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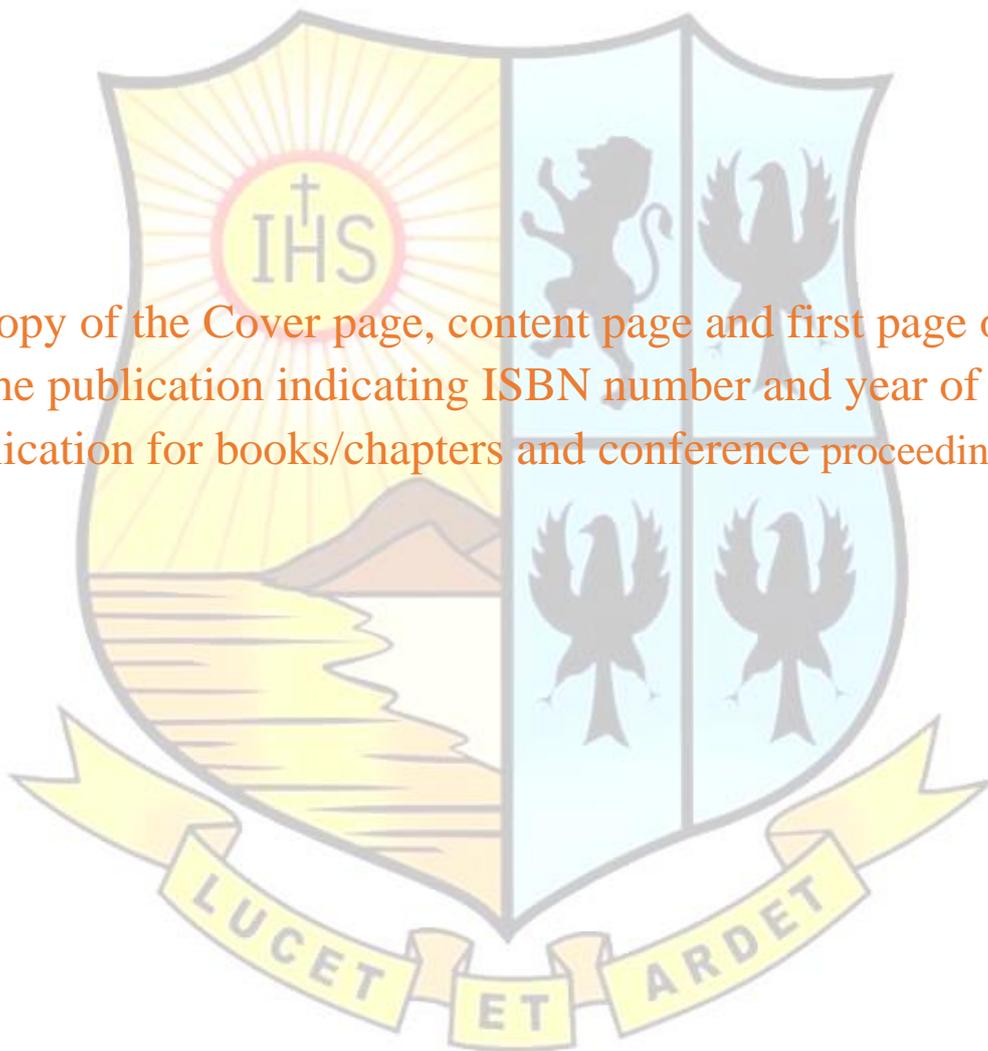
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Year: 2023-2024

3.4.4. Number of books and chapters in edited volumes / books published per teacher during the year

e-copy of the Cover page, content page and first page of the publication indicating ISBN number and year of publication for books/chapters and conference proceedings.



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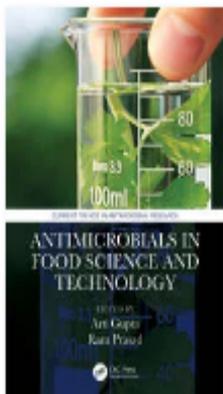


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Chapter

Plants as antimicrobial agents in food technology

By Sana Sheikh, Jyothi Miranda, Akshitha R. Amin, Bhagyalakshmi

Book [Antimicrobials in Food Science and Technology](#)

Edition	1st Edition
First Published	2023
Imprint	CRC Press
Pages	10
eBook ISBN	9781003268949

ABSTRACT

Medicinal plants have drawn a lot of interest as a source of antimicrobials since they are generally safe for use by humans and the environment and may be added to food without any issues. The food industry's approach to product management and food safety is taking an exciting new turn through antimicrobials derived from plants. Plant antimicrobials offer some defence against several prevalent food spoilage pathogens. Indian spices added in culinary items are highly rich in antimicrobials. Biopreservatives are preferable to artificial preservatives as their toxic rates are quite low. Specific plant antimicrobials can act as preservatives, extending shelf life and increasing customer acceptance. Plants are rich in a wide variety of secondary metabolites such as tannins, terpenoids, alkaloids, and flavonoids, which have been found to have antimicrobial properties. The present chapter highlights the potential uses of plant products as antimicrobials in the food industry.





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Chapter

Role of Phytoalexins in Agriculture

March 2024

DOI:[10.1201/9781003268895-3](https://doi.org/10.1201/9781003268895-3)

In book: Antimicrobials in Agriculture (pp.46-54)

Authors:



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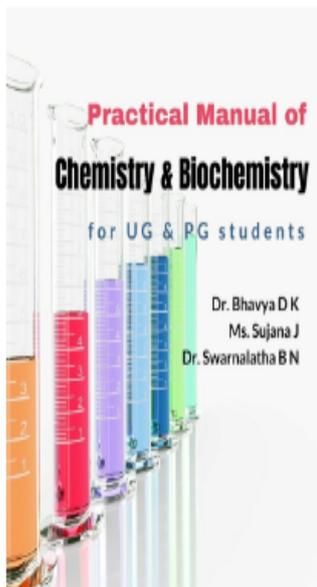
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CHAPTER 25

Bioactive Potential of Ethnically Edible Banana Inflorescence

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KANDIKERE R. SRIDHAR^{2,3*}

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ABSTRACT

Natural plant-based products are a rich source of secondary metabolites with nutritional and medicinal values. Banana (*Musa paradisiaca*) is a herbaceous plant known for several nutritional as well as medicinal values. Its fruits, peel, pseudostem, and inflorescence are traditionally used for edible and medicinal purposes. Although the inflorescence of banana has several nutraceutical benefits, assessment of its bioactive potential has attracted less attention. Uncooked and cooked banana inflorescence of a common local variety “Kadali” landrace collected from southwest India was assessed for nine phytochemical components, two bioactive components, and four antioxidant properties. Cardiac glycosides, flavonoids, and terpenoids were present in uncooked and cooked samples in five extracts (aqueous, acetone,

Ethnic Knowledge and Perspectives of Medicinal Plants, Volume 2: Nutritional and Dietary Benefits.

Münir Öztürk, Kandikere Ramaiah Sridhar, Maryam Sarwat, Volkan Altay, &

Francisco Martin Huerta-Martinez (Eds.)

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SCHEME FOR TRANS-DISCIPLINARY RESEARCH
FOR INDIA'S DEVELOPING ECONOMY

*on
19 April 2023*



Editor: T Chandra Shekhara Shetty





Isolation and Identification of Pigmented Bacteria from Spoilt Curd Ian Castelino*, Vaishali Rai M, S Harsha Paul

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Abstract

Production of pigments is commonplace among bacteria. Often these pigments are intrinsically produced, however they can also be produced in response to stress factors. These bacteria are a major prospect for the food coloring and dye production industries due to the ease of bacterial growth and maintenance as well as the "green" nature of pigment production using bacterial synthesis when compared to the toxic nature of chemical synthesis of dyes. This study aimed to identify pigment producing bacteria present in spoilt curd stored in a closed, but not airtight, container that is exposed to atmospheric conditions. The principal method of investigation was the utilization of crowd plate technique on nutrient agar media after serially diluting different strata of the sample. An orange-pigment producing bacterium was isolated and identified, via 16s RNA sequencing and biochemical characterization methods, to be Exiguobacterium sp. The bacterium displayed vibrant pigment production for initial cultures, however due to attenuation caused by repeated sub-





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Year: 2023-2024

16 Catalysis for Environmental and Energy Applications

The Potential of Multifunctional Nanomaterials

*Anjana Vinod, Jyothi Vaz, K. Divyarani, Praveen Martis,
S. Sreenivasa, Vinayak Adimule, and L. Parashuram*

