding	Not well supported for distortion minimization because LTP didn't consider the statistical characteristics of Uniform Embedding
Jiang et al [30]	Steganography and cryptography	Introduced EIRDH algorithm with homomorphic public key cryptosystem	Increased payload capacity.	Vulnerable to quantum attacks due to the recent improvements in quantum computers
Bhardwaj et al [31]	Steganography and cryptography	Symmetric key cryptosystem for data encryption and block based embedding	Increased visual quality and embedding rate	The key can be intercepted by the adversaries in Symmetric key cryptosystem. Didn't adjust the embedding probability in each and every element
Shaji et al [32]	Steganography	sequence folding for encoding the secret data and minimum index measurement for non-uniform embedding	Improved PSNR, SSIM and payload capcity	Security level is decreased due to the lack of proper cryptosystem and the detection probability of such approach is increased.

				Susceptible to different attacks.
Lu et al [33]	Steganography	Autoencoder with an adaptive BCH encoding	Provides statistical security.	The embedding is followed by an auto-encoder for image compression While this is extremely complex, for the comparison and record.
Lu et al [34]	Reversible data hiding	Controlled the level of pixel distortion using constant parameters	High payload capacity	Not suitable for all kinds of image due to the use of constant parameters. They control image quality.

Table1. Hybrid Methods and its merits and demerits.

Findings

Due to the advancement of technology, data protection is a major factor that cannot be compromised, which leads to multiple hybrid approaches. It clearly denotes the importance of security of data from the source to the destination from various attacks by the intruders. The existing approaches has their own merits and demerits which needs to be improved on every aspects. In future new techniques can be applied for the data protection and safe transmission along with the furtherance of technology.

Conclusion

Cryptography plays a major role to achieve the basic needs of security measures like confidentiality, no-repudiation, authentication and integrity. It has also involved in providing reliable, robust network, strong and data security. On the other hand, this review paper also includes the steganography process for data hiding while transmitting the information. The combination of both cryptography and steganography method has achieved a secure transmission of data with encryption and data hiding. According to this study hybrid approaches are the better choice for secure data transmission.

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INVESTMENT INERTIA – INFLUENCE ON INVESTMENT DECISION AMONG WORKING WOMEN

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Abstract:
Investment means sacrificing some expenditure in order to satisfy the future commitments. Joining the two terms the investor and inertia simply gives the meaning an investor who is in the state of doing nothing or not investing. Investment inertia essentially has led to the downfall of doing many successful investors. Investment inertia essentially as an enemy of decision making which generally leads to the loss of opportunity in investing. Investments are both important and useful in the context of present-day conditions and style of living Even when the women earn a sizeable income, it is Agreed that her income will be used for household expenses a man's for investment. Women are less impulsive and more inclined to step back. This study helps to analyse the factors creating investment inertia among the working women and to equip women with sufficient knowledge about investments. 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: Awareness of savings, source of information, factors restricting savings, tenure period, investment avenues.

Introduction

In ancient times, women were not allowed to get education; their role was purely to look after home. Their world was limited to their families. But the people slowly started recognizing the importance of educated women. Now days we find more and more women who are financially independent, women are more educated, accomplished and empowered than even before, but when it comes to investing and managing the money it feels like stuck. This may be the reason some investment Options are overwhelming dominated by men. Even when the women earn a sizeable income, it is agreed that her income will be used for household expenses and a man's for investment Women are less impulsive and more inclined to step back.

- This study helps to analyze the factors creating investment inertia among the working women and to equip women with sufficient knowledge about investments.
- This study focuses on the influence of investment inertia in investment decision working women. This helps to analyze whether investment inertia exists among the working women and to study the other factors creating investment inertia.

Influence of Investment Inertia

• Taxation:
Taxation is one among the crucial factors in any country which introduces an element of need in a person's savings. People have to find the best way of investment to reduce the risk of paying tax.

• Interest rates:
Interest rates vary between one investment and another. These may vary between risky and safe investments; they may also differ due to different schemes offered by the investments.

• Inflation:
Every developing economy is phased with the problem of rising pricing and inflation has become a

continuous problem since last decade. In recent years, lot of problems have came up with regard to falling standard of living. Before funds are invested, erosion of the resources will have to be carefully considered in order to make the right choice investment.

• Income:
Investment decisions have assumed importance due to the general increase in employment opportunities in India. People need to find the best business institution which will give good income returns.

Objectives of the Study

• To analyze whether the investment inertia exists among the working women
• To study about the factors creating investment inertia.

Statement of the Problem

Women are relatively conservative in their investment approach. Women are less impulsive and more inclined to step back. Women are not confident making decisions their own. Working women are normally consulted their husbands or other members of the family control over their savings and investments. Hence the statement of the problem is "A STUDY ON THE INFLUENCE OF INVESTMENT INERTIA IN INVESTMENT DECISION OF WORKING WOMEN". This study analyses whether the investment inertia exists among working women and to study about the factors creating investment inertia.

Significance of the Study

This is the first ever study conducted. Role of women is very important in the economy of world. The participation of women in decision making in a family is increasing with the education, literacy level of women and contribution of income to the family. Women had significantly lower confidence in an investment task than men, after controlling for all other relevant variables and characteristics including the amount of investment decision itself. Savings and investment habits of working women help them to improve their economic status. It is necessary for women to have a control on their income as well as and measure the performance of their investment plans. Significance of the study is for equip the women with sufficient knowledge and expertise in financial matters.

Scope of the Study

This study is confined to the inertia in investment decision of working women within the state of Kerala. This study mainly focuses on the awareness and influencing factors towards investment decision among working women and also helps to analyse the level of attitude of working women towards investment decisions.

Methodology

The study was done among the working women in Kerala. Analysis was done on the basis of various age wise, educational wise classifications at various income levels under savings and investment categories. We have done surveys relating to the factors restricting investments, people influencing investment decisions and the tenure period of investments. The research instrument employed in this study was an investment inertia among working women. The response was measured on a 5-point Likert scale (5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). This impact study assesses the causal relationship the input inputs and changes in terms of magnitude or scale or both.

Review of Literature

Naranbhai (2018) made the findings of the study revelated that 47% took investment decision independently whereas 39% took investment decision with their husband help. Working women of Kachchh district selected by saving in post office as safest investment instruments and commodity as

lesser safe investment option. Working women of Gujarat use newspapers and magazines as the main source of information for the investment purpose.

Bansal (2017): The study revealed the majority of working women who make financial investments lie in the age group of 20 – 40, they are conservative investors, they prefer to spend their 10%-25% income, working women of banking sector invest more as compared to women of education and insurance sector

Dusseja, (2016) study was conducted in three small cities of Mumbai suburbs in India with over 100 married working women where it was found that 75% of the women do have their personnel investment.

Yusof, (2015) Women's involvement in household financial decisions increases with their share of household income and their formal financial education, and decreases with their spouse's share of income and their former financial education.

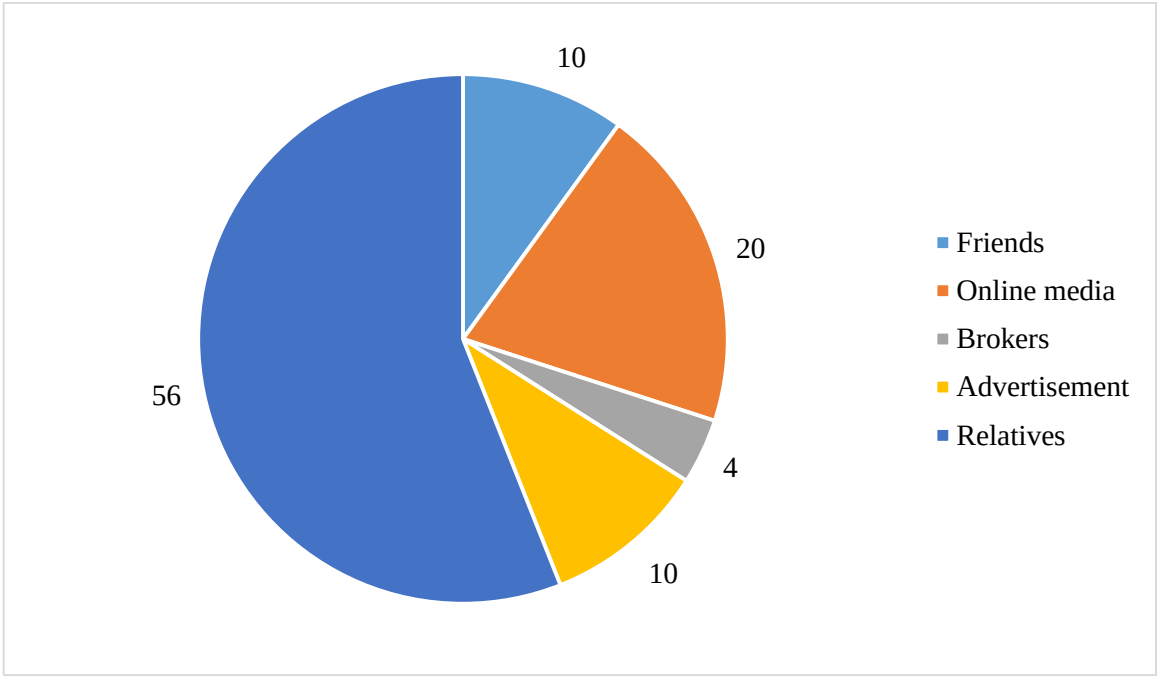
Bernasek and Bajtelsmit, (2002) Education improves financial decision making and plays a significant role in influencing risk preferences. Given the same level of education, irrespective of their knowledge of finance, women's risk aversion is same as those men. But since women are less likely to have a formal financial education than men, this result also implies a smaller involvement of women in the household finances. Due to less involvement in the household finances, women have to rely on the recommendations of the family.

Data Analysis and Interpretation

Table. 1 Distribution of Samples

S. No.	Category	Subgroups	%	Total
1.	Gender	Female	100	100
2.	Age	20 – 30 years	16	100
		31 - 40	25	
		41 - 50	38	
		51 and above	21	
3.	Educational status	Higher Secondary	18	100
		Graduates	42	
		Post-Graduates	36	
		Professional	4	
4.	Marital Status	Married	60	100
		Unmarried	36	
		Widow	4	
		Divorce	0	
5.	Income (Monthly)	15000 – 30000	76	100
		30000- 50000	14	
		Above 50000	10	
6.	Awareness about various savings and investment avenues	Yes	98	100
		No	2	

Figure. 1 Sources of Information



From the table 3.6 it clearly shows that 56% of respondents are aware about these investments by their relatives,20% by online media,10% by friends and online media and 4% by brokers. So, majority of my respondents are by relatives.

Table.2 Depth of Knowledge

Particulars	No of respondents	Percentage
High	10	10
Low	20	20
Moderate	70	70
Total	**100**	**100**

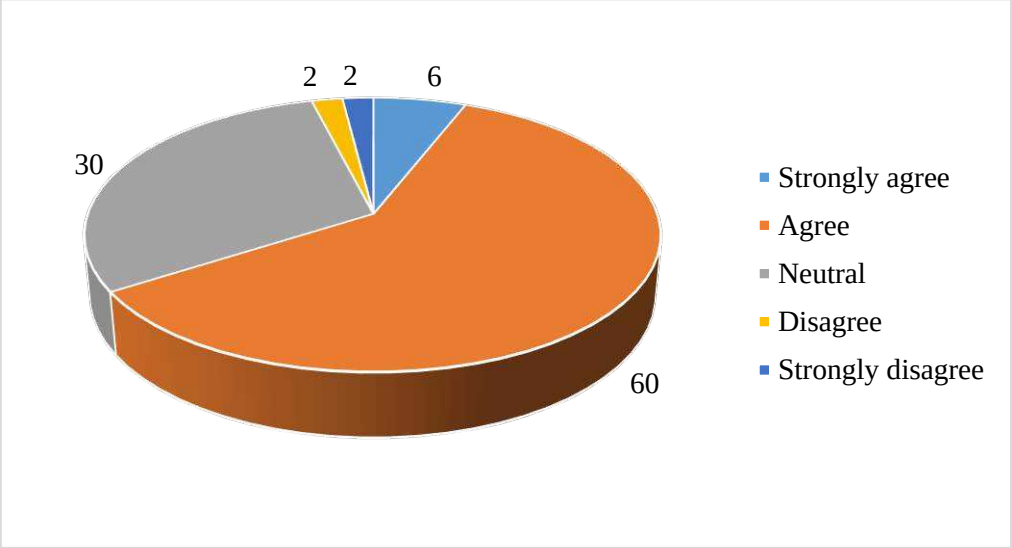
From the table 3.7 clearly shows that 70% of respondents have moderate knowledge of investments. 20% of the respondents have less knowledge, and 10% of the respondents have high knowledge about the investments. So, most of the respondents have average knowledge of the investment.

Table.3 Confidence in decision making

Particulars	No of respondents	Percentage
Yes	20	20%
No	20	20%
May be	60	60%
Total	**100**	**100%**

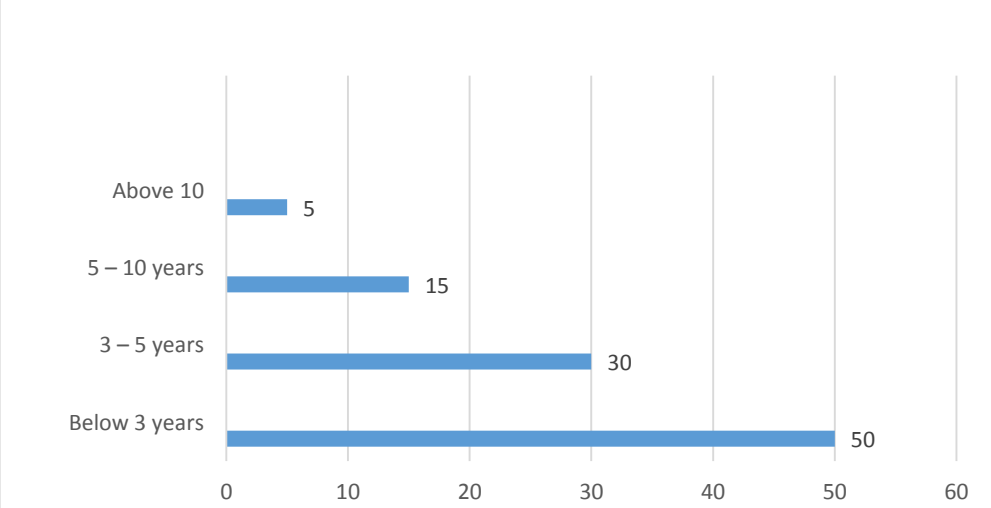
From the table 3.8 clearly show than60% of the responses have partially confident in making decisions, 20% Of the responses have highly confident and 20% of them are not at all confidence in making decisions.

Figure.2 Support from friends and relatives



Out of 50 responses 60% of the respondents have support from friends and relatives while taking investment decisions. 30% of the responses have partially agreed the statement. So, the majority of my respondents have taking the decisions with the help of the friends and relatives.

Figure. 3 Tenure period



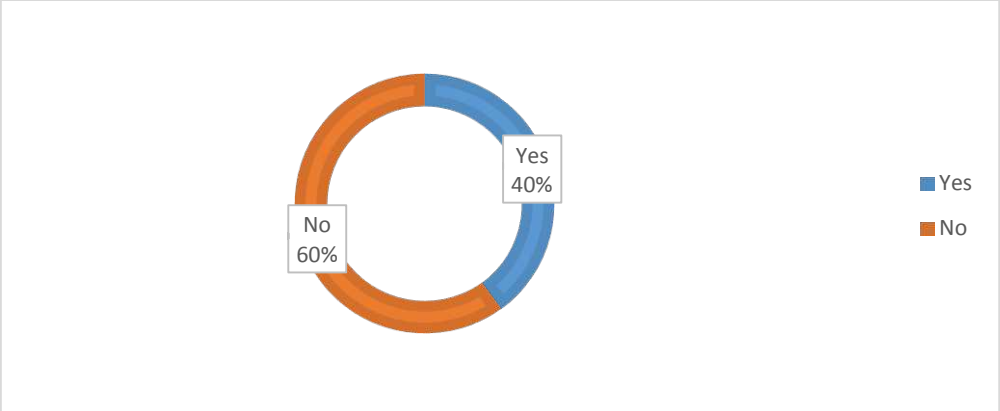
Out of the 50 respondents 50% of the responses are choosing time period below 3 years, 30% of responses are between 3 – 5 years, 15% of the responses are choosing between 5 – 10 years and 6% of the responses are for long term investment

Table.4 Factors Influencing Investment Decision

Particulars	No of respondents	Percentage
Less risk	56	56
More return	20	20
Tax benefit	16	16
Financial liquidity	8	8
Total	100	100

From the table 3.14 clearly shows that that the 56% of the responses are looking investment decisions with less risk, 20% of the responses are for more return, 16% of the them are for tax benefit, and 8% of them are for financial liquidity.

Table.5 Risk taking capacity



Out of 50 respondents 60% of the working women are not able to take the risk and 40% of the responses are willing to take the risk.

Results and Discussions

Many working women are not coming for investment because of fear of loss of money. Women are relatively conservative in their investment approach. Women are less impulsive and more inclined to step back. Women are not confident making decisions their own. Working women are normally consulted their husbands or other members of the family control over their investments. The common problems faced by the women investors are inadequate information regarding the investments, lack of adequate skills, insufficient encouragement and fear of risk. All the working women are not aware of how, when and where to invest their money.

- 98% of the respondents tell that, they are aware about the savings and investments.
- Out of 100respondents 56% of respondents are aware about the investments by their relatives.
- Out of 100 respondents only 10% of the respondents have high rate of knowledge about the investment.
- Majority of the Investors are partially aware about the investments.
- Only 20% of the working women have the self-confidence for making independent investment decisions.
- 48% of the working women are restricted from investment because of lack of knowledge and 42% of them are
- restricted because of risk awareness nature. Lack of knowledge and risk awareness nature are the factors restricted
  from investment.
- Out of 100 responses 60% of the respondents agreed that friends and relatives were helped them in taking investment
  Decisions.
- 46% of the respondents were influenced by their husband for making investment decisions.
- Out of 50% of the respondents 52% of the respondents say that friends and relatives are the reliable reference for
  taking investment decisions.
- Out of all respondents 50% of the respondents are choosing time period less than 3 years.

Recommendations

Based on the findings of the study it is proposed to suggest that women need to come out their comfort zone and think on the lines of investments and not just savings. Firstly women should be made aware of the need to find a suitable investment. It is better to start now than later. When the women decide to

start investing, the most important part of the process is educating themselves. Once they have a better understanding of investing, they will feel more comfortable growing in their investments. This makes them better investors compared with men.

Just like charity, financial inclusion begins at home. If women are taking initiative for investments and searching for opportunities for investments, men have to support them to develop their ideas by giving better suggestions for their betterment. This will help to keep their family more secure and safe financially.

Implications of the Study

Women are relatively conservative in their investment approach. Working women are normally consulting their husbands or relatives to control their savings and investments. Now a days we find more women are financially independent, women are more educated, accomplished and empowered than even before, but when it comes to investing and managing it feels like stuck. The common problems faced by the women are inadequate information regarding the investments, lack of adequate skills, lack of expertism, insufficient encouragement and fear of risk. The percentage of married working women who take their own financial decisions for making investments decisions is low. Several occasions we can see they rely on their husbands to choose good investment opportunities. From this study it is found that working women have more prefer to invest in bank deposits. It is also found while investing money working women emphasize more on safety and liquidity rather than higher returns. They are not willing to take risk to earn high return from their investments.

This study and findings analyses that, the inertia is existing among working women and inadequate information, inability to take independent decisions due to fear and risk, insufficient knowledge, lack of awareness are the factors creating investment inertia. The study has important implications for investment managers as it has come out with certain interest facts of women investor's especially working people. Working women always prefer to invest in financial products which give risk free returns

Limitations and Scope for Further Research

Observations and data analysis may vary based upon area and response concerning locations. Results on the cases cannot be extensive in such cases. These aspects may result in limiting the generalizability of the research findings; however, the study merits provide basis for further exploration in the portal of finance which requires a great deal of research.

The study, being of a descriptive nature, chooses to raise a number of opportunities for further research, both from the angle perspectives of theory development and concept validation. Several intensive researches are necessary to find the most suitable type of investment.

Due to shortage of time sample size is limited to 100 samples.

Conclusion

The high rate of increase in the number of female investors currently shows a positive signal for the development of investment among women and potential to increase is quite large. Many studies show that women are actually smarter in investing than men. This supposed by some of natural traits possessed by women when it comes to investment, such as maternal nature which turns out to influence women's investment behaviour.

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Digital signature in income tax return filing

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***Abstract*—Everyday new technologies are brought and pro- gressed in a rapid way in all fields. E-submitting is a new generation method to tax payers for filing their income tax via on-line mode. E-filing is an effective way of filing income tax return online and make payment of tax with digital signature. It saves our golden time,strength,fee and also reduces our anxiety. So, the tax payers are required to use E-filing centres. This examines that the existing customers are satisfied with the E-filing facilities but most of the tax payers are not aware of the E-submitting procedures.So sufficient steps are required to create greater awareness within the minds of tax payers regarding E-submitting of earnings tax with the aid of digital signature.**

***Index Terms*—Taxpayers, E-filing, digital signature, tax**

I. INTRODUCTION

The advanced technology is seen everywhere, from e - ticking to e-filing the tax return, everything can be done easily at the comfort of your home. The main requirement to be furnished while filing an income tax return online is to affix your digital signature with your tax return documents so that it will authenticate these documents. In the IT Act 2000, a digital signature enjoys the identical status as a normal signature. It attests and verifies that the taxpayer has authenticated the tax return documents in secure surroundings, without fraud. Virtual or Digital signatures, that are issued by Certification authorities, contain particulars just like the taxpayer's name, public key, name of issuing Certification Authority, expiration date of public key(12years), the digital signature and its serial wide variety. Tampering with digitally signed files and claiming forgery over digital signatures isn't a viable option, especially since some assessments are nearing completion to confirm the same. Changes and additions to digitally signed files are also included in the signing process.

II. LITERATURE SURVEY

Abdalbasit Mohammad demonstrated in [8] "A review paper on cryptography" how the various algorithms are used in cryptography.It will continue to emerge with IT and business plans in regard to protecting personal,financial,medical and e- commerce data and providing a respectable level of privacy.

S.R Subramanya stated in [9] "Digital signatures" that he implemented the concept of creating and verifying digital envelops using and without signed messages.In addition,he explained it in opening a digital envelops and verifying a digital signatures.

Dr.R.K Gupta pointed out in [10] "A review paper on con- cepts of cryptography and cryptographic hash function" that make comparisons between various cryptographic algorithms and different hash functions which help to understand the crux of cryptography.

Sadkhan S.B highlighted in [11] "Cryptography:Current status and future trends" current status of the Arabic industrial and academic efforts in this field in the past that are related to the existing cryptographic methods and new evaluation methods for the security of information.He defined the main processes and trends of the fields in cryptography from the time of Julius Cesar to the modern era.

Dr.Ananth Sheshasaayee defined in [12] "Digital signa- tures security using cryptography for industrial applications" showcased the propelled marks diminish time and furthermore tries by extending the security.Practically as imprints empower acknowledgement and check of the believability of paper records propelled marks fill the need of endorsement and affirmation of electronic reports.

Moving forward with the goals of cryptography,Prateep Kumar concluded in [13] that cryptography is used to check confidentiality of a message which ensures that message privacy is maintained.

III. CRYPTOGRAPHY

Cryptography is a method of defensive facts and commu- nications through the usage of codes, so that only those for whom the information is intended can read and process it. In computer science, cryptography refers to comfy data and conversation techniques derived from mathematical concepts and a set of rule based calculations called algorithms, to transform messages in different ways which might be diffi- cult to decipher. These deterministic algorithms are used for cryptographic key technology, digital signing, verification to defend data privateness, web surfing at the internet and private communications which includes credit card transactions and email.

A. Objectives of cryptography

- Confidentiality:The information cannot be understood by anyone for whom it was accidental.
- Integrity: The statistics can't be altered in storage or transit between sender and supposed receiver without the alteration being detected.
- Non-repudiation: The creator/sender of the information cannot deny at a later degree their intentions in the advent or transmission of the facts.
- Authentication: The sender and receiver can affirm every other's identity and the starting place/vacation spot of the statistics.

B. Types of cryptography

Symmetric-key encryption algorithms create a fixed length of bits known as a block cipher with a secret key that the sender uses to encrypt data (encryption) and the receiver uses to decrypt it(decryption). This requires only a single key for both encryption and decryption process. Block and Stream algorithms comprise symmetric key cryptography, which is widely used on the Internet today. Two popular encryption al- gorithms are the Advanced Encryption Standard (AES) and the Data Encryption Standard (DES). This method of encryption is often faster than symmetric encryption, but it allows both the sender and the data receiver to have access to the secret key.

Asymmetric key algorithms: It use a pair of keys, a public key associated with the sender for encrypting messages and a private key that only the receiver knows for decrypting that information. This required two keys: one for encryption and the other for decryption. When someone wants to send an encrypted message, they will retrieve the recipient's public key from a shared directory and use it to encrypt the message until it is sent. The receiver will next use their associated private key to decrypt the message. When the sender encrypts a message with their private key, the message can only be decrypted with the sender's public key, allowing the sender to be authenticated. These encryption and decryption operations are fully automated, so users do not have to manually lock and unlock messages.Figure 1 shows the types of cryptography.

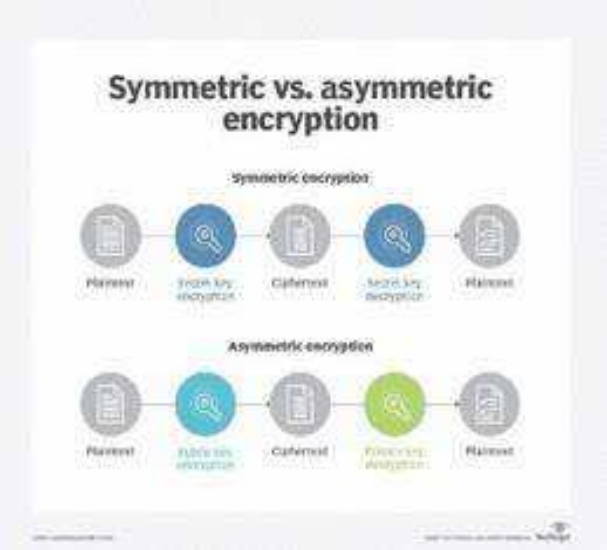

Fig. 1. Types of cryptography

IV. DIGITAL SIGNATURE

A mathematical algorithm is routinely used to validate the authenticity and integrity of a message using a digital signature, which is a type of electronic signature (e.g., an email, a credit card transaction, or a digital document). Digital signatures are used to identify users and protect information in digital messages and documents by creating a virtual fingerprint that is unique to them. The email content becomes part of the digital signature in emails. Electronic signatures such as digital signatures are far more secure than other types of electronic signatures. Digital signatures can offer proof of origin, identity and standing of digital files, transactions or digital messages. Signers also can use them to renowned knowledgeable consent. In many countries, including the United States, digital signatures are considered legally binding inside the identical manner as conventional handwritten record signatures.

A. How DSC works

Digital signatures are based on asymmetric key cryptogra- phy or public key cryptography. Using a public key algorithm, such as RSA algorithm, two keys are generated, creating a linked pair of keys ,one private key and one public key. Digital signatures work through asymmetric key cryptography's two mutually authenticating cryptographic keys. The individual who creates the DS uses a private key to encrypt signature- related data, the only way to decrypt that data is with the signer's public key. If the recipient cannot open the document with the signer's public key, there's a problem with the document or the signature. This is how digital signatures are authenticated or valid. The comparison shows in Table I.

B. Different classes of Digital signature

- Class 1 Certificate: These are issued to individuals or pri- vate users. This Certificate confirms that the user's name and email ID are valid and approved by the Certifying Authorities on their database.
- Class 2 Certificate: These are issued only to business personnel and individuals. They confirmed that the infor- mation in the application provided by the subscriber is the same as the information in popular consumer databases.
- Class 3 Certificate: These are issued only to individuals and organizations. They are very high assurance certifi- cates, mainly for the purpose of e-commerce applications. It is issued when the

individual appears in-person before the certifying authorities.

C. Benefits of digital signature

- A digital signature can't be edited or tampered with.
- It is secure to track a digitally signed document.
- It brings down the wastage of paper and is eco- friendly.
- Helps the efficiency of the entire e-filing process.
-

Reduces cost.	Digital Signature
Visible	No
Unobtrusive	Yes
File changes	Not allowed
Virtually attached to file	Yes
Physically embedded in file	No
Data authenticity	Yes
Copyright protection	Yes
Global identification	partial

TABLE I DSC COMPARISON

D. Certifying authorities for Digital signature

The licensed certifying authorities who authorized by gov- ernment appointed Controller of Certifying Authority:

1)Safe encrypt 2)Capricorn CA 3)IDRBT
4) GNFC
5) e Mudra CA 6)NSDL e-Gov CA
7)Indian Air Force 8)Verasys CA 9)CDAC CA

E. How to get digital signature

The purpose of obtaining a digital certificate, the user will have to submit certain documents to the certifying authority (CA). It includes an application form that has been duly signed, a passport size photo, an identification proof, Aadhaar card number, PAN card verification etc. The applicant may be asked to provide the mobile number, email address, home or organization address of the user. The different countries will have different requirements from the applicants for the issuance of digital signature certificate. The process of ob- taining digital signature certificates varies depending on the certifying authorities.

F. Mandatory taxpayers for ITR filing using DSC

Digital signature certificates is mandatory for some services / user categories such as e-Verification of returns filed by political parties and companies as well as other persons whose accounts are required to be audited under Section 44AB of the Income Tax Act. In other case, it is optional.

G. Steps to create DSC in ITR filing

1) Fill up the Income Tax Return form, generate the file as an XML (Extensible Mark-up Language) file and save it.
2) Step in to the Income Tax India website. Log in to your account using your user password and ID.
3) After login, click on the tab "Submit Return" and then select the assessment year.
4) Select the Income Tax Return Form Name from the drop-down menu list.
5) The next field will be "Do You Want to Digitally Sign the File?" Then select the "Yes" button.

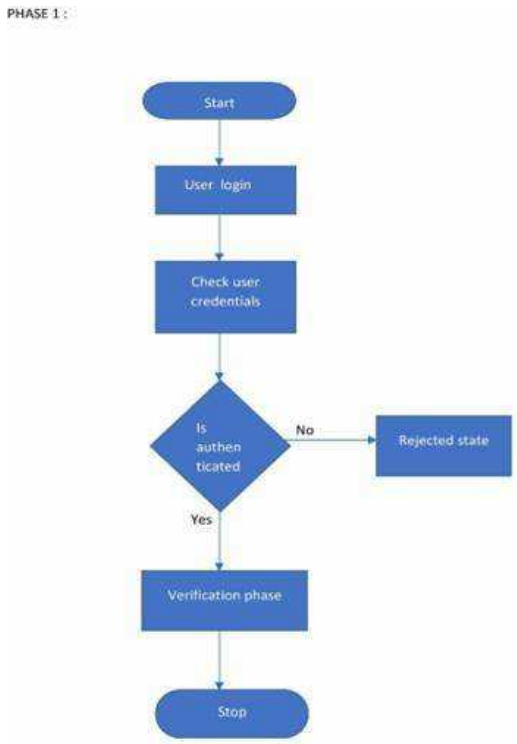

Fig. 2. Login Phase

6) Select the type of digital signature you want to use, it can be "Sign with USB Token" or "Sign With .PFX file".
7) Upload the ITR with the help of digital signature cer- tificate and verify it.

H. Current problem in taking DSC

As previously stated, the signature is signed with the USB token after the digital signature certificate has been verified and approved by certified authorities. The password will be included in the DSC. There's a chance you can lose your USB token. If it is lost, or hackers can quickly track down the clients DSC by targeting all of their authentication information. This is a fairly rare problem in this field.

V. PROPOSED SYSTEM

The problem mentioned above is an example of a threat. We can use an OTP password with the USB token to get around this situation. If someone tried to access the USB Token, they could easily access the password that has been attached to it. It may also request an OTP verification in addition to the password. Only the client's mobile number will receive the OTP password. As a result, this will provide a security mechanism which is useful in future attacks. The following figures are depicted as follows: There are 2 types of phases :Login phase and verification phase.The pictorial representation shows in Figure 2 and Figure 3

A. Login phase

During the login phase, The user will enter their credentials into the page during the login step. It will

verify whether the records provided are valid or not. It will go to the verification stage if it is valid; else, it will be refused. This is the only way the user may access the digital signature. Actually, this is the initial action and the verification step will follow this procedure.

B. Verification phase

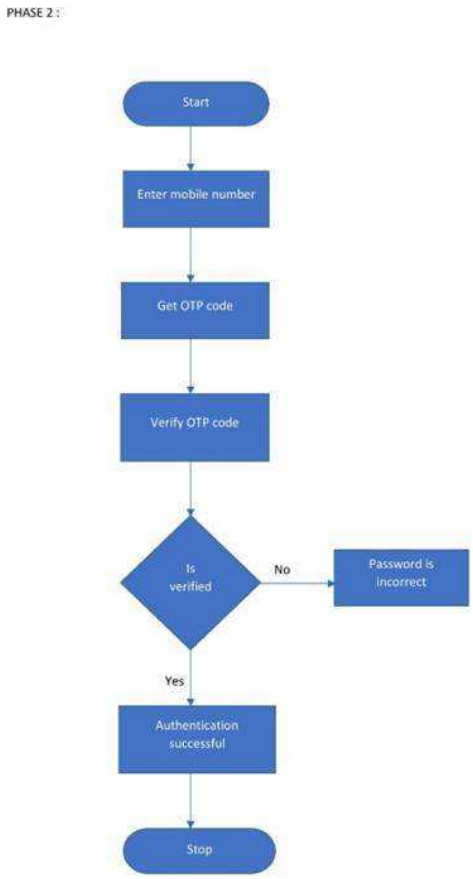

Fig. 3. Verification Phase

In the verification phase, The user must input his or her mobile number after logging in to receive the OTP code. Then it must be confirmed. The authentication is successful if it is validated; else, it will be rejected since the password is invalid.Now you can access the digital signature.

VI. CONCLUSION

From the above study, the usage of ITR filing using DSC must be focused to make a better way of using online method in a developing country like India. Still the usage of DSC is increasing day by day among the citizens for its secure

techniques. This study focuses on the digital signature and its authentication process. The basic objective of research is to provide an awareness about DSC and its basic attacks. The majority of individuals are unaware of this problem. The paper aids them in raising awareness about the problem. This case study will be implemented in the future research.

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CUSTOMERS AWARENESS AND SATISFACTION TOWARDS CASHLESS TRANSACTIONS APPS

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Abstract

Digital India becomes a new program by the Government of India, which also promote cashless economy. In growing information technology is great help and catalyst to the people to make cashless transactions. The present study tried to analyse the awareness level of the customers' towards cashless transaction apps, identify the problems faced by the customers while using cash less transaction apps and also understand the customers' level of satisfaction towards cashless transaction apps. Both primary and secondary data were used for the study. Customers' are facing certain problems such as security concerns and lack of technical skills etc. The respondents are highly satisfied among the speed, accuracy, reliability and security features of cashless transaction apps.

