

Dynamic construction of lattice of cuboids in data warehouse

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Abstract

In the field of Business Intelligence we require quick and efficient analysis of multidimensional data. Data warehouse (DW) and Online analytical processing (OLAP) approaches have been developed for this purpose which represents data in the form of cuboids. Lattice structures have been developed which consists of data cubes or cuboids. In the Lattice framework base cuboid contains all N - dimensions and moving up to the hierarchy we reach to 0 - Dimensional cuboid called apex cuboid. New cuboid may be generated by roll-up through dimension reduction. Dimension of cuboid may be reduced and increase according to business requirement. In this paper an algorithm is proposed for constructing cuboid dynamically. Cuboid are need to select in all ways for materialization purpose. Dynamic construction of cuboid enables materialization in fast and efficient way.

Subject Classification: 94D94, Information Technology.

Keywords: Lattice of Cuboid, Data Cube, DW.

1. Introduction

Data Warehouse is a subject-oriented, integrated, historical and non-volatile representation of data [1]. It is viewed as an elaborated repository of huge historical electronic data of an organization. Data stored in DW are in the form of cubes. Every cell in data cube holds a numerical value which is known as measures such as budget, profit, sales. Data cube is a

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Article

Improved Handwritten Digit Recognition Using Convolutional Neural Networks (CNN)

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Abstract: Traditional systems of handwriting recognition have relied on handcrafted features and a large amount of prior knowledge. Training an Optical character recognition (OCR) system based on these prerequisites is a challenging task. Research in the handwriting recognition field is focused around deep learning techniques and has achieved breakthrough performance in the last few years. Still, the rapid growth in the amount of handwritten data and the availability of massive processing power demands improvement in recognition accuracy and deserves further investigation. Convolutional neural networks (CNNs) are very effective in perceiving the structure of handwritten characters/words in ways that help in automatic extraction of distinct features and make CNN the most suitable approach for solving handwriting recognition problems. Our aim in the proposed work is to explore the various design options like number of layers, stride size, receptive field, kernel size, padding and dilution for CNN-based handwritten digit recognition. In addition, we aim to evaluate various SGD optimization algorithms in improving the performance of handwritten digit recognition. A network's recognition accuracy increases by incorporating ensemble architecture. Here, our objective is to achieve comparable accuracy by using a pure CNN architecture without ensemble architecture, as ensemble architectures introduce increased computational cost and high testing complexity. Thus, a CNN architecture is proposed in order to achieve accuracy even better than that of ensemble architectures, along with reduced operational complexity and cost. Moreover, we also present an appropriate combination of learning parameters in designing a CNN that leads us to reach a new absolute record in classifying MNIST handwritten digits. We carried out extensive experiments and achieved a recognition accuracy of 99.87% for a MNIST dataset.

Keywords: convolutional neural networks; handwritten digit recognition; pre-processing; OCR

1. Introduction

In the current age of digitization, handwriting recognition plays an important role in information processing. A lot of information is available on paper, and processing of digital files is cheaper than processing traditional paper files. The aim of a handwriting recognition system is to convert handwritten characters into machine readable formats. The main applications are vehicle license-plate recognition, postal letter-sorting services, Cheque truncation system (CTS) scanning and historical document preservation in archaeology departments, old documents automation in libraries and banks, etc. All these areas deal with large databases and hence demand high recognition accuracy, lesser

A novel change impact model for enhancing project management

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Abstract: Software systems changes constantly with time. Changing the software affects all the classes associated with it. For effective project management it becomes important to predict change impact classes in earlier phases of software life cycle. This paper aims to develop a novel model using dynamic metrics and several behavioural dependencies. Using code analyser trace events 30 different metrics are analysed which are further used for refining the degree of change impact feature of a class. Further the model is validated using K-means clustering technique, naïve Bayes classification and logistic regression in WEKA tool. Validation of the model is done using open source software Art of Illusion (AoI).

Keywords: change impact; notability; frequency; change prone classes; project management; software metrics; software development; software maintenance; software engineering; software reengineering.

Reference to this paper should be made as follows: Bura, D. and Choudhary, A. (2020) 'A novel change impact model for enhancing project management', *Int. J. Project Organisation and Management*, Vol. 12, No. 2, pp.119–132.

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Hybrid CNN-SVM Classifier for Handwritten Digit Recognition

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Abstract

The aim of this paper is to develop a hybrid model of a powerful Convolutional Neural Networks (CNN) and Support Vector Machine (SVM) for recognition of handwritten digit from MNIST dataset. The proposed hybrid model combines the key properties of both the classifiers. In the proposed hybrid model, CNN works as an automatic feature extractor and SVM works as a binary classifier. The MNIST dataset of handwritten digits is used for training and testing the algorithm adopted in the proposed model. The MNIST dataset consists of handwritten digits images which are diverse and highly distorted. The receptive field of CNN helps in automatically extracting the most distinguishable features from these handwritten digits. The experimental results demonstrate the effectiveness of the proposed framework by achieving a recognition accuracy of 99.28% over MNIST handwritten digits dataset.

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Keywords: Handwritten digit recognition; Hybrid model; Convolutional Neural Network; Support Vector Machine.

1. Introduction

Now a days, Handwritten Digit recognition is an active area of research in the domain of handwriting recognition. In recent years, many handwritten digit recognition systems have been proposed for practical applications which demand high recognition accuracy and reliability. The touched and overlapped characters, different handwriting

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A Study on Dimensions of Interpersonal Relationship of Directly Recruited and Promoted Employees in Selected Industries

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ABSTRACT

In today's competitive environment, there is need to pay attention on interpersonal relationship of superior with their subordinate. Interpersonal relationship with their subordinate at work is an advantageous impact on both, organization and individual's productivity. This study provides a deeper insight into the Interpersonal relationship with their subordinate of directly recruited and promoted employees in selected industries in Delhi covering 130 respondents (66 directly recruited and 64 promoted employees) from different industries. An ANOVA test is used to assess the Interpersonal relationship containing five dimensions of Interpersonal relationship. This study would give an opportunity to industry employers to introspect and make self-analysis of their interpersonal relation with their subordinate on recruitment basis & to accomplish the goals of industries.