INTRODUCTION

Due to the abundant energy from the sun, sunlight has become a sustainable energy for the menacing challenges in the environment [1,2]. The environmental benefits of photocatalysis can address the consequences of contemporary problems. The mechanics of natural photosynthesis serve as a model for photocatalysis. The Z-scheme is widely used to explain light-driven processes [3–5]. Photocatalysis has more advantages than thermocatalysis owing to their selectivity in both oxidation and reduction process. The photocatalytic process is extensively attractive due to greater efficiency and economic viability and hence used in pollutant degradation, hydrogen evolution, and carbon capture [6,7]. Also, nanostructured photocatalysts due to their higher active sites, surface defects, and higher surface area attributed towards boosting photocatalysis compared to their bulk counterparts. These materials due to quantum size effects enhance the feasibility of water splitting. When their configurations and dimensions are altered, the redox potentials and bandgaps also align and harness photocatalysis [8]. To address environmental issues and advance sustainable energy solutions, electrocatalysis is an essential tool [9,10]. The electrochemical processes that turn CO₂ into useful chemicals and fuels have attracted a lot of interest in the effort to reduce CO₂ emissions. The capacity of metal-based electrochemical systems, in particular Cd, Pb, Ag, In, and Cu, to enhance CO₂ reduction is well established. These systems depend on electrode materials with characteristics that promote charge transfer and have lower overpotentials. For the production of high-purity hydrogen [11,12], electrochemical water splitting is essential. Research has focused on non-noble-metal HER catalysts, with transition metal-based materials including Fe, Bi, Co, Ni, W, and Mo and their compounds appearing as attractive alternatives to Pt-based groups to overcome their cost and availability limitations [13]. The nitrogen reduction reaction (NRR) involves electrocatalysis to function. Noble metals with favourable NRR catalytic activity, such as Au, Pt, Pd, and Ru, are rare and expensive [14]. As they can exhibit catalytic activity in the NRR, transition-metal oxides provide affordable and environmentally favourable alternatives. Because of their large surface area, permeability, and internal free space, various nanohybrids, including different metal-organic frameworks (MOFs), are becoming more popular. These materials provide an abundance of electrochemical active sites and facilitate mass transfer during catalytic reactions. The combination of light and





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ADVANCED NANO CATALYSTS FOR LIGHT-MEDIATED ENVIRONMENT-FRIENDLY APPLICATIONS

Book Name: Futuristic Trends in Chemical Material Sciences & Nano Technology Volume 3 Book 20

Authors: Jyothi Vaz, Praveen Martis, Parashuram L

Keywords: Photocatalysis, Nano catalysts, CO₂ reduction, Energy materials, Heavy metal removal, Dye degradation, Waste water treatment.

Area/Stream: Chemical Science, Material Science & Nano Technology / Nanotechnology / Others

Published in: IIP Series

Volume: 3, **Month:** May, **Year:** 2024

Page No.: 179-188

e-ISBN: 978-93-5747-901-1

DOI/Link: <https://www.doi.org/10.58532/V3BECS20P2CH3>

Abstract:

Long-term environmental health is a top priority in today's world as scientific community is striving hard to cater to the needs of the hour and nano catalysts have shown promising advances in addressing a number of environmental problems. In particular, nano catalysts have shown key applications in reduction of CO₂ to valuable energy-rich products, production of sustainable energy through H₂ evolution, removal of heavy metals and degradation of toxic compounds such as antibiotics, pesticides and dyes that have toxicological effects on ecosystems and human health. Nano catalysts are crucial for enabling these ecologically friendly reactions through light mediated processes. They possess outstanding catalytic properties, such as enhanced reactivity, selectivity and stability, making them highly effective at triggering desired reactions while avoiding negative environmental impacts. Since photocatalysis harnesses abundant light energy enabling simultaneous reaction initiation and catalyst activation, facilitating extensive reactions under mild conditions, this chapter intends to provide specifics of the leading studies, challenges and future perspectives of the long-term environmental welfare of light-mediated catalytic processes of nano catalysts.

Cite this: Jyothi Vaz, Praveen Martis, Parashuram L, "ADVANCED NANO CATALYSTS FOR LIGHT-MEDIATED ENVIRONMENT-FRIENDLY APPLICATIONS", *Futuristic Trends in Chemical Material Sciences & Nano Technology Volume 3 Book 20, IIP Series, Volume 3, May, 2024, Page no.179-188, e-ISBN: 978-93-5747-901-1, DOI/Link: <https://www.doi.org/10.58532/V3BECS20P2CH3>*





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Year: 2023-2024

Probing Strongly Correlated Electron Systems: Crystal Growth Dynamics, Anisotropic Studies and the Emergence of Topological Semimetals

E. Deepak D'silva

Department of Physics, St Aloysius (Deemed to be University) Mangaluru-575-003

Tenth Endowment Lecture delivered by **A. Thamizhavel**, Professor, Department of Condensed Matter Physics and Materials, Tata Institute of Fundamental Research, Mumbai, on the topic '**Crystal growth and anisotropic studies of strongly correlated electron systems and topological semimetals**' on March 23, 2024, at St Aloysius (Deemed to be University), Mangaluru.

Abstract

There has been lot of research contribution from the research community to the field of strongly correlated electron system. Several discoveries like the highest ferromagnetic transition temperature in a Ce based compound, Boro carbide superconductivity and superconductivity in ultra-low temperature in bismuth have been made in the past. Later topological materials have been made rapid progress in the field of research. The huge materials databases available today has made it possible to grow high-quality single crystals of topological materials and propelled this field to new heights of discovery. This chapter deals with all these strongly correlated systems.

Keywords: Crystal growth, Topological semimetals, strongly correlated electron systems, Ferromagnetism, Superconductors, Cerium, Bismuth.

1. A brief review of electronic systems

When atoms come together to make different types of material, electrons act in special ways influenced by interactions with both the electron-lattice and other electrons. In metals, electrons form 'energy bands' with gaps in between. The electrons in the most energetic band, called the conduction band, control things like electrical and thermal





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Spintronics: Bridging the gap between Magnetism and Quantum Computation

Nilakanthan V. K. and Rita Crasta

Department of Physics, St Aloysius (Deemed to be University), Mangaluru-575003

Fifth Endowment Lecture was delivered by **Prof. P. S. Anil Kumar**, Professor, Indian Institute of Science Bengaluru, on the topic "**Introduction to Spintronics**" on February 16, 2019 at St Aloysius College (Autonomous), Mangaluru.

Abstract

In this article, the authors have discussed the development of the field of spintronics. Starting from the historical developments which led to the beginning of the field, this article dwells upon the theoretical understanding of the field and also how metal-based and semiconductor-based devices are being utilized. Also discussed are the applications of spintronics in various area.

1 Introduction

Spintronics, short for spin-based electronics. The electron has charge as well as spin. Electronics that rely on the movement of electrical charge, along with charge spintronics exploit the intrinsic spin property of electrons and this property of electrons is used to store, process and transmit information. Spin S of a single electron is measured from its spin magnetic moment $-g\mu_B S$ where μ_B is the Bohr magneton and g is the g factor of the electron. Even so, Stern and Gerlach measured the spin in 1921, Dirac, who combined special relativity and quantum mechanics to provide a theoretical framework from which the magnetic moment and "spin" of electrons came naturally, made a substantial contribution to our knowledge of spin.

Physicists, chemists, material scientists, and computer scientists contribute to spintronics. This rapidly developing field finds its applications in computer, memory, and communication technology.

The field of spintronics or spin-electronics is a field that is multidisciplinary and the key objective in the field is the active manipulation of the spin degree of freedom in





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Determination of the Elastic Constants of a Nematic Liquid Crystal Cell using Fredericksz Effect

T. Chandra Shekhara Shetty

Department of Physics, St Aloysius (Deemed to be University) Mangaluru
India -575003

First Endowment lecture was delivered by **Prof N.V. Madhusudana**, Emeritus Professor, Raman Research Institute, Bengaluru, on the topic “**Elastic Properties of Liquid Crystals**” on February 21, 2015 at St Aloysius College (Autonomous), Mangaluru.

Abstract

In this article the basics of nematic liquid crystals, order parameter, Fredericksz effect, electric susceptibility and magnetic susceptibility are discussed. Fredericksz transitions technique is used to determine the elastic constants of nematic liquid crystal E7. The liquid crystal is placed in a liquid crystal cell made of two conducting glass plates. In the experiment electric field is used on a liquid crystal cell in which the director orientation is along the plane of the glass plates. If the dielectric anisotropy of the liquid crystal is positive and if the electric field is applied perpendicular to the cell, the dielectric energy is decreased by tilting of the director. The transmitted intensity from the liquid crystal cell for different applied voltages is measured using electro-optic methods.

Keywords: nematic, liquid crystal, transitions.