Keywords: Cashless Transaction Apps, Awareness, Problems, Preferences, Satisfaction

Introduction

The Indian Government moves towards a cashless environment after the massive stoke of demonetization. In India, where people use a lot of cash in everyday life which is 95 per cent cash 85 per cent of the transaction are not in electronic forms. According to World Bank Development report 2013, electronic payments can save over one per cent of India's gross domestic product (GDP). The "Cash may still be "king" at times, but compared with electronic payments, cash payments are inefficient," According to the multi-lateral agency, the rising use of payment by electronic medium can help to save 1.6 per cent of India's GDP. "Cash can carry significant handling and transportation costs and the risks of theft, loss, and counterfeiting."Change and motivate the people to money-free transactions from cash transaction. In a growing global economic environment, many world countries are successfully implementing cashless electronic methods. At present, India has begun to show its pace in electronic method. In growing information technology is great help and catalyst to the people to make cashless transactions. The increasing use of internet and smart phone, apps, mobile banking, internet banking service, credit card, debit card and electronic exchange are simplify and promote the consumer payments and settlements. The government of India has taken a number of steps to promote, utilize and reach the cashless transaction among the people for better use. There are a lot of awareness and concession for promoting cashless transactions. Especially in the government incentives for digital payments, (Lucky GrahakYojana, Digi VyaparYojana) cancelation of Service charges, cash discounts, reward points. At the same time, direct and indirect restrictions on cash transactions to prevent and minimize the cash based transaction.

II Statement of Problem

Cashless economy or cashless means all the transactions carried out between two individuals will occur by payment through payment gateways or through the plastic money

To incentivize the move towards a cashless economy, the government has come up with a rash of discounts and freebies on digital transactions. The RBI and the Government are making several efforts to reduce the use of cash in the economy by promoting the digital/payment devices including prepaid instruments and cards. RBI's effort to encourage these new varieties of payment and settlement facilities aims to achieve the goal of a 'less cash' society. The RBI and the Government are making several efforts to reduce the use of cash in the economy by promoting the digital/payment devices including prepaid instruments and cards. RBI's effort to encourage these new varieties of payment and settlement facilities aims to achieve the goal of a 'less cash' society. With limited cash in hand and an indefinite crunch in sight, most people are rushing to cashless transactions. Digital transactions bring in better transparency, scalability and accountability. The new move will compel more merchants to accept digital money. Cash may no longer be king. Technology up gradation and government promotions was the most important changes happened in cash less society.

Cashless payments eliminate several business risks at a time such as theft of cash by employees, counterfeit money, and robbery of cash. Moreover, it also reduces costs of security, withdrawing cash from bank, transporting, and counting. The present study is focused on to analyse the awareness of the customers' towards cashless transaction apps, identify the problems faced by the customers while using cash less transaction apps and also understand the customers' level of satisfaction towards cashless transaction apps. As the importance of cashless economy is increasing now a days, conducting a study based on this context deserves much relevance.

III Objectives

1. To know the consumer awareness about Cashless Transactions apps.
2. To identify the problems faced by the customers while using Cashless Transactions apps.
3. To analyse customers level of satisfaction towards cash less transactions Apps.

IV Hypothesis

H1: There is a significant association between educational qualification of the respondents and their level of awareness towards cashless transactions apps.

H2: There is a significant association between reasons for choosing the cashless transaction apps and the respondents' level of satisfaction.

V Research Methodology

The present study is both descriptive and analytical in nature. Both primary data secondary data were used for the study.

Sources of Data

The primary data collected from 100 respondents residing in Chalakudy using convenience

sampling method. A well-structured questionnaire is prepared for the study. First part of the questionnaire includes the socio- economic profile of the respondents and the second part includes the questions related to the objectives formulated for the study. The secondary data is collected through journals, books and websites

Sample Design

- Sampling Size
  The sample size of the study is 100 cashless transaction apps users in Chalakudy.
- Sampling Method
  The sampling method used for the study is convenience sampling method.

Tools Used For Data Analysis

Simple percentage is used for analyzing the collected data. Chi – square is used for testing the hypothesis with the help of SPSS 21.0

Limitations of Study

The awareness and satisfaction of customers' towards cashless transaction apps is limited to only four popular cash less transactions apps such as paytm, phone pay, googlepay and mobiwik.

VI Review of Literature

Parvathi Subrahmani (2021) in her study The Impact of Pandemic on Digital Payments in India investigated that the Digital payments play a vital role and has many advantages over cash, such as easy transaction, security and transparency. Banking sector play a key role in digital payment by offering digital instruments such as debit cards, mobile banking, mobile wallets etc. in this pandemic situation. The pandemic could drive the world faster towards digital payments. Circumstances fuelling digital payment. Payment systems have proven that they are efficient and sustainable and continue to command a high degree of trust in the general population. However, the closure of the companies and the lock-down resulted in lower average transaction volumes. In order to aid the recovery and contribute to the emerge of this new standard, it is imperative that the digital payments environment evolves rapidly and help from the Post-COVID period. This paper focus on the importance of Digital payments during pandemic, different modes of digital payment systems, the growth of digital payment from last three years. And also, The road ahead in the digital payment.

Sharif Mohd (2020) Moving from Cash to Cashless: A Study of Consumer Perception towards Digital Transactions. In this era, we can see a very significant change in the means of making and receiving payments. Due to technology infrastructure and policy changes, there has been an increase in the number of modes of payments. However, India is characterized by diversities and infrastructure facilities are still not reaching everything and everywhere due to which it is not easy to initiate the system successfully. The study is aimed towards studying the level of awareness, challenges and benefits among the citizens about cashless transactions. Primary data was collected for the present study and analysis was done by mean, standard deviation, skewness and kurtosis to draw the results. The study found that the respondents face many problems while making cashless transactions such as no security, poor network connectivity,

less digital awareness, problems of illiteracy, problems in making small payments, etc. Moreover, there is less awareness of the latest modes of digital payments.

Suliman A Salem Ben Ghrbeia (2020) The collective growth of Information Communication Technology has conveyed many accomplishments to mortal civilization, influencing the lives of people, behaviours and societal measures. The digital economy, electronic commerce and commerce and electronic banking are now being used by the new technologies and the wider global network, especially internet, within and outwardly. The study investigates issues that affect customers when implementing digital payment and also proposing solutions to preserve and develop the quality of service for digital payment systems so as to inspire patronage repetition and loyalty and attract new customers. Descriptive analysis, independent t-test and Analysis of Variance were the methodologies used for analysis of collected data. The results attained depicts that there was "strong correlation" existing between the benefits and the ease of use of the Digital Payment System. An almost moderate correlation existed only between the trust and customers' perception of the Digital Payment Systems alongside the true perception attained by customers while using the Digital Payment System and its basic ease of use. There was a rather weak negative correlation between the average security and the benefits of the Digital Payment System. Another quite weak and negative correlation has to do with the age bracket of the customers and its effect on the general preference of the Digital Payment System. This study can help providers gain an insight of the views and preferences of their customers in order to improve the customer perception during the online purchase procedures.

Dr. M. Somasundaram, Ph.D., D.Litt. (2020) The study main aims to identify the demographic variables of the consumers, to analysis the relationship of the demographic variables of the consumers and their perception towards digital payments mode and to identify the impact of consumer perception towards the digital payments. The study was conducted in Tamil Nadu and the data collected from 95 consumers by Google form survey in the month of May 2020. The Percentage, average, standard deviation, range, F-test, cross table, Chi-square test, Regression analysis and Factor analysis methods were applied on the data to get the results which are analysed. The study concluded that the digital payment system should be strengthened to improve safety and security of financial transactions of consumers and it must be simplified and make it user friendly. In addition, digital payment system should minimize risk associated with transactions of consumers and it must adopt appropriate measures to overcome undue delay in its processes.

Dr. C. Mallesha (2020) online payment system is an electronic medium through which consumers make e-commerce transactions. Digitalization is most important aspect for the future economy. In India the development of the electronic payment is anticipated to be done by e-payment service providers, effective banking regulatory mechanism and experience of consumers and these are also growth enhancing factors for online payment in India. Consumers have medium awareness on the e-payment systems and the importance of these systems has been risen up to a greater extent in the past few years the past few years. Knowing about these systems will make the consumers to opt these payment systems with ease and efficient. The present study focuses on Urban and Rural consumers perception towards e-payment systems used in current business world.

Kavin Krishna (2019) conducted a study on Concerns and Preference in Cashless Payments.

There are various types and modes of digital payments include the use of debit/credit cards, internet banking, mobile wallets, digital payment apps, Unified Payments Interface (UPI) service, Unstructured Supplementary Service Data (USSD), Bank prepaid cards, mobile banking, etc. This study mainly focuses on Generation Z (1994-2015) cluster and their preference towards digital payment systems. This study helps to analyse the satisfaction level and understand the preference of the latest generation of people. It will also help the payment app companies to adapt and improvise their user interface and other factors in order to satisfy the youth customers.

Dr. S.Yuvaraj and Sheila Eveline. N (2018)conducted a study on "Consumers' Perception towards Cashless Transactions and Information Security".The paper helps to identify the consumers' perception on cashless transactions, factors influencing cashless transactions and also identify the level of awareness of the consumers concerning the information securities. The findings reveal that the majority of the consumers prefer credit/debit card has the most comfortable mode of payment followed by mobile wallets. Privacy and security, convenience were the factors which influences consumers towards cashless transactions and it was also found that consumers has enough awareness on the information security in cashless transactions. Therefore, digital payments will takes a long time to become key payment option but this might benefit the economy in the near future.

VII Result and Discussions

Table 1 Awareness level of the Respondents Towards cashless transactions Apps

Facilities	Highly aware (%)	Aware (%)	Somewhat aware (%)	Not much aware (%)	Not at all aware (%)
Fund transfer facility	68	20	10	2	0
Security threats	40	22	18	15	5
Cash bank facilities	35	26	24	10	5
Bill payments	55	32	13	10	0
Transaction cost	23	35	7	15	20

(Source: primary data)

The Table 1 shows that the respondents level of awareness towards cashless transactions apps. The survey result shows that majority of respondents are highly aware about fund transfer facilities, security threats, cash back facilities, bill payments and transaction cost. Some respondents are aware and somewhat aware about the facilities.

Table 2 Reasons for Choosing Cashless Transaction Apps

Purpose	Frequency	Percentage
Privacy	9	9
24*7 Business Hours	36	36
Convenience	16	16

Small Gains	13	13
Easy To Use	11	11
Savings Time And Speed	12	12
Lower Risk	3	3

(Source: Primary Data)

The Table 2 shows that most of the respondents felts that the "24*7 business hours" provided by the cash less banking is the highest motivating factor for an individual to use cash less transaction apps and rest prefer "privacy", "convenience", "small gains" etc.

Table 3 Problems faced by customers while using cashless transaction apps

Particular	**No. of Respondents**	**Percentage**
Security Concerns	35	35
Quality of service	5	5
Lack of technical skill	30	30
Lack of specialise equipment	15	15
Extra Charges	10	10
No grievance body	5	5
Total	100	100

(Source: Primary data)

Table 3 shows the problems faced by the respondents towards cashless transaction apps. From the analysis it is clear that 35% percentage of the respondents are facing problem due to security concerns. 30% of the respondents are having problems relating to lack of technical skills. Lack of specialised equipment (15%), Extra charges (10%), Quality of services (5%) and no grievance body are also the major problems. So majority of the respondents are have problems related to security concerns (35%) and lack of technical skills (30%)

Table 4 Customers Level of satisfaction towards cashless transaction apps

Purpose	Highly satisfied (%)	Satisfied (%)	Neutral (%)	Dissatisfied (%)	Highly dissatisfied (%)
Speed of transaction	38	32	25	5	0
Accuracy	43	27	18	3	0
Security features	36	28	22	10	4
Reliability	32	29	21	18	0

(Source: Primary Data)

The table 4 shows that the level of satisfaction of respondents regarding cashless transaction apps. By analysing the result it is clear that most of the respondents are highly satisfied among the speed, accuracy, reliability and security features of cashless transaction apps.

Chi - Square Test

Aim: To test the significant association between the Educational Qualification and Level of Awareness among the Customers towards the Cash less Transaction Apps.

Chi square test result

	value	df	Asymp.Sig (2-sided)
Pearson Chi - Square	65.605	15	0.000

The Chi- Square result shows the association between educational qualification of the respondents and level of awareness towards cashless transaction apps. From the result it is seen that the Pearson Chi – Square value is 65.605, p value = 0.000 i.e the chi square test result is less than the alpha level of significance of 0.05. This tells that there is a statistically association between educational qualification of the respondents and level of awareness towards cashless transaction apps.

Aim: To test the significant association between reasons for choosing cashless transaction apps and their level of satisfaction among the Customers towards the Cash less Transaction Apps.

Chi square test result

	value	df	Asymp.Sig (2-sided)
Pearson Chi - Square	78.605	18	0.000

The Chi- Square result shows the association between reasons for choosing cashless transaction apps and their level of satisfaction among the Customers towards the Cash less Transaction Apps. From the result it is seen that the Pearson Chi – Square value is 78.605, p value = 0.000 i.e the chi square test result is less than the alpha level of significance of 0.05. This tells that there is a statistically association between reasons for choosing cashless transaction apps and their level of satisfaction among the Customers towards the Cash less Transaction Apps.

Findings

- Most of the respondents are graduate in this study.
- Majority of respondents are highly aware about fund transfer facilities, security threats, cash back facilities, bill payments and transaction cost.
- From the analysis it is clear that 35% percentage of the respondents are facing problem due to security concerns. 30% of the respondents are having problems relating to lack of technical skills.
- Most of the respondents are highly satisfied among the speed, accuracy, reliability and security features of cashless transaction apps.
- The chi – square (chi- square value = 65.605, p value = 0.000) result shows that there is a significant association between the educational qualification of the customers and their awareness level.
- The chi – square (chi- square value = 78.605, p value = 0.000) result shows that there is a significant association between reasons for choosing cashless transaction apps and their level of satisfaction among the Customers towards the Cash less Transaction Apps.

Conclusion

Information technology has paved the way to the development of many industries. Banking industry is also making use of information technology in their day to day activities. Cash less services is one of the recent trends in electronic banking. The cashless transactions create a paperless environment in the field of banking. Many customers' especially salaried employees, business man, professionals and college students are making use of this facility. Factors like 24 hours availability, convenience are the most important factors induce the customers towards cash less transactions. Customers' are facing certain problems such as security concerns and lack of technical skills etc. The study reveals that respondents are highly satisfied among the speed, accuracy, reliability and security features of cashless transaction apps. But all the customers are not sure about the security of transactions and unaware about all the online transactions. Therefore they cannot enjoy the benefit of new services which are offered through online transactions. So the banks should adopt various innovative programs for creating awareness for improving the usage of cash less transactions among the public.

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The Effect of Television Advertisements on Brand Preference of Consumer Durables

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Abstract

Advertising is a major tool in creating product awareness and condition the mind of a potential consumer to take eventual purchase decision. Marketer's survival depends on consumer satisfaction. Consumer satisfaction depends on their perception and brand preference of the particular brand, and here arises the role of advertisement. This study is an attempt to find the effect of television advertisement on brand preference of consumer durables. Convenient sampling technique has been adopted for the study. Primary data have been collected from 50 sample units It was found that age, and income were statistically significant in predicting the attitude towards advertising. This study reveals that quality and brand name were ranked as the important parameters for brand preference.

Key words

Advertisement, Consumer durables, Brand preference, Perception

Introduction

The importance of sales on business survival and the connection between customers and sales, it is expedient for organizations to engage in programs that can influence consumers' decision to purchase its products. This is where advertising and brand management are relevant. Advertising is a subset of promotion mix which is one of the Four 'P's in the marketing mix i.e . product, price, place and promotion. As a promotional strategy, advertising serve as a major tool in creating product awareness and condition the mind of a potential consumer to take eventual purchase decision. Marketer's survival depends on consumer satisfaction. Consumer satisfaction depends on their perception and brand preference of the particular brand. In brand preference, advertising plays a major role. Nowadays consumer durables (Television, Refrigerator, Washing machine, Mixer grinder and Induction Cooker) have become essential part in lifestyle of the people in the society. There are number of brands are available in the market. In those brands, some brands are very famous not only in India but also globally. For these brands, different advertisements are available in different media. Measuring the influence of Advertisement in Consumer Brand Preference is very essential for every marketer. If advertisement does not create any positive change in consumers' brand preference, all the resources such as money, time and efforts spent on advertisement will go in vain. This research studies about the "The Effect of Television Advertisement on Brand Preference on Consumer Durables". Every Brand in this market use Advertisement as a major weapon to overcome the fierce Competition.

Statement of the problem

It has often been said that television is an ideal advertising medium where the consumer spends the most "attentive" time. However, the main thing is, the marketer should identify the influence of advertising in consumers‟ brand preference. Advertising today seems to be everywhere and ever present exerting a far reaching influence on the daily lives of people. All kinds of companies or institutions find television advertising as a suitable means of publicity and hence importance of television advertisement is increasing day by day. Nowadays consumer durable goods companies are advertising their products so much on televisions and are spending so much money on the celebrities to endorse their products. Television advertisements usually play a role in introducing a product, reinforcing the familiarity to the product and also convincing the customers to purchase the product. The impact of the television advertisements is greater than that of the print media or radio. Therefore, it is necessary to study different aspects of television advertisements and their impact on consumers‟ perception and purchase decision. Consequently, this study is an attempt to measure the effect of advertising on consumer behavior in respect of consumer durable goods. In fact, this study will help to know the effectiveness of television advertising on consumers, the attitude of consumers towards advertising and the brand preferences.

Objectives of the study

- To study the effect of Television advertisement on brand preferences of consumer durables.
- To know about the factors influencing the consumers to purchase consumer durables.

Research Methodology

Convenience sampling technique has been adopted for the study. 50 sampling units were taken for the study. Primary data have been collected with the help of a well-structured questionnaire and informal personal discussions with the sample respondents. The secondary data have been collected from different sources such as published research papers, research articles in national and international journals, seminar reports, newspapers, books, departmental publications and working papers. Simple percentage analysis has been used for the data analysis.

Review of literature

Hemamalini KS, Ms Shree Kala Kurup (2014): Advertising has become the most effective ways for the companies to transmit the product information's to the target consumers. The words, graphics and images are used to display the products in such a way with the intention to attract the consumers and make them to think and purchase the product among the other available other company's products. The main ways of attracting the consumer is by using all types of endorsement, using celebrity appearance, message strategy, and the involvement strategy. The previous researches have proved that celebrity endorsement, advertising appeal and advertising effect significantly and positively affects the consumers purchase intentions. There is a strong perception and purchase intentions are also reported in the research findings different brands of fashion apparel. Data were gathered in Singapore via a self-administered survey and the results indicate differential effects of brand associations such as price perceptions, brand personality, brand- elicited feelings, self-image and brand-user-image congruency on consumer brand preferences and purchase intentions.

Deepa Ingwale (2013) : Advertising is the key for building, creating and sustaining brands. Advertisements play a major role in persuading,

Vyas, Hitesh D (2011) : Many things that were considered as luxuries till about 10 years ago have become necessities for most people today." This has happened in the in case of household goods consumption also.It reveals that company or brand name, guarantee / warrantee, price and after sales service are the important factors in purchase of durables. Sources of information regarding authorized dealers' and shops, and technical expert advice through, media and influence of friends, relatives and neighbors were found important factors influencing in purchase of durables by respondents.

Datta, A. (2008):This essay looks at how a recent television commercial simulates and plays on the dominant aesthetic, careerist, consumerist, nationalist and entertainment/leisure desires of consuming female subjects in India. The advertisement appeals to a set of prevalent gender and colour prejudices by 'seducing' the careerist and consumerist desires of educated young Indian women. Depicting the life of an 'ordinary' consuming subject from an unknown city neighbourhood to the globalized information highways of satellite television, the advertisement projects a hyperreal world in which gendered occupational barriers have apparently withered away, courtesy of commodity consumption. The advertisement is critically analysed as a pastiche of seductive simulacra concerning the desire for 'fairness' in the midst of 'unfair' cultural prejudices, social contradictions and apolitical commercial ideologies.

Ayanwale, A. B., Alimi, T., & Ayanbimipe, M. A. (2005) :When competition is keen and the consumers are faced with brand choice in the market, it becomes imperative for the manufacturers to understand the major factors that can attract the attention of buyers to his own brand. These then form the basis for marketing panning and action. Results revealed that both male and female and different age groups were equally influenced by advertising in their preference for the brand. TV advertising was most preferred by 71.43% of the respondents of all the media used in advertising Bournvita. The need for high preference to advertising is therefore highlighted for companies that want to not only retain their market but take positive steps to increase their market share.

Data analysis and interpretation

Table 1: Responses for various questions

Age	Number of Respondents	Percentage
Below 21	4	8
22 - 24	12	24
Above 24	34	68
Income of the respondent		
Below Rs.20000	6	12
Rs. 20000-40000	32	64
Rs. 40000-60000	10	20
Above Rs.60000	2	4
Television viewers		
Yes	46	92
No	4	8
Likes of watching Television advertisements		
Yes	39	78

No	11	22
Frequency of watching Television		
Regularly	18	36
Weekly	16	32
Occasionally	16	32

(Source: Primary data)

It is found that 68% of the respondents are above the age of 24, 24% of the respondents are 22years to 24 years of age and 4% of respondents are below 21 years of age. 52% of the respondents are in urban area and 48% of respondents are in rural area. It shows that television advertisements reach every part of the country. 92% of the respondents are watching Television and 8% of respondents are not watching Television. It shows that most of the population watches Television. 36% of respondents watch regularly, 32% of respondents watch Television weekly and 32% of respondents watch Television occasionally. Which means that every respondent watches television and they are exposed different advertisements. This table shows that most of the (78%) respondents likes to watch television advertisements and 22% of respondents doesn't like to watch Television advertisements. It shows they are attracted to Television advertisements.

Table2:

Category of Television advertisements	Number of Respondents	Percentage
Food products ads	7	8.86
Consumer durables ads	33	41.77
Cosmetics ads	3	3.79
Automobiles ads	7	26.58
Costumes ads	21	12.65
Jewelry ads	5	6.32
Assessment of quality of the consumer durable goods		
Brand Reputation/image	26	52
Price level	20	40
Brand ambassador	4	8
Response after watching Television advertisements		
Ignore it	21	42
Remember when you make a purchase	10	20
Explore about the product	19	38
Effect of advertisement on Brand choice		
Yes	44	88

No	6	12
Impact of advertisement on involvement in purchasing		
Strongly agree	8	16
Agree	18	36
Neutral	12	24
Disagree	10	20
Strongly Disagree	2	4
Impact of advertisement in brand preference		
Strongly agree	22	44
Agree	12	24
Neutral	14	28
Disagree	1	2
Strongly Disagree	1	2
Necessary for consumers to know about consumer durables		
Strongly agree	22	44
Agree	12	24
Neutral	8	16
Disagree	6	12
Strongly Disagree	2	4

(Source: Primary data)

Consumer durables ads (42%) eats a big slice as most liked advertisement category. So the companies that produce consumer durable goods can focus more on Television advertisements in promoting their goods. 52% of respondents choose Brand reputation/Image as the main criteria in assessing the quality of consumer durable goods through the Television advertisements, followed by the Price level (40%). So it can be interpreted that Television advertisements will help assess the quality of consumer durable goods. 42% of the respondents ignore it after watching an advertisement. 38% of the respondents tend to explore about the product and 20% of respondents remember when they make a purchase. 36% of the respondents agree that exposure to Television advertisement will enhance the involvement purchasing. 24% respondents has neutral opinion about the impact of advertisement in enhancing involvement in purchasing.

Table 3 : Influencing factors to purchase consumer durable

Factors	Very influential	Influential	Medium influential	Less influential	Least influential
Repetitive ads	26	14	8	0	2
Information	16	32	0	2	0
Price awareness	22	20	8	0	0
Brand ambassador	8	26	6	6	4
Durability	20	16	14	0	0

(Source: Primary data)

From the data given it shows that frequency of advertisements in television and informative ads influences the respondents to purchase the consumer durable goods. price awareness of the consumer durable goods plays a significant role in influencing the respondents.

Findings

- Most of the respondents are interested to watch advertisements in Television.
- The respondents are of the opinion that advertisements are important in terms of enjoying and gaining product information and make them aware about different brands of durables.
- Majority of the respondents agree that repetitive adds are very influential.
- Frequency of advertisements in Television and informative advertisements influence the respondents to purchase the consumer durable goods.
- A good proportion of the respondents strongly agree that Television advertisement helps to know about the consumer durable goods.

Suggestions:

- One of the most powerful factor for purchasing decision in the consumer durables market is quality motive. Therefore, the durable producer companies should focus on this motive and this should be highlighted in advertisements also.
- The advertisement should aim to create faith and goodwill in the minds of the consumers and it should contain the core principles of believability, uniqueness, reputation and reasonable claims
- Give true information about the brand in the Advertisement and maintain the good will of the brand in the market.
- Maintain the integration with Advertisement and brand is important.
- Advertisement should be believable and it has to make the brand believable.
- Advertisement should be according to the product and its suitability with different categories of demographic profiles. Effectiveness of the advertisement should be taken care of.

Conclusion

It was found that age, occupation, and income were statistically significant in predicting the attitude towards advertising, consumer behavior and brand preference for consumer durables. It is probably due to these factors that companies target different groups through advertisements

and there has been an increase in their advertising spend. It is quality that determines repeat purchases and brand loyalty of consumer durables. The reasons for preference of the brands ranged from quality to availability. But it was quality and brand name that was ranked as the important parameter for brand preference. The central task of advertising is to place the brand in the desired position in the prospects mind. Powerful advertising leads to powerful brands. In the end one can conclude that advertising is playing a positive role in the promotion of consumer durable products and people who are exposed to it are influenced substantially.

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A Comprehensive Research of Machine Learning Algorithm Techniques for Cancer Prediction

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***Abstract*-** Machine learning is concerned with enabling computer programs automatically to improve their performance at some tasks through experience. Cancer prediction is an area where the application of machine learning can be very fruitful. This paper evaluates several machine-learning techniques for detection and classification of cancerous cell. The paper focus of some machine learning techniques for cancer prediction.

Index Terms- Artificial Neural Network (ANN), Convolutional Neural Network (CNN), Kohonen Self-Organizing Neural Network (KNN), Supervised Vector Machine(SVM), Logistic Regression(LR).

I. INTRODUCTION

Artificial neural networks (ANNs) and decision trees (DTs) have been used in cancer detection and diagnosis for nearly 20 years. Today machine learning methods are being used in a wide range of applications ranging from detecting and classifying tumors via X-ray and CRT images to the classification of malignancies from proteomic and genomic (microarray) assays. In other words, machine learning has been used primarily as an aid to cancer diagnosis and detection. It has only been relatively recently that cancer researchers have attempted to apply machine learning towards cancer prediction and prognosis.

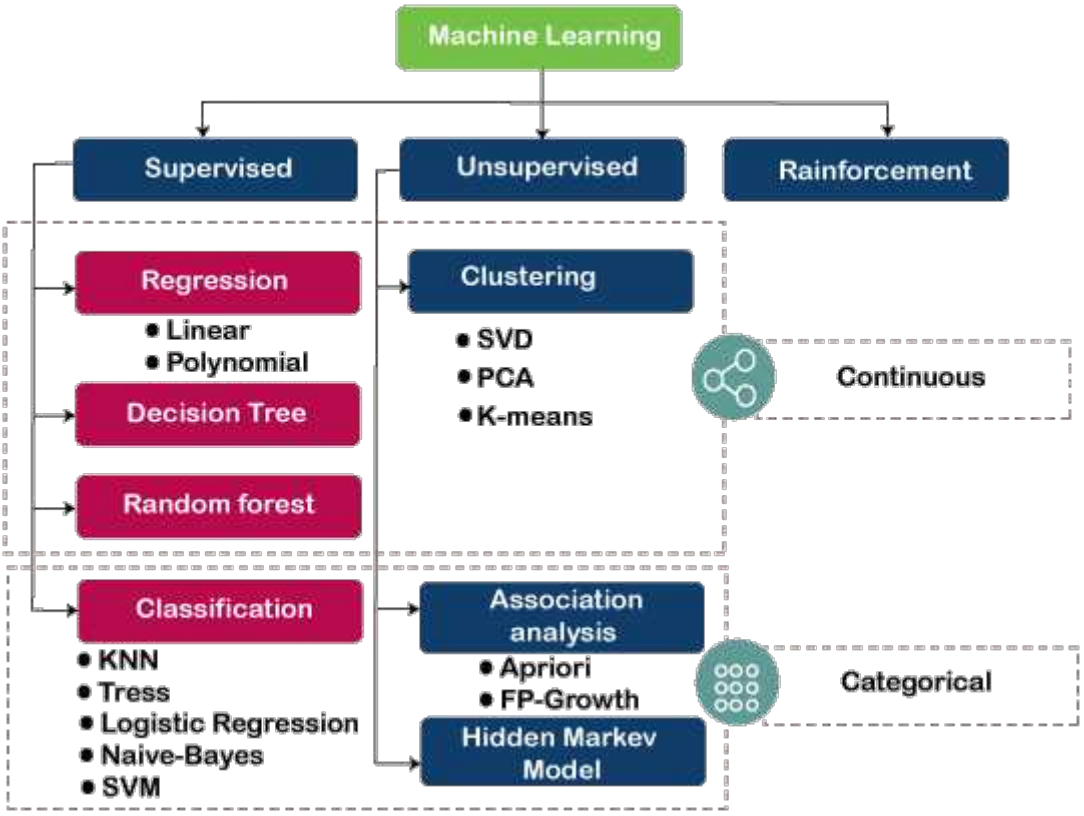
The importance of classifying cancer patients into high or low risk groups has led many research teams, from the biomedical and the bioinformatics field, to study the application of machine learning (ML) methods. Therefore, these techniques have been utilized as an aim to model the progression and treatment of cancerous conditions. In addition, the ability of ML tools to detect key features from complex datasets reveals their importance. A variety of these techniques, including Artificial Neural Networks (ANNs), Bayesian Networks (BNs), Support Vector Machines (SVMs) and Decision Trees (DTs) have been widely applied in cancer research for the development of predictive models, resulting in effective and accurate decision making.

Even though it is evident that the use of ML methods can improve our understanding of cancer progression, an appropriate level of validation is needed in order for these methods to be considered in the everyday clinical practice. In this work, we present a review of recent ML approaches employed in the modeling of cancer progression.

Machine Learning algorithms are the programs that can learn the hidden patterns from the data, predict the output, and improve the performance from experiences on their own. Different algorithms can be used in machine learning for different tasks, such as simple linear regression that can be used for prediction problems like stock market prediction, and the KNN algorithm can be used for classification problems.

Machine Learning Algorithm can be broadly classified into three types:

I. Supervised Learning Algorithms
II. Unsupervised Learning Algorithms
III. Reinforcement Learning algorithm



I. Supervised learning

Supervised learning is a type of Machine learning in which the machine needs external supervision to learn. The supervised learning models are trained using the labelled dataset. Once the training and processing are done, the model is tested by providing a sample test data to check whether it predicts the correct output. The goal of supervised learning is to map input data with the output data. Supervised learning is based on supervision, and it is the same as when a student learns things in the teacher's supervision. The example of supervised learning is spam filtering. Examples of some popular supervised learning algorithms are Simple Linear regression, Decision Tree, Logistic Regression, KNN algorithm etc

a. Linear Regression

Linear regression is one of the most popular and simple machine learning algorithms that is used for predictive analysis. Here, predictive analysis defines prediction of something, and linear regression makes predictions for continuous numbers such as salary, age, etc. It shows the linear relationship between the dependent and independent variables, and shows how the dependent variable(y) changes according to the independent variable (x). It tries to best fit a line between the dependent and independent variables, and this best fit line is knowns as the regression line.

The equation for the regression line is:

$y= a_0+ a*x+ b$

Here, y= dependent variable

x= independent variable

a_0 = Intercept of line.

Linear regression is further divided into two types:

- Simple Linear Regression: In simple linear regression, a single independent variable is used to predict the value of the dependent variable.
- Multiple Linear Regression: In multiple linear regression, more than one independent variables are used to predict the value of the dependent variable.

b. Logistic Regression

Logistic regression is the supervised learning algorithm, which is used to predict the categorical variables or discrete values. It can be used for the classification problems in machine learning, and the output of the logistic regression algorithm can be either Yes or NO, 0 or 1, Red or Blue, etc.

Logistic regression is similar to the linear regression except how they are used, such as Linear regression is used to solve the regression problem and predict continuous values, whereas Logistic regression is used to solve the Classification problem and used to predict the discrete values. Instead of fitting the best fit line, it forms an S-shaped curve that lies between 0 and 1. The S-shaped curve is also known as a logistic function that uses the concept of the threshold. Any value above the threshold will tend to 1, and below the threshold will tend to 0

c. Decision Tree Algorithm

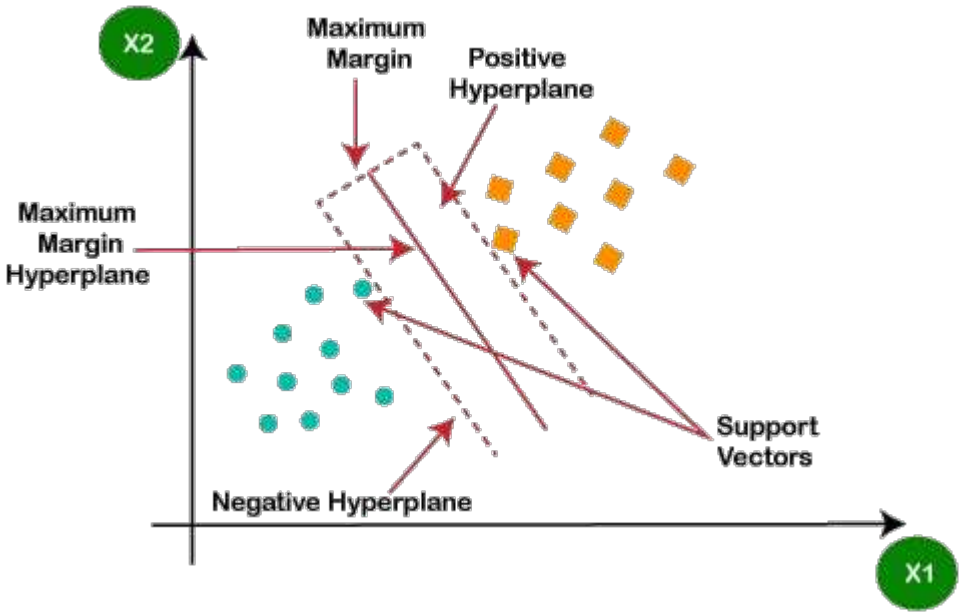
A decision tree is a supervised learning algorithm that is mainly used to solve the classification problems but can also be used for solving the regression problems. It can work with both categorical variables and continuous variables. It shows a tree-like structure that includes nodes and branches, and starts with the root node that expand on further branches till the leaf node.

The internal node is used to represent the features of the dataset, branches show the decision rules, and leaf nodes represent the outcome of the problem.

Some real-world applications of decision tree algorithms are identification between cancerous and non-cancerous cells, suggestions to customers to buy a car, etc.

d. Support Vector Machine Algorithm

A support vector machine or SVM is a supervised learning algorithm that can also be used for classification and regression problems. However, it is primarily used for classification problems. The goal of SVM is to create a hyperplane or decision boundary that can segregate datasets into different classes. The data points that help to define the hyperplane are known as support vectors, and hence it is named as support vector machine algorithm. Some real-life applications of SVM are face detection, image classification, Drug discovery, etc. Consider the below diagram:



e. VGG -19

VGG-19 is a convolutional neural network that is 19 layers deep. You can load a pretrained version of the network trained on more than a million images from the ImageNet database

f. Naïve Bayes Algorithm:

Naïve Bayes classifier is a supervised learning algorithm, which is used to make predictions based on the probability of the object. The algorithm named as Naïve Bayes as it is based on Bayes theorem, and follows the naïve assumption that says' variables are independent of each other.