Keywords: Interpersonal, Inquisitive, Resolving, Working relationship, Competition

INTRODUCTION

Performance of employees of any organisation depends on the ability to interact with the superior and subordinate within the organisation and customers, suppliers and public outside. Interpersonal relationship is an important issue for any type of organization. Most of the organizations have facing problems rather than business problems. Such type of problems are due to faulty interpersonal relationship which hinder the attainment of organisational goal. Efforts should be therefore to enhance the interpersonal relationship of people at work. Good relationship with the subordinates attempt to recognize the personality, calibre, and behaviour of a leader, their reservoir of power, and the way they affect followers and make out group targets. Organizations of all sizes are engaged in a competitive environment and hence need the right kind of relationship to survive. Within the organisation good relationship tend to innovate, respond to changes in markets and environments, creatively address challenges, and sustain high performance. Therefore, Interpersonal relationship is one of the key factor that a superior must possess to lead, supervise and to give a right feedback to enhance the output of his own company genuinely and relentlessly.

The investigator is motivated to conduct the study on "Interpersonal relationship dimensions with their subordinate of directly recruited and 'promoted' employees with their subordinates" as the general distinction exists in the organisations in different industries like Banking Industry, Insurance Industry and Stock Broking & Financial Services Industry etc. In today's corporate world, there is need for work to be done as maximum output with minimum efforts. For this purpose good relationship can be maintained by effective work place communication and team work. Interpersonal relationship gradually develop with the proper selection or recruitment type of employers in selected industries. Some administrators and employees believe that promoted employees maintained good relationship as compare to direct recruited employees due to their administrative experience as work experience knowledge and understanding of organisational set up, composition of employees and social economical condition of subordinates.

LITERATURE REVIEW

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Proactive personality, goal orientation and meta-skills as predictors of protean and boundaryless career attitudes

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Abstract

Purpose – The purpose of this paper is to examine the relationship between proactive personality (PP), goal orientation (GO), meta-skills and the underlying dimensions of protean (self-directed and value-driven) and boundaryless (boundaryless mobility and mobility preference) career attitudes among Indian IT professionals.

Design/methodology/approach – Data were collected from 600 IT professionals working in six IT companies in the Delhi-NCR (National Capital Region) in India. Structural equation modeling was used to validate the measures of the selected constructs and for testing the hypothesis.

Findings – The results of the study revealed that PP significantly affects individuals' protean and boundaryless career attitudes. Moreover, GO significantly affects protean career attitudes, and meta-skill significantly affects boundaryless mobility, respectively.

Practical implications – The study serves as a guide for the HR managers to devise the company's strategies keeping in mind the employees' requirements in parallel with the policies for IT industries in India.

Originality/value – The study enriches the protean and boundaryless career literature by identifying and empirically establishing the relationship between various personality traits and career patterns opted in the context of the Indian IT industry.

Keywords Boundaryless career, India, Organizational behaviour, Goal orientation, Proactive personality, Human resources, Protean career, Meta-skills, Mobility preference, Value driven, Self-directed

Paper type Research paper

Introduction

Career is a journey and not a destination of an individual's life. The career construction theory by Savickas (2002) is the most relevant one and highlights that career development is an ongoing process and is controlled by people who have exposure, networking and exclusions of one's experiences (Sullivan, 1999). However, technological changes, restructuring, downsizing and layoffs have emanated human capital to transit from one employer to another (Pappas and Flaherty, 2006). The disappearance of the traditional upward career path and demise of organizational career leads to different career patterns, i.e. protean career and boundaryless career (Hall and Mirvis, 1995; Hall, 1996; Arthur and Rousseau, 1996; Arthur *et al.*, 2005). The new career patterns are characterized by disruptions and non-linearity, and individuals are now responsible for their career advancements (Arthur and Rousseau, 1996; Nicholson, 1996; Sullivan, 1999; Arnold, 1997). In the modern career approach, a changed form of the psychological contract is explained as a change in the relationship between employer and employee from organizational career to protean career and boundaryless career.

During the last three decades, changes in the societal skeleton have altered the meaning of the word "career." Before the industrial revolution, people managed their



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A Study on the Ethical Transgression in Research at the Tertiary Level

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Abstract--- Education at the tertiary level and its narrated research are in an unremitting state to revolutionize where 'have to' and 'anticipations of humankind' are numerous and increasing day-by-day. Researchers are making constant efforts and pushing hard for discovering new edges in their respective fields. The formal and social role of populace is involved in tertiary education to edify the increased number of students who are socially, economically, and culturally different. Also, there are unexpected outcomes of the acts taken by the researchers in their respective fields which add the responsibility on the research commune to look for vital values, morals, as well as ethics and act accordingly. Regarding the above-said transformation and expansion, research at the tertiary level is beset with various issues in data gathering, coding, and analysis, and of course, the authenticity or veracity of the data collected and reported. Researchers need to deal with and resolve all dilemmas arising from the contextual dynamics of their areas of study interest, demonstrating both accountability and care. The lawfulness, reliability, independence, and autonomy of tertiary education institutions rely on the ethicality of their actions especially in relation to teaching, learning, research and data gathering and analysis access, ensuring that the actions pursued are not only ethically sound and reliable but also flexible reflecting that they have taken cognizance of practical issues involved in the provision of education to a student population constituting a wide range of demographic characteristics. Current reality of research however, if anything, is a far cry from such code of conduct and principles one would expect the academe to follow. Tertiary education institutions demonstrate a clear lack of code of ethics in research, especially in relation the authenticity of the findings reported and other attendant issues and unethical practices like plagiarism. Given the severity of the ethical issues and associated dilemmas that dominate the tertiary education and research scenario, time is bitingly more crucial than ever for appropriate governmental or other regulatory bodies to take cognizance of the severity of issues involved and initiate and implement drastic corrective measures to redeem the research situation. That said, to be on par with developed countries, the one very basic thing we need to do is to improve the quality of education provided at the tertiary level. This paper presents a discussion in some depth about issues such as plagiarism; presentation of fabricated, misleading, unauthentic information; and copyright issues.

Keywords--- Copyright, Transgression of Ethics, Plagiarism.

I. Introduction

In educational research, the ethicality of research has become the main issue, and unethical research practices jeopardize the very purpose or goals of the research itself and, needless to add, lead to total failure of the research work and waste of time and money and vital resources invested to facilitate research work to benefit specific target populations who critically need help from the state. Many frameworks have been established by governmental or regulatory entities to define and control protocols created to mandate and enforce strict moral codes and principles and ethics in academic research. Ethics aren't just about human life per se; they need to be adopted for preserving the natural ecological environment of the earth, for human life cannot survive for long in adverse conditions created by their own unethical behaviour and misdeeds. Ethics are a part and parcel of human rights and democracy. And democracy is essentially about the protection of the rights and voice of vulnerable groups of population in a civil society and ensuring that they get an opportunity to represent themselves equally and on a level that is at par with the rest of the society. Democracy thus is a hallmark a just and equitable society, where vulnerable population groups feel safe and equal and have the freedom and power to pursue their life ambitions as much as developed population groups can and do in the society.