1. Introduction

In many organic compounds with rod-like or disc-like molecules the solid phase does not directly go over to the liquid phase when heated, but passes through one or more intermediate phases called mesomorphic phases [1]. A substance in this phase exhibits some crystalline properties such as anisotropy in dielectric and diamagnetic properties and elastic properties. Also, some liquid like properties such as viscosity, surface tension etc. Hence the name 'Liquid Crystals' and in general they have properties which are intermediate between those of crystals and liquids. Schematic illustration of molecular





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Unveiling the Giant: Exploring Magnetoresistance Marvels

Kumara K

Department of Post Graduate Studies and Research in Physics

St Aloysius (Deemed to be University), Mangalore-575 003

(lisemitner1987@gmail.com)

Fourth Endowment Lecture was delivered by **Dr T. G. Ramesh**, Professor, International Centre for Theoretical Studies (ICTS) Bengaluru on the topic '**Recent advances in the field of Magnetism**' on February 24, 2018 at St Agnes College (Autonomous) Mangaluru.

Discovery consists of looking at the same thing as everyone else and thinking something different -Albert Szent-Gyorgyi (Nobel Prize winner for Medicine in 1937)

Abstract

Magnetic properties of transition metals emanating from unfilled $3d$ shells, among them Ni, Co and Fe exhibiting ferromagnetism. Many research groups have investigated these metals in the form of thin film composing of alternative ferromagnetic (FM) and nonmagnetic (NM) layers. These multilayered elements have shown some intriguing results. In 2007, Peter Grunberg and Albert Fert won Nobel prize for the discovery of giant magnetoresistance (GMR) effects in trilayer and multilayer systems of iron/chromium/iron (Fe/Cr/Fe) superlattices, respectively. A significant decrease in electrical resistance was observed by these groups for Fe/Cr/Fe superlattices as a function of increasing external magnetic field at very low and room temperatures. This discovery of GMR has opened the door for new technologies aiding the developments of innovative commercial products.

Key words: Transition metals, GMR, Superlattices, Multilayers, Spin

1. Background

Magnetic materials encompass a wide variety of materials and elements or metals, which are used in a diverse range of applications. Among, the d transition elements or metals are known for their good magnetic properties. These elements have partially filled d orbitals.





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Space Science Missions: Motivation and Challenges

Naveen P Mascarenhas

Department of Computer Science, St Aloysius (Deemed to be University), Mangaluru
naveenmascarenhas@gmail.com

Eighth Endowment lecture was delivered by **Dr V. Radhakrishna**, SAG, U R Rao Satellite Centre (URSC), Bengaluru, topic “*Space Science Missions: Motivation and Challenges*” March 19, 2022 at Mangalore University, Mangala Gangotri, Mangalore, Karnataka

1. Introduction:

The types of major and important space missions are listed in Fig. 1. Indian space missions are shown in bold and Indian Space Research Organisation (ISRO) has grown as a giant in space mission since its commencement on 15 August 1969

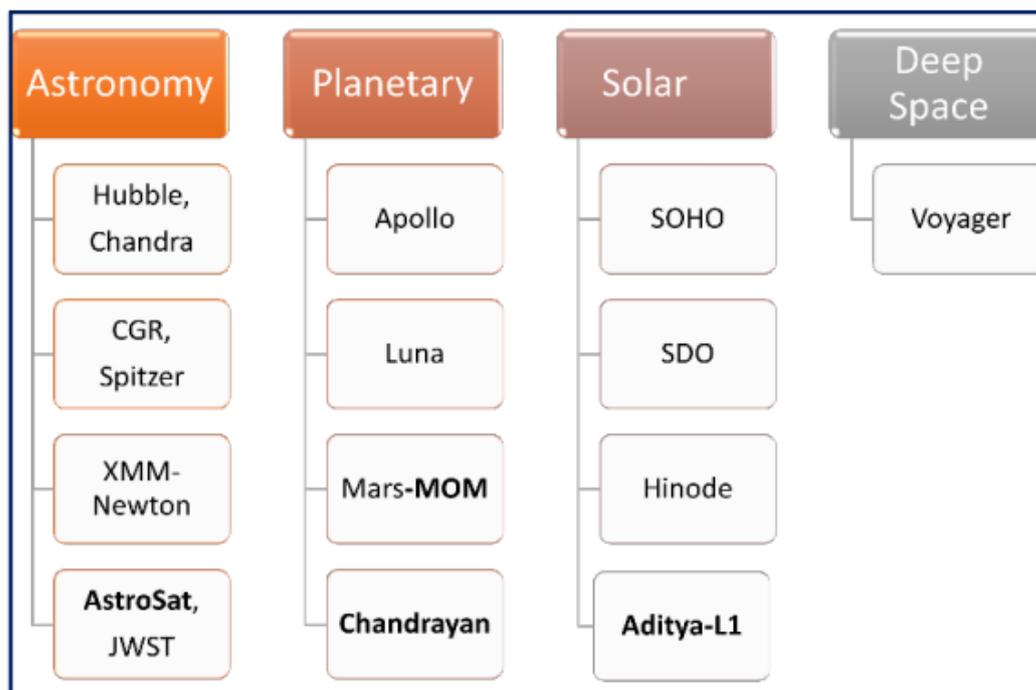


Fig. 1. List of Major Indian Space Missions





Comparison of Transfer Learning algorithm in predicting Alzheimer's disease

Publisher: IEEE

Cite This

PDF

Archana Yashodhar ; Shashidhar Kini [All Authors](#)

41

Full

Text Views



Abstract

Abstract:

Many neurogenerative diseases affect today's generation. The causes of this condition are unclear. Alzheimer's disease is one of that diseases, and elderly peoples suffer a lot from this. In this article, we applied several deep learning transfer learning approaches to categorize distinct phases of Alzheimer's disease. Different measures are used to assess each strategy, which leads to better results.

Document Sections

I. Introduction

II. Materials and



Methods





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About the Author



Dr. Zeena Flavia D'souza, M. Com, NET, P.G. Dip. Computer Applications, P.G. Dip. Counseling and Guidance.

Dr Zeena Flavia D'souza, is an Associate Professor and Head of the Department of Commerce (Professional) at St Aloysius Deemed to be University. She has a Phd in Commerce, from Tumkur University, for the thesis titled "Organizational Culture, Employee Attitude and Performance: A Comparative study of Private and Public sector banks in Karnataka" under the guidance of Professor, Dr Suresh Poojary, former Dean, Department of Commerce at St Aloysius Deemed to be University. She possesses in depth knowledge of Cultural Diversity at work-place, as her research was based on organizational culture and culture of employees, employees' attitude, and their performance. She has four years of industry experience in Achal Industries and Plastikage Private Ltd., Baikampady Industrial Area, Mangalore, having practical exposure to diversity at work-place. The impact of research in the area of Organizational Culture has resulted in publishing the text book on "Cultural Diversity". She has been teaching undergraduate students for the past 17 years and has proficiency in the field of Human Resource Management. Apart from teaching, she also offers counseling to students seeking career guidance. She has written many research articles related to Ethics in Business and other related issues. Dr Zeena Flavia D'souza, is also an environmentalist, keen on conserving natural environment and involving in sustainable activities. She is recognized as one of the founder member of Society for Forest, Environment and Climate Change @ Mangalore.

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Dr Paul D'Souza (M. Com, MA Economics, Diploma in Investment Management., PhD) is working as an Assistant Professor at Department of Commerce in St Aloysius (Deemed to be University), Mangaluru. He has his B. Com Degree from Sacred Heart College, Madanthyar, Master's Degree and PhD degree from Mangalore University.

He is serving as core faculty of Accounting and Business Law for more than 14 years. He is committed teacher in the field of Commerce. He has co-authored two books- Advertising skills and Cost Accounting under NEP. His other areas of interest are Counselling and Small-scale entrepreneurship.



Mr. Ayush G K holds a B.Com degree from Sri Ramakrishna College, Mangaluru, and an MBA from Manel Srinivas Nayak Institute of Management, Bondel. Furthering his academic pursuits, he completed Post Graduate Diploma in International Business Operations and M.Com from IGNOU. His commitment to academic excellence is underscored by qualifying in the KSET and NET exams for Assistant Professorship eligibility. Commencing his professional journey as a lecturer at Field Marshal K.M Cariappa College, Madikeri in 2019, he brings industry experience from his tenure at Hindustan Coca-Cola Beverages Private Limited. His scholarly contributions extend to numerous papers presented at National and International Conferences, along

with publications in esteemed international journals, including those indexed in Web of Science. Currently serving as an Assistant Professor in the Department of Business Administration at St. Aloysius College (Autonomous), Mangaluru, Mr. Ayush concurrently pursues his Doctoral Studies at the Department of Commerce, Mangalore University, Mangalagangothri.