The Bayes theorem is based on the conditional probability; it means the likelihood that event(A) will happen, when it is given that event(B) has already happened. The equation for Bayes theorem is given as:

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$$

Naïve Bayes classifier is one of the best classifiers that provide a good result for a given problem. It is easy to build a naïve bayesian model, and well suited for the huge amount of dataset. It is mostly used for text classification.

g. Radial Basis Functions (RBF)

Radial Basis Functions (RBF) are real-valued functions that use supervised machine learning (ML) to perform as a non-linear classifier. Its value depends on the distance between the input and a certain fixed point.

h. J48 algorithm

J48 algorithm is one of the best machine learning algorithms to examine the data categorically and continuously. When it is used for instance purpose, it occupies more memory space and depletes the performance and accuracy in classifying medical data.

i. K-Nearest Neighbour (KNN)

K-Nearest Neighbour is a supervised learning algorithm that can be used for both classification and regression problems. This algorithm works by assuming the similarities between the new data point and available data points. Based on these similarities, the new data points are put in the most similar categories. It is also known as the lazy learner algorithm as it stores all the available datasets and classifies each new case with the help of K-neighbours. The new case is assigned to the nearest class with most similarities, and any distance function measures the distance between the data points. The distance function can be Euclidean, Minkowski, Manhattan, or Hamming distance, based on the requirement

j. Ensemble learning Algorithm

Ensemble learning refers to algorithms that combine the predictions from two or more models. Although there is nearly an unlimited number of ways that this can be achieved, there are perhaps three classes of ensemble learning techniques that are most commonly discussed and used in practice.

k. Random Forest Algorithm

Random forest is the supervised learning algorithm that can be used for both classification and regression problems in machine learning. It is an ensemble learning technique that provides the predictions by combining the multiple classifiers and improve the performance of the model.It contains multiple decision trees for subsets of the given dataset, and find the average to improve the predictive accuracy of the model. A random-forest should contain 64-128 trees. The greater number of trees leads to higher accuracy of the algorithm.

To classify a new dataset or object, each tree gives the classification result and based on the majority votes, the algorithm predicts the final output. Random forest is a fast algorithm, and can efficiently deal with the missing & incorrect data.

l. Iterative Random Forest (iRF)

The iterative Random Forest (iRF) algorithm is a computationally efficient approach to search for interactions of unkown form and order in high dimensional data. Specifically, iRF provides a means of interpreting fitted Random Forests by identifying combinations of features that are highly prevalent on decision paths in the tree ensemble. We are currently using iRF as a hypothesis generation tool in problems ranging from developmental biology to precision medicine.

m. Convolutional Neural Network (CNN)

Convolution neural networks are a crucial variety of deep neural networks that are successfully applied in computer vision. It is used for image classification, putting together a collection of input images, and carrying out image recognition. By accumulating simple features like curves and edges to create more complex features like forms and corners, CNN is an excellent tool for gathering and learning both local and global data. Convolutional, fully linked, and nonlinear pooling layers make up CNN's hidden layers. A CNN may have several convolutional layers, followed by a number of fully linked layers. Convolution, pooling, and full-connected layers are the three main categories of layers used in CNN.

n. Artificial Neural Network (ANN)

A nonlinear, statistical prediction approach is an artificial neural network. Its design was inspired by the biological framework of the human brain. Three layers of neurons make up an ANN. The first layer is referred to as the input layer; these input neurons transmit information to the neurons in the intermediate layer. The hidden layers are the intermediary layers. There may be multiple hidden levels in a conventional ANN. The third layer is output neurons that receives signals from intermediate neurons. While computations are performed at each layer, back propagation is used to understand the many connections and interactions between the input and output layers.

II) Unsupervised Learning Algorithm

It is a type of machine learning in which the machine does not need any external supervision to learn from the data, hence called unsupervised learning. The unsupervised models can be trained using the unlabelled dataset that is not classified, nor categorized, and the algorithm needs to act on that data without any supervision. In unsupervised learning, the model doesn't have a predefined output, and it tries to find useful insights from the huge amount of data. These are used to solve the Association and Clustering problems. Hence further, it can be classified into two types:

- Clustering
- Association

Examples of some Unsupervised learning algorithms are K-means Clustering, Apriori Algorithm, Eclat, etc.

III) Reinforcement Learning

In Reinforcement learning, an agent interacts with its environment by producing actions, and learn with the help of feedback. The feedback is given to the agent in the form of rewards, such as for each good action, he gets a positive reward, and for each bad action, he gets a negative reward. There is no supervision provided to the agent. Q-Learning algorithm is used in reinforcement learning.

II. STUDIES AND FINDINGS

REFERENCES	**ALGORITHM**	**ACCURACY**
Breast cancer detection based on thermographic images using machine learning and deep learning algorithms	CNN	99.67%
	SVM	89.84%
	Randon Forest	90.55%
Vaishnavee K, Amshakala K. An automated MRI brain image segmentation andtumor detection using SOM-clustering and proximal support vector machineclassifier. In: 2015 IEEE International Conference on Engineering and Tech-nology (ICETECH). 2015. p. 1–6.	PSVM-Proximal Support Vector machine	92%
Ellwaa A, Hussein A, Alnaggar E, Zidan M, Zaki M, Ismail MA, et al. Brain tumorsegmantation using random forest trained on iteratively selected patients.International Workshop on Brainlesion: Glioma, Multiple Sclerosis, Strokeand Traumatic Brain Injuries 2016:129–37.	Iterative Random Forest	89.90%
Wasule V, Sonar P. Classification of brain MRI using SVM and KNN classifier.In: 2017 Third International Conference on Sensing, Signal Processing andSecurity (ICSSS). 2017. p. 218–23	SVM and KNN	96%
Iqbal S, Ghani Khan MU, Saba T, Mehmood Z, Javaid N, Rehman A, et al.Deep learning model integrating features and novel classifiers fusion for braintumor segmentation. Microsc Res Tech 2019;82:1302–15.	CNN	82.29%
Mehmood I, Sajjad M, Muhammad K, Shah SIA, Sangaiah AK, Shoaib M, et al.An efficient computerized decision support system for the analysis and 3Dvisualization of brain tumor. Multimed Tools Appl 2019;78:12723–48.	Bow-Surf based SVM	99%
Saba T, Mohamed AS, El-Affendi M, Amin J, Sharif M. Brain tumor detec-tion using fusion of hand crafted and deep learning features. Cogn Syst Res2020;59:221–30.	VGG-19	98.78%

Hazra A, Mandal S, Gupta A. Study and analysis of breast cancer cell detection using Naïve Bayes, SVM and ensemble algorithms.	Naïve Bayes, Support Vector Machine, Ensemble classifier	97.39%
Chaurasia V, Pal S, Tiwari BB. Prediction of benign and malignant breast cancer using data mining techniques. J Algorithms Comput Technol. 2018;12(2):119–26.	Naive Bayes	97.36%
	RBF network	96.77%
	j48	93.94%
Breast Cancer Prediction: A Comparative Study Using Machine learning	ANN	98.57%
	RF	95.71
	LR	95.71
	SVM	97.14
	K-NN	97.14
Chaurasia V, Pal S, Tiwari B. Prediction of benign and malignant breast cancer using data mining techniques. J AlgorithmsComput Technol. 2018;12(2):119–26.	Naive Bayes	97.36
	RBF network	96.77
	J48	93.41
Breast Cancer Detection Using K-NearestNeighbors, Logistic Regression and Ensemble Learning	KNN	98.60%
	LR	97.9
	Ensemble Learning.	99.3

III. CONCLUSION

This paper, focus on different Machine learning algorithms for cancer diagnosis. Mainly the study concentrated on ANNs, CNNs, KNNs, SVM, LR. As a comparative result, the accuracy of the algorithms techniques is above 90 % from that CNNs model achieves a better classification rate with accuracy 99.67%. From this study the best accurate machine learning technique is CNN.

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Perception of Online Counterfeiting and its Impact on Consumer Buying Behaviour

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Abstract

This study is to analyse public perception on online counterfeiting and its impact on consumer buying behaviour .The counterfeit products reduce the sales of original products Therefore research finding can help marketers better understand how and why consumers are driven to purchase counterfeit products rather than the original and thus to create effective marketing campaigns and strategies

Keywords : Counterfeiting ,public perception

1.1 INTRODUCTION

The market for consumer goods is immensely significant in India in terms of both magnitude and spending capacity. This makes it a country that is attractive for products counterfeiters. Counterfeiters is a federal and state crime , involving the manufacturing or distribution of goods under someone else name , and without their permission. Counterfeit goods are generally made from lower quality components , is an attempt to sell a cheap imitation of similar goods produced by brands consumers know and trust. The study attempts to investigate perception of online counterfeit and its impact on consumer buying behaviour. The study is based on primary data collected using structured questionnaire from customers doing online shopping .

1.1 STATEMENT OF THE PROBLEM :-

The main purpose behind my research study is to examine impact of online counterfeit products on consumer buying behaviour hardly found in literature . Thus it is essential to understand how the counterfeit product are affecting the buying behaviour of customer .This study is relevant in the current scenario. The study is mainly focuses on to identify the factors that helps to consumers in differentiating counterfeit products with original or branded product and the find the factors which attract them to purchase counterfeit products and also the role of online platforms in buying counterfeit products.

1.2 OBJECTIVES OF THE STUDY :-

- To understand the concept counterfeiting
- To identify the factors that helps the consumers to differentiate counterfeit products with original products .
- To find out the factors which influence the consumers to buy such counterfeit products.

1.3 SIGNIFICANCE OF THE STUDY

Counterfeiting product has become a global issue over the years . Counterfeit merchandise cut in to profit and harms the brand owner's reputation. They always find new ways to serve customers as long as the demand is thriving. Recently the internet has become a major enabler in the sale of online counterfeit products. The consumers buy the counterfeit products even though they are aware about their negative impacts. Therefore it is necessary to understand the consumer's propensity to purchase counterfeit products. This study helps to identify the factors that pull the consumers towards counterfeit products.

SCOPE OF THE STUDY

MY study is conducted among a few selected consumers residing in Perumbavoor Muncipality, they are the online consumers and they are the recipients to whom the questionnaire is given. The study is done to find out the factors that have an impact on the attitude of consumers towards counterfeit products, which is believed to lead to buying decision.

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RESEARCH METHODOLOGY

Both primary and secondary data sources are used for the study. The secondary data was sourced from internet and some published journals for getting some general and basic knowledge related to my topic. The primary data was gathered using structured Google Form Questionnaire. Percentage analysis is used to analysing the data.

REVIEW OF LITERATURE

1. Jay P. Kennedy(2020): This study reviews the problem of counterfeit products online. It also discussed the harms that result from product counterfeiting, the various channels through which counterfeits are sold and the ways in which the internet creates complex veils of legitimacy .
2. Harun A , Mahmud M, Othman B ,Ali R, Ismael (2020): This study aims to understand the repurchase behaviour of experienced consumers in regards to counterfeit products and their demographics, past purchases, materialism, economic and social factors.
3. Chellasamy A, Varma A.S, Paarakh N (2020) :The objective of the research is to analysis the perception and knowledge levels of different consumers about these products and to identify major factors influencing the consumer purchasing decision on these products.

Data Analysis and Discussion

Variables	Category	Percentage	total
Gender of the respondents	Female Male	58 42	100

Age of the respondents	Below-20 20-25 26-30 Above 30	42 56 2 0	100
Qualification	Undergraduate Graduate postgraduate	72 28 0	100
Status of respondents	Students Employee Professional Business	92 8 0 0	100
Factors which influence to buy a particular brand	Advertisement Attractive packing Dealer Shop Display Friends\Family\relatives Word of mouth Details of the product Quality one other	50 24 510 10 28 12 2 2	100
Policies affect our selection of purchase	Discount policy Promotional policy	78 22	100
List of e-commerce company sends the most fake products in our opinion	Amazon Flipkart Snapdeal Alibaba Mynthra other	24 28 18 12 14 4	100
Degree of worry of the people when buying products online or in stores that they may not be authentic.	Strongly agree Agree Neutral Disagree Strongly disagree	10 44 36 8 2	100
Preference of proper education from real owners of the brand about the related fake products	Strongly agree Agree Neutral Disagree Stongly disagree	30 42 26 2 0	100
People who will respond to the company if the product is fake	Yes No May be	42 22 36	100
People who are loyal customers	Yes ,always I stick to the same product No, I keep experiencing with new products Rarely Only when quality is important	16 36 16 32	100

Those who collect information before purchasing the product	Yes No May be	76 10 14	100
Purchases from an Online site	Yes No	98 2	100
The crucial factors which influence the final decision of purchasing	Best price Convenience & Time saving Not available in local stores Product service available Product comparison available Others	52 28 16 28 32 4	100
The list of items which purchased through online sites	Apparels Gadgets Books and stationary Footwear Jewellery Fashion accessories Beauty Products Others	12 48 12 42 8 38 24 2	100
Those who go to real store before making the final online purchase.	Always Never Sometimes	18 30 52	1000
The list of visiting the online stores before purchasing a product	1 to 3 online stores 4 to 5 online stores More than 5 online stores	86 12 2	100

The ability of the people to distinguish original product with fake products	Yes No May be	36 18 46	100
Table showing those who get satisfaction from fake products as the original product	Yes No May be	18 56 26	100
Satisfaction level from online shopping	Strongly agree Agree Neutral Disagree Strongly disagree	20 44 30 0 0	100

FINDINGS

- 58% of the respondents are female.
- 56% of the respondents fall within the age group of 20-25.
- 72 % of the respondents are undergraduate.
- 92 % of the respondents belongs to student community.
- Advertisement plays an important factor to buy a particular brand.
- 44 % of the people are worried about their buying products are authentic or not.
- 42 % of the people will report it to the company, if it is a fake product.
- 36 % of the people are not stick into the same product.
- 76 % of the people will collect information before purchasing the product.
- 40 % of the people wants to know about the quality of the product.
- 98 % of the people purchased from online site.
- 86 % the respondents visit 1 to 3 online stores before purchasing a product for getting more accuracy.
- Most of the people are not sure about their ability to distinguish between fake products and original brand.
- 56 % of the respondents get satisfaction from fake products as the original product.
- 44 % of the people are satisfied with online shopping.

SUGGESTIONS

Consumers want to get education from the real owners about the fake products related to their original brand.

Consumers want to get entity details in E-commerce sites, so it will help to avoid the purchase from fake products.

Majority of consumers are of the opinion that counterfeit products are of low quality so the quality should be improved.

Proper promotional schemes of branded product will help to reduce the trading of counterfeit goods.

CONCLUSION

Mass production and information overload, which occurred in the 21st century, has made consumers look for individuality and exclusively in everyday life. During the economic crisis the demand for counterfeit goods has increased. This paper is an effort to explore the perception of online counterfeiting among consumers. After administering the survey result, it is clear that counterfeit products are now becoming more popular through online platforms. Shoppers are buying counterfeit products at an incredibly rapid pace, largely due to it is cheaper compared to original product. Shoppers allow lower income people to have3 a little brush with prestige, appear more affluent from a distance and perhaps feel better about themselves. This is one reason why consumers buy such products. As counterfeits are cheaper alternatives of more expensive original products, it results in the sale of sale of original products.

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A Study on Applications of Graph Theory in Computer Science

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Abstract- Mathematics has a significant influence in the field of computer science. It is essential to have a basic idea about the structural models in graph theory. The study of mathematical structures is used to model a pairwise relation between the objects. The emerging trends in the field of technology requires the structural models to develop new inventions. The wide range of algorithms from the graph theory can be used seen in disciplines of engineering, computer science etc. Graphs can illustrate a wide range of practical issues. They can be used to model many types of relation and process dynamics in computer science and other areas. This paper demonstrates the importance of graph theory in computer science and how they are inter-related.

Index Terms- Graph Theory, Computer science, Image processing, Network

INTRODUCTION

Graph theory is one among the key area of mathematics where we can observe the modelling approach. The comparison of each and every possible alternative of OR and Graph will help to grow the social and business areas. Graph theory plays an important role in the fields of computer science. New improvements an advancement in these disciplines are spurred by the function design of numerous things and technologies. The focus of this paper is to discuss some areas of computer science, where the graph theoretical applications can be observed. The graph theoretical models provide a mathematical frame work in computer science and many other subjects. Graph theory is used to characterize the basic problem in terms of connectedness, cut, route, flow as well as coloring issues and other graph drawing concepts. Application-related issues are around experimental study and implementation of graph theory methods. In order to convey information visually, graphs are essential.

Preliminaries:

Graph: A graph G= G (V, E) consists of two components:

I. The finite set of vertices V, also called points or nodes, and
II. The finite set of edges E, also called lines or arcs connecting pair of vertices.

Directed graph: A graph is said to be the directed graph or digraph if it is required to associate a direction with each edge of the graph.

Sub graphs: If G (V, E) is a directed or undirected, then the graph H (V', E') obtained by deleting few vertices and edges from G is called a sub graph of G.

Spanning sub graph: A sub graph H (V', E') of a given directed or undirected graph G (V, E) is called a spanning sub graph of G if H contains all vertices of G.

Complete graph: A complete digraph is a directed graph in which every pair of distinct vertices is connected by a pair of unique edges.

Regular graph: A graph G is said to be regular, if all of its vertices have the same degree. In a graph, if the degree of each vertex is 'k', then the graph is called a 'k-regular graph.

Connected graph: A graph is said to be connected, if there exists at least one path between every pair of its vertices, otherwise it is called disconnected.

Walk: A walk is a sequence of vertices and edges that begins at and travels along edges to so that no edge appears more than once. A walk is said to be closed walk if it is possible that a walk begins and end at the same vertices, Otherwise, the walk is called open.

Path: It is a walk through a sequence of vertices each adjacent to the next, without repetition of vertices. Length of a path is the number of edges in it.

Trail or simple path: A trail or simple path from a vertex u to v is a path that does not involve a repeated edge.

Circuit or Cycle: It is a closed walk of non-zero length that contains no repeated edge where start and end vertex is same.

Euler graph:
Eulerian Path is a path in graph that visits every edge exactly once. Eulerian Circuit is a Eulerian Path which
starts and ends on the same vertex. A graph that contains a Euler tour is called Eulerian graph.

Hamiltonian graphs:
If there exists a closed walk in the connected graph that visits every vertex of the graph exactly once. (Except starting vertex) without repeating the edges, then such a graph is called as a Hamiltonian graph

THE APPLICATIONS OF GRAPH THEORY IN COMPUTER SCIENCE

In this modern era, there is huge use of graphs in imparting problem solving techniques. Graphs allow us to define and solve real-world issues while providing a wide range of strategies and flexibility. It is used in the internet field, Google maps/ Yahoo maps, social media, web Page searching, City Planning, Traffic Control, Transportation & Navigation, data base designing, Travelling Salesman Problem, GSM mobile phone networks, Map coloring etc.

SOCIAL NETWORKS

The most popular of social networking sites like Facebook and Twitter are due to the advances in information and communication technology (ICT). The exchange of information and communication has been increased and become easier of this social media networks. This is also being used by businesses and service providers for different objectives, including as recommending new brands and running marketing. Analytics organizations largely rely on SN user data to analyze social trends, user views towards new brands, intent mining, sentiment analysis, and personality profiling. If U and V are lists of users or entities in an SNS and their connections between them are shown in a graph G (U, V), then the SNS is described as a network with many nodes and many edges.

a) Google Maps

Google maps is a web-mapping platform offered by Google. Development of google maps is directly associated with graph theory. Maps provides an idea about the real time traffic conditions and route planning for the transportation. To find the shortest path, map services use graph theory. Consider an example that we have 'u' as the starting node and 'n' as the destination node. These nodes will be connected with weighted edges which represent paths will result into directed graph.

Google maps uses two graph algorithms;

1. Dijkstra's Algorithm
2. A^* Algorithm

Dijkstra's Algorithm: Dijkstra's algorithm is one of the greedy algorithms used to optimize and find the shortest path between nodes in a graph. Dijkstra's algorithm is an effective algorithm proposed by Edsger.W. But there's one fallback to this algorithm if the number of nodes in Google Maps is almost infinite or uncountable, and this algorithm may fail due to an increase in time and space complexity.

A^* Algorithm: A* graph algorithm is one of the best graph traversal and path search algorithms, formulated especially for weighted graphs due to its completeness, optimality, and optimal efficiency. It takes parameters such as time requirement, distance and chooses the better nodes. So, Google Maps uses this algorithm to calculate the shortest path, owing to its high accuracy and ability to deal with huge chunks of data

b) Network system

Graph theory has wide applications in the area of networking. Graph theoretic applications are analyzed in two areas are graph based representative and network theory. The graph based representation provide more accurate definitions and makes the problems easier to analyze. Whereas network theory provides the techniques to be used. Combination of both these tools will efficiently works in network system. As a comparison with graph and networks, they are almost equal. Both refers to a type of structure with vertices(nodes) and edges(links). Graph theoretic concepts are applied in several fundamental issues in network such as connectivity, data gathering, routing, mobility, energy efficiency, topology control.

DATA BASE DESIGNING

In data base designing graphs are used as graph data bases. Graph database uses graph representation with nodes, edges, and properties to represent and store data. This graph structure has key role in designing database, because it gives fast implementation process using different functionality and properties of graph structure Graph database uses as storage system that provides index free adjacency, analyzing tool for interconnection, Powerful tool for graph like-query, Graph databases are often faster for associative data sets that map more directly to the structure of object-oriented applications.

SOFTWARE ENGINEERING

Software engineering Graph has many applications in software engineering. For example: during Requirements Specification, Data Flow diagrams are used where vertices represent transformations and edges represents the data flows. During Design phase, graphical design is used for describing relations among modules; while during Testing, the control flow of a program associated with McCabe's complexity measure which employs directed graphs for addressing the sequence of executed instructions and etc. Even Software Process Management has also applications of network diagrams which involves graph algorithms

CONCLUSION

The computer science and social networks, both of which make use of graph theory ideas (GT). The analysis of graph attributes and the selection of the most appropriate combination of graphs in light of the situation at hand will be helpful to a wide range of academics. This paper focused on the various applications of major graph theory and also to get an insight of its connection to other computer science courses, such as operating systems, networks, databases and digital image processing.

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Research Oriented Review Of Machine Learning Applications

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Abstract- Nowadays, huge amount of data is available everywhere. Therefore, it is very important to analyze this data in order to extract some useful information and to develop an algorithm based on this analysis. This can be achieved through data mining and machine learning applications. Machine learning is an integral part of artificial intelligence, which is used to design algorithms based on the data trends and historical relationships between data. Machine learning is used in various fields such as Traffic alerts, social media bioinformatics, intrusion detection, Information retrieval, game playing, marketing, malware detection, image deconvolution and so on. The improvement in accuracy of the machine learning algorithms is a concern on which researchers and scientists are regularly working upon. This paper presents a brief review of machine learning and its various categories along with some of its applications.

Index Terms- Machine Learning, Supervised and Unsupervised Learning, Reinforcement Learning, Classification, Clustering , Artificial Intelligence.

I. INTRODUCTION

Informally, AI is defined as the ability of any device or machine to comprehend just like how humans grasp from other human brains, such as "capability to learn and solve problems". In this manner, Machine Learning is a field of AI. Since 1950s there are several advancements made in the demesne of machine learning, followed by a wave of disappointment in AI winter, followed by its resurgence with new practices and success due to enormous efforts made in last few years.

Machines are able to learn differences among datasets, understand the logic, and reach reliable conclusions after repeated exposures [**1**]. Machine learning is a collection of techniques and tools that help computers learn and adapt on their own. Machine learning algorithms help AI learn without being explicitly programmed to perform the desired action. By learning a pattern from sample inputs, the machine learning algorithm predicts and performs tasks solely based on the learned pattern and not a predefined program instruction. Machine learning is a life savior in several cases where applying strict algorithms is not possible. ML is a diligence of AI which provides various abilities to the system to perceive the surroundings and continuously improve from the experience with time. The process of Machine learning is to train the data and the algorithm develops some rules, based on that learning, evaluation is done with the test data to generate results without human intervention**.** Machine Learning mainly emphases on the deployment of various computer algorithms that enables machines to access the provided data, utilize it in learning and gaining more and more experience along with executing its tasks. In this way, the machines take decisions and make predictions based on the available data.

Deep Learning, simply is a subclass of Machine Learning (ML) that is primarily focused on the working of our Brain cells, called Neurons, which indirectly led to the concept of artificial intelligence. Actually deep learning is essentially a neural network with three or more layers. These neural networks attempt to simulate the behavior of the human brain allowing it to "learn" from large amounts of data. 'Deep' is the term used to refer the layer counts of any neural network. It means that 'deep network' has multiple layers which are hidden in nature. A 'shallow network' has only one layer. Deep learning represents a truly hard digital technology, and it is being used by the organizations to create new business models. These models help the organizations to became more popular in terms of customer satisfaction and profitability. Deep learning originated as artificial neural networks (ANNs) and has developed far more efficiency after decades of research and development compared to the other machine learning algorithms [1] Figure 1 describes the relationship between AI, ML and Deep Learning.

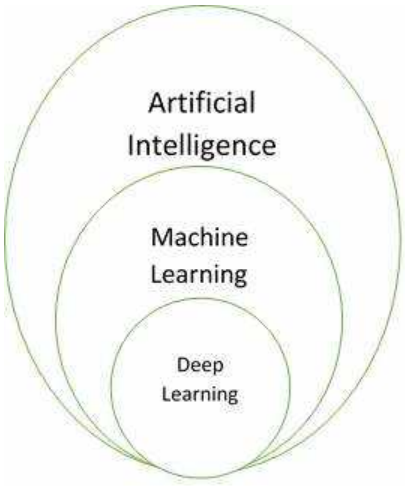

Figure 1:. Relation between AI, ML and Deep Learning

This paper aims to present a brief review on ML and its applications. Section II presents a brief literature survey on Machine Learning . The different kinds of machine learning are described in Section III. Section IV gives an overview of the Machine Learning applications followed by Conclusion in Section V and references .

II. LITERATURE SURVEY

In 1988, [2] tried to predict the occupancy rates in Hong Kong hotel rooms with the help of neural networks and concluded that the naïve extrapolation model is outperformed by neural networks, also they are superior than multiple regression. This research computed the feasibility of neural networks in the fields of forecasting of the occupancy rates in the Hong Kong hotels. [3] Describes a method of machine learning with the help of genetic algorithm (GA)-SVR with real value Gas. The obtained experimental outcomes investigate that SVR performs better than those models of ARIMA and BPNN. [3] proposed a method for projecting the future demands of tourism implemented using Chaotic Genetic Algorithm (CGA), like SVRCGA, being capable of overcoming premature local optimum problem. The research suggested that SVRCGA model is able to outclass other methodologies. Researchers in [5] propose a model to predict future stock price, ideally based on a four-layered structure of Fuzzy Multi Agent System (FMAS). Authors investigated that FMAS is a suitable tool for the purpose. This AI based model utilized the coordination among intelligent agents for this task. An intelligent model for the purpose of estimating tourism demand i.e., a Modular Genetic-Fuzzy Forecasting System using a genetic fuzzy expert system is proposed in [6]. It also finds that the accuracy achieved in predicting power of this system is better

than approaches such as Classical Time Series models, therefore declaring it more suitable for prediction problems related to tourism demands. [7] presented Machine Learning methods in statistical time series forecasting and then made a comparison of correctness of those methods with that of conventional statistical methods and declared the former as better and more accurate.

III. TYPES OF MACHINE LEARNING

Machine learning contains a set of algorithms that work on a huge amount of data. Data is fed to these algorithms to train them, and on the basis of training, they build the model & perform a specific task. These ML algorithms help to solve different business problems like Regression, Classification, Forecasting, Clustering, and Associations, etc. Based on the methods and way of learning, machine learning is divided into mainly four types such as Supervised Machine Learning, Unsupervised Machine Learning, Semi-Supervised Machine Learning and Reinforcement Learning

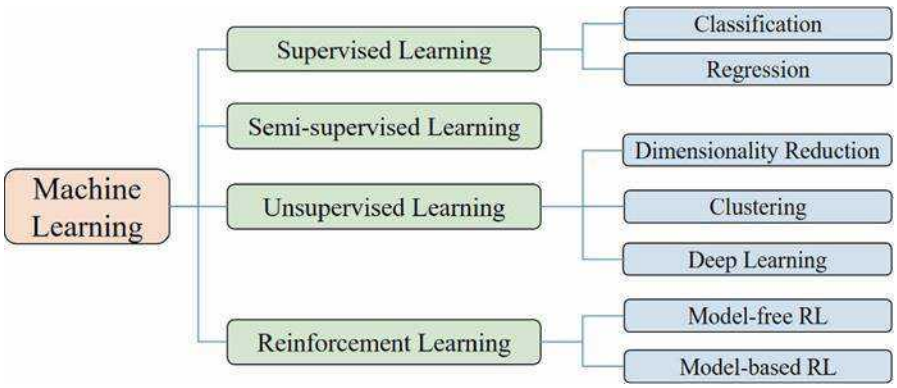

Figure 2 :. Types of Machine Learning and its functionalities

A. Supervised Machine Learning

Supervised machine learning is a type of machine learning in which the machines are trained using labeled datasets and they use this information to predict output in the future. The core objective of super learning techniques is to map the input variables with the output variables. It is extensively used in fraud detection, risk assessment, and spam filtering. The two machine learning techniques for supervised learning are classification and regression..

B. UnSupervised Machine Learning

In Unsupervised Machine Learning unlabeled and unclassified datasets are used to train the machines. They then predict the output without supervision or human intervention. This method is commonly used to bucket or categorize unsorted data based on their features, similarities, and differences. Clustering and Association are the two different techniques for Unsupervised Machine Learning . Network analysis, Plagiarism and copyright check, Recommendations on e-commerce websites and Detection of fraud in bank transactions are some areas in which unsupervised learning can be applied.

C. Semi-Supervised Machine Learning

This technique combines the pros and cons of the supervised and unsupervised learning methods. During the training period, a combination of labeled and unlabeled datasets is used to prepare the machines.

However, in the real world, most input datasets are unlabeled data. This method's advantage is that it uses all available data, not only labeled information so it is highly cost-effective. Firstly, similar data is bucketed. This is done with the help of an unsupervised learning algorithm. This helps label all the unlabeled data.

D. Reinforcement Learning

Reinforcement learning, is a leaning in which the machines learn only from experiences. Using a trial and error method, learning works on a feedback-based process. The AI explores the data, notes features, learns from prior experience, and improves its overall performance. The AI agent gets rewarded when the output is accurate. And punished when the results are not favorable. Building intelligent robots, Video games and interactive content, Learn and schedule resources and Text Mining are some areas in which Reinforcement learning can be applied.

IV. APPLICATIONS OF MACHINE LEARNING

Machine learning is a collection of techniques and tools that help computers learn and adapt on their own. Machine learning algorithms help AI learn without being explicitly programmed to perform the desired action. By learning a pattern from sample inputs, the machine learning algorithm predicts and performs tasks solely based on the learned pattern and not a predefined program instruction. Machine learning is a life savior in several cases where applying strict algorithms is not possible. It will learn the new process from previous patterns and execute the knowledge. The following are some applications of machine learning

A. Traffic Alerts
B. Transportation and Commuting (Uber)
C. Social Media
D. Products Recommendations
E. Virtual Personal Assistants
F. Self Driving Cars
G. Google Translate

A . Traffic Alerts (Maps)

To overcome the problem of traffic congestion, the traffic prediction using machine learning is implememnted. The traffic alerts or maps are useful for the prediction of the traffic to the users as soon as possible. Nowadays the traffic becomes really hectic and this cannot be determined by the people when they are on roads The traffic on the city becomes complex and are out of control these days, so such kind of systems are not sufficient for prediction. Therefore, research on traffic flow prediction plays a major role in Intelligent Transportation System(ITS). [8]

Figure 3: Google map

Google map is a combination of People currently using the service, Historic Data of that route collected over time and few tricks. Everyone using maps is providing their location, average speed, the route in which they are traveling. These data in turn helps Google to collect massive Data about the traffic. Google use this data and machine learning algorithms to predict the upcoming traffic and the user can adjust route according to it. Reports says that people traverse over 1 billion kms with help from Google Maps in more than 220 countries, the company is using artificial intelligence (AI) machine learning (ML) models to predict whether the traffic along your route is heavy or light, an estimated travel time, and an estimated time of arrival (ETA),

For example, one pattern may show that the 280 freeway in Northern California typically has vehicles traveling at a speed of 65mph between 6-7am, but only at 15-20mph in the late afternoon. The next step is to combine this database of historical traffic patterns with live traffic conditions, using machine learning to generate predictions based on both sets of data.

B. Transportation and Commuting (Uber)

Uber is an American mobility service that makes transportation easy. Its vision is to make transportation happen at a click of a button and they have been a huge success. Machine learning and AI systems involved in making all of this happen are a big part of that success

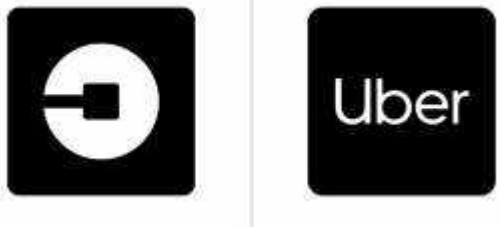

Figure 4 : logo of Uber

The goal of using data science and machine learning technology is to give users convenience, affordability, and safety. The decision making of Uber is completely based on historical data . Uber leverages several ML models in several ways for making exceptional customer experience and seamless Uber's services. For example, an individual taps a destination place, the app suggests options based on ride history and recently traveled destination.

Looking at the historical data, the Uber team can suggest an estimated time and location of demand. The system adopts these estimations to aware drivers of the particular area with the leads of demand. Through this, Uber ensures that there must be enough cabs in the demanded area and fill the gap amid route and supply. By applying route optimization technique, Uber assists drivers to avoid crowding areas and

enables smooth and speedy rides. It not only makes customers pleased but also offers drivers extra time to conduct additional rides.

C. Social Media (Facebook)

One of the most common applications of Machine Learning is Automatic Friend Tagging Suggestions in Facebook or any other social media platform. Facebook uses face detection and Image recognition to automatically find the face of the person which matches. Facebook's Deep Learning project DeepFace is responsible for the recognition of faces and identifying which person is in the picture. It also provides Alt Tags (Alternative Tags) to images already uploaded on facebook. For eg., if we inspect the following image on Facebook, the alt-tag has a description. "Social Media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content"[10]

Figure 5: Facebook

The AI for the social media market is projected to grow more than $2.1 billion by 2023 [9]. Facebook, uses an AI tool known as deep text to spot instances of abuse. According to Facebook, the end goal of this technology is to build a system with the same level of intelligence as a human. With the aid of machine learning, social media has not only proliferated in terms of its reachability but it has also unfolded new possibilities across various platforms.

The advantages of applying AI and ML in social media are decrease cost, increase revenue, Create social media posts faster, Develop right message for each platform, Measure brand and trends across social media, Determine what to post for maximum effect:, Find product logos, brands in posts online, Manage and improve social media advertising, Improved personalisation and recommendations, Customer service chatbots,, Search engine optimization and so on . A study done by the data analytics firm Teradata found that 80% of big business-level companies were at that point utilising some type of AI in their business. Over 90% likewise anticipated some boundaries in full adoption and integration[11]. The issues related with AI and ML are Inadequacy of IT Infrastructure, Investment of Resources, Lack of Talent, Lack of Data or Poor Data Quality, Lack of Trust in AI Software, Certain AI Applications Seem Unethical, Privacy and Regulations, Algorithm Biases and AI Might Limit Creativity.