The application of ethical principles and codes of conduct in research is indeed a tedious process and often slows down research work. Owing to the serious implications of flagrant and rampant violations of ethical principles and norms in research, regulatory bodies must rigorously review research papers to assess the veracity of the claims or data presented. Efforts should be made to ensure all research works have proper permissions and the research participants are duly protected, informed consents have been obtained from them, and they aren't affected directly or indirectly on account of the research exercises that involve their participation.

The Indian Economy after demonetization

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Abstract

On November 8, 2016, The Indian government brought a major change in the economic environment by demonetising the high value currency notes – of Rs 500 and Rs 1000 denomination. These ceased to be legal tender money . There were lots of doubts about its possible impact on various parameters of the economy. This article discuss in detail about the impact of Demonetization on various micro and macro economic variables like GDP Growth, Inflation, Industrial growth, Agriculture, Consumer Lending etc. This Descriptive study is based on secondary data . After analysing the data it has been found that the most doubts of have not come true. Demonetisation did not have much negative impact on the economy as it was feared.

Keywords: Demonetisation, GDP, Inflation, Agriculture, Taxation

Introduction

Demonetisation is the legal act of rendering existing currency notes invalid, and replacing them by new currency notes of same or different denominations. It is a shock therapy intended to destroy accumulated illegal cash(which is not legal wealth) and restore the faith of honest taxpaying citizens. In its latest edition Modi government announced demonetization of 500 and 1000 notes on November 8, 2016. For India this surgical strike is not new. India has witnessed demonetization in 1946, 1978 and now in 2016.

Objectives of the Study

1. To understand demonetization and the earlier cases of Demonetisation in Indian Economy
2. To study the impact of Demonetisation on Macro Economic factors like GDP, Inflation etc.
3. To analyse the impact of Demonetisation on Micro Economic factors.
4. To analyse the impact of Demonetisation on the Banking Sector.

Research Methodology; The present paper is a descriptive research based on secondary data. The data has been collected from mainly newspapers and internet.



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Prime Time

Shashi Kant Pandey

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IMPACT OF ORGANISATIONAL CULTURE ON WORK-LIFE BALANCE A BIBLIOMETRIC ANALYSIS AND GROWTH IN RESEARCH

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Abstract - This paper focuses on bibliometric analysis of the impact of organisation culture on work-life balance. A bibliometric review is used to check the growth of particular research. Vos Viewer and Biblioshiny are used for analysis and graphical views. Total 444 documents are analyzed for this purpose. Data is analysed from Web of science database. The findings indicate a rise in the number of organizational culture, organizational commitment and work-life balance/work-life conflict publications. The growth of articles in the Journal of Vocational Behaviour is substantially growing. Using citation analysis, co-citation analysis, bibliographic coupling, co-citation analysis, and co-word analysis, the growth of the research is analyzed. This study helps to identify the author's performance based on citation as well as prestige. This research helps future researchers in identifying the new words, which can help in identifying variables.

Keywords: Work-life conflict, Organisational Commitment, Bibliometric analysis.

I INTRODUCTION

A significant part of the working population's life is the Work-life balance. Work-family imbalance occurs when work affects health by increasing Cholesterol level, body mass, job performance, and increased turnover intentions among employees. Work-family conflict occurs due to the division of labour. It is based on domestic task allocation, and more domestic tasks can create an imbalance between work and family life. Work-family imbalance depends on state family-friendly policies. Few studies give the responsibility of work-life balance to the supervisor. If a supervisor or co-workers are supportive, they can lead to speak in favour of family benefit policies and lead to work-life balance. A few studies relate the impact of work-life balance benefit policies like flexi-time on a senior lever career.

In today's scenario, when there is 24 hours service impact the work-life balance of employees. E-mail systems have affected the work-life balance of employees. When there is a shortage of staff due to recession or cost-cutting, it puts pressure on a few employees and can lead to work-life imbalance. Organizational support is one of the reasons for work to family enrichment. Workload imbalance and job satisfaction in work organizations affect the work-life balance of employees. If the employees are satisfied with the organisational climate can lead to high job satisfaction and commitment among employees. Organizational support is needed to reduce work-family conflict for expatriates also. They have to understand the mental well-being and health of their employee. The organization that provides parental leave to the father is treated very supportive, and employees who think their organisation is supportive have less worry during the leave period. A negative environment in an organisation can increase work-life conflict that can be time-based, behavior-based, and strain-based. Flexibility in work has a significant impact in balancing work-family conflict. The human resource department has a positive role in balancing work and family conflict. Through HR policies and programs, Indian women can achieve work-life balance by setting priorities in their work and personal life. There are different reasons for work-life imbalance, leading to job dissatisfaction and burnout, and intention to leave the organization.

This article aims to analyze the current literature and find out the most influencing author, journal, and documents with citation analysis. This research will be helpful to the future researcher to identify the most cited articles.

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Analysis of a wastewater treatment plant for energy consumption and greenhouse gas emissions

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EMPLOYEE RETENTION STRATEGIES - IN INDIAN INFORMATION TECHNOLOGY SECTOR

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ABSTRACT

Employee turnover is biggest challenge for every organization. Even though all types of the organizations are technology driven, yet human resources are required to run the technology. With all round development in each and every area of the economy, there is stiff competition in the market. With this development and competition, there are lots and lots of avenues and opportunities available in the hands of the human resources. Nowadays the biggest challenge of organizations is not only managing its employees but also retaining its talented employees. Indian IT sector; which is one of major contributors to the economy is also affected by the problem of employee retention. In order to address the issue of employee retention, companies adopt some retention strategies. In this paper, we will find out the retention strategies being followed in Indian IT sector. Primary data is collected from five IT companies i.e. Wipro, Infosys, HCL, Accenture and TCS, of Indian IT sector. The suitable statistical tools are used to draw the conclusion. The study can serve a great deal for HR departments of Indian IT sector in order to reduce attrition.