Mr. Deepak K.V is a passionate educator and finance specialist with over six years of experience in the field. He completed his M.Com with a specialization in Finance from SVS College, Bantwal, in 2018, graduating with flying colors. Demonstrating his academic excellence, he subsequently cleared both the KSET and NET exams on his first attempt, qualifying for prestigious teaching positions across India. Mr. K.V.'s teaching career has been marked by dedication and innovation. He has honed his skills by training NET/KSET and IBPS aspirants, equipping them with the knowledge and strategies necessary to succeed in these competitive exams. He currently brings his expertise to the Department of Commerce at St. Aloysius College, Mangalore, where he serves

as an Assistant Professor, inspiring and guiding the next generation of business minds.

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Proceedings of the International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics, ICIITCEE 2023

2023, Pages 1168-1173

2023 IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics, ICIITCEE 2023; BNM Institute of Technology (BNMIT) Bengaluru; India; 27 January 2023 through 28 January 2023; Category number CFP2369Y-ART; Code 187874

Deep Learning Based Application in Detecting Wrinkle and Predicting Age (Conference Paper)

Pallavi, M.O., Vishwanath, Y., Raj, A.

^aSchool of CSE, REVA University, India

^bAIMIT Mangalore, IT & Bioinformatics Dept, India

Abstract

One of the natural process that happens in human body is aging, estimating age is one of the challenging task as it includes variety of factors like gender, lifestyle, workplace and mental health. The basic objective of this work is to recognize the human face using suitable





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Lecture Notes in Networks and Systems

Volume 922 LNNS, 2024, Pages 203-212

International Conference on Data Science, Computation and Security, IDSCS 2023; Indore; India; 2 November 2023 through 3 November 2023; Code 313799

BI-RADS Score Prediction Using AI for Breast Cancer Screening(Conference Paper)

Ruban, S., Jabeer, M., Basti, R.S. 

^aSt Aloysius College (Autonomous), Mangalore, India

^bFather Muller Medical College, Mangalore, India

Abstract

Artificial Intelligence has penetrated every domain beyond imagination. Healthcare is one such domain; especially in areas where imaging assists in diagnosis, AI is used powerfully. This study demonstrates the usage of AI in breast cancer screening. The most popular breast cancer screening test now available is a mammogram. However, mammograms have limitations, which could be overcome by AI. This study investigates how radiologists can utilize Artificial Intelligence to diagnose breast cancer from mammograms and use that information to make better decisions. After gaining approval from the scientific and ethical council, this experiment was carried out utilizing a real-time data set. This experimental investigation employed a total of 1646 mammography pictures from 414 subjects. The radiologist can follow this model when analyzing mammogram images. The prediction model provides results with a precision of 0.75 for Bi rad 0, 0.06 for Bi rad 1, and 0.6 for Bi rad 2. © The Author(s), under exclusive licence to Springer Nature Singapore Pte Ltd. 2024





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Lecture Notes in Electrical Engineering

Volume 1105, 2024, Pages 509-520

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Daily Platelet Count Prediction in Treating Dengue Patients Using Deep Learning Algorithm(Conference Paper)

Ruban, S., Jabeer, M.M., Rai, S. 

^aDepartment of Software Technology, St Aloysius College, Mangalore, India

^bDepartment of MCA, St Aloysius College, Mangalore, India

^cFather Muller Medical College, Mangalore, India

Abstract

With the impact of deep learning algorithms, health care has expanded beyond all recognition in recent years. Applications of artificial intelligence that make use of data are more prevalent in health care. Numerous societal health challenges are resolved with the help of these programs. However, creating these applications requires changing the data's original format to one that the system can understand. Additionally, it entails the use of proper algorithms for the situation at hand. This article discusses a deep learning technique for predicting platelet count in those patients with dengue. The most significant virus spread by mosquitoes to infect humans is dengue. Despite the fact that it typically presents as a self-limited febrile sickness, problems could develop after the fever wears off. The most significant complication is a systemic vascular leak syndrome, which can occasionally progress to a potentially fatal hypovolemic shock and is frequently accompanied by hemoconcentration and thrombocytopenia. Additionally, it also causes a drop in the platelet count, which causes excessive bleeding. We examined information from a retrospective observational study of patients from 8 to 90 years old who were





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Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

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An AI-Based Diagnostic System to Predict BI-RADS Scores for Detecting Breast Cancer over Mammograms (📖 Book Chapter)

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1

Perceived Quality of Work Life and Its Influence on Organizational Commitment Among the Nurses of NABH-Accredited Hospitals in Karnataka, India (Book Chapter)

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Abstract

The study aims to investigate how quality of work life (QWL) influences organizational commitment (OC) among nurses in NABH-accredited hospitals in Karnataka state. Nurse retention is a significant challenge due to management pressure for higher productivity, leading to turnover intentions. OC is considered to be the key factor, which binds an employee to the organization. Data from 381 nurses' opinions were collected using structured questionnaires. Most nurses reported positive QWL experiences, reinforcing its importance. Multiple linear regression and χ^2 test were employed for analysis, revealing a strong positive relationship between QWL and OC. Improving working conditions and work-life experiences can foster higher commitment, potentially reducing nurse turnover and positively impacting the hospital's long-term objectives. This highlights the critical role of QWL in ensuring a contented and dedicated nursing workforce. In conclusion, enhancing QWL can significantly benefit nurse retention and overall organizational performance in NABH-accredited hospitals. Addressing management pressure and prioritizing QWL improvements are essential steps toward achieving these





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Metric No.: 3.4.4

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Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

R. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
1	ANDROID-BASED WHITEFLY DETECTION USING DEEP LEARNING TECHNIQUES <i>Yajnes, Nishmitha D Souza, Hemalatha N, Sujithra M</i>	1
2	PREDICTING NOVEL ANTIVIRALS FOR COVID-19: A REVIEW OF CHEMO INFORMATICS DRIVEN MACHINE LEARNING APPROACHES FOR DRUG REPURPOSING <i>Purshottam Gupta, Harshit Sajal, Hemalatha N</i>	11
3	NOVEL s MICROORGANISMS AND THEIR EFFECTS ON HUMAN HEALTH: THE ROLE OF METAGENOMICS <i>Prathyush M, Samiha, Hemalatha N</i>	19
4	COMPARATIVE STUDY ON DEEP LEARNING MODELS IN AGRICULTURE-PEST AND DISEASES DETECTION <i>Leekshitha D, Hemalatha N</i>	26
5	WHITEFLY DETECTION USING EDGEIMPULSE ALGORITHM <i>Jiyona D, Swaroop D, Hemalatha N, Dr Sujithra M</i>	37
6	A SURVEY ON SMART WASTE MANAGEMENT SYSTEM <i>Santhosh B, Akshith Martis, Joyan Wilkinson Dsouza</i>	46
7	SMART VEHICLE PARKING SYSTEMS USING FOG COMPUTING IN SMART CITIES OF INDIA <i>Santhosh B, Raksha Shetty, Sunny Joel Paulose</i>	55
8	SERVICE BROKER ALGORITHMS IN CLOUD COMPUTING: A REVIEW <i>Santhosh B, Manisha, Spoorthi B Shetty</i>	63
9	CASE STUDY ON LATENCY SENSITIVE ONLINE GAMING USING FOG COMPUTING <i>Santhosh B, Vishwas, Pallavi T R</i>	73
10	MACHINE LEARNING-DRIVEN FACE SPOOF DETECTION USING ARTIFICIAL NEURAL NETWORKS <i>Harshitha K N, Shreeraksha B, Swathi M N</i>	83
11	A REVIEW PAPER ON WEATHER MONITORING USING INTERNET OF THINGS <i>Sona Pavithran M, Aparna T, Manisha Dayanand Naik</i>	90





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
12	A REVIEW ON TASK SCHEDULING IN CLOUD COMPUTING NETWORK <i>Prathvi U H, Pallavi Ramachandra Patgar, Preksha H P</i>	99
13	REVIEW ON ENSURING ROBUST DATA SECURITY IN CLOUD COMPUTING <i>Sonal S Kumar, Rajitha, Srinivas B L</i>	105
14	REVIEW OF OPTIMIZING ENERGY EFFICIENCY: NAVIGATING THE PATH TO GREEN CLOUD COMPUTING <i>Vidya, Sameeksha.G, Srinivas B.L</i>	110
15	A REVIEW ON NETWORK LOAD BALANCING APPROACHES IN CLOUD COMPUTING <i>Varna, Deepthi Mary Monteiro, Dr Srinivas B.L</i>	120
16	REVIEW PAPER ON SECURE FILE STORAGE IN CLOUD USING CRYPTOGRAPHY ALGORITHM <i>Abhijna J Shetty, Aishwarya, Srinivas B.L</i>	130
17	OPTIMIZING CUSTOMER RETENTION: MACHINE LEARNING STRATEGIES FOR ECOMMERCE CHURN PREDICTION <i>Vaibhav Shetty P, Nandhan Kumar R, Mrs. Vanitha T</i>	139
18	PLANT DISEASE CLASSIFICATION: LEVERAGING DEEP LEARNING FOR ACCURATE FARMING <i>Jnanavi Shetty, Ishwarya, Vanitha T</i>	149
19	DIABETES ANALYSIS USING MACHINE LEARNING ALGORITHMS <i>K. Annapoorneshwari Shetty, Kadeejath Salaha, Adheena Ranjith, Dr. Subrahmanya Bhat</i>	160
20	PRECISION MONITORING: UNVEILING THE SCIENCE BEHIND BLOOD SUGAR MONITORING USING MACHINE LEARNING <i>K. Annapoorneshwari Shetty, Pavithra Nayak, Saksha C S, Dr. Subrahmanya Bhat</i>	172
21	STIMULATING EDUCATION: UTILIZING THE POTENTIAL OF ICT RESOURCES AND CHARACTERISTICS IN HIGHER EDUCATION INSTITUTIONS <i>K. Annapoorneshwari Shetty, Ayisha, Viyola Shalma Monteiro, Fathimath Mubeena, Dr. Subrahmanya Bhat</i>	184
22	AI FOR PERSONALIZED DIET AND HEALTH MANAGEMENT SYSTEM <i>Aiman Aiyaz, Vishnu S Nair</i>	192