D. Products Recommendations

The importance of a good recommendation system is of high necessity in the modern world,where almost all businesses are being available online. In the large scale e-commerce websites like amazon,Walmart,

e-bay,Costco and Alibaba etc have been using these recommender systems for a long time. These recommender systems play a major role in their success and profits in their business too.Not only e-commerce websites but other sources of entertainment like Netflix, Youtube, Hulu, Spotify use this recommender systems to provide a better experience to the users. As we can see that these recommendation systems are being used by all types of industries, every company uses a different type of technique and algorithms to build these recommender systems. In 1998, Giles et al. introduced the first research-paper recommender system as part of the CiteSeer project[12] Stereotyping is one of the earliest user modeling and recommendation classes. It was introduced by Rich in the recommender system Grundy, which recommended novels to its users [13].. Since then, at least 216 articles relating to 120 research-paper recommendation approaches were published[14].. Recommender systems are a tool to fulfill customers' needs and expectations, helping maintaining loyal customers while attracting new customers. The pipeline of a recommendation system has the following five phases

1. Pre-processing
2. Model Training
3. Hyper Parameter Optimization
4. Post Processing
5. Evaluation

The model can be build using cluster analysis, classification or association rule mining. Misuse of recommender system or excessive number of recommendations . may inversely affect the customers.

figure 6: Product Recommendation

E. *Virtual Personal Assistants*

A virtual assistant, also called AI assistant or digital assistant, is an application program that understands natural language voice commands and completes tasks for the user. Virtual Personal Assistance [1] works on real time, as its give the required output instantaneously[15] .Such tasks, historically performed by a personal assistant or secretary, include taking dictation, reading text or email messages aloud, looking up phone numbers, scheduling, placing phone calls and reminding the end user about appointments. Popular virtual assistants currently include Amazon Alexa, Apple's Siri, Google Assistant and Microsoft's Cortana.

. Few of the major applications of Machine Learning here are:

- Speech Recognition
- Speech to Text Conversion
- Natural Language Processing
- Text to Speech Conversion

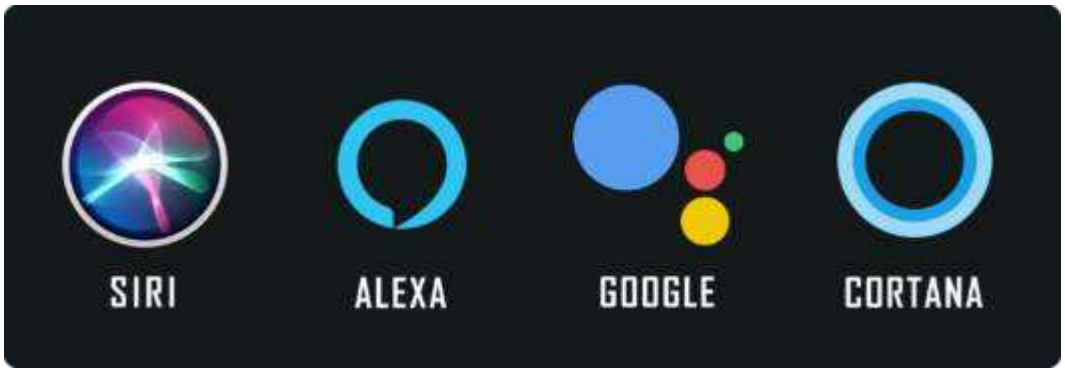

Figure 6: Virtual Assistants

The accuracy, speed, and contextual abilities of Alexa, Google Assistant, and Siri are all because of Machine Learning algorithms and servers owned by their developing companies. They all work in a similar manner, the only difference arises in their protocols and data privacy intricacies. When a user makes a request, the request is immediately packaged up and is sent to the server of their respective companies for a response i.e. why internet connectivity is one of the basic requirements for Virtual Assistants to function properly. After the package is sent to the server the words and tone of your request are analyzed by a set of algorithms, which are then matched with a command that it thinks you asked. Not all the information is processed with the help of the server, only the complicated ones.

As depicted in figure 7, the working of Virtual personal assistants can be divided into four entity terminals user, interaction, cloud, and back-end .

User entity represents the command given by the user. The command is taken by the virtual assistant. It can be done through a speech recognition service. Following this, the device takes the command as input. These devices are interaction entities. They help users in interacting with the cloud. They receive command and response and take care of incoming and outgoing data streams from the cloud. Smartphone is a common example.

Once the command is formed the interaction entity sends it to the cloud entity. Simple and basic commands are done by the device itself. However complex things require the help of the cloud. They need to access users' data to form a response for the command. The last entity, the back-end entity refers to developers. They need to write algorithms towards given users' commands. The complex commands have the cloud take data to the back-end entity to form a response to the command.

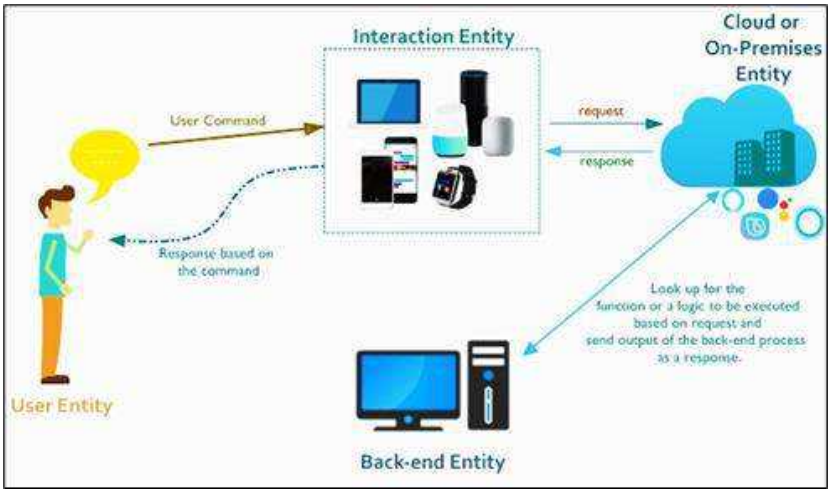

Figure 7: Virtual personal assistant working

Virtual Personal Assistance can have a lot of application, from simple application of telling time to playing songs or movies to managing our emails. It can also be used for security purpose, if camera module is interface it can do surveillance work. Also, it can have the control over hardware as well . The core device that can be used in virtual assistant is Raspberry Pi 3. Raspberry Pi 3 is card size computer, which is shown in Fig 1, with a 64-bit quad core processor of ARM v7 having computing speed of 1.2 GHz, and 1GB RAM. It has 40 pins for GPIO and 4 USB ports which we need for connection of our USB mic and other peripherals. It also has 3.5mm audio jack which we are using to connect our speaker for output

Figure 8: Raspberry Pi 3

F. Self Driving Cars

Tesla machine learning effectively crowdsources some of its essential data from all of its vehicles as well as their drivers, with the internal as well as external sensors which can even pick up the information about a driver hand placement on the instruments and how they are keep on operating them.

As well as helping Tesla to keep on refining its system, this data holds tremendous value in its own right. Some of the researchers at the McKinsey and Co estimate that the market for the vehicle gathered data would going to be worth around $750 billion a year by the end of 2030. Tesla Machine learning in the cloud is responsible to takes care of educating the entire set of the fleet, while at an individual car level, some of the edge computing decides what action the car needs to take right now. The third level of decision making also exists, with cars able to form networks with some other Tesla vehicles nearby to make sure in order to share some of the local insights and information.

Figure 9: Logo of Tesla

Tesla is currently employing a large team of machine learning engineers working on the self-driving neural network. Each of them works on a small component of the network and they plug in their results into the larger network. Tesla, the emblematic example of Elon Musk's business and creative ability, runs on a Python-based operating system.

G . *Google Translate*

Google Translate was launched with Phrase-Based Machine Translation as the key algorithm. Later, Google came up with other machine learning advancements that changed the way we look at foreign languages forever.

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Figure 10: Logo of Google Transalate

Google Translate is the world's best-known free tool for machine translation. So far, 3.5 million people have made 90 million contributions to Google Translate. Machine or Automatic translation is one of the most difficult AI task. Deep neural network models achieve state-of-the-art results in a field that is aptly named neural machine translation. It is an end-to-end learning approach for automated translation, with the potential to overcome many of the weaknesses of conventional phrase-based translation systems.

When Google Translate was initially released, they used a phrase-based algorithm, which is essentially a rule-based method with more complexity. Soon after, however, it drastically improved its quality with the development of Google Neural Machine Translation (GNMT). The fundamental structure of the model is encoder-decoder. One segment of the neural network seeks to reduce one language into its fundamental, machine-readable 'universal representation', whereas the other takes this universal representation and repeatedly transforms the underlying ideas in the output language. This is the 'Transformer Architecture' of Google Transalate.

V. CONCLUSION

Machine learning is one of the fields in the modern computing world. A plenty of research has been undertaken to make machines intelligent. Learning is a natural human behavior which has been made an essential aspect of the machines as well. There are various techniques devised for the same. The paper discussed about various machine learning types of algorithms and most commonly used machine learning applications based on their research aspects.

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A Study on Different Image Manipulation Methods in Digital Image Processing

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Abstract- Signal processing is a discipline in electrical engineering and in mathematics that deals with analysis and processing of analog and digital signals , and deals with storing , filtering , and other operations on signals. These signals include transmission signals , sound or voice signals , image signals , and other signals etc. Out of all these signals , the field that deals with the type of signals for which the input is an image and the output is also an image is done in image processing. As it name suggests, it deals with the processing on images.

Index Terms- Image processing,Signals processing,Filter

I.INTRODUCTION

Digital image processing deals with manipulation of digital images through a digital computer. It is a subfield of signals and systems but focus particularly on images. DIP focuses on developing a computer system that is able to perform processing on an image. The input of that system is a digital image and the system process that image using efficient algorithms, and gives an image as an output. The most common example is Adobe Photoshop. It is one of the widely used application for processing digital images. Since digital image processing has very wide applications and almost all of the technical fields are impacted by DIP, we will just discuss some of the major applications of DIP.

Digital Image processing is not just limited to adjust the spatial resolution of the everyday images captured by the camera. It is not just limited to increase the brightness of the photo, e.t.c. Rather it is far more than that.Some of the major fields in which digital image processing is widely used are mentioned below

- Image sharpening and restoration
- Medical field
- Remote sensing
- Transmission and encoding
- Machine/Robot vision
- Color processing
- Pattern recognition
- Video processing
- Microscopic Imaging

Since digital image processing has very wide applications and almost all of the technical fields are impacted by DIP, we will just discuss some of the major applications of DIP.Digital Image processing is not just limited to adjust the spatial resolution of the everyday images captured by the camera. It is not just limited to increase the brightness of the photo, e.t.c. Rather it is far more than that.The basic diagram of image processing is shown belo

We have discussed two important methods to manipulate images.

1.Histograms

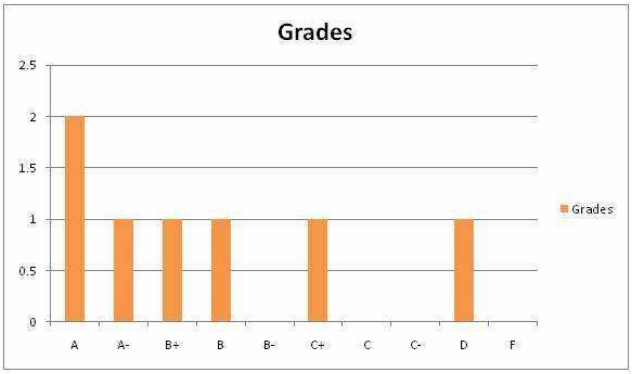
A histogram is a graph. A graph that shows frequency of anything. Usually histogram have bars that represent frequency of occurring of data in the whole data set.A Histogram has two axis the x axis and the y axis.The x axis contains event whose frequency you have to count.The y axis contains frequency.The different heights of bar shows different frequency of occurrence of data. Example:Consider a class of programming students and you are teaching python to them.

At the end of the semester, you got this result that is shown in table. But it is very messy and does not show your overall result of class. So you have to make a histogram of your result, showing the overall frequency of occurrence of grades in your class. Here how you are going to do it.

Name	Grade
John	A
Jack	D
Carter	B
Tommy	A
Lisa	C+
Derek	A-
Tom	B+

Histogram of result sheet

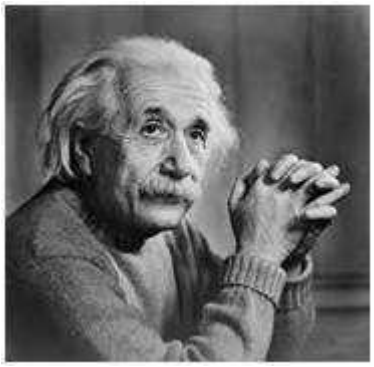
Now what you are going to do is, that you have to find what comes on the x and the y axis.There is one thing to be sure, that y axis contains the frequency, so what comes on the x axis. X axis contains the event whose frequency has to be calculated. In this case x axis contains grades.



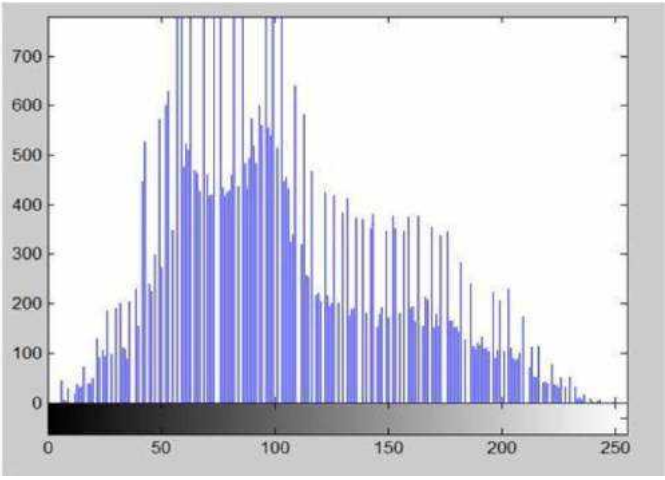
Now we will how do we use a histogram in an image.

Histogram of an image

Histogram of an image, like other histograms also shows frequency. But an image histogram, shows frequency of pixels intensity values. In an image histogram, the x axis shows the gray level intensities and the y axis shows the frequency of these intensities.For example consider the following image



The histogram of the above picture of the Einstein would be something like this



The x axis of the histogram shows the range of pixel values. Since its an 8 bpp image, that means it has 256 levels of gray or shades of gray in it. Thats why the range of x axis starts from 0 and end at 255 with a gap of 50. Whereas on the y axis, is the count of these intensities.

As you can see from the graph, that most of the bars that have high frequency lies in the first half portion which is the darker portion. That means that the image we have got is darker. And this can be proved from the image too.

Applications of Histograms

Histograms has many uses in image processing. The first use as it has also been discussed above is the analysis of the image. We can predict about an image by just looking at its histogram. Its like looking an x ray of a bone of a body.The second use of histogram is for brightness purposes. The histograms has wide

application in image brightness. Not only in brightness, but histograms are also used in adjusting contrast of an image.Another important use of histogram is to equalize an image.And last but not the least, histogram has wide use in thresholding. This is mostly used in computer vision.

2.Image Transformation

Transformation is a function. A function that maps one set to another set after performing some operations. Now function applied inside this digital system that process an image and convert it into output can be called as transformation function.As it shows transformation or relation, that how an image1 is converted to image2.

Image transformation.

Consider this equation

G(x,y) = T{ f(x,y) }

In this equation,

F(x,y) = input image on which transformation function has to be applied.

G(x,y) = the output image or processed image.

G(x,y) = the output image or processed image.

T is the transformation function.

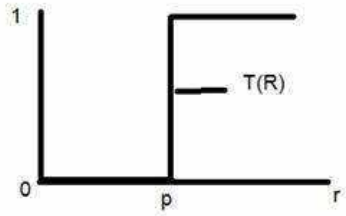
This relation between input image and the processed output image can also be represented as.

s = T (r)

where r is actually the pixel value or gray level intensity of f(x,y) at any point. And s is the pixel value or gray level intensity of g(x,y) at any point.

Examples

Consider this transformation function.

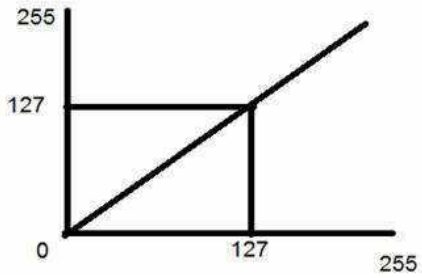


Lets take the point r to be 256, and the point p to be 127. Consider this image to be a one bpp image. That means we have only two levels of intensities that are 0 and 1. So in this case the transformation shown by the graph can be explained as,All the pixel intensity values that are below 127 (point p) are 0, means black. And all the pixel intensity values that are greater then 127, are 1, that means white. But at the exact point of 127, there is a sudden change in transmission, so we cannot tell that at that exact point, the value would be 0 or 1.

Mathematically this transformation function can be denoted as:

$$g(x,y) = \begin{cases} 0 & f(x,y) < 127 \\ 1 & f(x,y) > 127 \end{cases}$$

Consider another transformation like this



Now if you will look at this particular graph, you will see a straight transition line between input image and output image.It shows that for each pixel or intensity value of input image, there is a same intensity value of output image. That means the output image is exact replica of the input image. It can be mathematically represented as:

g(x,y) = f(x,y) the input and output image would be in this case are shown below.

3 Another way of dealing images-Convolution Theorem

The relationship between the spatial domain and the frequency domain can be established by convolution theorem.

The convolution theorem can be represented as.

$$f(x,y)*h(x,y) \leftrightarrow F(u,v)H(u,v)$$

$$f(x,y)h(x,y) \leftrightarrow F(u,v)*H(u,v)$$

$$h(x,y) \leftrightarrow H(u,v)$$

It can be stated as the convolution in spatial domain is equal to filtering in frequency domain and vice versa.The filtering in frequency domain can be represented as following:

The steps in filtering are given below.

- At first step we have to do some pre – processing an image in spatial domain, means increase its contrast or brightness
- Then we will take discrete Fourier transform of the image
- Then we will center the discrete Fourier transform, as we will bring the discrete Fourier transform in center from corners
- Then we will apply filtering, means we will multiply the Fourier transform by a filter function
- Then we will again shift the DFT from center to the corners
- Last step would be take to inverse discrete Fourier transform, to bring the result back from frequency domain to spatial domain
- And this step of post processing is optional, just like pre processing , in which we just increase the appearance of image.

Filters

The concept of filter in frequency domain is same as the concept of a mask in convolution.After converting an image to frequency domain, some filters are applied in filtering process to perform different kind of processing on an image. The processing include blurring an image, sharpening an image e.t.c.

The common type of filters for these purposes are:

- Ideal high pass filter
- Ideal low pass filter
- Gaussian high pass filter
- Gaussian low pass filter

Here we are going to discuss another method of dealing with images. This other method is known as convolution. Usually the black box(system) used for image processing is an LTI system or linear time invariant system. By linear we mean that such a system where output is always linear , neither log nor exponent or any other. And by time invariant we means that a system which remains same during time.

So now we are going to use this third method. It can be represented as.

II CONCLUSION

This article give informations about different image manipulation techniques such as histogram equalization,image transformation and convolutions.It also provides informations about digital image processing.All these concepts can be applied in OCR technology in future research.

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AN APPROACH FOR CREDIT CARD FRAUD DETECTION USING MACHINE LEARNING

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Abstract—Today Credit card fraud problem is a widespread issue. Digital world made people to relay on credit cards and debit cards and it turns a threat to common people. Machine learning is a new approach to find a solution for this problem. It is capable of automatically spotting fraud indicators. By using a person's historical data, the user's pattern and behavior can be analyzed and can determine whether the transaction is fraudulent or not. Many approaches are there for detecting the credit card misuse. Various machine learning algorithms like Random Forest Algorithm, K-Nearest Neighbored and K-Means Clustering etc. can be used for this purpose. In this paper, various approaches are evaluated and compared in quest of the optimum solution for credit card fraud detection. It is found that random forest algorithm is the best method for detecting credit card fraud or misuse in the current scenario. One of the bottleneck of this algorithm is that the processing speed of this algorithm is found to be very low. As a solution to this problem, Fast forest algorithm is proposed to detect credit card fraud. Its processing speed is comparatively faster than random forest algorithm.

Index Terms—Machine Learning, Credit Card, Fraud Detection, Fast Forest

I. INTRODUCTION

The people in the twenty first century live in a digitalized world that comprises with the knowledge of computer for the ease of living. The money transactions became digitalized and there came the use of credit cards. Credit card is an electronic payment system that are used for the non-cash transactions. The bank or financial institution issue credit card to a consumer to facilitate payment to merchant of goods and services. Credit score card typically refers to a card assigned to the purchaser (cardholder), commonly permitting them to purchase items and services inside credit restrict or withdraw coins in advance. Credit card provides the cardholder the gain of time.

A credit card is considered fraudulent when an unauthorized person misuses your credit card without your knowledge. Fraudulent steal the credit card PIN code or account details to perform one of the unauthorized transactions without robbery of the original physical card. Using credit card fraud detection, we could find out if new transactions are fraudulent or bonfire.

Nearly 1.4 million cases of identity theft were reported in 2020.Married women are the most common victims of identity

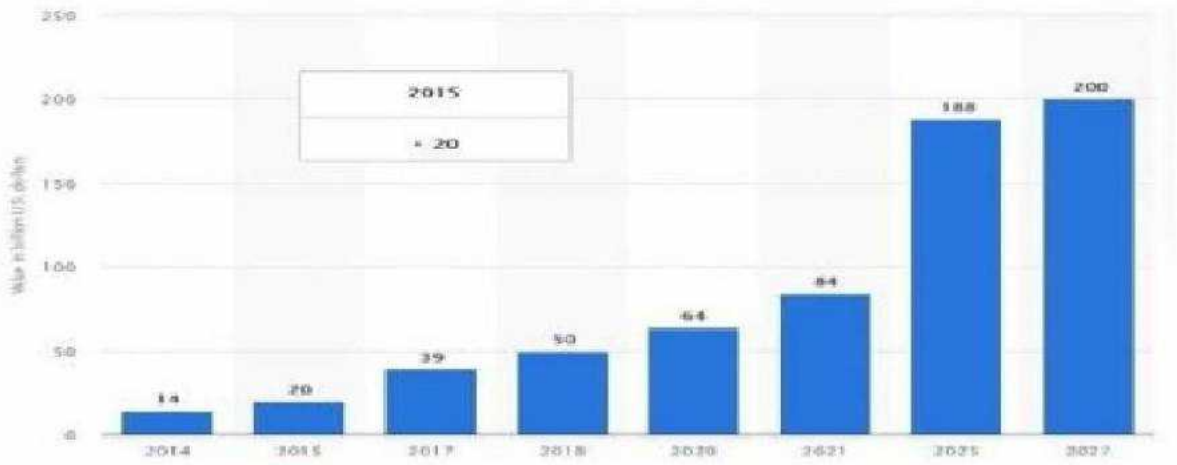

Fig. 1. Growth of E-Commerce sites

Theft. The FTC estimated that 9 million identities are stolen each year.

The fraud involved in this crime include a credit score card or debit card. In this, the cardboard itself acts as a fraudulent source within the transaction. The reason of committing the crime may be to achieve the goods without paying cash or to gain the unauthorized fund. The motive behind is to earn money without taking much risks in a short span of time. The graphical representation shows in Figure 1.

As internet usage is increasing these days, there may be many possibilities for the fraudsters to commit credit card frauds'-commerce websites becomes their principle target for this criminal activity. In the current scenario, people depends more on online facilities for financial transactions. The use of the e-trade websites is growing day by day, thereby causes increased credit card misuses.

II. LITERATURE SURVEY

Lakshmi and Selvani said in the paper titled" Machine learning for credit card fraud detection system" [6] machine learning technique like logistic regression, Decision tree and Random forest were used to detect the fraud in credit card system. The accuracy for logistic regression, Decision tree and random forest classifier are 90.0, 94.3, and 95.5 respectively. By comparing all the three methods, it is found that random forest classifier is better than the logistic regression and decision tree. In the paper titled" Credit card fraud detection using ma- chine learning algorithms", [2] the writers Dornadula, vanish navy Nath, and Sa Geetha developed a novel method for fraud detection, where customers are grouped based on their transactions and extract behavioral patterns to develop every card holder profiles. Then different classifiers are applied on three different groups. Later rating scores are generated for every types of classifier. The dynamic changes in parameters lead the system to adapt to new cardholder's transaction behaviors, followed by a feedback mechanism to solve the problem of concept drift. It is observed that the Matthews Correlation Coefficient(MCC) was the better parameter to deal with imbalance dataset. By applying SMOTE, they tried balancing the dataset and found that the classifiers were performing better

than before. The other way of handling imbalance dataset is to use one-class classifiers like one-class SVM.

III. METHODS FOR DETECTING CREDIT CARD FRAUD

Many different techniques are used to locate such credit card fraud detection. Machine learning techniques can also be incorporated to detect credit card fraud detection.

A. Random Forest Algorithm

Random forest algorithm is one of the broadly used super- vised learning algorithms. This is especially used for solving classification problems. The Random forest algorithm creates the selection trees on the patterns and receives the prediction from the pattern. Literature review shows that Random forest algorithm gives better results than decision tree algorithm in terms of performance. The pictorial representation is shown in Figure 2.

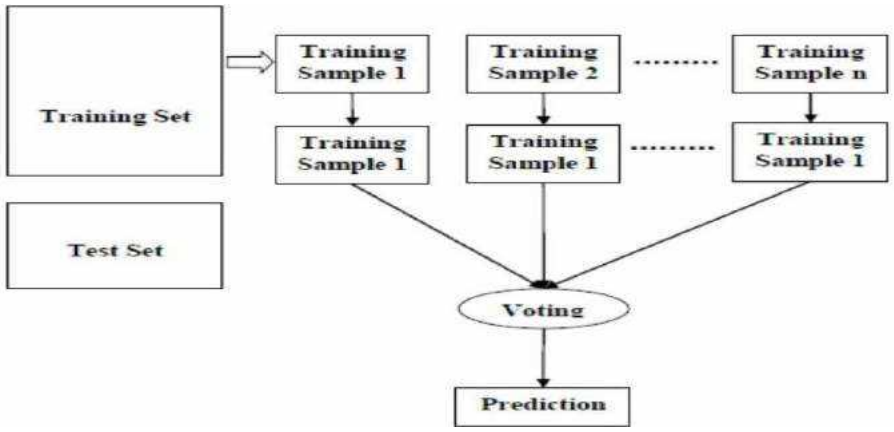

Fig. 2. Random Forest Algorithm

Steps of Random Forest Algorithm

- Kaggle credit card extortion dataset is prepared and a portion of the sample information is selected.
- Decision trees are made from the samples and prediction result is obtained from every decision tree.
- Voting will be performed for the predicted result
- Finally, the most voted prediction result is selected as the final prediction result.

1) Advantages:

- Both regression and classification tasks can be performed by this method.
- Random Forest predictions can be understood easily.
- Large datasets can be efficiently handled.

- When compared to decision tree algorithm, random forest algorithm provides a higher level of accuracy in predicting the outcomes.

2) Disadvantages:

- In case of real time predictions, large number of trees makes the random forest algorithm too slow and ineffective.
- Generally, most of the algorithms are fast to train, but once they are trained, it is quite slow to create predictions

B. K-Nearest Neighbor

One of the simplest machine learning techniques based on supervised learning is K-Nearest Neighbor. The K-NN algorithm makes the assumption that the new case and the existing cases are comparable, and it places the new case in the category that is most like the available categories. K-NN algorithm stores all the available data and classifies a new data point based on the similarity. This means that utilizing the K-NN method, new data can be quickly and accurately sorted into a suitable category. The K-NN approach can be used for both classification and regression problems, but it is more frequently utilized for classification problems. As a non- parametric algorithm, K-NN makes no assumptions about the underlying data. The K-NN algorithm is also known as lazy learner algorithm because it does not learn from the training set immediately instead it stores the data set and performs the action on the data set at the time of classification.

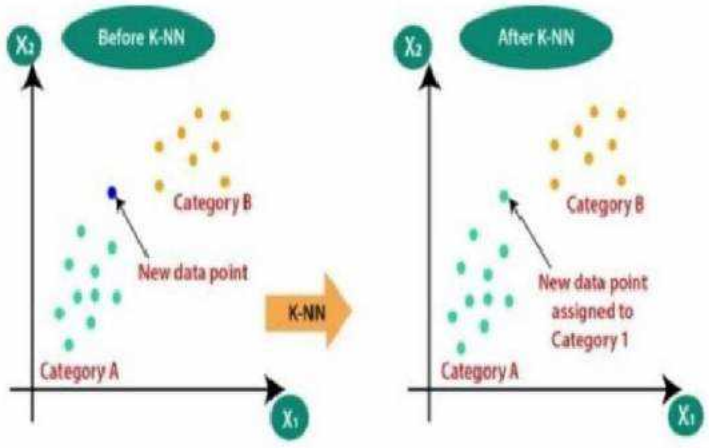

Fig. 3. General structure working of the KNN [1]

1) Advantages:

- Multi-class cases can be handled naturally
- Both classification and regression problems can be solved.
- KNN Algorithm is extremely simple to implement.

2) Disadvantages:

- When the amount of data is large, the prediction stage may run slow.
- More memory is required to store the training data.
- It is computationally expensive since it stores all the training data.

C. K-Means Clustering

K-means clustering is a machine learning algorithm that is used to solve the clustering problems. K-means clustering group the unlabeled dataset into different clusters. Here' K' denotes the number of clusters that need to be created in the process: i.e. for two clusters, the value of k=2,for three clusters the value of k=3 and so on. The assignment of data points to a cluster is made in such a manner that the sum of the squared distance between the data points and centroid would be minimum. An Expectation-Maximization is used by K means to solve the problem. Assigning the data points to the nearby cluster is done by using the Expectation step and computation of the centroid of each cluster is done by the Maximization step.

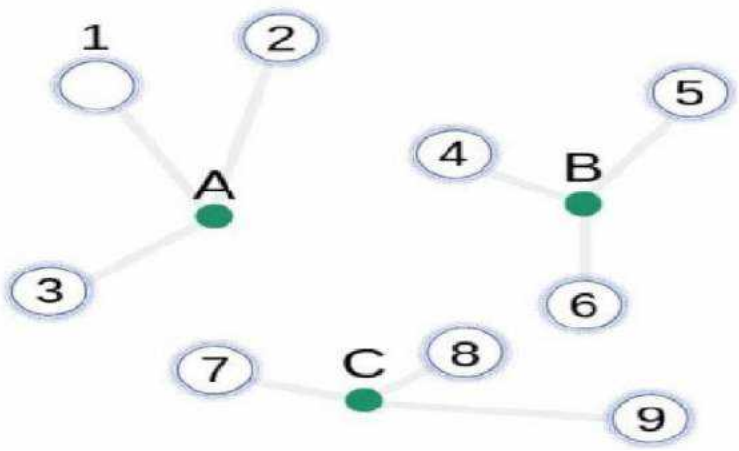

Fig. 4. General structure and working of K-MC

1) Advantages:

- It can be used for large datasets.
- Effective as it is extremely simple to implement.
- Tighter clusters are formed.
-

2) Disadvantages:

- Difficult to predict the number of clusters.
- Sensitive to re-scaling.
- Order of data will affect the final output.

IV. COMPARISON USING PARAMETERS

This paper lists the advantages and disadvantages of each algorithm and finds the most effective one to detect fraudulent transaction. Three parameters are used for comparative study: they are Detection Ratio, Accuracy, and Efficiency. Through these comparisons we assume all these three algorithms detection ratio and efficiency in large dataset is faster and good but its accuracy is different. That is Random Forest Algorithm and K-Means Clustering Algorithm has higher accuracy but the accuracy of K-Neighbor Algorithm has lower accuracy than the other two algorithms. Credit card fraud is become a threat to the people in this digitalized world. For detecting credit card fraud, we, Machine Learning Algorithm is used. Random Forest and K-Nearest Neighbor and K-Means Cluster are different approaches that are used for this. These algorithms help the credit card companies to identify the fraudulent transactions more accurately within a short time and low cost. All this technique has its own advantages and disadvantages. Based on the company need one can choose any one of these approach. This kind of comparative study will allow the people to build a hybrid approach most accurate for fraudulent credit card transaction detection.

This paper focuses on Random Forest Algorithm which is a supervised learning technique. It is usable in both classification and regression problem and is based on the concept of ensemble learning, which is the process of combining multiple classifier to solve a complex problem and to improve the performance of the model. As the name suggests, Random Forest is a classifier that contains a number of decision trees on various subsets of the given dataset and takes the average to improve the predictive accuracy of that dataset. Instead of relying on one decision tree, the random forest takes the prediction from each tree and based on the majority votes of predictions, and it predicts the final output. The greater number of trees in the forest leads to higher accuracy and prevents the problem of overfitting. But speed during testing and application will suffer. Table I shows the comparative study of random forest algorithm-nearest neighbor and k-means clustering algorithm in terms of efficiency, detection ratio and accuracy.

	EFFICIENCY	DETECTION RATIO	ACCURACY
RF	faster	higher	good
KNN	faster	low	good
K-Means	faster	higher	good

TABLE I.COMPARISON OF EXISTING TECHNIQUES

V. PROPOSED METHOD

The limitation of random forest algorithm can be eliminated using Fast Forest Algorithm. Through this algorithm we can improve the testing speed of the application. Fastforest algorithm delivers an average of 24 percentage increase in processing speed compared with Random Forest. FastForest achieves this result: Subsample Aggregating (‘Sub bagging’), Logarithmic Split-Point Sampling and Dynamic Restricted Subspacing.Steps of FastForest Algorithm are as follows: First begin with an overview of the algorithm. Before introducing the components used, start with sub bagging followed by LSP, DRS and conclude with the algorithm for the proposed components.

VI. CONCLUSION

This study compares three machine learning algorithms used for detect credit card fraud. The algorithms are compared for three parameters: detection ratio, accuracy and efficiency. The Random Forest Algorithm is a supervised machine learning algorithm used in both classification and regression problem. It contains a number of decision trees on various subsets of the given datasets and takes the average to improve the predictive accuracy of that dataset. The problem with this algorithm is that it takes more time for the application to run. This problem can be addressed by Fast Forest Algorithm. It is faster than Random Forest Algorithm.

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A study on relation between work pressure and talent attrition

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Abstract- The relationship between workload stress and talent turnover is gaining attention in the field of human resource management. Work pressure is a term used to describe the demands and expectations placed on workers to finish their tasks within a set amount of time, whereas talent attrition is a term used to describe the exit of key and knowledgeable personnel from an organisation. This research examines on the relationship between job stress and talent deterioration and also identifies the multiple relevant factors.

Index Terms- Work pressure, Talent attrition, Burnout, Work-life balance.

INTRODUCTION

Workplace pressure is the need you have to do tasks related to your employment as soon and effectively as you can. It's reasonable to feel pressured when you're aware that there are deadlines and expectations for the calibre of your work. Nonetheless, a significant employee turnover rate could occur if workers feel that their salary does not adequately reflect the level of stress they endure at work. For many firms around the world, talent retention is a severe problem. The analysis of turnover intentions has really always been a key area of interest for organisational management. The effectiveness and profitability of the organisation are adversely affected by this. Employee turnover, on the other hand, raises the possibility of losing talented workers. In essence, a company's staff turnover rate is considered favourable when it is below 10%. As a result, it is crucial for companies to keep their valuable and skilled workers because they are thought to be crucial to the operation and profitability of the company. Voluntary and involuntary turnover are the two main categories.

STATEMENT OF THE PROBLEM

Excessive job stress is now considered a pandemic that affects people, businesses, and the entire society in terms of health and finances. Stress at work is seen to be a precursor to voluntary turnover, which happens when an employee leaves their employer of their own free will and frequently against the employer's wishes. Even though some turnover is unavoidable and may benefit the organisation, unwanted voluntary turnover is extremely expensive for organisations and can harm the welfare of the organization's remaining constituents.

OBJECTIVES OF THE STUDY

To determine the likelihood that job pressure will cause staff turnover at a self-financing institution in the Chalakudy taluk.

SIGNIFICANCE OF THE STUDY

The turnover study conducted helps the Human Resource Department identify the departing employees. One can immediately see, for instance, which department is losing the most personnel. This can help create targeted retention strategies based on the information gained from the research thus guide the organization to keep their best employees with them. This lowers the associated transaction expenses. Here the study is done in a self-financing institution situated in Chalakudy taluk.