Key words: Employee turnover, HR problems, Retention strategies and Indian IT sector

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1. INTRODUCTION

Employee turnover is defined as the ratio of the number of workers replaced in a given time period to the average number of workers. Wood (1992) defines turnover as a replacement cycle, in which a new employee has to be hired and trained against a vacancy, either voluntarily or involuntarily. Price (1977) defines turnover as the ratio of the number of organizational members who have left during the period being considered which is divided by the average number of people in that organization during the period. Bliss (2004) argues that

Investment Strategies and Random Walk Hypothesis: South Asia



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The paper aims to study the weak form efficiency of South Asian stock market from 2015 to 2018 in the form of random walk by considered daily closing prices of DSE, Nifty 50, MASIX, NEPSE, KSE-100 and CSE All Share indices from April 1, 2015 to March 31, 2018. Both parametric and nonparametric tests ("ex-post" in nature) are applied for testing weak-form efficiency. The parametric tests include ADF unit root test, auto correlation function and Variance ratio test while non parametric tests include PP unit root test, kolmogrov-Smirnov Goodness of test and run test. The results suggested that all south Asian stock market are inefficient in weak form except India and Maldives. It means that investors will be able to consistently earn abnormal gains by analyzing the historical prices in Nepal, Pakistan, Bangladesh and Sri Lanka. The study will help investors to create and manage an investment portfolio in these South Asian countries as inefficiency in market can lead to abnormal profits to them.

Keywords: Weak Form Efficiency, Unit Root Test, Variance Ratio Test, South Asian Countries, Auto Correlation.

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A Detailed Analysis of Probability & Non-Probability Sampling Techniques for Business Research

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Abstract

Data collection is amongst the foremost step to every research problem. Its significance cannot be underestimated when computing the effects on the results calculated. This paper aims to evaluate the Probability and Non- Probability sampling techniques of data collection. Also to see if any among them has an edge over the other. Data was collected through primary sources using questionnaire method, online and offline for convenience sampling (non- probability) and simple random sampling (probability) respectively. Additionally, several experts on the subject matter were interviewed for their opinion and to get clarity on the said objectives. According to Independent sample T test and Chi Square test based on sample data we conclude that is no significant difference in responses obtained through Probability and Non-probability sampling. Moreover, data collected was analysed on various parameters as Response rate, Trust amongst respondents, Consistency, Generalization etc. for both the techniques. It would be safe to presume that no technique can be said to have an edge over the other. Size of sample, Mode of data collection, Availability of sampling frame, situation to be addressed and many other factors seem to play an integral role in deciding the suitability of the technique. Interestingly we found no common consensus even amongst the experts regarding the behaviour and comparability of both the techniques. However, some of the results did align with the expectations. But no universal, standardized conclusions were derived, and it majority depends upon the researcher and the subject matter of the problem for the applicability of the technique. These conclusions are a logical extension of the arguments that have been put forward in the earlier studies.

Keywords: Non-Probability, Probability, Qualitative Research, Quantitative Research, Sampling.

Introduction

Research intends to explore and gain new insights pertaining to a target population. Data lies in the core of research. Hence the techniques used for data collection takes centre stage. These have a direct impact on the accuracy and applicability of results. Researchers instead of enumerating the whole population use samples to derive conclusions which can be further generalized to the whole population. Enumeration of whole population has though become feasible to a certain extent but is not desirable generally. Over the years different techniques have been developed to sample the data and collect information. Primarily these techniques have been classified into Probability and Non-probability sampling techniques for data collection. Each technique has different scope and is suitable on a case to case basis. Other factors as size of sample and availability of sampling frame too have their influence on the choice of data collection. Using a large size of sample leads to a smaller error margin but demands more time, cost & efforts.

Probability sampling is the oldest technique followed by researchers. Here each constituent of population has equal & non-zero probability of getting chosen due to randomness involved in it. It helps in generalizing the findings as it is a better representative of the population generally taken to be free from selection bias. Probability sampling can be further categorized into

- Cluster sampling
- Simple random sampling

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To understand the life cycle and customer adoption of mobile apps in modern India

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Abstract: Smart phones are smart as they are loaded with apps, and hence 80% of the total time spend on phone is actually spent on apps. Our everyday activities are today managed and governed by mobile apps. There are apps for social networking, entertainment, banking, shopping, travel, reading, news, health, fitness, games, etc. New apps are coming daily and old apps are being removed or uninstalled. The apps industry and its ecosystem is highly complex and dynamic. Life span of apps play a key role in profitability, hence every player is struggling to prolong the life cycle of an app. Various app stores are brimming with all categories of apps, and creating strategies to win customer loyalty. This study is an attempt to understand consumer-adoption behaviour, and identify the key factors valued by customers for any app to be used for a long time. This can help design successful strategies.

Keywords: mobile apps; consumer adoption model; product life cycle; PLC; marketing strategies; business environment; innovation; India.

Reference to this paper should be made as follows: Malik, R. (2020) 'To understand the life cycle and customer adoption of mobile apps in modern India', *Int. J. Electronic Customer Relationship Management*, Vol. 12, No. 3, pp.273-290.

Biographical notes: Rajeshwari Malik is an Associate Professor at the Maharaja Surajmal Institute, An Affiliate of Guru Gobind Singh Indraprastha University, Delhi. She has a brilliant academic career. She obtained her Master in Business Administration from the USMS, Kurukshetra University, Haryana. She obtained her PhD from the Faculty of Management Studies (FMS), Delhi University in the area of Management. She has four years of corporate experience in advertising and media management and 16 years of teaching experience. She is actively involved in research and had published seven books and more than 50 research papers. She is a regular participant in various national and international conferences. She is also actively involved in case-writing and qualitative research. Her areas of specialisation include leadership, womentoring along with the domain of marketing management.

This paper is a revised and expanded version of a paper entitled 'An empirical study on adoption of mobile apps among youth in India' presented at 7th International Conference on Paradigm Shift in Global Business Practices and Socio-Economic Development organized by Vishisht Institute of Professional Studies and Research (VIPSAR), Indore, 8 December 2018.

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A CRITICAL REVIEW TO SOFTWARE RELIABILITY ASSESSMENT

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Sangeeta, Sitender: A Critical Review to Software Reliability Assessment-- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(6), 1-14. ISSN 1567-214x

ABSTRACT

Reliability of the software is an important issue in day today life as human life is heavily dependent on the software and software controlled applications. Ensuring the reliability of this software is not an easy task. A lot of research has been done in the last decades for software reliability assessment. The new models are being developed by the researchers which are directly or indirectly related with the already developed models. These new models are having their origin from the most basic models. In this paper, a critical review has been done that involves the most basic models and the models evolved from existing models. The survey here shows how the new models have been developed from the already developed models. This review will provide a new way for the researchers in order to develop new model that can estimate the reliability of the software more accurately.

