

इहोदी लान्तान

PROCEEDING OF NATIONAL LEVEL RESEARCH COMPETITION FOR STUDENTS

Innovate, Evaluate, Sustain:
Critical Thinking Approaches For Society & Environment

Thursday 26th Feb 2026

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MARATHWADA MITRA MANDAL'S
COLLEGE OF COMMERCE

Affiliated to Savitribai Phule Pune University, Re- Accredited by NAAC ISO 9001 : 2015 Certified,
Recipient of Best College Award by Savitribai Phule Pune University
202 / A, Deccan Gymkhana, Pune- 411004

MMCC At A Glance...





WELFARE OF MASSES

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About Us

Marathwada Mitra Mandal's College of Commerce (MMCC), established in 1986, is a premier institution affiliated with Savitribai Phule Pune University (formerly the University of Pune) and recognized under Sections 2(f) and 12(b) of the UGC Act. The college is ISO 9001:2015 certified, re-accredited by NAAC, and was honored with the prestigious 'Best College' award in 2009 by SPPU.

Located in the prime educational hub of Pune, MMCC was established with a clear mission — “Welfare of Masses” — to provide affordable and quality education to students from diverse backgrounds. Over the years, the college has grown into a multidisciplinary institution catering to both undergraduate and postgraduate programs.

Committed to academic excellence, MMCC follows Outcome-Based Education (OBE) and the Choice Based Credit System (CBCS), with a strong emphasis on continuous and comprehensive evaluation through summative and formative assessments. The institution integrates innovative pedagogical practices, experiential learning, value-added and add-on courses, and domain-specific skill enhancement programs to prepare students for dynamic industry demands.

To bridge the gap between academia and industry, the college actively collaborates with its distinguished alumni and reputed organizations such as NASSCOM, Institute of Chartered Accountants of India (ICAI), Institute of Company Secretaries of India (ICSI), and Indian Institute of Remote Sensing (IIRS-ISRO), ensuring students stay aligned with contemporary skills and professional standards.

Beyond academics, MMCC has consistently demonstrated strong social commitment through collaborations with municipal corporations and active participation in community initiatives, including significant contributions during the pandemic and involvement in Smart City initiatives. These efforts foster holistic development and promote students' mental well-being.

The college has also made a remarkable mark in sports, cultural activities, and its vibrant Art Circle, nurturing talent beyond the classroom. From its humble beginnings to its current standing as a beacon of educational excellence, MMCC's journey reflects the transformative power of vision, leadership, and unwavering dedication.



Principal's Foreword

It gives me immense pleasure to present the proceedings of the National Research Paper Competition, "*Shodh Manthan*." This initiative reflects our institution's unwavering commitment to fostering a vibrant research culture and promoting academic excellence among students across the nation.

"Shodh Manthan" serves as a dynamic platform for young researchers to explore contemporary issues, exchange innovative ideas, and showcase their scholarly potential. The enthusiastic participation from students representing diverse institutions is a testament to the growing spirit of inquiry and intellectual engagement in higher education.

The research papers compiled in this volume highlight originality, analytical depth, and a strong commitment to addressing real-world challenges. I sincerely appreciate the efforts of all participating students whose dedication and hard work have contributed to the success of this competition.

I also extend my heartfelt gratitude to the esteemed members of the judging and review panel for their valuable time, expert evaluation, and constructive insights. My appreciation goes to the organizing committee, event coordinators, and student volunteers whose meticulous planning and teamwork ensured the smooth conduct of this national event.

I am confident that the ideas and perspectives presented in these proceedings will inspire further research, collaboration, and academic growth. May "*Shodh Manthan*" continue to ignite young minds and strengthen the foundation of research and innovation in the years to come.

With best wishes for continued academic excellence.