REVIEW OF LITERATURE

- "Why Do Employees Leave? An Examination of Employee Turnover Intentions" (Peterson et al., 2016).
  The elements that affect an employee's decision to leave a company, such as job discontent, a lack of opportunity for professional progression, and poor relationships with supervisors, were explored in this study.
- "The Role of Employee Engagement in Reducing Turnover Intentions" (Bakker et al., 2014).
  According to this study's investigation into the relationship between employee engagement and turnover intentions, higher levels of employee engagement are linked to reduced turnover intentions.
- "The Impact of Workplace Bullying on Employee Turnover: A Systematic Review" (Hoel et al., 2013).
  According to this study's analysis of the literature on the subject, bullying at work is a strong predictor of employee turnover.
- "The Role of Work-Life Balance in Reducing Employee Turnover" (Greenhaus et al., 2014).
  This study looked at the connection between work-life balance and employee turnover and discovered that staff members who successfully balance their personal and professional lives are less likely to leave their company.
- "The Impact of Job Security on Employee Turnover" (Jones et al., 2014).
  According to this study, which examined the link between job security and employee turnover, workers who feel like their employment are secure are less likely to leave their company.
- "The Role of Employee Recognition in Reducing Turnover" (Chung et al., 2016).
  According to this study, which examined the link between employee recognition and turnover, staff members who feel appreciated and respected by their employers are less likely to leave.
- "The Influence of Workplace Diversity on Employee Turnover" (Hsieh et al., 2015).
  According to this study, which looked at the connection between workplace diversity and employee turnover, businesses with diverse workforces see reduced rates of employee turnover.
- "The Impact of Job Satisfaction on Employee Turnover" (Park et al., 2016).
  This study examined the connection between work happiness and employee turnover and discovered that those who are happy in their positions are less likely to leave the company.
- "The Impact of Job Satisfaction on Employee Turnover" by Christopher P. Nemeth and Robert J. Vandenberg (Journal of Applied Business Research, 2002).
  According to this study, job satisfaction is a key predictor of employee turnover, and initiatives to increase job satisfaction may assist lower turnover rates.
- "The Role of Organizational Commitment in Predicting Employee Turnover" by John P. Meyer and Natalie J. Allen (Journal of Applied Psychology, 1991).

According to this study, employee turnover is negatively correlated with organizational commitment, indicating that individuals who are more dedicated to their workplace are less likely to leave.

- "The Impact of Workplace Bullying on Employee Turnover" by Einat Peled and Daphna Oyserman (Journal of Applied Psychology, 2012).
  According to this study, workplace bullying increases an employee's likelihood of quitting their company, and interventions designed to stop bullying may assist lower turnover rates.
- "The Relationship Between Work-Life Balance and Employee Turnover" by Samantha C. Paustian-Underdahl, Sarah L. Zingheim, and Michael R. Den Hartog (Journal of Business and Psychology, 2014).
  According to the results of this study, work-life balance is a key predictor of employee turnover, and interventions aimed at enhancing it may assist lower turnover rates.
- "The Influence of Employee Engagement on Turnover Intentions" by Mark G. Ehrhart, Mark L. LengSnick-Hall, and Cynthia A. Lengnick-Hall (Journal of Applied Psychology, 2009).
  According to this study, employee engagement is inversely correlated with intentions to leave an organization, which suggests that individuals who are more involved at work are less likely to do so.
- "The Influence of Pay and Benefits on Employee Turnover" (Smith et al., 2015).
  This study looked into the connection between pay and benefits and employee turnover and discovered that lower turnover rates are related to higher pay and better perks.
- "The Role of Perceived Organizational Support in Reducing Employee Turnover" (Eisenbeiss et al., 2017).
  According to this study's investigation on the connection between perceived organizational support and employee turnover, workers who feel supported by their employer are less likely to leave.
- "The Link Between Workplace Culture and Employee Turnover" (Brock et al., 2013).
  This study investigated the link between workplace culture and employee turnover and discovered that organizations with a healthy culture experience reduced turnover rates.
- The Role of Employee Development in Reducing Turnover" (Larson et al., 2016).
  The results of this study, which looked at the connection between employee development opportunities and turnover, showed that workers who have access to training and development opportunities are less likely to leave their employer.
- The Role of Communication in Reducing Employee Turnover" (Kim et al., 2014).
  This study looked into the connection between workplace communication and employee turnover and discovered that businesses with good communication practices have lower turnover rates.

RESEARCH METHODOLOGY

The study is descriptive in nature, and primary data were gathered through survey research in the institution. The institution was directly contacted for secondary data. Convenience sampling was used as the sample method for the study, which was conducted in a self-financing institute in the Chalakudy taluk. A sample of 100 responders is included. Data for the study were collected using a standardised questionnaire. Statistical tools like tables and charts are used to display data. Data was analysed using percentage analysis in comparison to the average rate.

ANALYSIS AND DISCUSSION

Table 1 Factors causing staff churn

Factors causing staff churn.	Frequency	Percentage
Career Advancements	16	16%
Motivation	6	6%
Others	28	28%
Salary	20	20%
Work Pressure	30	30%

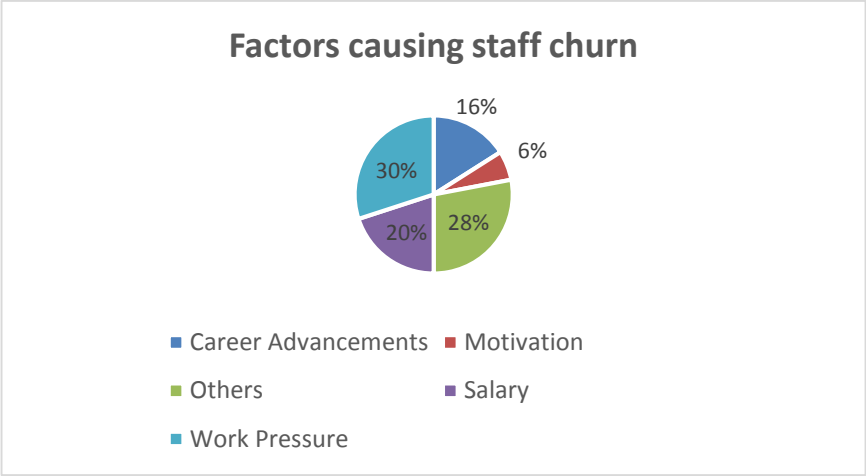

Figure 1 Factors causing staff churn

Data Interpretation: According to the aforementioned data, 30% of the staff workers struggle with heavy workloads, and 20% struggle with low compensation.

Table 2 Assessments of one's own workload stress

Opinion on excessive pressure from own obligations and tasks.	Frequency	Percentage
Agree	42	42%
Neutral	30	30%
Disagree	28	28%

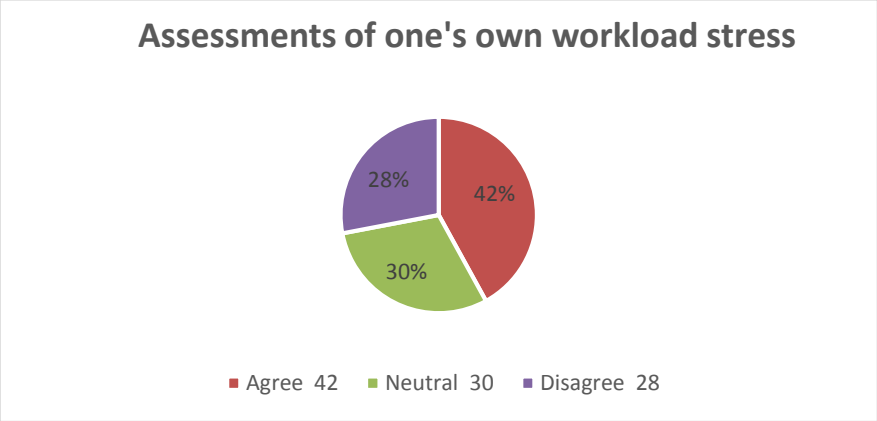

Figure 2 Assessments of one's own workload stress

Data Interpretation: The aforementioned poll makes it very clear that 42% of the 100 samples are working under excessive pressure to perform duties and obligations with short deadlines and high degrees of superior pressure.

Table 3 Desire to remain in the same organization

Intention to remain in the same organization after a year.	Frequency	Percentage
High	86	86%
Low	14	14%

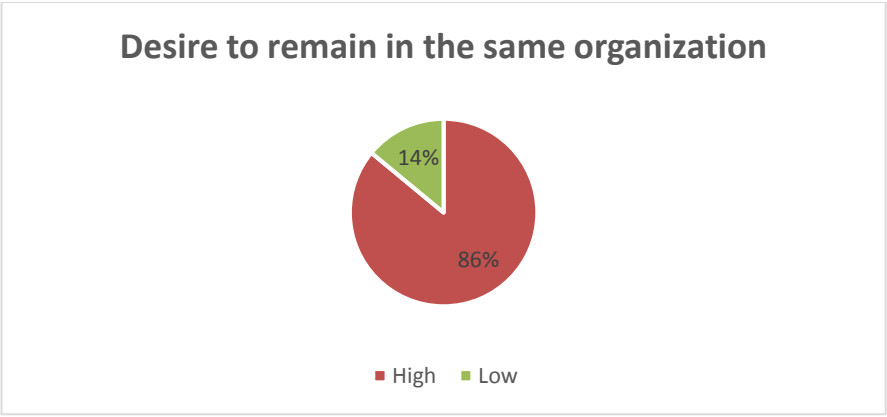

Figure 3 Desire to remain in the same organization

Data Interpretation: According to the data, it is evident that 14% of the faculty members in the selected 100 sample are either thinking about quitting the company or may be considering joining another one for unknown reasons.

Table 4 Response to alternate job offers

Probability of accepting an alternate job.	Frequency	Percentage
High Chances	26	26%
Neutral	44	44%
Low Chances	30	30%

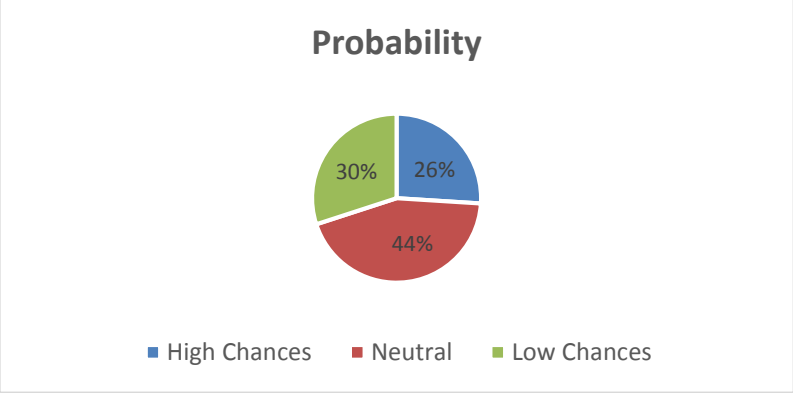

Figure 4 Response to alternate job offers

Data Interpretation:

The figures show that approximately 26% of the chosen staff members have a propensity to leave the company, whereas approximately 30% of the faculty members have a propensity to remain with the company.

FINDINGS

- Around half of the faculty members are clearly under extreme work pressure, which exceeds both their capacity and desire to contribute to the organisation, according to the data analysis.
- The study estimates that the turnover rate is approximately 20%, which is double the normal rate. (Avg of table 3 & 4).
- Also, it is observed that 20% of the faculties believe their remuneration is inadequate given their workload, which may also contribute to staff churn.

- It is also discovered that some employees believe their pay is inadequate given their circumstances at work and the rising cost of everything.
- Less than 5% of the workforce are reported to have mental harassment concerns, which forces them to resign, according to the poll.
- Being a place of learning, dealing with pupils who have diverse mindsets is common. However, depending on how the faculty is impacted by the students' indifferent attitudes, the organization's turnover could be influenced.

CONCLUSION

The study on "The Relation between Work Pressure & Talent Attrition" found a strong correlation between work pressure and employee turnover. High levels of work pressure can lead to burnout, stress, and job discontent, all of which increase employee turnover. Overworked employees are more prone to hunt for better work-life balance in new jobs and to leave their existing ones. The report provides a clear illustration of this problem, showing that 20% of workers, on average, are considering quitting their positions due to problems with workload, pay, mental harassment, etc. Organizations must recognise the importance of maintaining a healthy workplace and implementing measures to reduce stress at work, such as flexible work hours, a collaborative work atmosphere, mental health support programmes, etc. By addressing these issues, employers can reduce employee turnover and keep a consistent staff.

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Delineating Ethical and materialistic perceptions in Sudha Murthy's *House of Cards*

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Abstract

Sudha Murthy's novels revolve around middle class families and the struggles they face as they climb up the social ladder to success. People sideline ethical, moral and cultural values of society. They lose integrity as they amass wealth through unethical ways. The author herself has commented on money as a change triggering catalyst in her famous novel House of Cards. This paper explores this theme unravelling the life of Dr. Sanjay, a man of integrity in the initial years of his practice as a government doctor and the metamorphosis when he becomes a private doctor, as he begins to be wealthy through fraudulent ways which ultimately affects his family life. It affects his relationship with his wife and poor upbringing of his son.

Keywords: Money, ethical values, relationships, integrity, cultural values, materialistic concepts.

INTRODUCTION

Sudha Murthy is one of the most prominent Indian writer whose narratives are about the middle class people in India. The majority of her writings are on cultural aspects, family relationships, education, religious tasks, social attitudes, economical situations and women empowerment. She writes in simple English and her literary works are easy and understandable to the readers. She written fictional, non-fictional, short stories, travelogues and novellas. Some of her well-known works are *Dollar Bahu, The old man and his God, and Wise and Otherwise, The Magic drum and other favourite stories*. She won the R.K Narayan Award for literature (2006) and has been the recipient of the Padma Shree Award (2006) and recently awarded Padma Bhushan (2023).

This paper is based on a thematic study from Sudha Murthy's novel *House of Cards* based on a statement made by the author herself: Money a change triggering catalyst. The narrative delineates ethical and materialistic concepts in middle class families to climb the ladder of sucesss through unethical and fraudulent ways.

It is the story of Mridula, a bright young woman with enormous enthusiasm for life who is from a small village of Karnataka. Sanjay is the protagonist in the novel who is an impoverished doctor, and a chance meeting with him, Mridula and Sanjay get married and settle in Bangalore. Both of them come from middle class families. She is from a well to do family, and is a practical woman. Both of them have a different set of values. Sanjay is a doctor and not from a wealthy family. He practiced as a government doctor. Initially he held on to strong moral values and was sensitive to the need of patients. But later on, "Sanjay converted every idea now into a moneymaking scheme. Alex sometimes wondered whether he was the same old Sanjay who once felt too shy to even ask for a consultation fee." (HC, 145).

Dr. Sanjay was a man of integrity in the early years of his practice, but over the years, and when he starts private practice as a doctor, there is a transformation in his behaviour, he insisted on normal delivery to his patients rather than caesarean section, but in order to procure more money he begins to be unethical in his profession. He increases the consultation fees. Before, he charged Rupees 50 which later increased to 100 Rupees. He was an ideal son who used to advice his mother who was a money lender who used to lend money at exorbitant rates.

The same man has totally changed, he started earning through illegal means and evaded the tax department. He figured that he did not need to declare all his earnings to the Income Tax department. So he had black money as well as white." (HC, 144).

"Mridula was unaware of this and Sanjay did not want to tell her. She would oppose it and say that it was immoral." (HC, 144-145). As Sanjay knew he was not doing the right thing, he stopped sharing matters with his wife Mridula. There was no proper communication between them. The aggressive behavior of Sanjay had made lots of change in their family life and disturbed them so badly. As a mother, she believes she must be more conscious about Shishir's life as he is maintained no financial discipline in his life. Though Mirdula knew the value of money, her advice to her son fell on deaf ears. Her son was more influenced and supported by Sanjay.

In earlier times, a family consisted of many members even though intense poverty existed. But there was happiness and peace of mind among individuals with selfless attitude. At the present scenario, everyone is confined into the four walls of their own fantasy worlds. There are only very rare minds where they feed up and follow the ethical values and morals. It is high time to groom the youngsters by cultivating moral values for a better tomorrow. Mridula did not like Sanjay's advises to Shishir before he went abroad for higher studies. When a child leaves home for the first time, it is important to give him love, teach him compassion, and the value of good manners.

As the story progresses, the readers could also understand that Mridula is a selfless character who does enough favors, apart from whatever she get from them in return. Some of the instances are Mridula insisting Sanjay to help Lakshmi, her sister-in-law financially when they were in need in need of money. Even though Lakshmi was a spendthrift kind of women and uses all kinds of jewellery, Mridula does not judge on that matters. She was a perfect daughter-in-law for her mother-in-law. Mridula was a character who listened to others.

"When the foundation of trust cracks, how can a marriage remain the same?" (HC, 183) As the days goes ahead the happiness and peace of mind in the family fades away and grows into an emptiness even though there is everything for them. Sanjay did not share anything with Mridula. Once she found there was a joint account for Sanjay and Lakshmi in a bank in Malleshwaram, she was felt like as she was drowning. It was not because he had a joint account with her sister; but he never used to share such matters to Mridula.

Mridula now felt that she was like an orphan by mind. There are also people who lives with less money and more happiness. One such character is introduced in the story, and that is Satish, who is a cousin of Mridula. He says how their family life is and how he treats his wife, Shyla. "She is my wife and my better half. She knows that I get bored without her.' For the first time Mridula was envious. He told, "We aren't rich like you, Mridula. We live in our monthly salary. We calculate our expenses together, save money and spend the rest. We have two daughters. They must also learn household work. It is important to learn to be independent. Each of my daughters is assigned chores and they are paid for doing them.

CONCLUSION

The novel portrays toxic relationships between people as they become greedy to earn more, especially those who are ambitious. Though professionally they become successful, a lot of values are lost in between, this is clearly delineated in the novel. Dr. Sanjay's behaviour towards his wife Mridula, and his poor upbringing of his son Shisir, which lead to unhealthy relationships. Mirdula walks out from her home, as she does not see a future with her husband and her son. "Money brings out the best and worst in people. It's a magnifying glass." (HC,213). Because, when a person becomes rich, his inner desires are free to come to the forefront. At the same time, if a selfish man becomes rich, he spends the money on himself, but if a generous person becomes wealthy, he shares it with others. Thus, money is a change triggering catalyst always.

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A STUDY ON THE CHANGES IN CONSUMERS ATTITUDE FROM GOLD CONSUMPTION TO GOLD INVESTMENT WITH SPECIAL REFERENCE TO ANGAMALY

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Abstract Gold is the only investment that has retained its value throughout history and has never faded away. Gold is considered as a mainstream asset as it is not only an effective diversifier but also gives a competitive return when compared to major financial assets. The study aims to evaluate the investors knowledge about various types of investment avenues and the consumers behaviour towards the gold investment.

I INTRODUCTION

Gold is the most investment oriented metal chosen by the investors. It is durable, easily transportable and universally acceptable. India ranks first and is considered as a global leader in gold consumption because gold is a symbol of country's culture and wealth. People consider it as an asset and invest it. In earlier period gold was merely used for consumption but now it has emerged into an investment. Gold never gets old in a country like India, where it has been a part of almost every household, not only as jewellery but also as an investment. Gold is the liquid and widely accepted forms of exchange.

Gold is a strategic asset as it benefits from diverse sources of demand: as an investment, a reserve asset, jewellery, and a technology component. It is highly liquid, carries no credit risk and is scarce. Gold's long term value indicates its consistency and appeal across time. It is considered as the safest investments by investors.

As the current market is having various avenues for investment in gold, it is creating a confusion among the investors. As per various studies 16,000 tons of gold is there in Indian households predominantly in the form of jewellery. The government has introduced gold funds to reduce the import of gold. Rather than buying physical gold people can invest in gold funds. Gold investment can be done in many forms like buying jewellery, coins, bars, gold exchange-traded funds, gold funds, sovereign gold bond scheme, etc. Though there are times when markets see a fall in the prices of gold but usually it doesn't last for long and always makes a strong upturn. During the time of high inflation and market downturns, gold is a safest option as an investment.

II RESEARCH ELABORATIONS

In India most of the investors invest in gold in the form of jewellery which involves various constraints; includes loss of value, safety issue and storage charges. Investment in gold is considered as a safe option for investors because of it's high liquidity and profitability. But among the investors most of them are investing in physical gold are not aware about the various modes of investment like gold funds. The present study aims to examine the knowledge of the investors about the various modes of investment. A sample of 100 respondents is taken for the study. It analysis the advantages, disadvantages and various factors that influence the investor

to investment in gold. The data required were collected through the data collection tool questionnaire and data were analysed using percentage analysis.

The relevance of the study is that it helps to know the investors knowledge about the various forms of investment and helps to analyse the consumers behaviour about the gold investment. This study helps to analyse various alternatives of gold investment. It also analyses the advantages, disadvantages and various factors influenced investors to invest in gold.

III FINDINGS

- Women are the ones who wear jewellery more. But here when we look at the number of the investors we can see men are in the lead (54%). This shows a positive trend.
- Majority (44%) of the investors are working in private sector.
- Majority (45%) of the investors are having a monthly income between 20,000 and 50,000.
- About 71% of investors agree that we should first save money then meet expenses and 29% agrees that we should first meet expenses then save money.
- Most of the investors (36%) are having their savings and expenditure ratio as 3:7.
- Most of the respondents (81%) are investing in gold.
- More than 50% investors (59%) have chosen their most preferred form of investment of gold as jewellery.
- Only 6% of investors have chosen gold mutual funds as preferred form of investment in gold.
- Eventhough gold ETFs can be easily traded, it is chosen as the preferred form of investment only by 4% of investors.
- Capital appreciation is the primary objective of investment in gold that is chosen by majority (39%) of the investors.
- 38% of investors have chosen income and growth as the primary objective of investing in gold.
- Primary objective of investing in gold is chosen as to meet long and short term debts and to meet expenses by 15% and 8% respectively.
- The factor the persuaded most of the investors (41%) to invest in gold is safety.
- Return is the second most factor that persuaded 32% of investors to invest in gold.
- Liquidity and low risk is chosen by only 16% and 11% of investors.
- The most preferred period of investment (51%) among the investors is medium term and long term is chosen by 43% of investors.
- Only a small group of investors (6%) chose short term as preferred period of investment.
- The percentage of annual income that majority (60%) of the investors invest in gold is 16%-30%.
- Only 8% invest 31%-50% of their annual income in gold.
- Potential inflation hedge is considered as the most important advantage of the gold investment by investors (74%).
- Opportunity for diversification is selected as the second most advantage of the investment by the investors (64%).
- Potential long term performance lag is ranked as the most disadvantageous factor of gold investment by majority of the investors (75%).
- Only a short number of investors (18%) have clear awareness about gold ETFs.
- Most of the investors monitor their investment monthly (62%).

- Most of the investors acquire their investment advice from family and friends (43%).
- Only 5% investors are getting advice from advisors.
- Majority (42%) of the investors agree that gold is a risk free investment.

IV SUGGESTIONS

- Most of the investors chose gold jewellery as the most preferred form of the investment, the main reason for the same is less knowledge about the various forms of investment. So proper knowledge should be provided for the investors.
- Eventhough Gold ETFs are considered as the easiest and safest way to invest in gold only 4% chose ETFs as the preferred form of investment and only 18% have clear knowledge about ETFs.
- Financial planners are the best investment advisors but only 6% of investors receive advise from them. Most of them receive advice from family and friends but it should be changed as what is best suited for them may not be suitable for others.
- Most of the investors are not aware of the various forms investment. Proper awareness should be given to the investors.
- It is suggested that it will be better for the investors to buy the gold coins and gold bullions for long run. At the time of selling it will not get good returns as it attracts service tax. It is not suggestible for holding gold bullions and coins for a short period.
- If the investors do not prefer the funds in the short term, then they can opt for Sovereign Gold Bonds and if the investors prioritize liquidity, they can opt for Gold ETFs and Funds.
- It is suggestible for the small investors to enter into Futures and Options with proper knowledge about the trading and risk management strategies as it involves a high degree of risk.
- It would be better to invest in gold ETFs where possibilities of losses are limited.
- Before investing in mutual funds the investors should go through the offer documents, scheme objective and performance analysis.
- If you are looking to stay invested in Gold for a short period then it would be better to choose Gold Mutual Funds or Gold ETFs.

V CONCLUSION

Gold is one of the most favored investment avenue in India. Gold investment is a combination of steady returns, liquidity and emotional satisfaction of buyers. Investment has its own merits and demerits. If you are not in favour of holding physical gold, you can go for any other alternative like ETFs, sovereign gold bonds or funds. Although gold is not a passive investment, it can still provide excellent liquidity and also can beat inflation.

From this study, we can see a positive trend that most of the investors are male even when women are the ones who mostly wear it. Here we can see that most of the investors lack knowledge about the various forms of investment and most of them invest in gold jewellery. They do not have much idea about various forms of investment. When asked about ETFs only 18% have clear awareness about it, when it is considered as the most easiest and safest way to invest in gold. The investors should receive investment advice from financial planner as it is considered as the best way to receive investment advice and receiving advice from family and friends cannot be encouraged as what is best suited to them may not be suited for others. We can also see that most of the investors consider gold as a risk free investment. Potential inflation

hedge and potential long term performance lag is considered as the most advantageous and disadvantageous factor of investment respectively.

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AN ANALYSIS OF THE SHARE PRICE MOVEMENTS WITH RESPECT TO BLUE-CHIP COMPANIES

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Abstract: The study investigates the share price movements and the reasons for variations of 2 Blue-Chip Companies which include Reliance Industries Limited and Tata Consultancy Services Limited. For this purpose, the share price from 2019-2021 was taken and factors like ratio analysis, major acquisitions, the resignation of top-level executives, etc were researched. It also analyses the public's knowledge and interest in share market investment. The study proved that individuals in the age group 20-30 are not aware of the benefits of investing in the share market. They have the opinion that is a risky avenue.
Keywords: Blue-Chip Companies, Share market investment, Share price trend

INTRODUCTION:

Investment means the conversion of money into useful resources with the aim of generating profit. It has become a crucial part of life. There are various types of investment opportunities available in India. The recent trend in investment is Stock Market investment.

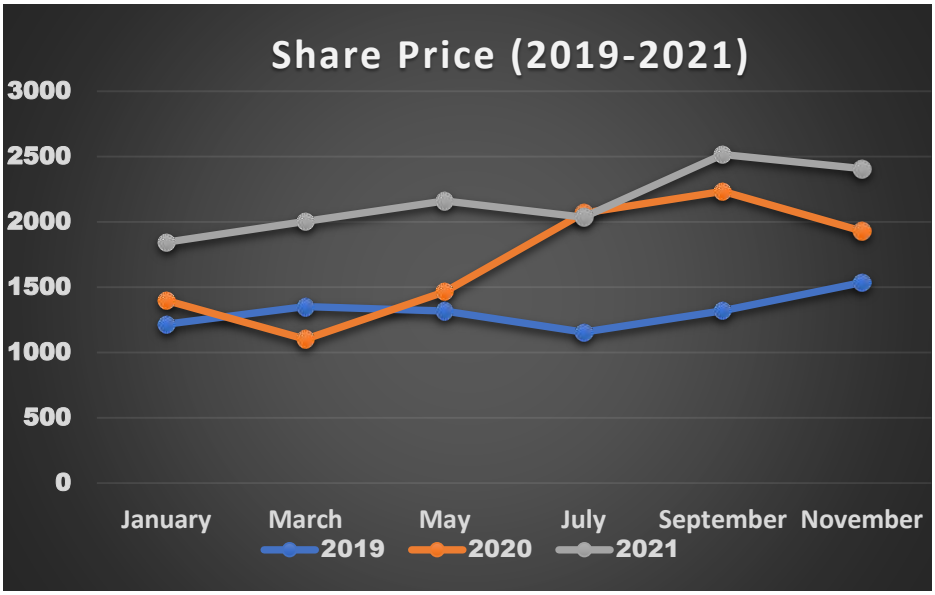
Stock market prices are affected by various factors. Some common facts are demand and supply, company policies, media, government policies, etc. Based on these facts, there will be variations or movements in the share price. Therefore, it is important for investors to conduct in-depth research on the various factors that affects the share price movements.

In the investment world, a blue-chip company is well-known, well-established, and well-capitalized. People tend to invest in well-reputed companies as the profit will be high and it is a secure investment.

RESEARCH CONTENT:

Objective 1: To analyse the share price movements and its reasons.

1. Reliance Industries Limited



Ratio analysis

1. Basic EPS

2021	2020	2019
49.66	48.42	55.48

2. Dividend per share

2021	2020	2019
7.00	6.50	6.50

3. Revenue from Operations

2021	2020	2019
381.17	531.56	586.24

4. Quick Ratio

2021	2020	2019
0.86	0.39	0.54

5. Price to Book Value

2021	2020	2019
2.72	1.80	2.13

Other factors include

2019:

- Gujarat Summit
- Largest investor in West Bengal Digital Space

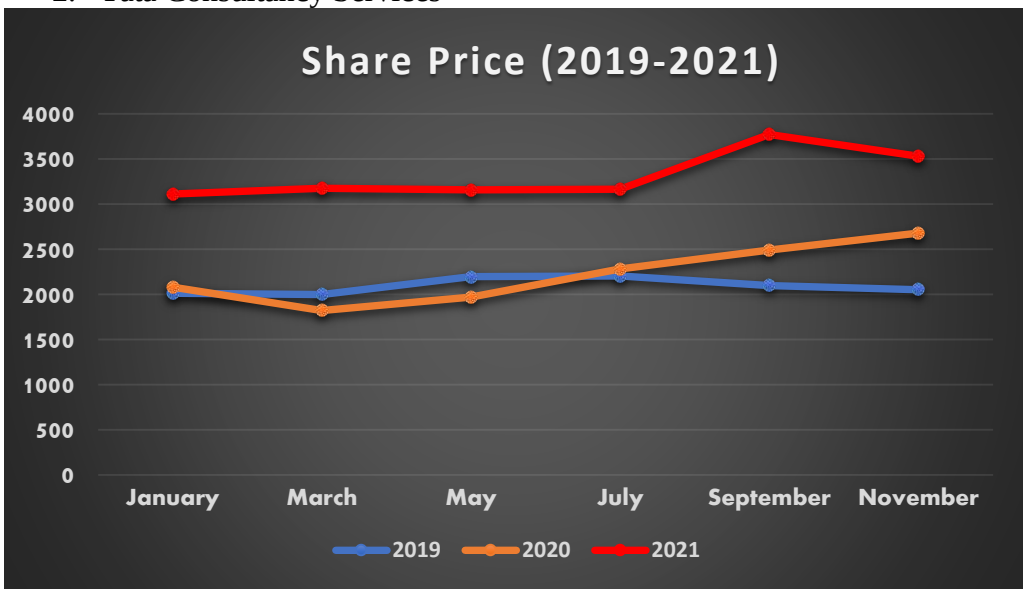
2020

- Introduction of Jio Mart

2021

- 5G Plans Start-up
- Increase in Net Sales

2. Tata Consultancy Services



Ratio analysis

1. Basic EPS

2021	2020	2019
82.78	88.64	79.34

2. Dividend Per Share

2021	2020	2019
38.00	73.00	30.00

3. Revenue from Operations

2021	2020	2019
367.47	350.15	328.45

4. Quick Ratio

2021	2020	2019
2.92	3.30	4.18

5. Price to Book Value

2021	2020	2019
15.72	9.19	9.51

Other factors include:

2019

- TCS, Google join hands
- Market Capitalisation

2020

- Tata-Mistry case

2021

- Jump in net profit which led to digital growth

Objective 2: To understand the public's awareness and interest in share market investment.

In the research conducted, the sample space chosen was 50 individuals from Ernakulam. Most of the respondents were of the age group 20-30 and are students. They have the opinion that the share market is a risky avenue. Most of them have not invested in any company. Those that have invested have invested in shares like TCS, Tata motor, IRCTC, etc They have an equal preference towards financial trading apps and Financial Service Companies as the mode of trading. Though most of them are aware of the term Blue-Chip Company, they have not invested in it.

FINDINGS:

Reliance Industries Limited

- The share price is most fluctuating during the year 2020.
- The ratios EPS, dividend per share, and price to book value are not up to the standard. The quick ratio and revenue from operations are in the ideal category.

- Major factors that affected share price movements include summits, major acquisitions, initiatives, Jio market expansions, 5G spectrum, and an increase in net sales.

Tata Consultancy Service Limited

- The share price is stable through all the periods.
- The ratios are not ideal.
- Major factors that affected share price movements include TCS and Google Cloud solutions, market capitalization, Microsoft business unit, Tata-Mistry case, and increase in net profit.

Primary Data

- Most of the respondents are of the age group 20-30
- Majority of the respondents are students.
- They are mainly of a commerce background.
- Most of them have a neutral understanding of the share market's trading and investment practices.
- They agree that the share market investment is a good opportunity.
- They also have the opinion that that is a risky investment
- There is an equal preference between financial trading apps and financial service companies as a mode of trading.
- They selected the above mode mainly due to proper guidance.
- The respondents are likely to invest in well-reputed companies with low share price.
- Most of the respondents have not invested in the share market.
- Most investors that have invested in the share market, have invested in the company TCS
- The reason for selecting TCS is due to its share price trend.
- Most of the respondents are aware of the term Blue-Chip Company
- They have not invested in any Blue-Chip Companies
- If they are to invest in any Blue-Chip Company, they would invest in TCS.

Conclusion:

From this study, we can analyse that, investing in a company's share requires in-depth analysis and proper research. There can be various factors that affect the share price movements. An investor should keenly check those factors and then only invest in the share market. Blue-Chip Companies are a safe option to invest in but can still fluctuate. It is also necessary to increase the awareness of the public regarding share market investment.

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Reclaiming Her-Story: A Study of Manu S. Pillai's *The Ivory Throne*

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Abstract- History is always a fascination because it discloses the spirit of the bygone ages. With the variety and diversity of Indian culture, new historicism as a cultural theory and reading strategy has a wide scope in our country. This paper is a study of Manu S Pillai's *The Ivory Throne* in the light of the concepts of new historicism. New historicism is the retelling of the already written history with a different perspective, and provides ample space for interpretation, and thus becomes an extension of deconstruction. New historicism probes into the cultural context of a text, and encourages a close scrutiny of the co - texts of the period. Based on the analysis of cultural, social, historical, political, economic, and moral interaction of the periods in which a text is written it goes deeper and deeper into the indoors of the text, and a detailed study is organized by the historicists. *The Ivory Throne* tells the story of Maharani Sethu Lakshmi Bayi, the last queen to hold the power of Ivory Throne. It is a biography, but also a chronicle of that epoch of Travancore. Thus, it purports a new way of reading and interpreting the texts.

Index Terms- Matriliny, New Historicism, Reconstruction, Retelling

I. INTRODUCTION

Manu S. Pillai's award winning, debutant work *The Ivory Throne: Chronicles of the House of Travancore* deals with the history of two centuries of Travancore. Culture does not exist in the same pristine form, it always changes. During the twentieth century, owing to the influence of the British, culture began to change, and Sethu Lakshmi Bayi became the last woman to hold the power of the Ivory Throne. She ruled the kingdom on behalf of her nephew for nearly seven years. Modern Kerala owes her a lot, for her enlightened vision that has a bearing on the life of Malayali even today. Sethu Lakshmi Bayi was credited with many policies that left a distinct mark on the political and social landscape of Kerala. She tried to curtail the power of the court elites, Nairs, and brought many reformations including opportunities for all her subjects irrespective of caste, class, religion, gender etc. She became the harbinger of many social changes, including the abolition of the matrilineal system. *The Ivory Throne* provides a glimpse into the life of Maharani Sethu Lakshmi Bayi; using her life story it investigates Travancore's history.