1 INTRODUCTION

Quality of a software system is one of its most important attributes. Organizations are trying to ensure highest quality for the software being developed, but ensuring the same is very difficult due to increasing software size, Budget constraints, Time constraints, Shortage of skilled manpower. Reliability is one of the most important quality attributes for software. There is requirement to predict the reliability of computer system in various critical and large scales operating environments. Developing reliable software is especially hard when there is interdependence among the software modules as is the case with much of existing software. For critical business applications, continuous availability is also requirement. Software reliability is an important component of continuous application availability. Rare kinds of single software defects can

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Comprehensive analysis of hybrid nature-inspired algorithms for software reliability analysis


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A New Environmental Factor based Modeling: An Approach to Software Reliability Assessment

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Abstract- In today's cyber world, there is an increasing dependency of people on the applications based on the software. Ensuring the quality of the software is very difficult. Number of models for the estimation of software reliability has been developed earlier, none of the model is there which can give accurate estimate of software reliability under different conditions. Effect of environmental factors need to be considered while developing a model for the estimation of reliability. In this paper some of the SRGMs have been discussed and then on the basis of these models a new model has been proposed involving both the imperfect debugging and environmental conditions. In order to estimate the parameters of the proposed model, swarm intelligence based particle swarm optimization technique is used by the authors. The implementation results of the proposed model shows satisfactory results in reliability estimation using failure datasets provided in real.

Keywords: Software Reliability Growth models (SRGMs), PSO (Particle Swarm Optimization), NHPP.

1 Introduction

Society is becoming dependent on the software and software-handled applications. Some of the software are safety critical, some are business critical. Failures in such software can cause serious injury or death or it may be the significant financial losses and in such situations the system reliability is one of the most important attribute to be considered. Organizations are trying to ensure highest quality for the software being developed, but ensuring the same is very difficult due to the number of reasons. As In today's modern society there is a great impact of software reliability because of the software's vast applications in different areas affecting many millions of people directly or indirectly. Therefore the reliability of the software and satisfaction of the customer become the first choice of the today's software developers [1].

2 Literature survey

In last few decades with the growing digital world, number of software reliability models have been developed under various categories for measurement and enhancement of software reliability. An effort is made to reveal all the essential literature in an organized format. All the surveyed articles are very

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Artificial Neural Network for Markov Chaining of Rainfall Over India

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ABSTRACT

Rainfall forecasting plays a significant role in water management for agriculture in a country like India where the economy depends heavily upon agriculture. In this paper, a feed forward artificial neural network (ANN) and a multiple linear regression model has been utilized for lagged time series data of monthly rainfall. The data for 23 years from 1990 to 2012 over Indian region has been used in this study. Convincing values of root mean squared error between actual monthly rainfall and that predicted by ANN has been found. It has been found that during monsoon months, rainfall of every $n+3$ rd month can be predicted using last three months' ($n, n+1, n+2$) rainfall data with an excellent correlation coefficient that is more than 0.9 between actual and predicted rainfall. The probabilities of dry seasonal month, wet seasonal month for monsoon and non-monsoon months have been found.

KEYWORDS

Artificial Neural Network, Linear Regression, Markov Chain, Pearson's Correlation Coefficient, Probability of Precipitation, Rainfall Forecasting, Root Mean Squared Error, Standard Deviation

INTRODUCTION

Water resource planning is one of the most important activities for the growth of a country like India where economy is too much dependent on agriculture. The prediction of hydrological variables *viz.* precipitation, flood stream and runoff flow play an important role for the growth and development of a nation. In India, irrigation is not common and primarily rainfall water is used for supplying water to crops by farmers. When rainfall is not sufficient, irrigation is utilized as supplement. The forecasting of probability of occurrence of rainfall is one of the most important factors for planning and management of crops and decisions related to water management, following which the liability in economy due to unpredictability of water can be reduced. Hence forecasting, modeling and monitoring of rainfall are of great significance in the field of agriculture as also emphasized by (Geng et al., 1986); (Hoogenboom, 2000); (Sentelhas, et al., 2001).

Weather forecasting can be defined as daily progress and advancement of the weather up to several days ahead, and seasonal forecasting is related to the average weather conditions for a few months to about a year as stated by Chang and Yeung (2003). Since seasonal forecasts provide knowledge

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A Survey of Recommendation Systems

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ABSTRACT

Today's internet is able to discover almost any product or piece of information. The large amounts of unfiltered information returned by an internet query calls for filters able to validate and rank the available options. Recommender systems (RSs) are a software tool designed to qualify the options available and make suggestions that align with the user's requirements and expectations. This paper reviews some significant applications of RSS in various areas like videos, music, eCommerce sites, news, and many more. It also reviews various filtering techniques like collaborative, content based, and hybrid.

KEYWORDS

Collaborative Filtering (CF), Content Based (CB), Knowledge Based (KB), Recommender System (RS)

1. INTRODUCTION

The volatile growth of digital data and the number of visitors to the Internet have created a potential challenge of data overload which increase the access time of product or information of interest on the Internet. The internet has created greater business opportunities and easily reaches to users. Its 24*7 online service has provided the number of choices to the users due to which users faced the information overload problem. Recommender System (RS) is used to defeat this problem (Sardar, Ferzand, Suryani, & Shoaib, 2017). So this is observed that RS makes the choice process easier and time-saving for the user. The main aim of the RS is to make available the most suitable recommendation to user from large number of available options by analyzing the user way of interact with the items (Alshaiikh, Uchygigit, & Evans, A Research Paper Recommender System Using a Dynamic Normalized Tree of Concepts Model for, 2017) (A & Biradar, 2016). The development of a Recommender System becomes the main requirement in all domains in today's era. The naive users needed RS in the form of guidance and suggestions from the experienced users (Nicholas & Francis, 2019). RS has become an important research area and much work has been done on developing the new approaches (Adomavicius & Tuzhilin, 2005).

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GROWTH AND FREQUENCY TO ACCESS THE INTERNET IN INDIA

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Abstract

Mobile phone is the best friend of the present generation. Mostly people use the smart phone. Smart phone cannot function without internet. So, internet is the primary requirement for the smart phone user. This paper shows the growth and frequency of internet user in India. It focuses on the frequency of access of internet usages by gender, by age group and by cause in India. This research also found that there is a huge discrimination by gender and by age group in India. Correlation, frequency, growth rate and mean analysis were done to find the effects of certain parameters which effect the growth of internet user in India. Paper analysis also finds the correlation with total internet access with face-book and social network user in India. Internet growth rate is closely linked with subscription rate through internet mode. Youth is a big market for use of internet in India.