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
23	GLAUCOMA PREDICTION USING CONVOLUTIONAL NEURAL NETWORK <i>Alister John Lobo, Vyshag K, Roshan Suvaris</i>	199
24	COMPARATIVE ANALYSIS OF HEART DISEASE PREDICTION USING MACHINE LEARNING ALGORITHMS <i>Ashritha Rai, Rashmi, Mr. Roshan Suvaris, Mrs. Manimozhi. R</i>	207
25	DATA-DRIVEN INSIGHTS INTO BRONCHITIS: A MACHINE LEARNING EXPLORATION <i>Anusha Prashanth Shetty, Harshitha, Mahalaxmi, Dr.Ruban S</i>	213
26	AUTO NUMBER PLATE DETECTION USING YOLO8 AND EASYOCR (DEEP LEARNING) <i>Chaithanya K S, Yashwant Kumar K, Roshan Suvaris</i>	221
27	A STUDY AND ANALYSIS OF CHATBOTS-A MEDICAL PERSPECTIVE <i>Ruban S, Abhay Kulkarni, Krithika, Hilda Shanthini S</i>	228
28	PREDICTIVE ANALYTICS FOR TYPE 1 DIABETES: UNRAVELLING TRENDS THROUGH DEEP LEARNING <i>Mangala S, Deeksha Deepak, Omkar Rao T, Ruban S</i>	236
29	AUTOMATED H. PYLORI DETECTION IN MICROSCOPIC IMAGES USING ROBOFLOW <i>Akshay Louis Dias, Deelan Crasta, Lakshmisha T. S, Ruban S</i>	244
30	A STUDY AND ANALYSIS OF MACHINE LEARNING ALGORITHM TO INITIATE SOFTWARE REQUIREMENT PRIORITIZATION PROCESS <i>Haleema Najiha, Fathima Afreen, Suchetha Vijay Kumar</i>	252
31	CLASSIFICATION OF FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS IN A SRS USING TEXT CLASSIFICATION <i>Shreelakshmi, Tarun, Harshavardhan</i>	259
32	EXPLORING TEXTUAL LANDSCAPES: A COMPARATIVE ANALYSIS OF ALGORITHMS FOR IDENTIFYING AND ANALYZING COMMON THEMES IN PARAGRAPHS <i>Anusha Rose, Shemon Dcunha, Ms Suchetha Vijaya Kumar</i>	268
33	EMPOWERING IMAGE CLASSIFICATION: UNVEILING THE POTENTIAL OF CONVOLUTIONAL NEURAL NETWORK WITH TENSORFLOW <i>Kaushik S Gatti, Hemavathi</i>	275
34	COMPARATIVE STUDY AND ASSESSMENT OF LOW-LIGHT IMAGE ENHANCEMENT METHODS <i>Rohit Mathew, Joel Paul Kattachery, Roshan Suvaris</i>	282





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
35	REVOLUTIONIZING FRUIT QUALITY ASSESSMENT: A COMPREHENSIVE EXPLORATION OF CNN- BASED IMAGE RECOGNITION <i>Vyalary Juni Vaz, Aishwarya Laxmi, Roshan Suvaris</i>	290
36	MACHINE LEARNING-BASED PREDICTIVE MODELING FOR HYPOXIC- ISCHEMIC ENCEPHALOPATHY: A FOCUSED EXPLORATION AND VALIDATION ANALYSIS <i>Ruban S, Bharath Raj, Nireeksha, Anusha Prasanth Shetty</i>	298
37	UPPER RESPIRATORY TRACT INFECTION DETECTION THROUGH MACHINE LEARNING ALGORITHM IN CHILDREN <i>Ruban S, Kavya Praveen, Pooja, Anusha Prasanth Shetty</i>	305
38	MACHINE LEARNING-BASED WHEEZE PREDICTION: HARNESSING CNN MODELS <i>Ruban S, Ashwith K J, Aishwarya Rai N, Anusha Prasanth Shetty</i>	312
39	PREDICTIVE ANALYSIS OF STOCK MARKET PRICES: A COMPARATIVE STUDY OF LSTM AND ARIMAX IN FORECASTING CLOSING PRICES OF EQUITIES <i>Ancy D cunha, Shafna Sharin M P, Hemalatha N</i>	319

ESTD : 1880





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

INFORMATION TECHNOLOGY & BIOINFORMATICS

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Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
1	A STUDY ON METAGENOMICS <i>Gireesh K, Ashritha, Hemalatha N</i>	1
2	AUTOMATED RESUME SCORING FOR DATA SCIENCE POSITIONS: A NATURAL LANGUAGE PROCESSING AND LANGUAGE MODEL APPROACH <i>Bhoomika U, Hemalatha N</i>	6
3	MATHEMATICAL ONCOLOGY - A NEW BUZZ? <i>Bhavishya B L, Khadeeja Hanna, Hemalatha N, Animikh Ray</i>	14
4	INTEGRATING ARTIFICIAL INTELLIGENCE IN PROTEOMICS <i>Ashith A V, J P Sampath Kumar, Hemalatha N</i>	21
5	ONCOGENOMIC ANALYSIS TO FIND THE ROLE OF BRCA1 AND BRCA2 IN MALE <i>Andrian S M, Angel Benny, Hemalatha N</i>	26
6	ENERGY-EFFICIENT SCHEDULING ALGORITHMS IN CLOUD COMPUTING <i>Santhosh B, Harshitha Sadashiva Poojari, Shabari</i>	31
7	CARDIOVASCULAR HEALTH MONITORING SYSTEM USING FOG COMPUTING <i>Santhosh B, Apoorva H, Saispoorthi S</i>	42
8	MACHINE LEARNING-BASED PREDICTIVE MODELING FOR AIRLINE TICKET PRICING <i>Santhosh B, Elisha Crasta, Valeny Joylin Goveas</i>	50
9	A CASE STUDY ON FAKE NEWS DETECTION USING MACHINE LEARNING ALGORITHMS <i>Santhosh B, Shwetha, Chandana B U</i>	63
10	CREDIT CARD FRAUD DETECTION SYSTEM USING MACHINE LEARNING WITH PYTHON <i>Akshata, Kavya, Manimozhi</i>	69
11	HEART FAILURE PREDICTION USING MACHINE LEARNING ALGORITHM <i>Kavana rai B R, Nikila T M, Vanitha T</i>	75
12	SENTIMENT ANALYSIS ON HOTEL REVIEWS USING MACHINE LEARNING(NLP) <i>Vanitha T, Vaishnavi, Swathi. K</i>	84