II. REVISITING TRAVANCORE'S PAST

Sethu Lakshmi Bayi (1895-1985), regent queen of the erstwhile kingdom of Travancore, her rule spans between 1924 and 1931; it was undoubtedly regarded as one of the best periods in the history of Travancore. The Chronicle recounts a personal yet political tale, a tale of relationships between

two sisters that had led to political consequences, court, and palace manoeuvre, all that changed the history of Kerala. She is acclaimed for many policies which even today affect the social and political landscape of Kerala. The book is significant because it is one of the first attempts to reclaim a character from history that has been abandoned from history through court intrigues. She has a remarkable account of life.

She held orthodoxy and modernity concurrently; even being a ritualistic, tradition- bound queen she became the first to allow minorities a real chance to land government jobs, that too in the so-called Hindu State. Maharani opened her reign on a positive note, by ending the custom of accepting the presents offered by her subjects who wished to greet her. She was firmly determined in her policies than what her Dewan might have imagined about her. Casteism was the greatest obstacle that hindered the onward strides of Kerala. The whole society was entangled in the caste web. The Vaikom Satyagraha became prominent towards the end of the nineteenth century, the revolt in the temple town of Vaikom was to eradicate the practice of 'untouchability' and 'unapproachability.' She knew it well that she had to preside over a high-caste-dominated government, but she adhered to her decision, and slowly public roads were opened to all subjects of the state irrespective of the caste. Travancore was reverberating with hue and cry when she was about to appoint Mr Watt as the Dewan, a Christian in a Hindu state. She was going against the tide by making the Brahmins and Nairs her rivals, which was a massive political risk. Later, this rift widened by her order of 'equal and fair opportunity to all' on the basis of merit in all government vacancies. Thus, the domination of Hindu caste was terminated to an extent. For this act she has been lauded, but at the same time she earned great dislike from the dominant classes of the state.

With commendable wisdom and remarkable vision, she took many decisions which were beneficial in the economic development. One such far-sighted decision she took during her reign was the agreement for Four-Party Alliance to develop Cochin Harbour, the benefits of which are enjoyed even today. Kerala is marked in the map of the commercial world with the modern city of Cochin, and the role of Sethu Lakshmi Bayi is unavoidable. Modern Kerala owes her gratitude and respect for these enlightened visions. She also passed the Village Panchayats Act of Travancore on 13 August 1925, which made her one of the "India's earliest administrators to contemplate the vote as a democratic right as opposed to a privilege" (179). On 13 April she signed the Nair Regulation of 1925 which curtailed the power of matrilineal kinship. She always kept aside her personal views, being a conservative, and shaped by Victorian characters she stood for moral arguments.

During 1930, she put an end to the devadasi practice, and provided them with all the perquisites and allowances in their lifetime in order to avert them leading a dreary life in streets. The first Malayalam feature film Vigathakumaran was released in Trivandrum in 1928; it featured P. K Rosy, a Dalit woman as the lead actress. While the high caste audience created much ado on this, and Sethu Lakshmi Bayi ordered police security for Rosy. She encouraged the art of film. "The cultural conservatism of the Maharani did not mean that she desired women to remain at home and withhold from participation in public life" (278). Within the parameters she opened space for them to flourish. Kerala's literacy rate owes her for putting one-fifth of the state's revenue in the functioning of education department, especially she supported for the augment of female education. Thus, Dr. Mary Poonen Lukose, Travancore's first woman graduate later 'Lady Legislator' for the first time in India, then Miss Anna Chandy, first woman judicial officer in the entire Anglo Indian world were products of these landmark decisions. She employed nearly five hundred women in her administration, as clerks, typists, secretaries, and so on.

The reign of Sethu Lakshmi Bayi "would be recorded in golden letters by the historians of Travancore" (qtd. in Pillai 301) this is how Ulloor S. Parameswara Iyer, the poet laureate of Travancore, and an intellectual of the time mentioned about her for what she had done for the development of her subjects and state. During her years as Regent, the state was prosperous with high proportion of advancements. Every field was flourishing, be it education, medicine, economics, technological advancements, agriculture, all sections of the state has benefited in one or the other way during her reign. Despite these positive developments there were attempts to destabilize her. Later in her fifties, her former kingdom collapsed before the greater idea of India, and by sixty two she shifted to Bangalore, leaving all her possessions, effacing herself from history. In her eighties she died in obscurity, a complete erasure. It doesn't mean that she was a flawless person, she had her own faults but being a humane ruler she deserved a better end. Thus, Sethu Lakshmi Bayi, the last queen of the Kupakas, and the final women to hold the power of the Ivory Throne faded into history with a tragic end. No one took pains to recount her story; her reign was referred to as a passing episode in Travancore's history by most authors. Finally Manu S. Pillai took it upon himself to tell her story. His work is at a time an intriguing biography and a history of two centuries of Travancore.

III. RECLAIMING HER- STORY

The study of, or a record of past events considered together, especially events of a particular period, country, or subject is known as history. If the same history is narrated in a different perspective it becomes a retelling, a new version. Sometimes, in the retelling something new emerges. Manu S. Pillai's *The Ivory Throne* is a retelling that focuses on the life, and work of morally impeccable Sethu Lakshmi Bayi. The book deals with the ideas, customs, and social behaviour of Travancore society. In *The Ivory Throne* Pillai explores certain facts which have not been represented in any of the historical works. Both new historicists and cultural materialists are interested in recovering lost histories, and explains the mechanisms of repression and subjugation. Pillai with his penchant to explore new facets came up with the story of Sethu Lakshmi Bayi, who has been poorly represented in traditional history. Through the work, Pillai recovered the lost history of Travancore's golden era, and Sethu Lakshmi Bayi regains her old stature of royalty from it. What makes Pillai's work startlingly new is that his attempt is to reconstruct history mainly through original archival materials. The charisma of the protagonist of his work makes it an intriguing historical narrative. That protagonist whose reign had to be written down in golden letters were unable to find a place in any of the historical records of the time; after thirty years she had someone like Pillai to write about her life.

New historicism is a literary theory that considers literary works not as a singular or solitary form, but they are the products of different networks of socio-material practices. Literary works should be interpreted, not for their universal themes or historical content, but for their meaning as objects embedded in a certain socio-historical milieu. *The Ivory Throne* is the biography of Sethu Lakshmi Bayi, but through her story Pillai unfolds the social, cultural, and political backgrounds of Travancore. The narrative style in *The Ivory Throne* is very different, rather than a linear progression he uses interconnectedness and intertextuality. A non-fictional work in genre, but has the attributes of fiction with many ups and downs- twists and turns- in Pillai's term it is an absolute page turner. There is a shift in time from one century to another and at the same time, an implied division among the chapters is also visible. The work is in no way a tedious narration of history. It has the features of Bildungsroman, a literary genre that focuses on the psychological and moral

growth of the protagonist from youth to adulthood. There is a proper beginning, middle and end of the story.

Even though it starts with the arrival of Vasco da Gama in Kerala, it is not a general history of Kerala, but focuses on a particular time period of Travancore. By using the story of Sethu Lakshmi Bayi as a platform to tell the social and political history of two centuries of Travancore it attempts to re-construct history from a new historicist sensibility. As a theory, new historicism focuses not just on the text, but also at various other co-texts to find the meaning of a text thus creating an intertextual relationship between the text and its co-text, opening the ground for different interpretations. It focuses on a particular time period in the history of Travancore when the British had established themselves as the masters of India. Sethu Lakshmi Bayi ascended the throne, and with her reign came the denouement of the women to hold the power of Ivory Throne. The invaders succeeded in implementing their ideals in a state that was different in all aspects from the rest of the world only to efface the kingdom of Travancore from history. The culture of the state was affected with the invasion, later only to affect the politics of the state. Today, we have a society which is the outcome of all these changes, a modern society.

Matrilineal system was prevalent among the influential communities such as Nairs. Around the world, women were considered as marginalized, subjugated group, but Travancore was exceptional due to matriliny. The position of woman was "different from that of her sister", K. P. Padmanabha Menon observes, "she has a recognised legal position" (qtd. in Pillai 137), the whole property belongs to her and the senior male member is the manager on her behalf. Kerala always stands apart from the rest of India with its remarkably pluralistic socio-cultural, historical, and political backgrounds. In India, female figures were confined into receptacles of the patriarchal virtue, and suppressed their talents- an act of shame- when they really led heady lives of vigour, energy, and plain force of personality in a remote place in the same country. In April 1925 the Legislative Council passed a bill terminating matriliny and on 13 April Sethu Lakshmi Bayi signed the Nair Regulation of 1925, permitting partition of property, legalising all sambandhams, and ultimately inaugurating the age of the patriarchal family in Travancore. Kerala society has largely been shaped by patriarchal norms, wherein women are conditioned to be passive and silent. In the contemporary times, a woman who asserts her freedom is often booed at and trolled. Pillai's explorations in Travancore's history bring to light that we had a very vibrant history where certain sections of women enjoyed their rights. Sethu Lakshmi Bayi, a conservative woman, but had the independence of thoughts and outlooks, always stood for the marginalised and the oppressed. By passing the orders in June 1925 she proclaimed that the views of alienated subjects would be respected and the voice would be heard; the social reformation in the succeeding periods such as the Temple Entry Proclamation of 1936 could surmount casteist oppositions and inertia; there had been no more hues and cries because people learnt to accept the changes, and humans in this part of the globe grew accustomed with radical social changes.

Matriliny was followed in the state, but women in the minority community were facing the problem of subjugation, and it was Sethu Lakshmi Bayi who took measures to uplift women by implementing educational policies. She raised Women's College in Trivandrum, rewards and scholarships were granted to attract students in order to improve women's education. Thus the avenues which were monopolized by men were open to women, and her courts were appointed with women clerks, typists, secretaries, etc. All these initiatives had its impacts in the long run; even today our government conducts exams with relaxations in fees for female candidates in order to augment women's participation in all sectors. Sethu Lakshmi Bayi passed a number of important legislative measures such as the Nair Regulation, Ezhava Regulation, the Nanjanad Vellala

Regulation, and the Malayala Brahmin Regulation to advance the social and material interests of important sections of Travancore. All these reforms and policies by the enlightened Maharani turned out to be a prelude, for changes in the social structure of successive generation. Our society has a misogynistic notion regarding the efficiency of women in leading a nation, but we have Sethu Lakshmi Bayi, being a woman she lead a state, and effected all these reforms.

In November 1936 the then Maharajah passed the Temple Entry Proclamation, opening all Hindu shrines in Travancore, irrespective of caste, to all its subjects. It is considered as one of the greatest religious reforms in India, giving Chithira Tirunal an important place among the social reformers of modern India. But behind the proclamation there was the hidden intention to re-acclaim the identity of Hindu state which they believed, was lost with the reformist policies of Sethu Lakshmi Bayi when high appointments were given to Christians. According to Pillai, it is an irony since Kerala was built by Tamil mercenaries, commanded by Dutch generals, armed by the English East India Company, bureaucratized by Marathi administration, in a region with the largest number of Christians in India and the most ancient Muslim families, how they could claim for a Hindu state. The construction of a Hindu state in Kerala is much like the Hindutva notion prevailing in this century in our country. Maharajah's Temple Entry Proclamation also brought wide range of hue and cry from all parts, for instance, the Maharajah of Cochin banned Travancore priest from serving in his land declaring the whole Travancoreans as untouchables, and the Zamorins in British-ruled Malabar expressed his disapproval above all, Maharajah's own aunt ceased visiting their principal shrine. History repeated itself in Sabarimala after eighty two years have passed. People gathered to protect the celibate deity from the calamity that fertile woman would bring. The tempestuous history of reformations in Travancore suggests that conventions could undergo changeovers with the passage of time. When Maharani terminated the violent custom of animal sacrifice in the state's temple, and suggested subsidised cucumber instead many objection came, but later accepted with reluctance. Change is something which cannot be precluded, and when it is concerned with religion there will be mass rebellion against it. As history is in a constant flux, evolution and changes will happen with the course of time. The intention to retain Travancore as an independent kingdom failed with Indian Independence. Later on, the Maharajahs continued to sit upon the anachronistic thrones. The deterioration of Travancore from a Model State to a formerly kingdom in Kerala can be juxtaposed with the life of Sethu Lakshmi Bayi. Like Travancore, she faced many ups and downs, finally to lead an ordinary life in Bangalore leaving all her privileges as former Maharani.

Pillai has also explored the micro politics of gender within the palace; by incorporating quotidian details he provides information regarding the inside stories related to gender equations in Travancore royal family. The male members of the royal family were granted fancy titles, but they never had any real power or royal status. Through the tale of Sethu Lakshmi Bayi, Pillai chronicles the history of Travancore throwing light on the social, cultural, political, historical, and moral conditions of the state. Drawing on traditional history and hitherto unusual archival sources, he reconstructs a decisive phase in the history of Travancore. Thus we could conclude that, *The Ivory Throne* reclaims the scantily recounted accounts of Sethu Lakshmi Bayi, and redefines an important phase in the princely state's transformation into the part of a modern secular democracy, the composition represents a new historicist sensibility that seeks to rediscover the micro-politics of a given period by probing the co-texts and history of the period.

IV. CONCLUSION

Sethu Lakshmi Bayi was the embodiment of refined womanhood whom everyone around looked up with awe. *The Ivory Throne* delves into the life and times of Sethu Lakshmi Bayi whose reign has often been treated as a passing episode in the history of the princely state. Along with the ruler's story the author examines the socio-political and cultural life of Travancore of two centuries. The narrative is at a time a personal and political account in that it is a commentary of the social, political, cultural, economic and moral conditions of the period while also being the biography of the ruler. Pillai, by showcasing various instances of multiculturalism and peaceful coexistence of disparate communities in the past, critiques the contemporary flaring of religious bigotry and fundamentalism. Reconstruction of history is an overly responsible and scrupulous endeavor, which often ends up in generating a discourse that negates the traditionally accepted version of history. Therefore the phenomenon entails the task of convincing the reader. Manu S. Pillai, with his painstaking research and meticulous interpretations, accomplishes it. He draws on hitherto untapped materials such as personal letters, diaries and correspondences to weave a gripping narrative that carves a deserving niche for his protagonist, Sethu Lakshmi Bayi. The work could convincingly be called a 'her-story' since it is an antithesis to the unjustifiable conception that history is a tale of male heroism and feats.

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A STUDY ON THE INFLUENCE OF ONLINE EDUCATIONAL APPLICATIONS AMONG COLLEGE STUDENTS WITH SPECIAL REFERENCE TO ERNAKULAM DISTRICT

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Abstract: This study examines on the influence of online educational applications among college students. Descriptive research design is used in the study. Participants of the study were college students in Ernakulam district. This research aims to identify the influence of social media advertisements of online educational apps of the participants. This study also determines the factors that influence for the selection of an e-learning app. For this purpose different factors like price, quality, security, innovative teaching method, customized learning, simplified contents were researched. In view of the result achieved, the conclusion was that majority of the respondents has preffered social media ad which induced them, and also all the factors that mentioned above had influenced them for the selection of an educational app.

Keywords: Customized Learning, E-Learning, Learner's Centric Approach, Sololearn.

INTRODUCTION

Educational apps are those mobile applications that facilitate education. Gone are the days when education was restricted by the four walls of a classroom. Education has become more accessible. This is because of the advancement of technology and the rapid growth of the same. From accessibility to cost-effectiveness, the benefits of education apps are many. The objective of education is to create individuals who are self-dependent and self-aware. Educational apps can be of different types. They can be online teaching apps, flashcard creators, learning apps, reminder apps, and the like. All the applications that cater to the education fraternity can be called educational apps.

RESEARCH CONTENT

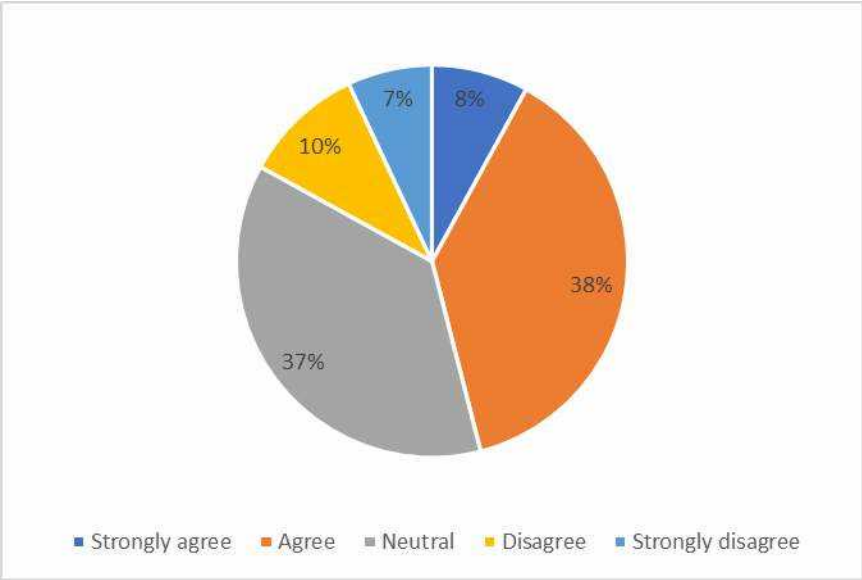
Objective 1: To analyse the influence of social media advertisements of online educational apps among college students.

1.Showing whether social media ad influenced the respondents to choose an educational app.

Preference	No. of respondents	Percentage
Strongly agree	8	8%
Agree	38	38%
Neutral	37	37%

Disagree	10	10%
Strongly disagree	7	7%
Total	100	100%

(Source: Primary Data)

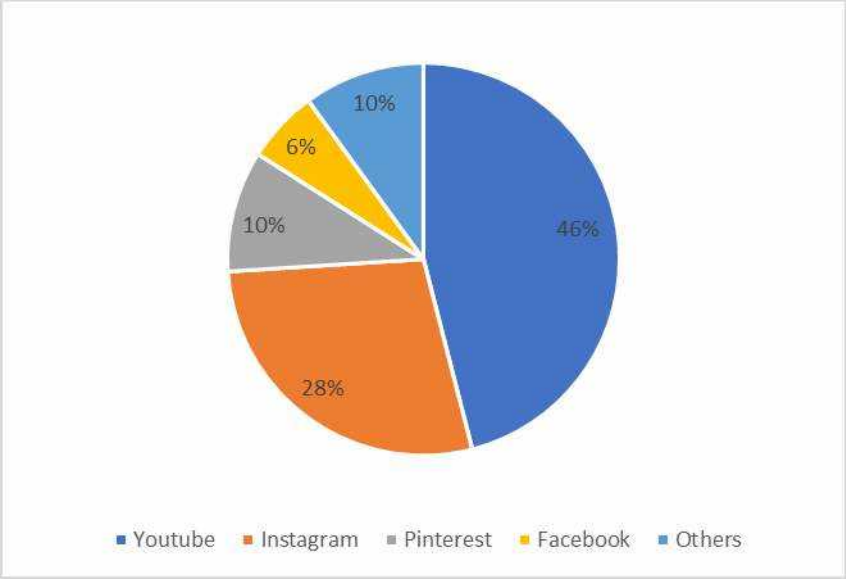


Interpretation: From the above table it is evident that 8% of the respondents strongly agree that social media ad influenced them to choose an educational app,38% of them are agree,37% of the respondents shows neutral,10% of the respondents are disagreed and 7% of them are strongly disagreed. Thus the majority of respondents agree that the social media ad influenced them for the selection of educational app.

2. Showing the type of social media influenced to choose the educational app.

Social media platform	**No. of respondents**	**Percentage**
Youtube	46	46%
Instagram	28	28%
Pinterest	10	10%
Facebook	6	6%
Others	10	10%
Total	100	100%

(Source: Primary Data)



Interpretation

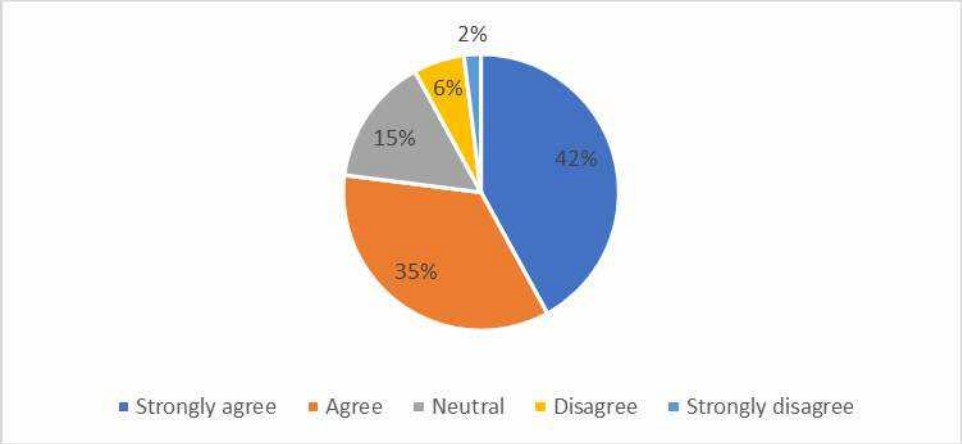
From the above table it is evident that 46% of the respondents prefer youtube which influenced them to choose an educational app, 28% of the respondents choose instagram,10% of them prefer pinterest ,6% of them choose facebook and balance 10% falls in other category. Thus majority of the respondents choose youtube which induced them for the selection of educational app.

Objective2: To determine the factors that influence for the selection of an educational app.

1.Showing the educational apps are customized.

Preference	No. of respondents	Percentage
Strongly agree	42	42%
Agree	35	35%
Neutral	15	15%
Disagree	6	6%
Strongly disagree	2	2%
Total	100	100%

(Source : Primary Data)



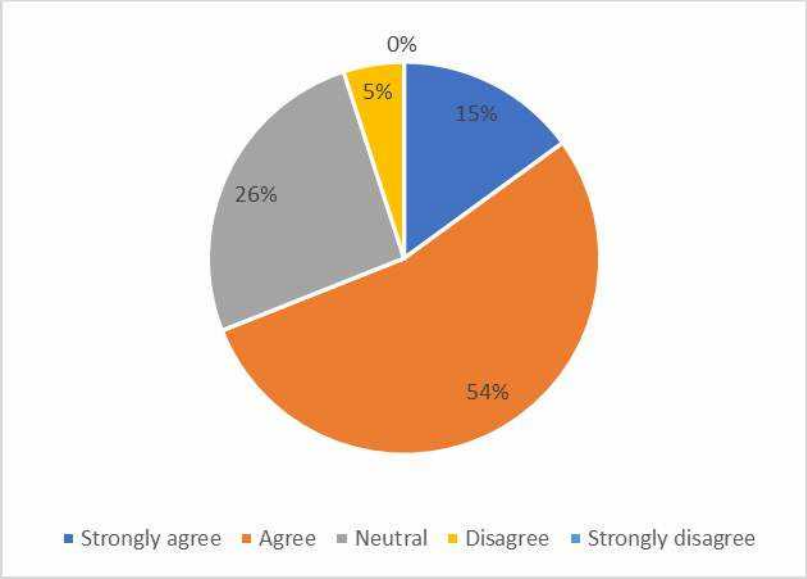
Interpretation

From the above table it is evident that 42% of the respondents are strongly agree that educational apps are customized,35% of the respondents are agreed,15% of them are neutral to the question,6% are disagree and 2% are strongly disagree. Thus majority of the respondents feel that the educational apps are customized.

2. Showing whether the educational apps simplify the contents.

Preference	**No. of respondents**	**Percentage**
Strongly agree	15	15%
Agree	54	54%
Neutral	26	26%
Disagree	5	5%
Strongly disagree	0	0%
Total	100	100%

(Source: Primary Data)



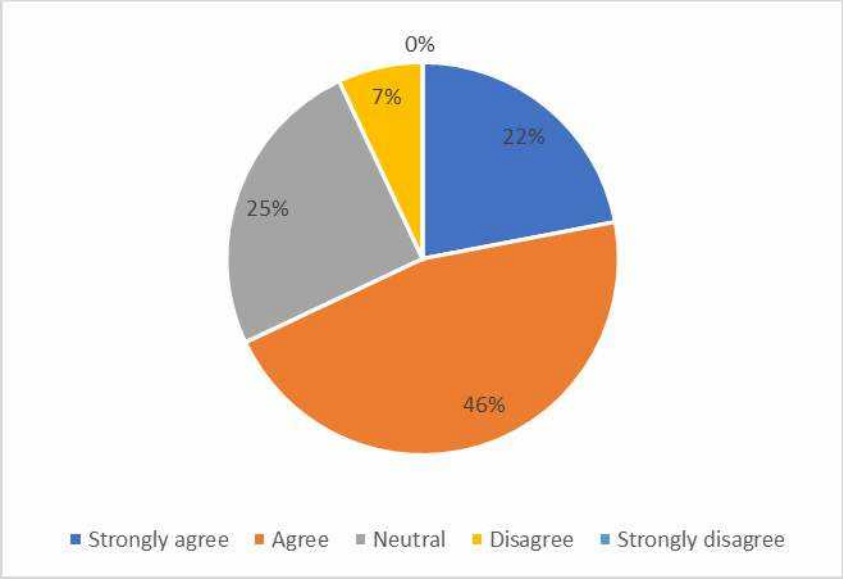
Interpretation

From the above table it is evident that 15% of the respondents are strongly agreed that educational apps simplify the contents,54% of the respondents are agreed,26% of the them are neutral and 5% of them are disagreed. Thus majority of the respondents agreed that educational apps simplify the contents.

3.Showing the preference of educational app after considering the price and quality.

Preference	**No. of respondents**	**Percentage**
Strongly agree	22	22%
Agree	46	46%
Neutral	25	25%
Disagree	7	7%
Strongly disagree	0	0%
Total	100	100%

(Source: Primary Data)



Interpretation

From the above table it is evident that 22% of the respondents are strongly agreed that they prefer educational app after considering its price and quality,46% of the respondents are agreed,25% of them are neutral to the question and 7% of them are disagree. Thus the majority of the respondents agreed that they choose an educational app after considering its price and quality.

FINDINGS

•67% of the female students are included this study. 65% of the students are in the age of 20-25 years.

•According to my interpretations, the most familiar social media and online platform where the respondents are most active on are Instagram(51%) and youtube(29%) respectively.

•Majority (38%)of the people agree that social media ad influenced them to choose an educational app. Also 46% of the respondents agree that youtube is the one among the social media influenced them to choose an educational app and 51% of the respondents agree that advertisements of educational app are necessary.

•64% of the respondents prefer is social media ad.

•50% of the respondents say that the source of information about online apps was gathered mostly from social media by the college students.

•42% of the respondents feel that the educational apps are customized.

•Majority (54%) of the respondents agree that educational app simplify the contents.

•46% of the respondents agree that they prefer educational app after considering the price and quality.

CONCLUSION

Educational app is one of the app which the students prefer for their education purpose at the time they face difficulties in their studies. For this reason that they choose an educational app that suits them best. Therefore, they will select an educational app by considering many factors. Price, quality, security, customized learning, simplified contents, innovative teaching methods are the factors were researched in this study. This study shows that major part of the respondents agrees that the factors that mentioned above had influenced them for the selection of an educational app.

This research also aims to identify the influence of social media advertisements of online educational apps among the participants. As a result ,this study also proven that social media ad has influenced a large part of the respondents for the selection of online educational app. Most of the respondents came to know about this app through social media.

So this study has proven that social media platforms play major role in the promotion of online educational apps. However, by providing better quality advertisements in social media can attract a large number of customers.

To conclude, the above mentioned factors had influenced the respondents to choose a better educational app. This helps them to improve their studies and personalized knowledge in an effective manner. So they are well satisfied with their selected e-learning app.

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Science and Forbidden Knowledge: A Study of Mary Shelley's *Frankenstein*

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Abstract- *Frankenstein* by Mary Shelley analyses what happens when one man decides to play God. His actions ultimately lead to his own downfall. This narrates the story of Victor Frankenstein, a young scientist who creates a sapient creature in an unorthodox scientific experiment. Moreover, this is an epistolary novel which tells the story through letters, where captain Robert Walton writes letters to his sister Margrett. It is also a frame narrative.

Frankenstein is a world classic literature and the first gothic novel that comes to the present generations. This really inspired many for its brilliant synthesis of contemporary philosophy, personal vision and literary influences. Its depiction of corruption of an innocent creature by an immoral society and the dangers of playing God using science acts as a warning. The novel was able to depict a strong psychological horror. It is a science gothic fiction that deals with scientific experiment on dead human bodies, mystery, terror, romance, hatred, crime and most importantly the doppelganger theme. The theme of doppelganger is a common technicality of many gothic literatures. It is because of the highly influenced of London dual nature meaning that the London city was a glorious and beautiful city from outside but also has corruption and satanic industrialisation within the inner city. This duality of London's face inspired Shelley and many gothic writers to write about human duality as well. Doppelganger is also an alter ego as seen from a psychological lens. In the novel, the monster is a doppelganger of the creator Frankenstein. Frankenstein resembles the glorious scientific inventions and temperament of early London city or the outer appearance. The inner demons of Frankenstein are the monster he created who is the doppelganger and also represents the inner life of London city which is contaminated, decayed and corrupted. The ugliness of monster and his deformity is the clear reflection of Frankenstien's inner demons and the isolated world of Londoners who also hides their selfish intentions in a single alienated space away from outer reality. It becomes clear as Frankenstein himself did not tell anyone about his own experiments neither to his family nor his friend.

Index Terms- doppleganger, double, epistolary novel, gothic fiction, gothic horror, monster, mysticism

I. INTRODUCTION

Research on gothic fiction, its elements and agents has gained much attention over the last few decades, and an increased interest has been given to its effect. Individuals, when confronted with uncomfortable situations, experience a strong feeling of uneasiness and mainly fear. The emotion of horror and the overwhelming dread, created through the use of gothic themes, have become a topic of investigation and empirical research, in which the goal is to discover how the sentiment of horror is born and developed depending on gothic agents.

The paper examines the employment of double in Frankenstein. It highlights the issue of societal fears regarding scientific progress and reopens the question related to the nature of ambition and scientific responsibility. The dominant fear of forbidden knowledge and the mass concerns of degeneration obsessed the Victorian community, which is commonly described as strict and conservative. Hence, the interest in the theme and the novel respectively sprung from the increased interest about gothic fiction and its effect.

The purpose of this paper is to explore the construct of gothic horrors in *Frankenstein*. It provides an insight on how Mary Shelley used the gothic to convey underlying messages and to what extent was she successful in depicting the gothic atmosphere. Mary Wollstonecraft Shelley was an English novelist who wrote the Gothic novel *Frankenstein; or, The Modern Prometheus* , which is considered an early example of science fiction and one of her best-known works. While journeying through the North Pole, Robert Walton saves the frozen Victor Frankenstein from the ice. After learning his story, Robert Walton sits with quill in hand ready to tell this tale to his sister—a cautionary tale about the limits of science. Victor Frankenstein is a nobleman with a passion for alchemy and dreams of creating the elixir of life. After the death of his mother, Frankenstein becomes inspired by his grief and combines alchemy with modern science in the hopes of creating life. After two years of experimentation, Frankenstein succeeds. However, when he sets eyes upon his creation, he becomes horrified by the very thing he created. Repulsed by his own creation, Frankenstein abandons it. Months after bringing his creation to life, Frankenstein's brother is murdered. Family servant Justine Moritz is accused of the crime, but Frankenstein is certain that his creature is the murderer. However, Frankenstein is frozen by the fear of being thought mad and does not come forward during the trial. Justine Moritz is executed, and Frankenstein becomes haunted by the death of two innocent persons.

In his guilt, Frankenstein retreats into the mountains. He is found by the creature seven years later. After telling Frankenstein of its life for the past seven years, the Creature demands that Frankenstein re-create his experiment because it yearns to be loved. With a promise for the Creature to leave Europe forever, Frankenstein begins work on creating a lover for his creation. Plagued by premonitions of his creatures procreating, Frankenstein destroys his half-finished companion. Upon seeing this, the Creature vows vengeance on its creator for denying it of love.

Frankenstein returns to Europe to wed the woman his mother always wanted him to marry, Elizabeth. On his wedding night, Frankenstein discovers the true capabilities of his creature when he finds his wife's lifeless body and the Creature grinning over her with hands around her wilted neck. The man swears vengeance on the Creature and chases it to the far reaches of the world in the cruel North Pole where Robert Walton's crew spots him still chasing the Creature across the frozen sea of ice even though he is haggered, worn and dying.

Robert continues writing to his sister after Frankenstein's story ends. Frankenstein vows to complete his quest, but he dies two days later. From the dead man's room, Robert hears a noise. He enters the room to find the Creature mourning over Frankenstein's dead body. After delivering an oration over the body, the Creature vows to kill himself now that his purpose in life has gone and surrenders itself to the arctic blizzards where "he was soon borne away by the waves and lost in darkness and distance" (Shelley 76).

II. MYSTICISM AND GOTHIC ELEMENTS IN *FRANKENSTEIN*

Mary Shelley's *Frankenstein* is most decidedly a gothic novel. Though it was written after the genre's peak, it is still considered to be one of the premier novels of gothic fiction. The story is about Dr Victor Frankenstein and the monster he creates. While studying medicine at university, Victor becomes interested in life and death and how he might thwart death by creating life. He sets out to reanimate a dead body. However, when his experiments prove successful, Victor becomes horrified at the monster he has created and flees in terror, abandoning the monster. Desolate and alone, the monster determines to take revenge on his creator by killing his family. Eventually, the monster catches up to Victor and demands that his story be told. The monster demands that Victor create a mate for him, but when Victor goes back on this promise, the monster renews his vow to destroy his creator.

There are numerous gothic elements in Frankenstein, including wild and exotic settings, the dark secret carried by the main character, the looming threat of the monster, and the destruction of the family. Shelley

also expands on the genre, adding an element of existential terror with the destruction of the boundary between life and death. She incorporated new, yet little-understood, science into her story, lending an air of potential reality to the horror.

The setting is a key element in gothic fiction. It is often dark, desolate, foreboding, and lonely. Much of the story happens at night, often only by moonlight or on moonless, stormy nights. In Frankenstein, Victor must use the energy from a thunderstorm to shock life into his creature, and it is on this dark, stormy night that he first sees what he has done and the horror he has created. Later in the book, when the monster again finds his creator, Victor sees the creature "by the light of the moon", thus creating the association of darkness with evil and the monster.

Additionally, when the monster is chased away from society, he goes to live alone in the mountains of the Swiss Alps. While the scenery is beautiful, it is also isolated and foreboding, further enhancing the loneliness and desolation of the monster. Secrets are a key convention of gothic fiction. Oftentimes, the secret is a terrible misdeed or a long-standing family shame that must remain buried but still threatens to come to light. There are several secrets in Frankenstein, starting with Victor's graverobbing to obtain the body parts he needs for his dark experiments, which are in themselves another secret. Additionally, Frankenstein has a secret that is different from other stories. In this novel, the secret is a living, breathing thing, the monster, that refuses to remain hidden. This secret will reveal itself rather than be uncovered by someone else. The theme of doppelganger is a common technicality of many gothic literatures. It is because of the highly influenced of London dual nature meaning that the London city was a glorious and beautiful city from outside but also has corruption and satanic industrialisation within the inner city. This duality of London's face inspired Shelley and many gothic writers to write about human duality as well. Doppelganger is also an alter ego as seen from a psychological lens.

In the novel, the monster is a doppelganger of the creator Frankenstein. Frankenstein resembles the glorious scientific inventions and temperament of early London city or the outer appearance. The inner demons of Frankenstein are the monster he created who is the doppelganger and also represents the inner life of London city which is contaminated, decayed and corrupted. The ugliness of monster and his deformity is the clear reflection of Frankenstien's inner demons and the isolated world of Londoners who also hides their selfish intentions in a single alienated space away from outer reality. It becomes clear as Frankenstein himself did not tell anyone about his own experiments neither to his family nor his friend.