Key words: Correlation analysis, CAGR, mean analysis, social network, Tele-density, penetration etc.

Introduction

India is second largest country followed by China in world. India is the six largest economy on the basis of GDP in the world and on the basis of Purchasing Power Parity (PPP) it is third largest economy in the world. India had the second largest internet using population followed by China in the world. In 2020, India had almost 700 million internet users in the nation. It very well might be extended to develop more than 974 million users by 2025. India is very fast growing economy in internet user. It is not growing only in urban areas but it is growing very fastely in rural areas also. With the access of internet user social network user stood at 376.1 million in 2020 and it is expected to be almost 448 million in 2023. In 2023, the number of face-book users in India is relied upon to arrive at 444.2 million from 346.20 million of 2020. It is showing a consistent growth in the in the social media platform's user base in India. India is biggest Face-book user on the planet. There were around 195 million Face-book users in May 2016, against 191 million in U.S.A and 90 million in Brazil. At present near to 50 percent population is accessing social network. It is estimated that by 2025 the penetration of social networks would be 67 percent of India's population. India is number one in the user of Face-book. Looking forward we see online channels staying solid this year and taking a 45 percent share in the Indian smart phone market in 2020. The COVID-19 pandemic hugely affected the current market situation and utilization of internet in Indian economy as well as its way on entire world.

According to the report of Internet and Mobile Association of India (IAMAI), "Digital in India", March 31, 2019, India had 504 million monthly active internet users in Nov. 2019. Out of absolute internet population, 433 million are of the age of 12 years or more and 71 million are in the age bunch 5-11 years who access the web on gadgets of their relatives. The report likewise noticed that almost 70% of the active internet users are daily users with nine out of 10 users in metropolitan India getting to the web at least once per week.

According the research report of Nokia in 2018, mobile data usage in India jumped 144 percent (y-o-y) to 2360 petabytes, with average consumption per user in 4 G broadband reaching 11 (GB) gigabytes per month in Dec. 2017. Data consumption in the country continued to be driven by video, which contributed up to 65 to 75 percent of total mobile data traffic.

According to Sandhya Keelery, July 7 2020, in the report 'Internet usages in India- Statistics & Facts' found that data usage per smart-phone per month will triple 21 EB per month (one billion GB) by 2025. On an average Indian used around 12 GB data monthly. It is highest consumption globally. It is projected that use of data by 2025 may be increased around 25 GB per month.

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ROLE AND CONTRIBUTION OF TELECOMMUNICATION INDUSTRY IN INDIAN
ECONOMY

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Abstract

Indian economy is the fast growing economy. India is the fifth largest economy on the basis of GDP and third largest economy on the basis of purchasing power parity (PPP) in the world. India is the second largest country followed by China in the population and access of internet in the world. Telecommunication industry of India is one of the extensive and leading industries in the world. This industry covers whole area of country and connects different parts of India through different modes like telephone, radio, television, satellite and internet. This sector also comes in top ten sectors that attract the foreign investment. In this paper we will study of income generated by this sector and attraction of FDI in this sector through the correlation, mean, chart and growth rate methods.

Key words: Correlation analysis, CAGR, mean analysis, internet, Indian economy, telecom industry, FDI, subscription rate, revenue, Tele-density, penetration etc.

Introduction

Indian telecom industry plays a dominant role in the development of Indian economy. In the present scenario internet is a necessity for the development of any economy. Internet is an essential tool for development of country on the whole by contributing towards immense growth, quick expansion and up-gradation of different sector of economy. India is the second largest smart phone market in the world and will have almost one billion unique mobile subscribers in 2020. Revenues from the telecom equipment sector are expected to grow to US\$ 26.38 billion in 2020. Contribution of mobile industry in GDP will increase upto 8.2 percent by 2020, presently which it is 6.5 percent. This report also said that the mobile industry will add 800000 more jobs. In terms of unique mobile phone subscribers, India is expected to cross the one billion mark by 2020. India is witness an increase in adoption of 4G services with number of 4G connections estimated to grow to 280 million by 2020 from just 3 million in 2015.

In 2020 due to corona virus whole world is suffering from Pandemic and growth rate of GDP in India has declined 23.98 percent. It come negative growth rate. At present 696.77 million people are using the internet. It is estimated that upto 2025 974.86 million people will be internet user in India. India comes in top 20 internet user countries. In 2018 out of 100 people 38 were using the internet. While in the same time period in whole world out of 100 people 51 people were using the internet. Highest number of people out of 100 people 80 people in Europe was using the internet while lowest number 24 people out of 100 people were using the internet in Africa in same time period. Due to work from home use of internet is increasing more and more in Pandemic. According to 2019 tele-density of internet user per 100 in India is 90.10 and mobile internet user is 88.45 per 100 people.

Review of literature

According to Department of Industrial Policy and Promotion and the Department of Telecom, the contribution of mobile industry to country's GDP will be increase to 8.2 percent by 2020, presently which contribution 6.5 percent to the GDP. This report also said that the mobile industry will add 800000 more jobs. In term of unique mobile phone subscribers, India is expected to cross the one billion mark by 2020. India will witness an increase in adoption of 4G services with number of 4G connections estimated to grow to 280 million by 2020 from just 3 million in 2015.

According to M. Prabu and R. Manoov in their study 'Analyzing the impact of Internet in rural India' found that, rural internet growth is not related to urban internet growth. Study found that, as rural subscriber rate increases the rural internet growth also increase. Study also found that urban internet users mostly use wireless mode to access internet.

Kathait and Singh, 2014 found their report that more teenagers are attracted towards internet.

FIXED POINT THEOREMS OF FUZZY PARTIAL METRIC SPACES

AANCHAL TEHLAN¹, VIJAY KUMAR², §

ABSTRACT. Fuzzy metric space has been defined using fuzzy numbers by many researchers. Recently Xia and Guo [20] have introduced fuzzy metric space using fuzzy scalars which is similar to the classical metric space. In this work we have generalized a fuzzy metric space to a partial fuzzy metric space using fuzzy scalars and its fixed point theorem have been established.