Dr. Kishor Nikam

Principal

MMCC, Deccan Gymkahana Pune



Academic Coordinator Forward

It gives me immense pleasure to present the proceedings of the National Level Students' Research Competition, compiled under the title Shodh Manthan. The overwhelming response from undergraduate and postgraduate students across the nation reflects a vibrant and evolving research culture among young scholars. This compilation stands as a testimony to their intellectual curiosity, analytical ability, and commitment to knowledge creation. At Marathwada Mitra Mandal's College of Commerce, we have always believed in staying a step ahead in nurturing academic excellence and innovation. Guided by our motto, "Welfare of the Masses," we strive to inculcate a strong research culture among students. We believe education achieves its true purpose when it empowers learners to think critically, act responsibly, and contribute meaningfully to society. This competition provides a national platform for young minds to explore, experiment, and express their research potential. In today's academic landscape, research is no longer confined to doctoral studies. It has become an essential component of undergraduate and postgraduate education. Early exposure to research fosters critical thinking, problem-solving skills, and evidence-based reasoning. It transforms students into active investigators who question, explore, and innovate. The significance of research extends beyond academics. It develops scientific temperament, intellectual independence, and a spirit of inquiry. Students learn to identify real-world problems, apply appropriate methodologies, and derive meaningful conclusions. Shodh Manthan embodies the essence of intellectual churning. The papers included in this volume reflect diverse themes, innovative approaches, and socially relevant insights.

We are pleased to publish the selected papers after a rigorous blind review process, ensuring quality, originality, and credibility. The ISBN publication further provides students a recognized academic platform. Aligned with the vision of NEP 2020, this initiative bridges theory and practice by promoting research-oriented learning. I sincerely appreciate all participants, reviewers, and organizers for their valuable contributions.

We hope Shodh Manthan inspires students to pursue meaningful research and contribute to knowledge and society.

Dr. Ganesh Patare

Academic Coordinator

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Preface

With the motto, 'Welfare of Masses', Marathwada Mitra Mandal's College of Commerce has progressed in its journey towards affordable education for all deserving students across the society through its quality initiatives and best practices for a healthy and happy society. The quality initiatives at the college have brought in value education to the young generation to motivate them for critical thinking and progressing in life. The Post-Graduate Research Center was established by the college for promoting research for societal benefit.

'Shodh Manthan' - National Level Research Competition, is a modest attempt by the research center to promote critical thinking keeping in mind the needs and aspirations of society. IT provides a platform to encourage students to 'Innovate, Evaluate, Sustain: Critical Thinking Approaches for Society and Environment'. Students are encouraged to submit their ideas for societal and environmental benefit through research papers under the guidance of teachers.

The reality of this competition is possible due to the vision of Marathwada Mitra mandals members. The dedicated efforts by the organizing committee members and support from all staff, has played a pivotal role in the successful publication of this book. The abstract of the contributions sent by students all across the country are published in this book (online) for reference.

The Organizing Committee
'Shodh Manthan-2026'

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SM-003/25-26	Comparing BLEU, ROUGE, and METEOR for Answer Quality Assessment in Natural Language Generation
<p style="text-align: center;">Mrs. Vaishnavi Gaikwad¹, Mrs. Shweta Verma², Mrs. Pragati Burde³</p> <p style="text-align: center;">Department of Computer Science, MIT Arts, Commerce and Science College, Alandi (D), Pune, India Corresponding Author: shwetaverma.c.256@gmail.com</p>	
<p>Abstract</p> <p>Evaluating the quality of machine-generated answers remains a major challenge in Natural Language Generation (NLG). Widely used automatic evaluation metrics such as BLEU, ROUGE, and METEOR offer fast and consistent scoring but often assess different linguistic properties, which can lead to incomplete conclusions when used individually. This study presents a comparative analysis of BLEU, ROUGE-L, and METEOR for evaluating answer quality produced by a BERT-based question answering system trained on the Stanford Question Answering Dataset (SQuAD). Forty reference–candidate answer pairs were evaluated using Python-based implementations of these metrics. The results show average scores of 0.5402 for BLEU-4, 0.8252 for ROUGE-L, and 0.7516 for METEOR, indicating strong alignment between generated and reference answers. The findings suggest that while BLEU is effective in measuring surface-level precision, ROUGE-L and METEOR better reflect semantic correctness and contextual relevance. The study highlights the importance of using multiple metrics to achieve reliable and balanced evaluation of modern NLG systems.</p>	
<p>Keywords: Natural Language Generation, Question Answering, Evaluation Metrics, BLEU, ROUGE-L, METEOR</p>	