The doppelganger is also a mysterious character and institutes gothic fear and horror in the novel. The monster is a detestable character which the society failed to accept him and is evident when a monster was attacked by a group of people throwing stones at him. The monster has no choice but to live in a remote isolated world away from the unwelcoming world. The idea of doppelganger is to address the ugliness that exist within the human counterparts. The monster is a destructive ugly force of Frankenstein's own inner self influenced directly from the lifestyle of London city itself.

It can also be argued from the psychological aspects on the doppelganger as a literary device to evoke man's repression of desires. The 19th century British men suppresses their inner desires due to the society as the society deems it. It is also evident in MathewArnold's *The Scholar Gypsy* where the Victorians of 19th century men hide inside their own room and work on their dreams meaning that they suppress their desires within themselves. It is in similitude to Frankenstein as a character who also claims that "the world was to him a secret, which he desired to discover" meaning that the world itself is a secret for him to know its own mystery without letting the outer world knows about it. Since, the 19th century men suppress their inner desires Frankenstein also suppress it by rejecting the monster he created suggestive of him suppressing his inner double self or his own desires in dear of the society. The scene where the society throws stones at the monster reflects the treatment of society towards the inner desires of many British men and hence the doppelganger or the monster is simply a representation of Frankenstein inner self itself

which is his inner self being suppressed and his rejection is a portrayal of his suppression of his inner desires.

The doppelgangers are also used to challenge social conventions and morality. Many writers used to show that British men act in a moral code of conduct yet suppresses their inner self or desires. Frankenstein appears to be a British gentleman with a respectable social behaviour but when he created a monster, he did not visit his home and departs when his friend Henry Clerval visits him to ensure that his home is free from anything suspicious. One can observe the clear suppression and hidden inner self of Frankenstein true nature and his submission to sins and concealments reflects the 19th century British men actions and behaviours. It is also interesting to note that Shelley used the doppelganger to challenge the social propriety and evoke a realism that the society of London is hiding some "foreign entity" as Dryden had said about London. This "foreign entity" is the other self or the inner self of human beings which they hide or suppresses from outer world.

The setting is an important element in gothic fiction, as it helps evoking fear. Victor Frankenstein describes his creature's coming into life and the surrounding atmosphere of his creation process. He states: "It was already one in the morning; the rain pattered dismally against the panes, and my candle was nearly burnt out, when, by the glimmer of the half-extinguished light, I saw the dull yellow eye of the creature open; it breathed hard, and a convulsive motion agitated its limbs" (Shelley 17). It is central to note that the description of the night and the fading candle refers to the gloomy and antiquated setting. Moreover, the awakening of the monster seems to be linked to the setting around him, thus, combining the modernity by which he was produced with the antiquity of the setting wherein he was created. This description further provokes a sense of gloom and mystery worked out by darkness. Following this scene of creation and gloomy weather, the reader senses fear. In the laboratory, Victor undergoes a process that is loaded with gothic motifs that arouse a feeling of horror in the readers. Furthermore, the supernatural creation is a crucial element that Mary Shelley relies on to implement horror within the layers of her narrative.

Victor is determined on manufacturing a being that bears a resemblance to the human body but with a large stature: "I resolved to make the being of a gigantic stature, that is to say, about eight feet in height, and proportionally large" (42). He engages in his labour and gathers materials necessary. He says: "I collected bones from charnel-houses and disturbed, with profane fingers, the tremendous secrets of the human frame. The dissecting room and the slaughter-house furnished many of my materials" (43). The creature is brought to life in the fifth chapter of the novel in a raining weather that is described as gloomy and dark. The setting is strongly linked to the creation process.

Also, it functions as a means to aggravate the fear and mystery. Victor describes the awakening of his creature: "It was on a dreary night of November that I beheld the accomplishment of my toils. With an anxiety that almost amounted to agony, I collected the instruments of life around me that I might infuse a spark of being into the lifeless thing that lay at my feet. It was already one in the morning; the rain pattered dismally against the panes, and my candle was nearly burnt out, when, by the glimmer of the half extinguished light, I saw the dull yellow eye of the creature open; it breathed hard, and a convulsive motion agitated its limbs" (44-45). This description illustrates the ugliness of the creature. In addition, the dark setting and the paranormal beings are gothic elements that are used by the author to launch fear. The gothic theme of ugliness is dominant in the novel. In Frankenstein, the creature is described as ugly and hideous in appearance: "his eyes, if eyes they may be called, were fixed on me. His jaws opened, and he muttered some inarticulate sounds, while a grin wrinkled his cheeks" (45). Also, "its gigantic stature, and the deformity of its aspect more hideous than belongs to humanity" (60).

The ugliness of the creature horrifies the other characters. Even Victor, the creator, realises the unbearable hideousness of his creation and states: "Oh! No mortal could support the horror of that countenance. A mummy again endued with animation could not be so hideous as that wretch" (46). Further, the ugliness

of the creature is displayed in the reaction of the cottagers when they beheld him: At that instant the cottage door was opened, a Felix, Safie and Agatha entered. Who can describe their horror and consternation on beholding me? Agatha fainted, and Safie, unable to attend to her friend, rushed out of the cottage. Felix darted forward, and with supernatural force tore me from his father (107). The cottagers are frightened by the looks of the creature. His ugliness triggers their fear and they feel threatened. The final description of the monster is provided in chapter twenty-four, when Victor Frankenstein is lying dead in the cabin of Walton, and the latter is dazzled by the appearance of the creature and explains: "Over him hung a form which I cannot find words to describe; gigantic in stature, yet uncouth and distorted in its proportions. As he hung over the coffin, his face was concealed by long locks of ragged hair; but one vast hand was extended, in colour and apparent texture like that of a mummy" (173). He adds: "I approached this tremendous being: I dared not again raise my looks to his face, there was something so scaring and unearthly in his ugliness" (173).

The horrific appearance of the monster is a key element in raising fear in the novel. His ugliness horrifies Walton and readers. Another feature of gothic fiction present in the novel is darkness. The atmosphere of obscurity and doom is dominant in Frankenstein. In chapter five, Victor is surrounded by darkness and rain. He is forced to escape due to heavy rain and ambiguity. He says: "I felt impelled to hurry on, although wetted by the rain which poured from a black and comfortless sky" (46). The dark and dreary atmosphere is connected with Victor: "grief and fear again overcame me. Night also closed around; and when I could hardly see the mountain, I felt still more gloomily" (59). Obscurity raises fear and anxiety in Victor. Furthermore, the wet setting, pervaded by the utmost darkness, heralds the doom of the protagonist: "I foresaw obscurely that I was destined to become the most wretched of human beings" (59). The dominance of darkness and rain is embodied in the selected language by the author: "it was completely dark", "the storm appeared", "the dark mountains", "the darkness and storm increased every minute", or "pitchy darkness" (59). These statements, sometimes, precede the emergence of the creature. The author uses wet and stormy weather, darkness and obscurity, which are elements from the gothic fiction, to increase the suspense for readers and to arrange the appearance of the creature.

III. CONCLUSION

To conclude, this work has shown how the emotion of horror is created in Frankenstein. Mary Shelley borrowed from the gothic and used its themes in her work in order to create a more effective horror. By this, she expressed the societal anxieties of her times and warned from the negative outcomes of the uncontrolled use of science. Thus, in Frankenstein, Mary Shelley made use of the gothic as a means to highlight the public concerns regarding science and to achieve a more intense response on part of readers. Accordingly, the gothic is employed to create a fearsome mood and to help understand the fears of the Victorian society. The novel portrayed the horrible outcomes of leading a double life due to conservatism and portrayed the double figure as an outlet for repressed desires.

Victor Frankenstein builds an artificial, intelligent android from slaughterhouse and medical dissection materials. Shelley called it a modern Prometheus in referencing that the heat and electricity used to power Frankenstein's monster were similar to the heat the titan Prometheus gave to his own creations. Shelleys Frankenstein monster is sentient, yet hideous. So, it faced existential crises of why it was created in the first place. It also refers to 18th century German philosopher Immanuel Kant's warnings against unbridled curiosity after inventor Benjamin Franklin's discovery of electricity in the 1750's. Knowing the limits of what create can continue to serve in debates about genetic engineering and artificial intelligence. Even the atomic bomb creation can be closely related to the monster's creation by Frankenstein. Like the destructions made by the atom bomb, the monster has also created many destructions in the most terrible

manner. So this story has much relevance in the present scenario with artificial intelligence as well.
In the novel, the monster is a doppelganger of the creator Frankenstein. Frankenstein resembles the glorious scientific inventions and temperament of early London city or the outer appearance. Victor's inability to assimilate with his double leaves him unable to find the kind of self he opts for and which urged him to engage in the experiment in the first place. It is worth noting that Mary Shelley's novel touches an important topic considered as disturbing by the Romantic readers. The motif of the double aims at arousing fear and horror in readers.

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A study on implementation of online marketing strategies for increasing sale of consumable products in myntra

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ABSTRACT
A collection of effective techniques and methodologies are used in online marketing to advertise goods and services online. Due to the additional channels and marketing tools that are available online, online marketing uses a wider variety of marketing components than traditional corporate marketing. Online marketing refers to promoting a company's goods or services online. Internet marketing uses websites or emails to contact users, and it combines with e-commerce to streamline company transactions. Marketing tactics are crucial for raising consumer awareness of the products. Customers can readily learn about the product features, kinds, prices, and other items that are crucial for helping them make purchasing decisions with this tool. The business will also profit from these techniques because they aid to boost product sales. Thus, this study was conducted to determine how useful marketing methods are in boosting product sales with regard to Myntra.
Index Terms- Online marketing, E-Commerce, Myntra, Marketing tactics

INTRODUCTION

A group of effective techniques and methodologies are used in online marketing to advertise Goods and Services online. Because there are more channels and marketing tools available online than there are for traditional corporate marketing, online marketing encompasses a wider spectrum of marketing features. advertising and marketing a company's goods or service line is known as online marketing. internet marketing uses websites or emails to communicate with customers, and it combines with e-commerce to make it easier to conduct business. using websites, blogs, emails, social media, forums, and mobile apps, you may advertise your goods and services online. businesses operating in markets with high internet penetration must have an effective online marketing plan.

STATEMENT OF PROBLEM

Marketing strategies are essential for raising awareness of the products. the only way for customers to easily learn about the product characteristics, types, costs, and other things that are essential for customers while making purchasing decisions is through this gadget. on the other hand, the company can also profit from these strategies because they help increase product sales. thus, this study was conducted to determine how effective advertising strategies are in raising product sales with respect to Myntra.

OBJECTIVES OF THE STUDY

- TO KNOW THE ONLINE MARKETING STRATEGIES OF MYNTRA.
- TO ANALYSE THE PROMOTIONAL STRATEGIES OF MYNTA.
- TO FIND THE LEVEL OF SATISFACTION TO THE CUSTOMERS OF MYNTA.

RESEARCH METHODOLOGY

A research design is the set of methods and procedures usedin collectingand analysing the research problem. Research design used for the analysis is descriptiveresearch. The source of data to study is the customers of Mookkannoor GramaPanchayath. The sample size is 50. The method used for study is convenience sampling. The study is based on primary and secondary data. Primary data has been collected through questionnaire. Secondary data has been collected from websites and various journals. Percentage analysis and weighted average method are used for the study.

REVIEW OF LITERATURE

Kingsnorth, S. (2017) Digital Marketing Strategy, shared that digital marketing and business strategy are concepts that should be integrated and grow together. Further research into specific digital marketing strategies, would be a valuable contribution to the field of digital marketing and current body of work. In-depth, qualitative and quantitative analysis would provide supporting evidence of the effectiveness or ineffectiveness of specific strategies. Further comparative studies between traditional marketing and digital marketing would give researchers and companies a better understanding of differences between the two approaches. Digital marketing is an innovative, influential contribution to the field of marketing.

J Suresh Reddy(2014) has published article in Indian Journal of Marketing. Title of article is "Impact of E-commerce on marketing". Marketing is one of the business function most dramatically affected by emerging information technologies. Internet is providing companies new channels of communication and interaction. It can create closer yet more cost effective relationships with customers in sales, marketing and customer support. Companies can use web to provide on-going information, service and support. It also creates positive interaction with customers that can serve as the foundation for long term.

DATA ANALYSIS AND INTERPRETATION

SATISFACTION LEVEL WITH THE PRODUCT INFORMATION OF MYNTRA

Table 4.15

PARTICULARS	**NO. OF RESPONDENTS**	**PERCENTAGE**
VERY MUCH SATISFIED	8	16
SATISFIED	29	58
NEUTRAL	7	14
DISSATISFIED	5	10
HIGHLY DISSATISFIED	1	2
TOTAL	**50**	**100**

(Source: Primary data)

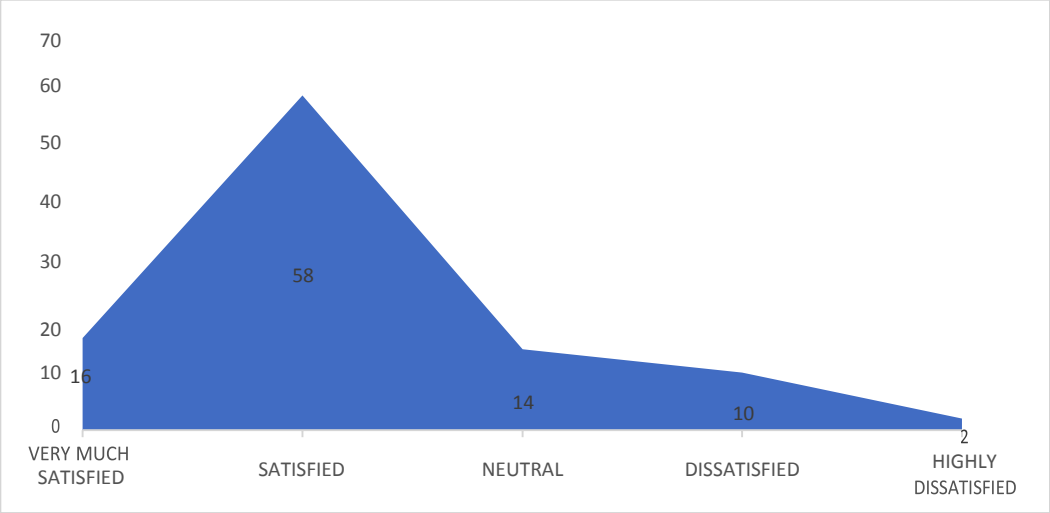

Figure 4.15 SATISFACTION LEVEL WITH THE PRODUCTINFORMATION OF MYNTRA

INTERPRETATION

The above table and figure show that, 16 percentage of customers are very much satisfied with the product information of Myntra, 58 percentage of customers are satisfied, 14 percentage of customers are neutral, 10 percentageof customers are dissatisfied and 2 percentage of customers are highly dissatisfied with the product information of Myntra

PROMOTIONAL STRATEGIES OF MYNTRA

Table 4.14

PROMOTIONAL STRATEGIES	**WEIGHT**	**5**	**4**	**3**	**2**	**1**	**TOTAL**	**WEIGHTED AVERAGE**	**RANK**
COUPON BOUGHT	f	5	6	10	20	9	50	2.56	**4**
	f x	25	24	30	40	9	128		
FESTIVAL OFFER	f	4	6	1	20	19	50	2.12	**5**
	f x	20	24	3	40	19	106		
END OF REASON SALE	f	6	12	22	7	3	50	3.22	**3**
	f x	30	48	66	14	3	161		
DELIVERY	f	25	14	6	3	2	50		**1**

CHARGE	f x	125	56	18	6	2	207	4.14	
DISCOUNTS AND DEALS	f	15	20	10	2	3	50	3.84	**2**
	f x	75	80	30	4	3	192		

(Source: Primary data)

INTERPRETATION

The above table clearly specify the ranks attained by various promotional strategies of Myntra. The first rank is secured by the delivery charge in Myntra and the second rank is secured by the factor discounts and deals. The third rank is obtained by the factor end of reason sale and the fourth rank is obtained by the factor coupon brought. The fifth rank is given to the factor festival offer in Myntra.

FACTORS INFLUENCING BEFORE MAKING A SELECTION OF PRODUCTS IN MYNTRA

Table 4.12

FACTORS	**WEIGHT**	**5**	**4**	**3**	**2**	**1**	**TOTAL**	**WEIGHTED AVERAGE**	**RANK**
RATING	F	15	20	9	4	2	50	3.84	**1**
	f x	75	80	27	8	2	192		
BRAND	F	10	13	12	9	6	50	3.24	**4**
	f x	50	52	36	18	6	162		
DISCOUNT	F	18	14	9	6	3	50	3.76	**2**
	f x	90	56	27	12	3	188		
ADVERTISEMENT	F	6	9	12	13	10	50	2.76	**5**
	f x	30	36	36	26	10	138		
PRICE	F	16	13	10	7	4	50	3.6	**3**
	f x	80	52	30	14	4	180		

(Source: Primary data)

INTERPRETATION

The above table clearly interpret the rank attained by various factors influencing before making a selection of products in Myntra. The first rank is allotted to the factor rating and the second rank is allotted to the factor discounts in Myntra. The third rank is given to the factor price of products and fourth rank is given to the factor brand of products and the fifth rank is secured bythe factor advertisement in Myntra.

MOTIVATION FACTORS TO BUY IN MYNTRA

Table 4.10

FACTORS	**WEIGHT**	**5**	**4**	**3**	**2**	**1**	**TOTAL**	**WEIGHTED AVERAGE**	**RANK**
DELIVERYTIME	f	14	20	7	5	4	50	3.7	**4**
	f x	70	80	21	10	4	185		
BRAND	f	10	19	12	6	3	50	3.5	**6**
	f x	50	76	36	12	3	177		
PRICE	f	30	10	5	4	1	50	4.3	**1**
	f x	150	40	15	8	1	214		
AVAILABILITY	f	22	18	5	3	2	50	4.1	**2**
	f x	110	72	15	6	2	205		
QUALITY	f	20	15	7	5	3	50	3.9	**3**
	f x	100	60	21	10	3	194		
SIZE	f	2	5	8	18	17	50	2.14	**7**
	f x	10	20	24	36	17	107		
PAYMENT MECHANISM	f	10	15	20	4	1	50	3.6	**5**
	f x	50	60	60	8	1	179		

(Source: Primary data)

INTERPRETATION

The above table clearly states the rank attained by various motivation factors to buy products in Myntra. The first rank is obtained by the factor price of products and the second rank is obtained by the factor availability of products. The third rank is secured by the factor quality of the products and the fourth rank is secured by the factor delivery time. The fifth rank is obtained by the factor paymentmechanism in Myntra and the sixth rank is

obtained by the factor brand of products and the seventh rank is secured by the factor size of products in Myntra

FINDINGS

More than half of the respondents are buying the products through onlinein occasionally and purchase clothes from Myntra . More than half of the respondents agrees that marketing strategies will help the company to increase the sales. Majority of the respondents have rates the price is the high factor for motives them to buy products through Myntra and have good rating about the promotions of Myntra. Most of the respondents have rates the rating is the highest factor influencing them before making a selection of products in Myntra. Majority of the respondents got special offers from Myntra. Most of the respondents have rates the delivery charge is the high
promotional strategies of Myntra. Most of the respondents are satisfied with the product information of Myntra. More than half of the respondents use cash on delivery method for online shopping . Most of the respondents strongly agree that the service quality is important . More than half of the respondents agree that the speed of the delivery is important.Most of the respondents strongly agree that the price is important foronline shopping.Majority of the respondents are satisfied with the activities of Myntra.

SUGGESTION

• Festival offers need to be provided for attracting more customers .
• Features like customer service , exchange etc. have to be improved for
better customer attraction .
• Ensure quick delivery

CONCLUSION

Today's online marketing techniques are crucial for both the company's growth in sales and the customers' knowledge of the items, which in turn helps both parties reach their objectives of profitability and survival. The organization's aims can be attained through the use of marketing methods. Some of the internet marketing tactics that assist consumers in choosing the correct items at the right time and at the right price where customers can obtain a clear grasp of the products include social media marketing, email marketing, content marketing, etc. One of the most important and crucial requirements that must be fulfilled with the aid of various marketing tools and tactics is customer happiness. Here, an effort is made to comprehend how online marketing is implemented.

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अज्ञेय के यात्रावृत्तान्त के परिप्रेक्ष्य में भारतीय संस्कृति: एक झलक

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संस्कृति जीवन की एक ऐसी प्रक्रिया है, जो सदा विकसित होती रहती है और सभ्यता के अंतराल में सदा वर्तमान रहती है। मानव जीवन को सभी दृष्टियों से उत्तम और सुंदर बनाने का काम संस्कृति करता है। संस्कृति के द्वारा मानव अपना व्यक्तित्व स्थापित करता है। देश की संस्कृति को बनाए रखने केलिए दर्शन,अध्यात्म, नीति और धर्म महत्वपूर्ण काम करते हैं। **"संस्कृति से मतलब है किसी देश या जाती के सामाजिक,राजनीतिक,साहित्यिक, दार्शनिक और धार्मिक जीवन के उत्थान और पतन का समावेश।"1** इसका यह मतलब है कि व्यक्ति के सभी क्रिया कलापों में संस्कृति का अंश देखने को मिलता हैं।

संस्कृति के निर्माण में मस्तिष्क के अतिरिक्त हृदय का भी योग रहता है। हृदय से उत्पन्न होने के कारण उसमे कल्पना का समावेश तो रहता ही है। यह कल्पना संस्कृति साहित्य के माध्यम से व्यक्त करता है। इस दृष्टि से देखें तो **"साहित्य संस्कृति का ज्येष्ठ पुत्र है। जब संस्कृति उन्नतावस्था में रहती है,तब साहित्य भी फलता–फूलता है।"2** संस्कृति के द्वारा प्राप्त सभी समृद्ध उपलब्धियों को साहित्य अपने में संजोकर रखता है, और उसे उत्तम रचना के रूप में लोगों के सामने प्रस्तुत करता है।

भारत विविधताओं का देश है। यहाँ के आचार-विचार में भिन्नता देखने को मिलता है। अलग-अलग संस्कृतियाँ होने पर भी, सभी भारतीय हैं, ऐसी भावना लोगों के मन में है। इसी एकता की भावना को बनाए रखना संस्कृति का लक्ष्य है। **"मानव के शारीरिक, मानसिक व आत्मिक शक्तियों का विकास ही संस्कृति का उद्देश्य है। जिस संस्कृति में इसको प्रमुखता देते है, वह संस्कृति उत्तम माने जाते हैं।"3** भारतीय संस्कृति का उदात्त रूप हमारे महाकाव्यों और धर्म ग्रंथों में मिलता है। कला- प्रियता भी भारतीय संस्कृति की एक और विशेषता है। जगत को माया समझते हुए भी भारत ने ललित कलाओं के महत्व को माना है और उनका अतिशय विस्तार किया है। एक देश की संस्कृति और साहित्य को समृद्ध करने में जिन मूल्यों की आवश्यकता है, वे सब भारतीय संस्कृति में

निहित है। भारतीय संस्कृति पर तंत्र-मंत्र को बहुत ही ऊँचा स्थान मिलता है। इसी कारण से तांत्रिक विधीय पर भारतीय विश्वास करते हैं। आज भी इसमें कोई बदलाव नहीं आया है। किसी भी शुभ कार्य होने से पहले लोग अपने ईश्वर को प्रणाम किए बिना कुछ भी नहीं करते। यही भारतीय संस्कृति की विशेषता है।

भारतीय संस्कृति अनेक अनुष्ठानों से संबंध रखता है। हिन्दू धर्म की अधिकता के कारण पूजा-पाठ को भारतीय संस्कृति प्रमुखता देती आ रही है। पुराने ज़माने में ऋषि-मुनियों ने भी पूजा-पाठ को प्रमुखता देती थी। भारत विविधताओं का देश होने के कारण अनेक मेले, त्योहार यहाँ देखने को मिलते है। फिर भी भारतीयता नाम के एक सूत्र मे हम सब बाँधा हुआ है।

अज्ञेयजी के यात्रा वृतांत 'अरे यायावर रहेगा याद' में मथुरा के वृंदावन में होनेवाली अनीतियों के बारे में उल्लेख मिलता है। यहाँ के मंदिरों में भगवान के दर्शन केलिए पैसा खर्च करना पड़ता है। जिसके पास पैसे है वही भगवान का दर्शन कर सकते है। अज्ञेयजी ने इसे अनुभव किया है और लिखते है:- आजकल मंदिरों में पूजा विधान पवित्र मन से करनेवाली 'शक्ति' पर भी पैसे आकर बैठ गए। आजकल मंदिर एक वाणिज्य संस्था बन गई है, जहाँ जो पैसा देगा, वही भगवान का दर्शन आराम से कर सकते है। स्वार्थी मानव पैसों के बल पर भगवान को भी खरीदने की कोशिश में है। टिकट के नाम पर प्रत्यक्ष रूप से मंदिरों में चोरी हो रही है। टिकट खरीदने में असमर्थ व्यक्ति को भगवान के दर्शन से वंचित रहना पड़ता है।

देवी-देवताओं के अंचल नाम से जानेवाले 'कुलु' की सैर करते वक्त वहाँ का अनुष्ठान लेखक को विशेष रूप से आकर्षक लगा। इस क्षेत्र को यह नाम इसलिए मिला क्योंकि जहाँ कही भी जाते है, हर कही कोई न कोई मंदिर ज़रूर होते है। लेखक का कहना है – **"कुलु क्षेत्र में अनेक देवताओं की मूर्तियाँ है। विभिन्न प्रकार की जनता अपने इष्ट देवता के मंदिर में जाकर पूजा-पाठ करते है और साल भर में एक बार रथों पर रघुनाथ के मंदिर में आकर श्रीराम जी का दर्शन कर लेते है। सैकड़ों देवताओं के मंदिर यहाँ होने के कारण इस प्रदेश का नाम 'देवताओं का अंचल' नाम से प्रसिद्ध हो गया।"4** उपरोक्त व्याख्या में यायावर ने भारत में प्रचलित धार्मिक विश्वासों का वर्णन किया है। इन्ही धार्मिक विश्वासों के कारण भारत में धार्मिकता पनपती है । यह विश्वास अच्छा भी हो सकता है और बुरा भी। इन सब का वर्णन प्रस्तुत यात्रावृतांत में मिलते है।

मेले – त्योहारों से समृद्ध है हमारा भारत। मेला खुशियों का माहौल है। खासकर व्यापारी लोग बहुत धूम-धाम से मेले मनाते हैं। यायावर अपने भारतीय यात्रा के बीच देखे गए मेले का वर्णन करते है- **"दशहरे के दिन यहाँ बड़ा भारी मेला चलता है। साल भर का व्यापार प्रायः इस एक ही दिन में होता है। बाहर से आए हुए लोगों केलिए देशी –अंग्रेजी दुकानों और होटलों या पंसारी–हाट भी बनाया जाता है। इसलिए ग्राहक और विक्रेता दोनों ही बड़े उमंगों के साथ यहाँ आते है। रंग-बिरंगी कंबल,पट्टू –पट्टियाँ, पशमीना, चरम और अन्य प्रकार की खालें रीछ की, मृग की, तेंदुए की कभी-कभी बर्फ के बाध की तरह-तरह की जूतें, मोज़े,सिली-सिलाई पोशाकें, टोपियाँ, बासुरी, बर्तन, पीतल और चांदी के आभूषण, लकड़ी, हड्डी और सींग की कंघियाँ, देशी और विदेशी काँच, बिल्लौर और पत्थर के मनकों के हार न जाने क्या-क्या चीजें यहाँ आती है, उन सबका गिनती करना असंभव है। मेले के पूरे दिन हज़ारों की संपत्ति हाथ बदल लेती है। इसके साथ तमाशे होती है, नाच होते है, गाना-बजाना और जग-मग रोशनी होती है।"5**

भारतीय इतिहास देखा जाए तो हमें यह पता चलता हैं कि पुराने ज़माने से लेकर भारतीय जनता अंधविश्वासों और पौराणिक आख्यानों पर विश्वास करते थे। भारतीय संस्कृति की एक विशिष्ट देन है, मोक्ष अथवा आनंद की खोज। यह मोक्ष पापों से मुक्ति पाने का प्रयास है। यह सांस्कृतिक तथ्य भारतीय आध्यात्म जीवन का बहुत बड़ा संबल है। 'अरे यायावर रहेगा याद' में भी यह सांस्कृतिक तथ्य देखने को मिलते है। परशुराम कुंड से संबंधित पौराणिक आख्यान इस प्रकार दिया है- **"परशुराम कुंड में स्नान करने से पाप मुक्त हो जाते है, ऐसे विश्वास प्रचलित थे। लोग विश्वास के अनुसार पाप तो दिखते नहीं है। जिन वस्त्रों से स्नान किया जाता है, उन्हे कुंड पर ही छोड़ देने की प्रथा है। इस उपाय से यात्री अपने पाप वही छोड़कर चले आ सकते है। मुमुक्षु लोग नहाकर उसकी धोती-गमछा- लँगोट जो कुछ भी हो, उसे खींच लेते है। कभी- कभी मुमुक्षुओं को उस परम निष्पात अवस्था में सूखे कपड़ों से जाना पड़ता है। इसका विरोध नहीं कर सकता है, यही रीति यानि विश्वास प्रचलित है"।6**

कुलु एक ऐसा देश है, जहाँ संस्कारों का संगम है। यहाँ की देवी-देवताओं और श्रेष्ट व्यक्तित्व के बारे में व्यक्त करने वाले उद्धरण भी है :- **"कुलु की संस्कार तो मनोरंजक है। वहाँ असंख्य देवी-देवता और ऋषि-मुनि को**

आदिम निवासियों द्वारा पूजे जाते थे। वे आर्य थे या नहीं इस बात का कोई झगड़ा नहीं है। लेकिन आर्य धर्म के जिस रूप को हिन्दू धर्म के नाम से हमने जाना, वे यहाँ विजेता के रूप में आया। जब बाहर से किसी विजेता आया तो उसे भी अधिदेवता राम की अधीनता स्वीकार करना पड़ता है"।7 भारतीय संस्कार देखा जाए तो पता चलता है कि वे हमेशा देवी - देवताओं को अपनी ज़िंदगी में अहम स्थान देते आए है। इसका एक उत्तम उदाहरण के रूप में कुलु का वर्णन यहाँ दिया गया है। शायद यह भारत में एकमात्र स्थान है, जहाँ मानवता का यह स्वयंभू आदिम प्रवर्तक मंदिर में प्रतिष्ठित हो और पूजा पाते हो। यहाँ के लोग ज़्यादातर अनेक प्रकार के विश्वासों को अपने ऊपर डाल देते है।

भारत की पुरानी संस्कृति में गहरी निष्ठा नज़र आती है और संस्कृति को मनुष्य की विविध साधनाओं की सर्वोत्तम परिणति माना है। इतिहास को हमने देखा नहीं, इतिहास आधारित चीजें हमे अतीत का अहसास करवाती है। इतिहास मात्र इतिहास नहीं, बल्कि लोग-मानस और मानव जाती की सांस्कृतिक चेतना की विकासशील धारा का कालक्रम से अध्ययन,मूल्यांकन करने का एक महत्वपूर्ण साधन भी है। स्पष्ट है कि संस्कृति सभ्यता से अधिक स्थायी है, जो साहित्य की अनश्वर काया में जीवित रहती है।

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A STUDY ON MANAGERIAL EFFICIENCY OF VALOOKKARAN MODERN RICE MILL

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Abstract

This research paper studies the managerial efficiency of Valookkaran Modern Rice Mill. The challenges that a management face in fulfilling the smooth running of the business is taken into consideration and solutions based on those problems are taken for the efficient management functioning.

I. INTRODUCTION

Valookkaran Modern Rice Mill is an established rice mill of Kerala, developed for rice to it's esteemed customers. The rice mill is situated in Kalady, Ernakulam is a top player in the category of rice wholesalers in Ernakulam district. It is established in the year 2013. It stands located at Yordhanapuram post, Kalady-683574. Mr. Valookkaran Pappu Joy is the owner of this company. It is a retailer, exporter, and supplier of different varieties of rice. This well known establishment acts as a one stop destination serving customers both local and from other parts of Ernakulam. In this study we use managerial efficiency defined as the degree of management's specific ability to generate revenue using a firm's tangible and intangible resources. The study would cover efficiency of management in it's development to provide increased productivity, knowledge, loyalty and contribution to general growth of the firm. Rice wholesalers are the people who sell rice to retailers or end customers in bulk at a cheaper price. They might manufacture rice of a particular brand or offer rice of all varieties. They only accept bulk orders and provide high quality rice to their customers. This study includes varous factors such as knowing the production, sales, raw materials management, training and development given to employees, warehousing and about the distribution networks etc. therefore all those activities performed with minimum wastage of resources helps the organization to mazimize it's profit. It is expected that the study will inform the organisation's performance. The main aim of this study is to understand the massive competition taking place in the rice milling industries. Rice mill helps in obtaining the final product as a household item with much needed innovation. Nowadays the importance of rice mill is very high. This food processing facility helps the paddy to be processed to rice and is sold in the market. This rice mill field provides employment opportunities. The study focuses on improving the efficieny in the management of Valookkaran Modern Rice Mill. This analyzes the factors affecting the efficient performance of the company. The whole organization is taken into consideration and the survey is conducted among 50 workers through structured questionnaire. The coclusions and analysis will be based on the period. This helps the company to know the performance, to analyse the extent of cooperation and competition in the rice industry and the major

organizational problems faced by the company. This rice mill unit unit produce quality products which are processed by hygienic systems using a series of outstanding machineries of the world in clearing sieve stone sorting, gravity paddy separation, thickness, grading, rice whitening and polishing and rice grading sieve. The gain stocking and automatic control system with electronic automatic scale are worth for the complete set of rice processing. Being a deficit in the production of paddy and rice, the most modern concepts of rice processing and milling has become highly inevitable to increase the productivity. Lack of modern rice processing and milling techniques has resulted in low and out turn and losses due to pests, animals, insects and pilferage are also seen very high. As a result, the millers with the encouragement from government have turned up their minds to seek improved methods of milling to avoid the drawbacks of traditional milling. The quality of the rice produced in the modern rice is marvelous and will be free from dust, mud balls, immature black rice and other foreign materials.

II RESEARCH ELABORATIONS

This study is done from a sample of fifty employees working in the Valookkaran Modern Rice Mill. The data required for the study are collected from these employees through different means like questionnaire, personal interviews and by naturalistic observations. The method used is random sampling, which ensures that the results obtained from the sample will approximate what would have been obtained if the entire population had been measured. The company is more focused in achieving good management skills by following the managerial principles. The managerial efficiency of the organization is able to be manifested from various sides, and is valid at a certain periods of time, during which the current, operational, and long term efficiency of the enterprise adapts to changes in the goals and strategies of the organization and management structure due to the impact of external and internal environment.

The relevance of studying managerial efficiency is that it helps achieving group goals, it arranges the factors of production, assembles and organizes the resources, integrates the resources in effective manner to achieve goals. It directs group efforts towards achievement of predetermined goals. Therefore efficient planning, organizing, controlling and directing is necessary.

III FINDINGS

The company has a good and efficient management structure. The production of the company is in its best level(76%). The empoyees (86%) are almost satisfied with working environment provided in the company. There occurs employer - employee relationship in the company. The company facilitates 100% of the exporting of rice. The company has efficient management of the raw materials and finished goods about 92%. It has an excellent warehousing facility(100%). The rice mill maintains a 94% of healthy relationship with its dealers. Well equipped machineries (80%) supports in the achievement of their daily production target. About 10 respondents are occurring the management level position, while the rest of them are helpers and technicians etc. The management is 70% efficient enough to meet the timely delivery of products to the market. A 90% of standardized quality of packaging of rice is held by the company. 80% of the employees say that the company follows a democratic management style. Employees of 80% say that they

are provided with bonus if they are allotted for overtime working. The company is able to meet the salary expectations of the workers. The safety of workers(100%) are taken into consideration.