Keywords: Fuzzy metric space, Fuzzy partial metric space, fixed point theorem

1. INTRODUCTION

Metric is a function which defines distance between two points of the set and metric space is a set together with a metric on that set. It generalized the notion of distance function in Euclidean n -dimensional space. Mathews [13] developed the theory of partial metric spaces, which helps in the generalization of metric spaces. Many researchers have used fuzzy set theory in various disciplines of research. Michalek and Kramosil [11] introduced the concept of fuzzy metric spaces, which are closely related to the class of probabilistic metric spaces. Kaleva [9] and Dia [4] used fuzzy numbers to define metric spaces for measuring distances in fuzzy sets. Felbin [5] investigated various fixed point theorems, some useful results and properties of these spaces were investigated by George [6] who utilized fuzzy numbers to define fuzzy metric space. Chaudhri [3], Diamond [4] and Boxer [2] used similar type of approaches in their work under different kind of fuzzy environment, which leaves unique impact in the development of the theory. Among these approaches to define these spaces. Xia [20] used fuzzy scalars to define fuzzy metric space, which became a stronger form in fuzzy topological spaces as fuzzy metric spaces. Related work in this direction is seen in the works of Mazaheri [14] and Khalik [10]. Recently, Wu [19] and Gregori [7] used fuzzy numbers to define partial metric space. In this work, Banach's fixed point theorem has been proved for fuzzy partial metric space by using fuzzy scalars.

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0-CAUCHY COMPLETION OF PARTIAL FUZZY METRIC SPACES

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Abstract:

Each metric space have cauchy completion which is unique. Partial metric spaces which are generalization of metric spaces have 0-cauchy completion [1]. In this paper some important results related to the concept of 0-cauchy completion of partial fuzzy metric spaces using fuzzy numbers are proved.

Key Words: *Fuzzy partial metric space, Fuzzy numbers, Metric space*

I n t r o d u c t i o n

Study of metric spaces using fuzzy numbers was done by George and Veermani [2] in which they have introduced that every metric space induces a fuzzy metric space and it also generates a topology which is metrizable [4], [6], [9]. This form got defined using fuzzy numbers. Fuzzy metric spaces using fuzzy numbers was first time introduced by Kaleva [8]. The study of ordinary partial metric-spaces was introduced by Mathews [15]. Many researchers have done research on the completeness and completion of ordinary partial metric spaces [10]. Concept of 0-cauchy completeness of partial metric spaces was introduced by Romaguera [12]. In the present paper, we have defined the 0-cauchy sequence and 0-cauchy completeness of a fuzzy partial metric space using fuzzy numbers. In the main part of the paper we have given some basic definitions and some important results related to this concept.

II. Preliminaries

We begin the section with some basic definitions and concepts.

Definition 2.1: The definition of a binary operation $*$: $[0,1] \times [0,1] \rightarrow [0,1]$ can be found in [3]

PRESENT SCENARIO OF SOCIAL SCIENCE TEACHING IN SCHOOLS: A STUDY

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ABSTRACT: This research paper is discussing basically about the present scenario of teaching of social science in schools. In the present study the data was collected from eight private schools and one government school of Delhi. The data collection methods were observations of teachers during their regular teaching and semi-structured interviews with the research participants. From this study, it is clear that for teaching of social studies lecture method was mostly used. In the name of teaching aids smart board was there but not regularly and properly used. In mostly schools social science laboratory was not there. Overall we can conclude that although some schools were trying to put efforts to make social studies interesting but majority of schools are still using traditional way of teaching like reading, dictating and explanation only.

KEY WORDS: Social studies, teaching, teaching aids, methods

I. INTRODUCTION

Social studies is a subject of study at secondary school level which offers a systematic study of society or human relations. Schools must prepare students for dealing with controversies, cultural changes and manifold problems in the society. In the attainment of this aim of education, social science is quite important because it is an unending dialogue between past and present which would help the nation to mould a better future. The objectives proposed for Social Science teaching have been described differently at different times. The objective of social science is "raising citizens, who are aware of cultural diversity, can make logical decisions, are concerned with historical and cultural heritage at a national and universal level and whose information collection skills are developed". Raising individuals that comply with these objectives which satisfy the requirements of present age, the teaching method, technique, and strategies used in lessons are of great importance. The teaching methods, techniques, and strategies utilized in social science teaching should be categorized in variety of things and teaching settings should also be maintained in a pure manner. This infers that, social studies teachers should ensure the students structure knowledge by providing them with practice, experiment and exploration opportunities rather than "Traditional Lecturing".

II. RESEARCH OBJECTIVE

The objective of the research is to find out the present situation of teaching and learning of social science in schools.

III. RESEARCH DESIGN

This study has been designed in qualitative paradigm. The data was collected from eight private schools and one government school of Delhi. The data collection methods were observations of teachers during their regular teaching and semi-structured interviews with the research participants. All recorded information was reviewed several times to formulate outcomes. On the basis of data analysis, findings were highlighted.

IV. RESULT AND DISCUSSION

On the basis of data collected from various schools from different areas of Delhi, following observations are made on present conditions of social science teaching in schools:

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An Analytical Study Of Area-Wise Potintial Of Mobile Internet

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Abstract

Mobile phone is the best friend of the present generation. Mostly people use the smart phone. Smart phone cannot function without internet. So, internet is the primary requirement for the smart phone user. This paper shows the trend of the growth of mobile phone and internet user in India, urban area and rural area. This research also found rural area had low growth rate of mobile and internet user in compared to India and urban area. Correlation, CAGR and mean analysis is done to find the effects of certain parameters which effect the mobile and internet growth in India. Paper analysis also finds the correlation with total internet access and Mobile internet access. In the present era Mobile and internet growth is closely linked with each other. India is called youngest country because more than 40 percent of total population comes in the category of young population. According to some study's in 2019 out of total internet user 38% internet user are kids which comes in the age group of 15 years and blow. So, youth is a big market for smart phone and use of internet.

Key words: Correlation analysis, CAGR, mean analysis, mobile phone, internet, subscription rate, Tele-density, penetration etc.

Introduction

Indian economy is called the rural or agriculture economy. At present 68.84 percent people are leaving in rural area. Rural economy has a huge potential of growth. It is a positive sign for Indian economy. At present (Jan 2020) 696.77 million people are using the internet. It is estimated that upto 2025, 974.86 million people will be user of mobile phone and internet in India. India comes in top 20 phones and internet user countries. In 2018 out of 100 people 38 were using the internet. While in the same time period in whole world out of 100 people 51 people were using the internet. Highest number of people out of 100 people 80 people in Europe was using the internet while lowest number 24 people out of 100 people were using the internet in Africa in same time period. Due to work from home use of phone and internet is increasing more and more in Pandemic.