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
13	EXPLORING MACHINE LEARNING TECHNIQUES FOR SLEEP DISORDER ANALYSIS <i>Anusha M, Leesha K S, Vanitha T</i>	93
14	A COMPREHENSIVE ANALYSIS OF BIOLOGICAL PATHWAYS RELATED TO TYPE-1 DIABETES USING IN-SILICO METHODS <i>Dr. Anushree Raj, Raksha, Archana G.</i>	103
15	COMPREHENSIVE EXPLORATION OF SINUSITIS DETECTION THROUGH THERMAL IMAGING AND MACHINE LEARNING TECHNIQUES <i>Dr Anushree Raj, Mr Rohith Kumar, Mr. Abhishek Kumar</i>	109
16	GENOMIC ANALYSIS OF DEAFNESS THROUGH BIOINFORMATICS <i>Ms. Raveena, Dr. Anushree Raj</i>	117
17	IDENTIFYING THE TRAFFIC CRAMMING USING MACHINE LEARNING TECHNIQUES <i>Dr Anushree Raj, Ms. Nikhitha G Devadiga, Ms Ananya R Uchil</i>	126
18	ILLUSTRATING AUTOMATIC SPEECH SUMMARIZATION UNDER NEURAL NETWORKS <i>Dr. Anushree Raj, Ms. Abita Mahabaleshwar Naik, Ms. Prajna</i>	136
19	INTELLIGENT TRAFFIC FORECASTING: ENHANCING REAL-TIME PREDICTIONS WITH MACHINE LEARNING AND GATED RECURRENT UNIT (GRU) <i>K. Annapoorneshwari Shetty, Sebastian P J, Saketh Ballal, Dr. Subrahmanya Bhat</i>	144
20	MUSIC RECOMMENDATION SYSTEM FOR KIDS USING FACIAL EXPRESSION ANALYSIS <i>K. Annapoorneshwari Shetty, Padmanabha M Shanbhag, Sanjay K M, Dr. Subrahmanya Bhat</i>	157
21	PREDICTIVE E-WASTE GENERATION MODELLING: A MACHINE LEARNING METHOD FOR FORECASTING E-WASTE GENERATION <i>K. Annapoorneshwai Shetty, Shalya NE, Vijeth, Dr. Subrahmanya Bhat</i>	164
22	ANALYSIS OF FACE RECOGNITION ATTENDANCE SYSTEM <i>Gaurav Phal, Sahil Metri, Nausheeda B S</i>	173
23	COMPARATIVE ANALYSIS OF INTELLIGENT FACE RECOGNITION SYSTEMS <i>Om Prakash Jangid, Brijesh S Rane, Nausheeda B.S</i>	180





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
24	COMPARATIVE ANALYSIS OF DEEP LEARNING ALGORITHMS FOR BRAIN TUMOR DETECTION. <i>Cazeeta S Mascarenhas, Husna Harif MP, Nausheeda B.S</i>	188
25	HUMAN HAND GESTURE RECOGNITION USING DEEP LEARNING MODELS <i>Alan Tom M, Rashith Ramesh K, Nausheeda BS</i>	195
26	PREDICTIVE MODELLING FOR BRONCHITIS USING MACHINE LEARNING <i>Dr. Ruban S, Nausheeda, Shreya CP</i>	203
27	A STUDY ON REAL-TIME LOAD BALANCING ALGORITHMS IN CLOUD DATA CENTRES <i>Rachana K, Varsha K Rao, Aravinda Prabhu S</i>	211
28	A MACHINE LEARNING FRAMEWORK FOR ANALYZING AND PREDICTING IMPRESSIONS ON INSTAGRAM POSTS <i>Kaustubha S, Saanidhya S, Dr. Rakesh Kumar B</i>	217
29	SMART HEALTHCARE MONITORING USING IOT <i>Priya K, Dr. Rakesh Kumar B, Venugopal Rao</i>	225
30	EXPLORING THE INFLUENCE OF SOCIAL MEDIA MARKETING ON CONSUMER BEHAVIOUR: A COMPREHENSIVE ANALYSIS <i>Dr. Rakesh Kumar B, Anvitha, Anuja Joseph</i>	242





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024



INFORMATION TECHNOLOGY & BIOINFORMATICS

INTERNATIONAL CONFERENCE ON ADVANCE IT, ENGINEERING AND MANAGEMENT

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Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

CONTENTS

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
1	UNVEILING SENTIMENT DYNAMICS IN FMCG EARNINGS CALLS: 'A VADER-LEXICON BASED ANALYSIS' <i>Alroy Menezes, Dsouza Reiona Rosario Veronica, Hemalatha N</i>	1
2	IMAGE-BASED SEAT BELT DETECTION <i>Dr. Jeevan Pinto, Anvitha Alva, Kavana</i>	9
3	COMPREHENSIVE STUDY ON BANK FRAUDULENT ACTIVITIES USING DIFFERENT MACHINE LEARNING MODELS <i>Ankitha, M V Roopali</i>	20
4	NAVIGATING THE MIND'S ODYSSEY: A COMPREHENSIVE REVIEW ON BMI AND NEUROPROSTHETICS, NAVIGATING MENTAL LANDSCAPES FROM COGNITIVE MAPS TO TELEKINESIS. BRIDGING GAPS AND UNLOCKING POTENTIALS FOR TACKLING NEUROLOGICAL DISORDERS <i>Stuti Mazgaonkar, Dr. Anushree Raj</i>	25
5	NLTK-ENHANCED TEXT SUMMARIZATION: TECHNIQUES, METHODS AND TIME ACCURACY <i>Dr Anushree Raj, Mr Deeraj S, Ms Manasi G</i>	38
6	ROLE OF BIOINFORMATICS IN ALZHEIMER'S DISEASE <i>Ms. Jennifer Lawrence, Dr. Anushree Raj</i>	43
7	SURVEY ON COMPUTATIONAL DRUG DISCOVERY TARGETING B-SECRETASE: A MACHINE LEARNING APPROACH FOR ALZHEIMER'S DISEASE THERAPY <i>Dr. Anushree Raj, Dhananjaya, Avil Alva</i>	51
8	OPTIMIZING HUMAN AND ENVIRONMENTAL WELL-BEING IN TIRUPATI, ANDHRA PRADESH: SEASONAL AIR QUALITY FORECASTING THROUGH AUTOMATED MODELING <i>Jeevan L J Pinto, Dhanyashree K, Christina E.A.</i>	59
9	PRESERVING PATIENT PRIVACY: A COMPREHENSIVE STUDY ON DATA MASKING TECHNIQUES IN MEDICAL DOCUMENTS USING NER TECHNOLOGY <i>Dr Jeevan L J Pinto, Jahnavi S B, Disha N S</i>	72
10	PREDICTING MATERNAL RISK: A MACHINE LEARNING APPROACH <i>Jeevan Pinto, Krithi S, Rakshitha Manjunatha Naik</i>	77





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

11	ENSURING ANONYMITY: SECURE DE-IDENTIFICATION OF MEDICAL REPORTS USING NATURAL LANGUAGE PROCESSING AND PYTHON <i>Dr Jeevan L J Pinto, Disha N S, Dhrithi Salian</i>	87
12	COMPARATIVE ANALYSIS OF MACHINE LEARNING MODELS FOR EARTHQUAKE MAGNITUDE PREDICTION <i>Sandali Yadav, Myron Pinto, Dr. Jeevan Pinto</i>	93
13	PLANT DISEASE DETECTION USING MACHINE LEARNING <i>Jeevan Pinto, Sandra Sathish, Agnus S K</i>	100
14	MACHINE LEARNING FOR EMAIL CLASSIFICATION <i>Jeevan Pinto, Sharanya R B, Shreya T</i>	110
15	COMPARATIVE ANALYSIS OF CONVOLUTIONAL NEURAL NETWORKS FOR TUBERCULOSIS DETECTION IN CHEST RADIOGRAPHY IMAGES: A DEEP LEARNING STUDY <i>Abdulla Nishad P M, Rinold Acquin Aiman, Aravinda Prabhu S</i>	119
16	A STUDY OF BLOCKCHAIN TECHNOLOGY: PRINCIPLES, APPLICATIONS, AND LIMITATIONS <i>Avil Saldanha, Glen Anthony Pinto</i>	129
17	DIGITAL REFLECTIONS: UNRAVELING THE LINK BETWEEN SOCIAL MEDIA AND TEENAGE SELF-ESTEEM <i>Akash Shetty, Apoorva V Koparde, Bhagya, Dr Rakesh Kumar</i>	134
18	REVIEW ON FACIAL EMOTION RECOGNITION METHODS <i>Jeevan Fernandes, J Manoj Kumar Shetty, Hrithik Raj A</i>	144
19	EMBRACING NEURODIVERSITY: UNRAVELING THE NEXUS BETWEEN EMPLOYEES' NEURODIVERSITY AND TEAM EFFECTIVENESS <i>Indrani Bala, Dr. Rekha Aranha</i>	153
20	DYNAMIC ANALYSIS OF ECONOMIC INDICATORS: EXPLORING SEASONAL PATTERNS, INFLATION IMPACT, AND PREDICTIVE MODELING FOR SUSTAINABLE DEVELOPMENT <i>Ashika B C, Kiran Kumar, Dr. Rakesh Kumar B</i>	164
21	COMPREHENSIVE STUDY ON AI BASED PERSONAL ASSISTANCE <i>Ms Manasi G, Ms Bhavana Achari, Mr Aravind Prabhu</i>	177
22	ENHANCING ONLINE PAYMENT FRAUD DETECTION: A COMPARATIVE ANALYSIS OF TRADITIONAL AND GRADIENT BOOSTING MACHINE LEARNING ALGORITHMS <i>Dr. Rakesh Kumar B, Pooja Y Kanbarkar</i>	183