IV SUGGESTIONS

The majority of the employees are seniors having experience over years so the company can give employment opportunities to the freshers also. The company is more concentrated on the quality. So it creates lesser focus and attentention towards the production, so the company should keep an extra eye towards the production as well as the quality management. More attention should be provided in the training and development so that the employees could be supported for improving their job quality through training. The field supervisors should be more encouraging and should take the responsibility to control the delegation of work given to each employees. The manager must posses a broad range of competencies, including leadership, communication skills, decision making and mentoring. The management should set several managerial goals which helps in attainment of goodwill for the company among its competitors. The company should also try to extend attention towards the public. The needs and taste preference of the customers must be taken into consideration by the company.

V CONCLUSION

The study reveals the overall efficiency of the management in managing its day to day performance. According to F.W Taylor, " management is the art of knowing what you want to do and then seeing that they do it in the best and the cheapest way." Training is equally important for the existing as well as the new employees. The inventory management is one of the major part which shows the efficiency of the management. Proper usage of the resources without any wastage promotes the efficient raw materials management. As a result, the management of Valookkaran Modern rice mill is efficient. But then also it can take necessary steps if it wants to gain a competitive advantage in the Indian rice market. Latest updation towards the machineries and technologies will help in the yield of great production and sales. The customers will be more attracted if there are a more varieties of rice which are up to the consumer preference. The existing gap in the production management system and the enterprise management system in general should be resolved based on improving the efficiency and quality of senior manager's work. A comparative analysis of the methods used to evaluate the organization's managerial efficiency revealed the factors of the impact on the performance efficiency of whole enterprise. This firm is very helpful for the people living in the Kalady locality. They are given with employment opportunities so that they can live in a better way. Thus it also works for the overall development of the society.

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Zero-Knowledge Proof and its Applications in Online Privacy

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Abstract

Zero-knowledge proofs (ZKPs) enable knowledge to be verified while not revealing that knowledge. They, thus, have the potential to revolutionize the approach knowledge which is collected, used and transacted with. Every transaction encompasses a “verifier” and a “prover.” In every transaction using ZKPs, the prover makes an attempt to prove issue to the verifier while not telling the verifier anything about this thing. By providing the ultimate output, the prover proves that they are ready to cipher one thing while not revealing the input or the process method. Meanwhile, the verifier solely learns concerning the output.This paper discusses about types, application, advantages and challenges of ZKP.

Introduction

In today's digital age, online privacy has become a significant concern for individuals and businesses alike. The internet has made it easier than ever for companies and individuals to collect vast amounts of personal data, often without the knowledge or consent of those involved. As a result, there is an urgent need for privacy-enhancing technologies to protect sensitive information.

One such technology is zero-knowledge proof (ZKP), a cryptographic protocol that enables two parties to prove the validity of a statement without revealing any additional information. ZKP has the potential to revolutionise the way we think about online privacy, allowing individuals and organisations to share sensitive data securely without the risk of unauthorised access or misuse.

This research paper aims to explore the concept of zero-knowledge proof and its role in enhancing online privacy. The paper will begin by providing an overview of ZKP, including its history, basic principles, and applications. It will then discuss the advantages of using ZKP in online privacy, such as reducing the risk of data breaches and protecting personal information. Finally, the paper will examine the challenges and limitations of ZKP, as well as potential future directions for research in this area.

Overall, this research paper will demonstrate the importance of zero-knowledge proof as a privacy-enhancing technology and its potential to transform the way we think about data privacy and security online.

History of Zero-Knowledge Proof

The concept of zero-knowledge proof was first introduced by Shafi Goldwasser, Silvio Micali, and Charles Rackoff in their paper "The Knowledge Complexity of Interactive Proof Systems," published in 1985. In their paper, the authors introduced the idea of a zero-knowledge proof system, which is a way for one party to prove to another party that they have knowledge of a specific piece of information, without revealing any additional information about that information.
Since then, zero-knowledge proof has become an active area of research in cryptography and computer science. In 2015, researchers at MIT and Tel Aviv University developed a system called Zerocoin, which uses zero-knowledge proofs to enable anonymous transactions on the Bitcoin network. More recently, zero-knowledge proofs have become an important tool in the field of blockchain, where they are used to ensure the privacy and security of transactions.

Underlying Principles of Zero-Knowledge Proof

Zero-knowledge proof is based on the concept of interactive proof systems, which are a way for one party (the prover) to prove to another party (the verifier) that a certain statement is true. In an interactive proof system, the prover and verifier engage in a conversation, where the prover provides evidence to the verifier that the statement is true. The verifier then uses this evidence to determine whether or not the statement is indeed true.

In a zero-knowledge proof system, the prover is able to prove the truth of the statement to the verifier, without revealing any additional information about the statement itself. This is accomplished by using a special algorithm that generates a proof of knowledge, which the verifier can verify without knowing the actual knowledge that the prover possesses.

There are three important properties of zero-knowledge proof systems:

- **Completeness:** If the statement is true, the verifier will accept the proof provided by the prover with high probability.

- **Soundness:** If the statement is false, the verifier will reject the proof provided by the prover with high probability.

- **Zero-knowledge:** The proof provided by the prover does not reveal any additional information about the statement, except that it is true.

Types of Zero-Knowledge Proof

There are several types of zero-knowledge proof, each with its own strengths and weaknesses. The most common types are:

1. **Interactive Zero-Knowledge Proof:**

   In this type of proof, the prover and the verifier engage in an interactive protocol, where the prover provides evidence to the verifier, and the verifier checks the evidence. The protocol continues until the verifier is satisfied that the statement is true, or until a certain number of rounds has been reached. The main advantage of interactive zero-knowledge proof is that it is very efficient and can be used for a wide range of applications. However, it requires the prover and the verifier to be online at the same time, which can be a limitation in some cases.

2. **Non-Interactive Zero-Knowledge Proof**:

   In this type of proof, the prover generates a proof that can be verified by the verifier without any interaction between them. The main advantage of non-interactive zero-knowledge proof is that it can be used in situations where the prover and the verifier are not online at the same time, such as in the case of offline password authentication. However, it is generally less efficient than interactive zero-knowledge proof, and requires more computation.

3. **Succinct Zero-Knowledge Proof:**

   In this type of proof, the proof size is small, typically on the order of a few hundred bytes. This makes it ideal for use in blockchain applications, where the proof size is a critical factor in determining the scalability of the system. However, succinct zero-knowledge proof is generally less secure than other types of zero-knowledge proof, and can be vulnerable to certain types of attacks.

Each type of ZKP protocol has its own strengths and weaknesses, and the choice of protocol depends on the specific application and requirements of the system.

Applications of Zero-Knowledge Proof

Zero-knowledge proof has numerous applications in security, including password authentication, digital signatures, and identity verification. In this section, we will explore some of these applications in more detail.

Password Authentication

Password authentication is a common application of zero-knowledge proof in security. Traditional password authentication requires a user to enter a password, which is then sent to a server for verification. This process is vulnerable to attacks, such as man-in-the-middle attacks, where an attacker intercepts the password and uses it to gain unauthorised access to the user's account. With zero-knowledge proof, a user can prove to a server that they know the

password, without actually revealing the password itself. This is done by using a special algorithm that generates a proof of knowledge, which the server can verify without knowing the password.

Digital Signatures

Digital signatures are another important application of zero-knowledge proof in security. A digital signature is a mathematical scheme for verifying the authenticity of digital messages or documents. A digital signature is created by applying a cryptographic algorithm to a message or document, which produces a unique digital fingerprint. This digital fingerprint is then signed by the sender using their private key, which can be verified by the receiver using the sender's public key. With zero-knowledge proof, a sender can prove to a receiver that they have signed a particular message, without revealing their private key or any additional information about the message.

Identity Verification

Identity verification is another important application of zero-knowledge proof in security. Traditional methods of identity verification, such as providing a government-issued ID or answering security questions, are vulnerable to fraud and identity theft. With zero-knowledge proof, a user can prove their identity to a verifier, without revealing any additional information about themselves. This is done by using a special algorithm that generates a proof of identity, which the verifier can verify without knowing any additional information about the user.

Data Sharing

ZKPs can also be used to enable secure and private data sharing on the blockchain. Traditional methods of data sharing often involve sharing the actual data itself, which can be risky if the data contains sensitive information. With ZKPs, users can prove that they have access to certain data, without actually revealing the data itself.

One example of this is the use of ZKPs in supply chain management. The VeChain blockchain uses a form of ZKP called Bulletproofs to enable secure and private data sharing between different parties in the supply chain. This allows each party to verify that the data is accurate, without actually revealing the data itself.

Privacy-Preserving Transactions

One of the main advantages of blockchain technology is its ability to provide a transparent and immutable ledger of transactions. However, this transparency can be a double-edged sword, as it can also reveal sensitive information about the parties involved in a transaction. ZKPs offer a solution to this problem by allowing users to conduct transactions without revealing any additional information about themselves, except for the fact that they are authorised to participate in the transaction.

ZKPs can be used to create private or anonymous transactions on the blockchain. For example, the Zcash blockchain uses a form of ZKP called zk-SNARKs to enable shielded transactions, where the amount, sender, and receiver of a transaction are all kept private. This provides a high degree of privacy for users, while still maintaining the integrity of the blockchain.

Advantages of Zero-Knowledge Proof

ZKP has numerous advantages when it comes to enhancing online privacy and security. In this section, we will discuss the advantages of using ZKP in online privacy.

1. **Protection of Sensitive Data**

   One of the most significant advantages of ZKP is that it allows individuals to prove the validity of a statement without revealing any sensitive data or information. This means that individuals can authenticate their identity or ownership of certain information without revealing any personal or confidential data. For instance, a user can prove their age without revealing their date of birth or other personal information. This can significantly enhance online privacy, as it prevents the unnecessary sharing of personal data that could be misused or exploited.

2. **Preventing Fraud**

   ZKP can also be used to prevent fraud by allowing individuals to prove the authenticity of a statement or transaction without revealing any confidential data. For instance, in financial transactions, ZKP can be used to verify the validity of a transaction without revealing any account details or personal data. This can prevent fraudsters from accessing sensitive financial information and committing fraudulent activities.

3. **Increased Security**

   ZKP also enhances online security by preventing unauthorised access to sensitive data. With ZKP, individuals can authenticate their identity or ownership of certain information without revealing any personal data. This means that even if a third party gains access to the transaction or communication, they cannot access the underlying data or information. This can help prevent data breaches and unauthorised access to sensitive information.

4. **Improved Efficiency**

   ZKP also has the potential to improve the efficiency of online transactions and communications. With ZKP, individuals can authenticate their identity or ownership of certain information in a matter of seconds without revealing any personal data. This

means that transactions and communications can be completed faster and with less friction.

5. **Versatility**

   ZKP is also a versatile technology that can be applied to a wide range of applications, including financial transactions, healthcare, government services, and more. ZKP can be used to authenticate the identity of users, verify the validity of transactions, and confirm ownership of certain information. This versatility makes ZKP a valuable tool for enhancing online privacy in various industries and sectors.

6. **Transparency**

   Finally, ZKP can also enhance transparency by enabling individuals to prove the validity of a statement or transaction without revealing any personal or confidential data. This means that transactions and communications can be more transparent and accountable, as users can prove their authenticity without revealing any underlying data.

Challenges and Limitations of ZKP

While Zero Knowledge Proof (ZKP) is a promising technology for enhancing online privacy, there are several challenges and limitations that need to be considered before its widespread adoption. In this essay, we will examine the challenges and limitations of ZKP.

1. **Scalability**

   One of the main challenges of ZKP is scalability. The computational overhead required to perform a ZKP increases with the complexity of the statement being proved, which can result in slow performance and increased costs. This limits the applicability of ZKP to large-scale applications, such as blockchain-based systems, where multiple users need to perform ZKP in real-time.

2. **Usability**

   Another challenge of ZKP is usability. The process of generating a ZKP requires significant computational resources and technical expertise, which can be a barrier to its adoption by the general public. Additionally, ZKP protocols often require multiple rounds of interaction between parties, which can be confusing and difficult to understand for non-technical users.

3. **Interoperability**

   ZKP protocols are typically designed to work within a specific system or platform, which can limit their interoperability with other systems or platforms. This means that ZKP cannot be easily integrated into existing systems, and additional work is required to ensure interoperability with other systems.

4. **Privacy Leaks**

   While ZKP is designed to protect user privacy, there is still a risk of privacy leaks. For instance, if an attacker can observe multiple ZKP interactions, they may be able to correlate the interactions and deduce the underlying data or information. This highlights the importance of designing ZKP protocols that are resistant to privacy leaks.

5. **Trusted Setup**

   Many ZKP protocols require a trusted setup, where a trusted third party generates initial parameters for the ZKP protocol. However, this introduces a potential vulnerability, as the trusted third party could tamper with the initial parameters to undermine the security of the ZKP protocol. To address this issue, new ZKP protocols are being developed that do not require a trusted setup.

6. **Centralization Risk**

   Finally, the use of ZKP can create a centralization risk, as certain ZKP protocols require a centralised service or authority to manage the ZKP process. This can undermine the decentralisation and autonomy of certain systems and platforms, particularly in the blockchain space.

To realise the full potential of ZKP, these challenges must be overcome, and new ZKP protocols must be developed that are secure, efficient, and user-friendly.

Conclusion

In conclusion, Zero Knowledge Proof (ZKP) is a promising technology that can significantly enhance online privacy. By allowing individuals to prove their identities or ownership of certain information without revealing any sensitive data, ZKP has the potential to enable more secure and privacy-preserving online transactions, communications, and data sharing. As the adoption of digital technologies continues to increase, ZKP could become a critical tool for protecting individuals' personal information and preventing data breaches, identity theft, and other forms of cybercrime.

Several industries and organisations have already started exploring the use of ZKP for various applications, including financial services, healthcare, and government services. However, there

are still technical and practical challenges that need to be addressed before ZKP can be widely adopted, such as scalability, usability, and interoperability.

Future research on ZKP should focus on improving its efficiency and usability while maintaining its security and privacy-preserving properties. Additionally, more efforts are needed to raise awareness and educate the public about the benefits and limitations of ZKP and other privacy-enhancing technologies.

Overall, ZKP holds great potential for enhancing online privacy and could be a key technology for building a more secure and trustworthy digital world.

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THE ROLE OF ARTIFICIAL INTELLIGENCE IN EDUCATION

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ABSTRACT

Artificial intelligence (AI) has always made a substantial contribution to the field of education. AI has always benefited both lecturers and learners, from robotic instruction to the creation of an automated method for grading answer sheets. We have conducted a thorough examination of the various cases.
In order to emphasize and summarize the role of AI in teaching and student evaluation, research on artificial intelligence approaches applied to the education industry has been conducted all over the world. Our research demonstrates that all NLP-enabled intelligent tutor systems are built on AI. These systems aid in the development of traits including self-reflection, introspection, conflict resolution, the ability to generate original questions, and decision-making abilities.

KEYWORDS

Artificial intelligence, teaching, evaluation, and education
Smart tutoring system

INTRODUCTION

Artificial intelligence (AI) is the association of intelligence with computers, i.e., machines that demonstrate AI and make decisions similar to those made by humans. Its primary goal is to build incredibly sophisticated systems with strategic thinking abilities. By developing effective software that aids in the development of virtual machines with thinking, problem-solving, and learning capabilities, artificial intelligence supports computer science. Artificially intelligent machines have linguistic, mathematical, logical, interpersonal, and inter-personal intelligence. The area of artificial intelligence encompasses a wide range of disciplines, including robotics, expert systems, fuzzy logic, and neural networks [1]. The foundations of every expert system, whether those focused on tracking flights or providing medical care, are built using a combination of natural language processing and artificial intelligence. Virtual agents can behave as planned in accordance with the environment thanks to language production and translation made possible by NLP [1].

One of the most important areas of artificial intelligence is robotics, which shows skilled robots behaving as artificial agents in a live world. AI algorithms operate as the fundamental building blocks of robots, giving them the ability to act as virtual agents in a computer-simulated world. AI encourages the autonomous creation of easily modifiable programs and also tries to address a few 21st-century abilities like self-reflection, self-direction, and cooperation. As AI develops

more sophisticated systems that can successfully grasp human speech, compete at higher gamification levels, and perceive interactive media, we can see how important AI is becoming [2].

Recent developments in the educational field include novel teaching myths, teaching agents, and web-based engines like courser that suggest the finest courses on certain subjects to pique students' interest. AI is educating people and facilitating an atmosphere devoid of judgement for learning worldwide. By studying outside of the classroom, it seeks to improve technology for all of life. The introduction of global classrooms is increasing the accessibility and interconnection of classrooms throughout the world. [5]. AI is essential in tracking the mental movements of learners, such as self-regulation, monitoring, and explanation, in order to build intelligent tutor systems. Additionally, it chooses the information that is best for the learner. The transition from tell-and-do culture to deep thinking and learning systems is being aided by AI. Additionally, it facilitates the organization and synthesis of interactive information, including electronic books, video lectures, natural games, and personalized evaluations of teaching assistants.

This paper highlights how artificial intelligence is playing a growing role in education and how it fosters computational creativity and social intelligence. Building highly intelligent educational systems that can transform the educational system, such as virtual mentors like Siri on the iPhone, Facebook friend suggestions, and Google self-driving vehicles, are key examples of how artificial intelligence is affecting lives. The amount of human work is significantly reduced with an automated internet shopping helper. Doctor assistants are being introduced as bots or agents by AI as it permeates the medical industry. This was demonstrated in the recent Microsoft project "Hanover," which is centered on cancer and uses bots to follow the medical histories of cancer patients in order to provide intelligent treatment recommendations. AI has had a significant impact on the automotive industry today, leading in the development of autonomous automobiles and other disruptive developments to the sector [11].

In this paper, we reviewed different intelligent tutor systems, and the main features of all the systems can be summarized as virtual agents that can advise, instruct, and help people make decisions, derive a solution, have explanatory powers, predict the outcome, support the conclusion, and suggest alternative solutions for problems. Additionally, new methods can assess the caliber of curricula and instructional resources. Adaptive learning and dynamic feedback generation are made possible by recommendation engines, which is completely different from conventional lecture-based techniques. Even the practical experimentation of disciplines like physics, robotics, and statistics may be seen as a new development in the web-based education. Every subject can be digitalized. These instructional online apps are built on two guiding ideas. LBD (Learning by Doing) and LBT (Learning by Teaching). [8].

There has been a lot of study in this area to greatly enhance online education. Semantic web and the interoperability of Intelligent Tutor System (ITS) play a significant part in the creation of these systems, which are thought to be successful and efficient for users. The structure of this essay is as follows: [2] provides a brief overview of the publications we reviewed in the areas of teaching with AI and qualitative assessments with AI as well as a description of the function of artificial intelligence in education. [3] is a thorough review of the articles that discuss the ideas and importance of the many ITS systems described in the publications. Conclusion and future scope will be in [4].

2. ARTIFICIAL INTELLIGENCE'S ROLE IN EDUCATION

The importance and contributions of different artificial intelligence approaches used for effective teaching and related evaluation are covered in this section.

2.1 AI-BASED EDUCATION

To give a digital learning platform with deep learning systems, artificial intelligence is strategically structuring the educational systems. A new era in education is being ushered in by interactive graphics, improved gaming techniques to address real-world issues, teaching through virtual assistants, context-specific feedback creation, and curriculum accuracy. Using simulations and tutoring techniques inspired by humans, AI may be used to teach [10].

The intelligent tutor systems BEETLE II, Assessment ecosystem, Reasoning Mind Genie 2, AutoTutor, and Family represent have all the powers of human intelligence. All of the systems have multiple 3D representations with dynamic graphical user interfaces, different problem levels (lower, intermediate, and high), a platform for logical reasoning, analysis of real and simulated data, teaching with virtual agents, and a combination of human and computer intelligence with strong and context-related decision-making abilities [14].

Significant examples of the introduction of real-time gaming in ITS include BELLA, the Teachable Agents game for elementary school children, and the Robot laboratory for teaching AI to undergraduate computer science students [4]. These systems create difficulties in the form of captivating adventure games that draw students deeply into the issue and improve their learning capacity [13].

2.2 AI-BASED QUALITATIVE ASSESSMENT

Artificial intelligence techniques and algorithms, such as predictive modeling and artificial neural networks, introduce advanced data science techniques to optimize the data analytics process [6]. In recent intelligent tutor systems, Bayesian networks provide more accurate prediction and classification. Advanced AI principles such as dimensionality reduction and prediction elicitation are also used in collaborative data filtering [7]. Assessments of real-time data obtained from these systems are critical in providing users with a real-time environment in which they can compare their performance to that of others.

The following papers are surveyed and underlying in this category:

- Time spent analysing problems.
- Comparison of multiple graphical representation interleaved and blocked approaches.
- The significance of semantic web in ITS.

These papers use various prediction and classification techniques to analyze the system's simulated and real data, such as problem-solving time, which is predicted through user interaction with the system and collaborative data filtering. The above-mentioned two approaches are compared using data collected from ITS systems, which revealed that learning gains were consistent in the interleaved approach. Large-scale system development necessitates strong support from web-based engines and data management. AI is playing a significant role in all aspects of web-based education in the process of making the web more understandable by machines. [15].

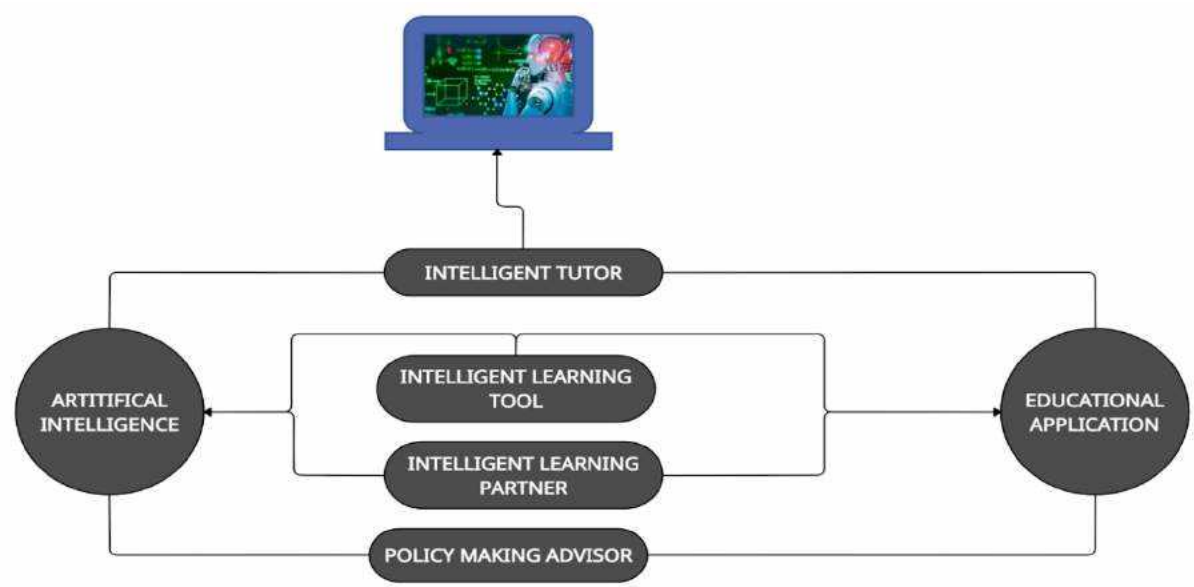

Fig: The Roles of AI [12].

3. THE STUDY OF ARTIFICIAL INTELLIGENCE IN EDUCATION

In this article, I have opined that AI plays an important and evolving role in education, but that it should be approached with caution. Always keep in mind that the (supposed) ultimate goal of (higher) education is to make students experts in their chosen professions, to enable them to become valued members of their communities, and - in a broader context - to ensure that they become responsible global citizens. Doing so in the current climate necessitates determining what AI does best and what (human) teachers do best - so that they can continue to do so [11].

First, as much as is humanly possible, one must ensure that by introducing more AI into educational contexts, one does not inadvertently harm students. Because the safety of the young comes first, student safety must come first. Their individuality must be respected and protected. The first origins-of-the-state theorists, Thomas Hobbes (2001), John Locke (2001), and Jean Jacques Rousseau (2001), all argue that the most fundamental reason why people establish societies in the first place is precisely because they want the state to look after their safety - especially the safety of their children [7].

Personal identity and integrity are negotiated through interactions with other social agents. Many people regard AI as a new and emerging social agent. Many argue that it is already deeply involved in students' identity formation in significant ways.

Trust is essential: trust in students, teachers, parents, and families. Everyone must be able to trust the educational system and the decisions made within it; accountability is impossible without trust. Many educational stakeholders are sceptical of AI, or at least of their understanding of it. Distrust in educational AI may spread, leading to distrust in teachers or the educational system as a whole. On the other hand, too much or otherwise misplaced trust may lead the student to prefer the company of the AI app over that of her teachers or peers, especially if the AI app appears to be more competent than the teachers in areas such as math or computer science.

AI can provide two important benefits to education: financial and time savings in an era of tight budgets. Using AI to take over parts of the teaching process could be a way to cut salary costs - at least in the short term. Another problem is time management. If AI can take over part of a teacher's workload - grading, bureaucratic record keeping, even individualized advice to students on what they need to study - then teachers can devote their time to other things, such as focusing on the human side of teacher/student relationships or prioritizing research (along with receiving research grants and publishing in highly ranked international journals), which brings them more prestige than teaching.

According to Leonie Rowan and Peter Grootenboer (2016), "research is still regarded as the most valuable and prestigious dimension of academic work," and as academics advance in their careers, they find ways to do less and less teaching. Classroom instruction is not only low-status, but it is also time-consuming. Who can complain if AI can take over some of the drudgery? Perhaps teachers should do more to embrace AI rather than fear it. Alternatively, perhaps the moral of the story is to elevate the status of teaching and to think more critically about how AI is used [11].

Alyssa Johnson provides a useful list of what AI has to offer education, beginning with (1) simplifying administrative tasks, including paperwork; (2) AI can help make textbooks more comprehensible with smart content; (3) AI can provide students personalized learning, including personalized tasks and feedback; (4) AI facilitates global learning: AI-enabled apps are portable, so education can happen anywhere, any time the student is ready; and (5) AI offers new efficiencies. In conclusion, it appears that AI is superior to humans in performing certain detailed tasks and navigating large amounts of factual knowledge [9].

AI can already do some things better than human teachers, and it appears safe to assume that it will do even more in the future. There are several scenarios for teachers' future roles in relation to AI that deserve serious consideration. Such consideration begins with a careful examination of teachers' current roles, which (at least in higher education) revolve primarily around giving lectures and leading discussions. Today's AI cannot deliver lectures, let alone effectively - it can only assist in tangential ways with that delivery - but future AI can. On the other hand, one can imagine AI developing in ways that will render traditional lectures obsolete.

Marilla Svinicki and Wilbert J. McKeachie (2011) provide a useful list of uses for lectures (p. 56):
• Providing current information, given that there is almost always a significant gap between the most recent research and its appearance in textbooks. Lectures have the ability to be cutting-edge in ways that textbooks cannot.
• Summarizing information from multiple sources.
• Tailoring material to a specific group of students' backgrounds and interests.
• Providing orientation within a suitable conceptual framework to assist students in reading more effectively.
• Concentrating on key ideas and principles.

Modern AI can help with all of these to varying degrees, but it cannot (yet) completely replace any of them. If it can at some point - and there appears to be no a priori argument that it cannot - then the traditional lecture may vanish, or at the very least change so drastically that it is unrecognizable [6].

Svinicki and McKeachie (2011) discuss a benefit of lectures that they do not mention on their list: lectures have motivational value, specifically through the influence of teachers' attitudes

and engagement on student motivation. According to research, teacher enthusiasm is critical to the learning process. Teachers can coach their students in ways that no virtual teacher or teachable agent in any existing educational app can even come close to, not least because of the difference in physical presence [4].
According to Svinicki and McKeachie (2011), one of the benefits of live professors is that people tend to model themselves after other people, who they perceive as living, breathing human beings with characteristics that can be admired and emulated (p. 57), [6].

No non-sentient, non-living entity – all that modern AI can offer – can do more than crudely mimic human enthusiasm or other emotional expressiveness. There is a reason why teachers devote a disproportionate amount of their lecture time to topics that they are passionate about. When it comes to voice, posture, and gesture, human teachers clearly have an advantage. They can dramatically change their voice (compare the impoverished nature of a fully synthesized voice!), leap forward, shift around, and make deliberate eye contact with students: their bodies are their instruments. A pregnant pause allows students to reflect before the lecture resumes. A good speaker has her audience in the palm of her hand. An AI android may hope to perform the same AI as it exists today cannot [2].

The philosophical literature has a rich tradition that addresses bodily presence and how face-to-face encounters and other forms of physical and mental contact influence people (Levinas, 1991; MerleauPonty, [1945] 2012; Sartre, 1984). Their shared belief is that bodily interaction with those perceived as fellow humans is necessary for people to develop self-consciousness and personal identity. People shape and reshape one another by adapting to and learning from one another, becoming aware of themselves through the eyes of others. Aside from speech, nonverbal cues such as body language have a significant, albeit largely unnoticed, impact on personal development [10].

Consider the impact of teacher and peer reactions when a student speaks in class. How do the other students react when a student openly challenges her teacher? What are the reactions of any other teachers who may be present? Students learn to imitate their teachers' and peers' actions. They are constantly observing, even when they do not appear to be. Teachable moments can be found in moments of pride or shame.

Researchers currently know too little about the psychological effects of interacting with AI-enabled technology, and the nature of that technology is evolving, making it a moving target. One naive belief is that AI is free of human bias, or at least more neutral. After all, the algorithms that power AI are designed by humans. AI bias can be even more damaging because people believe artifacts are unbiased. 16 As AI becomes more human (or at least human-like), if that is even possible, it is likely to develop biases of its own.

People can become isolated and lonely as a result of technology. This is true for students just as much as it is true for everyone else. One of the most significant contemporary challenges, according to MIT Professor Sherry Turkle (2017), is technology-induced loneliness. One of her main concerns is that people are expecting more and more from technology while expecting less and less from one another. On a typical weekday, imagine a crowded bus in any city. Many of the passengers are most likely distracted by their smartphones. Consider the students in a lecture hall before the lecture starts. Many people are likely to be interacting with (or through) their phones rather than speaking directly to one another. If technology results in less (or less direct) human contact, AI may aggravate the problem.

AI does not care about humans as humans because AI, at least in its current form, does not care about anything. For the time being, it can only superficially resemble caring. When interacting with AIs, one may feel cared for, but only because one wishes to be duped (in most cases). (One recalls stories from decades ago about people who were horrified when their conversations with Eliza, the AI-based pseudo-therapist, were 'rudely' interrupted.) AI, with a few exceptions, is not physically present. Even when it is, as in robotic AI, it exhibits no conscious presence. There is no way to meaningfully teach human norms and values without such (self-) conscious presence [10].

Given the growing influence of AI in education, which has the potential to be dehumanizing, it can only be of increasing importance that teachers teach values. Being able to correctly answer questions (whether posed by a teacher or an AI-enabled device: it makes no difference) is not enough to be a good student or citizen. Aside from values, one must be able to justify their answers: that is, explain how they arrived at them. Opinions must be supported by solid factual evidence.

Responses must be context-aware.

Aside from societal norms, students must learn the norm of their chosen discipline. There is no evidence that these are algorithmic. Courses have their own norms and values, which are reflected in the course goals, syllabus, and lecture structure: what is time spent on, and what is skipped for lack of time? Norms and values permeate classroom comments and paper feedback; they emerge in passing conversations with students in the hallway. Grades are not, and should not be, strictly objective, if such a thing is possible. They, too, are layered with unmistakably human value judgments.

As Plato's Socratic dialogues so clearly demonstrate, one of the essential roles of the teacher is to help students become aware of gaps in reasoning or knowledge that they were previously unaware of. Consider the famous Socratic dialogue on justice, in which Thrasymachus asks Socrates to define 'justice'. Thrasymachus claims that injustice is more masterful than justice, but Socrates counters that justice is good in and of itself. The dialogue provides an appropriate (and seemingly timeless) response to the question, "Why be just?"

Socrates proposes that in order to live good lives and flourish, humans require more than just their physical needs to be met: food, water, warmth, and shelter. It is never enough to simply exist. People must believe that their lives are worthwhile. With Aristotle as inspiration, philosopher Martha Nussbaum (2001) offers a list of ingredients essential to human flourishing: a list of "what the most central human capabilities are" (p. 222). Her working list, which she considers to be constantly updated and fully cross-cultural, includes:

• Physical well-being.

• Bodily integrity, which she defines as the freedom to move from place to place while remaining safe from violent assault.

•Sensory perception, imagination, and thought, as well as practical reasoning.

• A sense of the good, with critical self-reflection on one's attempts at life planning.

•Emotion, which includes the ability to form attachments to things and people other than oneself. Friendship and other forms of affiliation allow one to live with and for others, respecting their unique identity and point of view, and allowing oneself to be treated as a dignified being of equal worth to others.

Despite the world's technological progress, the core of human nature appears to be eternal, even atemporal (as religion imagines the soul to be). Education should strive to be tailored to the type of beings that people are, regardless of their circumstances: creatures in need of happiness, freedom, security, trust, and meaningful relationships. To be sure, people are machines in a functional sense, but not in an art factual sense. They, like all organisms, are homeostatic machines that maintain their fragile existence in out-of-equilibrium conditions (see, for

example, Maturana & Varela, 1980, p. 77). In contrast, artifacts are neither homeostatic machines nor people [8].
Only when artifacts can transcend their art factual nature and be treated legitimately as people in their own right - if such a thing is possible - will the biologically human teacher truly face competition. Returning to the model of the ancient sages, at least as it is currently understood, is neither possible nor desirable. That is not to say that the model does not have any lessons to teach. In a world where social media and other forms of online interaction consume an increasing portion of people's time, people may become fearful of being too close to one another - a scenario Isaac Asimov (2004) takes to its logical conclusion in his novel. The importance of developing and maintaining face-to-face, flesh-to-flesh human relationships becomes even more pressing in The Caves of Steel. Consider the Vulcan educational system's lack of human interaction - in the functional rather than (obviously) biological sense. Cooperation and healthy interdependence are enduring values of human culture; indeed, they are a significant component of what makes that culture possible. These are values that AI as it currently exists cannot teach because it lacks them; and one cannot teach what one does not intimately know for oneself, as many a teacher has discovered [9].

4. CONCLUSION

In this paper, we surveyed various research papers on the role of AI in education and the development of intelligent tutor systems for web-based learning environments. We concluded that the introduction of web-based education increased the student's learning capabilities significantly. Teachers are also utilizing these platforms in curriculum design, which can benefit all other students who are not currently using these systems. Natural math problems in the form of enhanced gaming techniques attract the majority of primary school students, allowing them to learn basic mathematics concepts in a more interactive manner [12].

These platforms allow students, teachers, and researchers to share the same space, knowledge, and concepts. It also allows an Indian student to learn various courses from Russian teachers through these platforms. The use of multiple graphical representations leads to improved long-term retention of information and fundamental concept transfer. The comparison of different approaches or strategies used by students to solve a problem increases natural competitiveness and advanced mathematical thinking in primary school.

All of these expert systems encourage students to devise novel computational strategies in order to solve the problem correctly. It encourages students' multidimensional skills, which leads to an increase in deep learning. These tools promote web-based learning rather than traditional lecture-based learning. The use of voice and speech recognition techniques, as well as natural language processing, in tutoring agents allows students to understand the value of virtual reality in education. These systems' learning is based on repeated reactivation, or the representation of specific knowledge.

Physics, chemistry, and statistics become more understandable to students through interactive experimentation. The establishment of a robotics laboratory in an institution is a novel approach to introducing physical robots rather than virtual robots capable of displaying all human capabilities. AI is becoming a necessity for future generations, as it attempts to surpass human perception or intelligence in a more precise manner [16].

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