In 31st March 2019, 420.70 million people were using the phone and internet and it is estimated that this number in 2023 will be increased 500.90 million. In the same time period out of 1161.71 million phone and internet user, 669.14 million people in urban area and 514.27 million people are using the phone and internet in rural area. At present out of total user 55 percent are male and 45 percent are female in India. According to 2019 tele-density of internet user per 100 in India is 90.10 and mobile internet user is 88.45 per 100 people. While this tele-density per 100 people in urban area is 159.66 people while in rural area it is 57.50 people. It shows the less growth rate of rural internet user in comparison to urban area. In rural India growth rate of monthly active internet user is estimated 45% for the year 2020 while it is estimated for urban people 11 percent in India. Out of total internet user

5478 | Dr. Jasbir Singh An Analytical Study Of Area-Wise Potintial Of Mobile Internet

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An Anlysis Of Various Age Group Frequencies To Access The Internet In India

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Abstract

Mobile phone is the best friend of the present generation. Mostly people use the smart phone. Smart phone cannot function without internet. So, internet is the primary requirement for the smart phone user. This paper shows the growth and frequency of internet user in India. It focuses on the frequency of access of internet usages by gender, by age group and by cause in India. This research also found that there is a huge discrimination by gender and by age group in India. Correlation, frequency, growth rate and mean analysis were done to find the effects of certain parameters which effect the growth of internet user in India. Paper analysis also finds the correlation with total internet access with face-book and social network user in India. Internet growth rate is closely linked with subscription rate through internet mode. Youth is a big market for use of internet in India.

Key words: Correlation analysis, CAGR, mean analysis, social network, Tele-density, penetration etc.

Introduction

India is second largest country followed by China in world. India is the six largest economy on the basis of GDP in the world and on the basis of Purchasing Power Parity (PPP) it is third largest economy in the world. India had the second largest internet using population followed by China in the world. Upto 2020, India had almost 700 million internet users in the nation. It very well might be extended to develop more than 974 million users by 2025. India is very fast growing economy in internet user. It is not growing only in urban areas but it is growing very fastely in rural areas also. With the access of internet user social network user will stood at 376.1 million in 2020 and it is expected to be almost 448 million in 2023. In 2023, the number of face-book users in India is relied upon to arrive at 444.2 million from 313.60 million of 2019. It is showing a consistent growth in the in the social media platform's user base in India. India is biggest Face-book user on the planet. There were around 195 million Face-book users in May 2016, against 191 million in U.S.A and 90 million in Brazil. At present near to 50 percent population is accessing social network. It is estimated that by 2025 the penetration of social networks would be 67 percent of India's population. India is number one in the user of Face-book. Looking forward we see online channels staying solid this year and taking a 45 percent share in the Indian smart phone market in 2020.

According to the report of Internet and Mobile Association of India (IAMAI), "Digital in India", March 31st, 2019, India had 504 million monthly active internet users. Out of absolute internet population, 433 million are of the age of 12 years or more and 71 million

5492 | Dr. Jasbir Singh An Anlysis Of Various Age Group Frequencies To Access The Internet In India

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Perspective Of Indian Students On Online Learning In The Wave Of Global Pandemic-Covid 19

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ABSTRACT:-

Unlike the traditional teaching- learning setup in classroom where the transmission of knowledge takes place in person, online learning refers to the education that takes place over the digital device. While the term is used for a variety of kinds of learning, and is often referred to as e- learning, it encompasses all learning that takes place over a larger physical distance with the help of the electronic devices and smart phones. This research paper explores the **perspective of students on online learning** which came as a surprise in the wave of corona-19 pandemic, which till then relied heavily on traditional means of learning. Even though considerable study has been made into the prospects of online instruction, we have never been totally dependent on it as in the time of the COVID- 19 pandemic. While online instruction has its benefits, there have been speculations on how long this method remains dependable. Concerns around physical and mental health, cyber security and cyber bullying, have begun to crop up due to continuous and longer exposure of children to digital media platforms. This research aims at identifying challenges faced by students during online learning in the Indian context. The findings of the study can be helpful to school authorities and policy makers who are planning to adopt blended or online teaching for future education as well.

Key words:- Online learning, covid-19, students perspectives, blended learning

INTRODUCTION

On Tuesday, 24th March 2020 at 8 pm Prime Minister of India Narendra Modi addressed the country and declared a nationwide lockdown for 3 weeks. He announced that, "Every state, union territory, village and district will be a part of this lockdown," The lockdown will start at midnight on 24th March. The advisory on pandemic by World Health Organization

1364 | Dr. Vivek Solanki Perspective Of Indian Students On Online Learning In The Wave Of Global Pandemic-Covid 19

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Continuous And Intermittent Aerobic Training Repercussions On Psycho-Physiological Parameters In Adult Male

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ABSTRACT

The present study was conducted to assess the repercussions of Continuous and Intermittent Aerobic Training on Body Mass Index, Basal Metabolic Rate, V_{O_2} Max., Self-esteem in College males. The objective of the study was to find out the repercussions of 30 minutes continuous aerobic workout and 15 minutes Intermittent Aerobic Training on Body Mass Index, Basal Metabolic Rate, V_{O_2} Max., Self-esteem of sedentary male subjects for a total duration of twelve weeks. The study was formulated as an experimental design of twelve weeks training to find out the effect of two different methods of aerobic training on selected psycho-physiological parameters. The Pre- Post data was collected for the twelfth week of training. For the purpose of evaluating the effect of three different groups' one way ANOVA was employed. There were significant mean differences in Continuous group with Control and Intermittent groups. There were no significant mean differences in Continuous group with Intermittent and Control group and Intermittent with Control group. There were significant mean differences in Continuous with Control and Intermittent with Control group. There were significant mean differences in Continuous with Control and Intermittent with Control group. The improvement in the Continuous and Intermittent group did not reflect any significant differences with respect to improvement of performance on **Body Mass Index** variable, groups also did not reflect any significant differences with respect to improvement of performance on **Basal Metabolic Rate** variable, no significant differences with respect to improvement of performance on **Oxygen Consumption (V_{O_2} 2 Max)** variable was observed and improvement of performance on **Self Esteem** variable also did not reflect any significant differences .

Key word: Continuous Aerobic Training, Intermittent Aerobic Training, Basal Metabolic Rate, Body Mass Index, Maximal Oxygen Consumption, self-esteem.

INTRODUCTION

Advancement in technology during recent centuries has increased manifold and it is ever higher in the 21st century. Industrial research and development is entirely based on development of latest and more advanced technologies, to make human life healthier, increase longevity and happiness. In our 21st century we human beings are living in an era of overload technology and we are finding it difficult to find the answer

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