St Aloysius College (Autonomous), Mangaluru

Criterion III: Research, Innovations and Extension

Metric No.: 3.4.4

Year: 2023-2024

SR. NO.	CHAPTERS AND AUTHOR(S) NAME	PAGE NO.
23	STUDY OF DROWSINESS DETECTION MODEL USING PYTHON <i>Shraddha P Nayak, Poorna B S, Aravinda Prabhu S</i>	195
24	EXPLORING MACHINE LEARNING ALGORITHMS FOR MENTAL HEALTH: A COMPARATIVE ANALYSIS <i>Joyce Smitha Pereira, Anvith G, Dr Rakesh Kumar B</i>	200
25	DENGUE DYNAMICS UNVEILED: FROM GLOBAL IMPACT TO PERSONAL HEALTH – A COMPREHENSIVE STUDY ON EPIDEMICS, RISK FACTORS, AND PREDICTIVE MODELING <i>Dr. Ruban S, Aravinda Prabhu S, Pranam R Shetty, K. Ravish Rao</i>	211
26	MALARIA DISEASE BASED ON CLIMATE DATA USING MACHINE LEARNING <i>Nausheeda B S, Ayshath Nashwa A N, Fathimath Jamsheera N H</i>	219
27	DETECTING LUNG CANCER ON CT-SCAN USING CONVOLUTIONAL NEURAL NETWORK <i>Thomas Sha Oril, Krishnapriya B, Mrs. Nausheeda B.S</i>	227
28	LUNG CANCER PREDICTION USING MACHINE LEARNING ALGORITHMS <i>Akshay Kumar, Mohith, Nausheeda B.S</i>	235
29	FARMERS INTERACTIVE SOLUTION – A MALAYALAM CHATBOT <i>Raji Sukumar A, Hemalatha N</i>	243
30	SENTIMENT ANALYSIS USING NLP ON AMAZON FOOD REVIEWS <i>Srilakshmi Shenoy, Ashika Sheikh, Mrs. Manimozhi R</i>	251



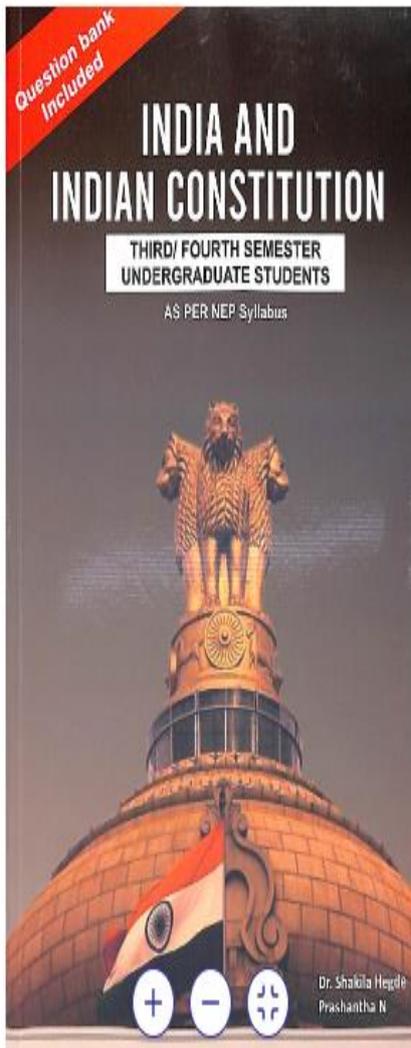


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The Challenging Role of Sanitation in Fostering Economic Efficiency and Driving Social Change

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Abstract

This study, "The Challenging Role of Sanitation in Fostering Economic Efficiency and Driving Social Change" explores into the intricate relationship between sanitation practices and economic efficiency within the contemporary discourse on sustainable development. As of 2022, global sanitation statistics reveal both progress and challenges, with 57% of the population using safely managed sanitation services, but 2.5 billion people still lacking basic sanitation. The economic benefits of sanitation are highlighted by the World Health Organization, showing a significant return on investment. This study aims to provide a comprehensive understanding of how improved sanitation contributes not only to public health but also as a catalyst for economic growth. The analysis spans health outcomes, workplace productivity, economic costs, agriculture, education, infrastructure, and broader economic impacts, such as IT tourism. The interconnections between sanitation practices and societal transformations necessitate a holistic approach considering health, education, gender dynamics, economic factors, environmental sustainability, community dynamics, and cultural nuances. By examining these aspects, the research stresses the indispensable role of sanitation in shaping various facets of society and emphasizes the necessity of comprehensive and evidence-based sanitation interventions for positive societal transformations. The article calls for continued collaboration between policymakers, urban planners, and communities to build resilient and sustainable sanitation systems. It highlights the urgency of a concerted global commitment to elevate the importance of sanitation as a fundamental pillar for public health, workforce productivity, and overall well-being, acting as a cornerstone for economic development.

Key words: economic development, Sanitation, Education, Women's Health, Rural Sanitation, urbanization, Technology, Social Change

Introduction

The contemporary discourse on sustainable development, the relationship between sanitation practices and economic efficiency has gained prominence. As of 2022, 57% of the global population (4.6 billion people) used a safely managed sanitation service, with 33% (2.7 billion people) utilizing private sanitation facilities connected to sewers, ensuring treated

SANITATION WOES

Unravelling the Challenges and Paving the
Path to Progress

Editor

Govindaswamy B.K.





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Sustainable Development in Automobile Industry: Challenges and Opportunities

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Abstract

The automobile industry plays a pivotal role in the global economy, with millions of vehicles produced and sold annually. In recent years, there has been a growing emphasis on sustainability within the automobile sector. The automobile industry entails a thorough assessment of the industry's carbon footprint, encompassing emissions of greenhouse gases, air and water pollution, and its contribution to resource depletion. Greenhouse gas emissions from the transportation sector, according to the U.S. Environmental Protection Agency (EPA), account for about 29% of U.S. greenhouse gas emissions. Passenger vehicles account for the largest share of emissions from the transportation sector, at about 58%. According to the World Health Organization (WHO, 2022), air pollution from vehicles causes an estimated 7 million premature deaths each year. Supporting this data, global vehicle sales (OICA data) reached 80.6 million units in 2022, marking a significant increase from the previous year when sales were 66.7 million units.

At the same time, the automobile industry is contributing to sustainable development in a number of ways. This includes developing and producing electric vehicles and other fuel-efficient vehicles, investing in renewable energy and energy efficiency measures at manufacturing plants, and working to reduce the environmental impact of their supply chains. As a result, global electric vehicle sales (IEA, 2022) reached 10.5 million units in 2022, representing a 108% increase from the previous year. In 2022, 75% of automakers had sustainability programs in place for their supply chains, up from 60% in the previous year.

The main aim of this paper is to provide a comprehensive examination of the automobile industry's role in sustainable development. It underscores the multifaceted challenges and transformative opportunities that lie ahead on the industry's journey towards sustainability. The contribution of this paper can be valuable for policymakers, consumers, and international organizations to shed light on the challenges it faces and the opportunities it presents for a more sustainable future aligned with the United Nations' Sustainable Development Goals (SDGs)."

Keywords: *sustainability, carbon footprint, greenhouse gases, pollution, environmental impact*

Introduction

The global push towards sustainable development has brought significant changes to various industries including the automobile sector. The rapid growth of urbanization and increasing concerns over environmental issues have highlighted the need for cleaner and more efficient modes of transportation. The global automobile industry, a key player of the world economy, plays a pivotal role by facilitating mobility, generating employment, and propelling technological advancement. Nevertheless, it confronts



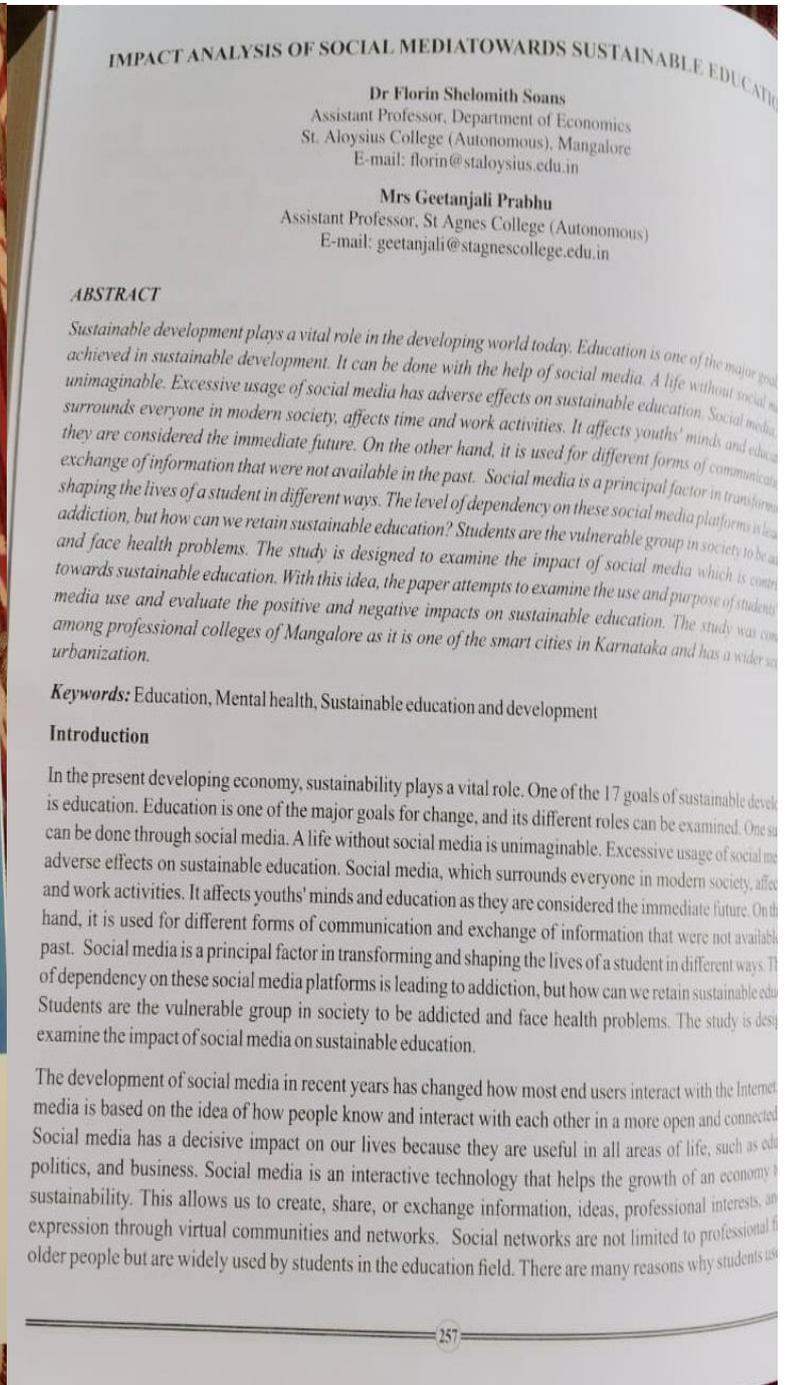
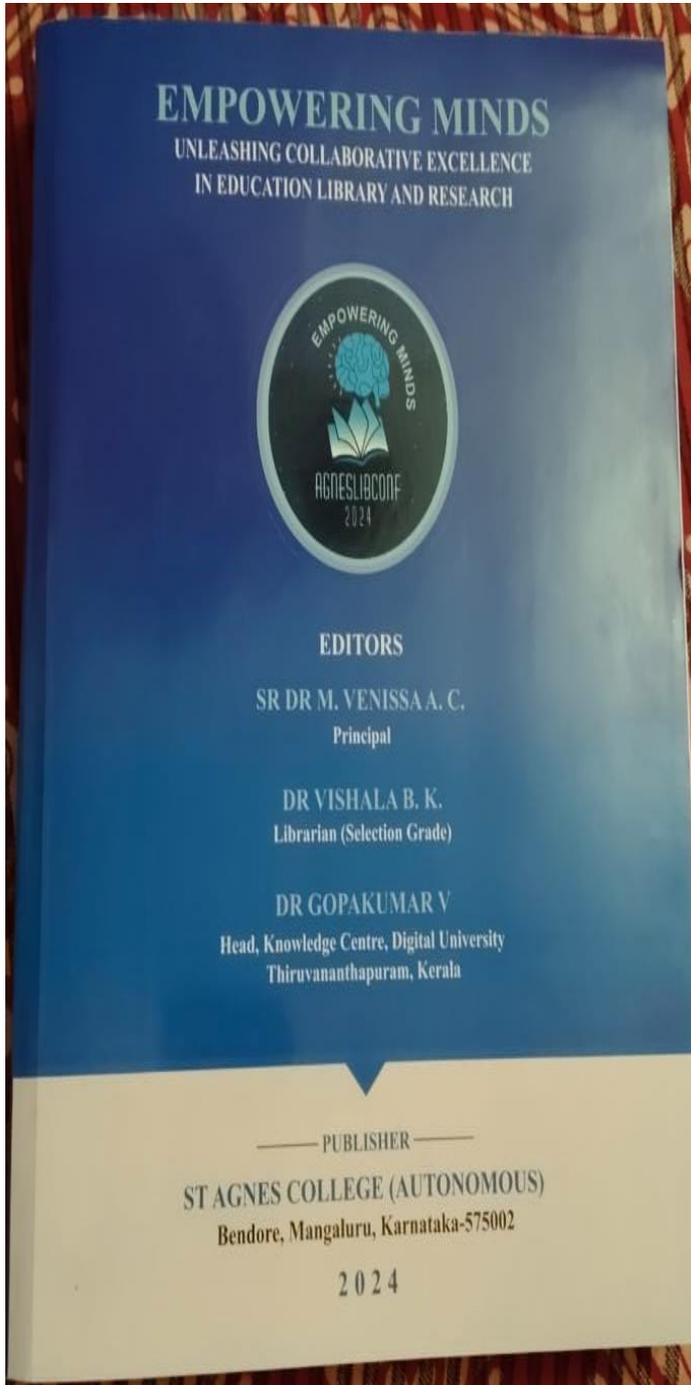


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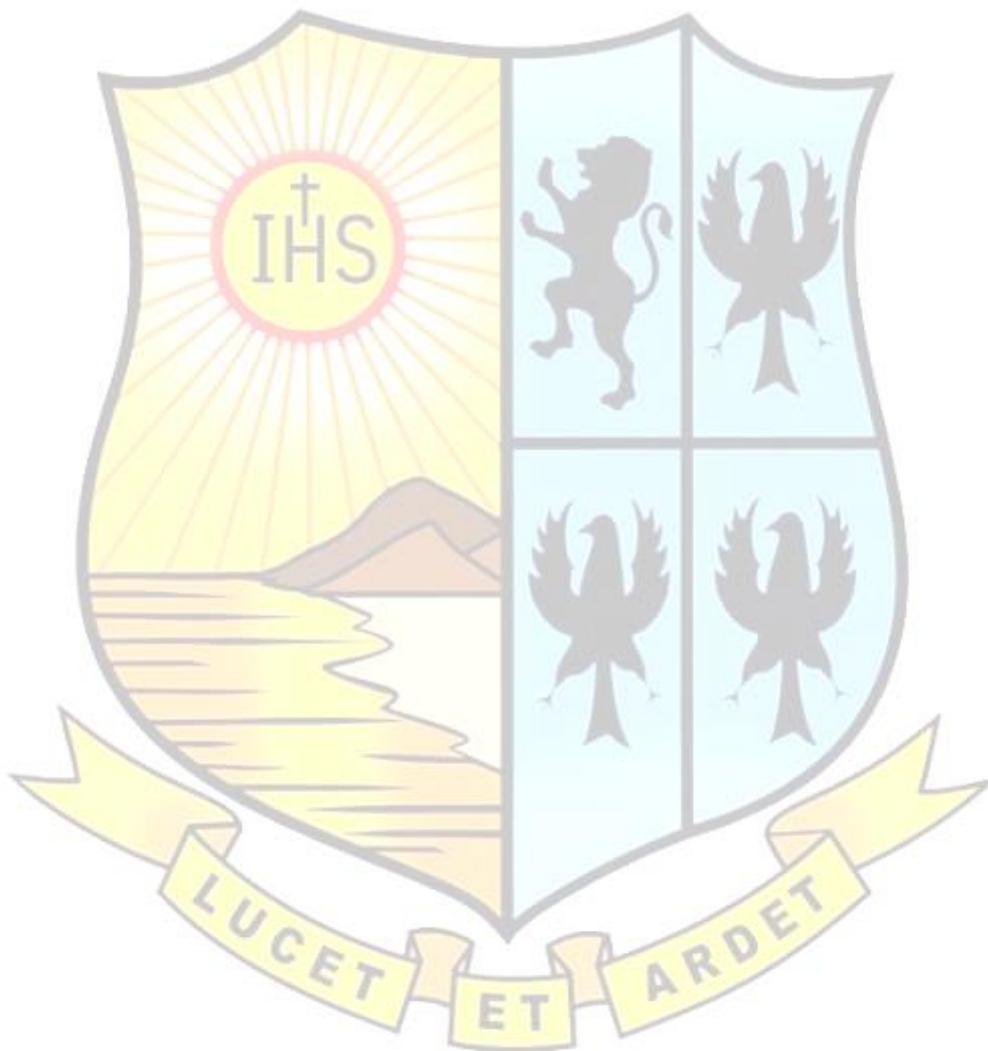


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