SM-004/25-26	BLOCKCHAIN-BASED ARCHITECTURE FOR SECURE DATA SHARING THEME: Technological Innovation and Digital Transformation
<p style="text-align: center;">Mr. Aayush Sharma, Ms. Supriya Sanjaykumar Yadav</p> <p style="text-align: center;">Department of Computer Science, V.K. Krishna Menon College , Mumbai University Email: ayushsharma26022004@gmail.com, Email: nehaskyadav1217@gmail.com</p>	
<p>Abstract:</p> <p>Secure data sharing has become a critical challenge in the digital era due to increasing data breaches, centralized storage vulnerabilities, and lack of user control over sensitive information. Traditional data-sharing systems depend heavily on trusted third parties, which introduces single points of failure and raises concerns related to privacy, transparency, and data integrity. Blockchain technology offers a decentralized and tamper-resistant alternative that can significantly enhance trust and security in data exchange systems. This paper presents a blockchain-based secure data sharing framework that integrates distributed ledger technology with off-chain storage and cryptographic access control mechanisms. Encrypted data is stored outside the blockchain to ensure scalability, while hashes and access permissions are maintained on-chain using smart contracts. The proposed approach ensures data confidentiality, integrity, transparency, and accountability. Performance observations from existing research and test networks indicate that such systems are feasible for real-world applications when combined with Layer-2 solutions. The study concludes that blockchain-based secure data sharing is a reliable and future-ready solution for sectors such as healthcare, finance, education, and government services.</p>	

Keywords: Blockchain, Secure Data Sharing, Smart Contracts, Data Privacy, Decentralization

SM-007/25-26	A Study of Financial Performance Analysis of Yuva Parivartan Organisation, Bandra (East), Mumbai
<p>Ms. Shivanjali Popat Aher, Dr. Vasant Balu Boraste, Ms. Siddhi Ravindra Jeughale</p> <p><i>Research Students (PG), Department of Commerce, M. V. P. Samaj's, KRT Arts, BH Commerce and AM Science (KTHM) College, Nashik, Maharashtra, India. Email- shivanjaliahher@gmail.com</i></p>	
<p>Abstract: Non-Governmental Organisations (NGOs) play a pivotal role in socio-economic development by addressing developmental gaps that often remain unmet by the public and private sectors. However, their effectiveness largely depends on financial sustainability, transparency, and the efficient use of resources. This study examines the financial performance of the Yuva Parivartan Organisation (YPO), located in Bandra (East), Mumbai, an NGO actively engaged in youth empowerment and livelihood development through skill training and employment-oriented initiatives.</p> <p>This study evaluates YPO's financial performance over five years, from 2019 to 2023, utilising secondary data sourced from audited financial statements and annual reports. Analytical tools, such as financial ratio analysis, trend analysis, and efficiency indicators, have been employed to assess the liquidity position, income stability, program efficiency, and overall financial sustainability of the program.</p> <p>The findings indicate consistent growth in total income, supported by diversified funding sources, including grants, donations, and program-related receipts. Liquidity ratios indicate an enhanced ability to meet short-term obligations, whereas program efficiency ratios reveal an increasing proportion of funds allocated directly to program activities. The analysis further highlights prudent financial management practices, effective cost control, and improved resource allocation toward core developmental objectives. These factors have positively contributed to the operational effectiveness and long-term sustainability of the organisation. The study concludes that YPO demonstrates sound financial performance and serves as a relevant model for NGOs seeking to enhance accountability, efficiency, and sustainability. The findings underscore the importance of systematic financial evaluation in strengthening governance and ensuring the continued impact of NGOs in the development sector.</p>	
<p>Keywords: NGO, Financial Performance, Financial Sustainability, Program Efficiency, Funding Diversification.</p>	

SM-008/25-26	An Empirical Assessment of Tax Planning Practices of Salaried Assessee
<p>Ms. Siddhi Ravindra Jeughale* Dr. Vasant Balu Boraste** Ms. Shivanjali Popat Aher***</p> <p><i>*Research Students (PG), Department of Commerce, M. V. P. Samaj's, KRT Arts, BH Commerce and AM Science (KTHM) College, Nashik, Maharashtra, India. Email- siddhijeughale@gmail.com</i></p>	

Abstract:

Tax planning plays a vital role in enhancing post-tax income and ensuring financial stability among salaried taxpayers by enabling the lawful minimisation of tax liability through effective use of statutory provisions. The present study examines the level of tax awareness, adoption of tax-saving instruments, and tax planning behaviour of salaried assessee in Maharashtra. The study is based on a sample of 20 salaried individuals, selected to gain insights into their understanding of tax provisions and decision-making practices related to income tax planning. Primary data were collected through a structured questionnaire, while secondary data were sourced from published research studies, books, reports, and official publications related to taxation and financial literacy. Descriptive statistics and simple analytical tools were employed to analyse the collected data. The findings indicate that most respondents possess a basic level of awareness regarding income tax provisions, particularly commonly used deductions under Sections 80C and 80D of the Income Tax Act, 1961. However, awareness and utilisation of diversified tax-saving instruments such as pension schemes, insurance-linked investments, and long-term financial products remain limited. The study also highlights noticeable gender-based differences in tax planning behaviour, with variations observed in awareness levels, risk preference, and reliance on professional advice. Further, frequent amendments to tax laws and the complexity of alternative tax regimes were found to influence decision-making, often leading salaried individuals to depend on employers or tax consultants rather than adopting systematic and informed tax planning practices. The study concludes that while awareness of basic tax provisions is satisfactory, there is a need for improved financial literacy and targeted awareness programmes to encourage comprehensive and long-term tax planning among salaried taxpayers. Strengthening financial education can contribute significantly to better compliance, informed choices, and enhanced financial well-being.

Keywords: Tax Planning, Assessee, Income Tax Act, Tax Awareness, Financial Literacy.

SM-009/25-26	AI-Enabled Multi-Lingual Civic Knowledge and Application Platform for Transparency and Governance in India
<p>Piyusha Abhijit Jadhav Department of Commerce / Management, Marathwada Mitra Mandal's College of Commerce (MMCC), Pune Corresponding Author: piyusha.bba25047@mmcc.edu.in</p>	
<p>Abstract: Citizen confusion regarding government procedures, forms, and transparency contributes to errors, delays, and corruption in India. This paper proposes an AI-enabled civic platform with two integrated sections: (1) educational content explaining government ministries, internal processes, and strategies for reducing corruption; (2) practical application modules where users learn, simulate, and get verification for government forms. The platform targets youth and elder citizens, provides content in Hindi, Marathi, and English, and integrates AI to simplify content, personalize learning, and validate simulations. The system also includes trustworthy human advisors for final verification. This study examines platform design, AI integration, multilingual content, and potential impact on civic literacy and transparency in India. It also aims at creating environmental awareness by educating youth about green policies and schemes initiating a generative development towards creating a clean environment.</p>	
<p>Keywords: Civic education, AI, transparency, multi-lingual platform, form verification, governance</p>	

SM-010/25-26	The Modern Prometheus: Reconciling Rapid Innovation with Environmental Stewardship
<p>Amit Ravi Joshi MSc Student, Plant Biotechnology ,Savitribai Phule Pune University ravijoshinsk@gmail.com</p>	
<p>Abstract: This Research Explores The Intricate Interplay Between The Accelerated Technological Advancement And The Essential Frameworks Of The Environmental Stewardship Within The Indian Subcontinent. By Delving Into The Multifaceted Dimensions Of The Innovate, Evaluate And Sustain Trinity. This Study Seeks To Comprehend How Rigorous Critical Inquiry Can Harmonize India’s Industrial Ambitions With The Protection Of Its Ecological Heritage. Employing A Systems Integrated Lens, This Article Examines The Profound Influence Of Conscientious Design On The Consolidation Of A Resilient National Identity. Through A Meticulous Analysis Of Emerging Sectors ,Specifically Renewable Energy And Digital Infrastructure , We Trace The Shift Toward "Restorative Innovation" And Its Function In Securing A Long-Term Societal Equilibrium. This Research Aims To Illuminate How These Transformative Forces Are Recalibrating The Indian Consciousness, Ensuring That The "Promethean" Drive For Progress Strengthens The Nation’s Enduring Unity. Ultimately, By Analyzing This Developmental Evolution, The Research Offers A Deeper Understanding Of The Ethical Foundations Of Modern Indian Nationhood.</p>	
<p>Keywords: Modern Prometheus, Indian Environmental Stewardship, Responsible Innovation, Systems Thinking, Socio-Ecological Resilience</p>	

SM-011//25-26	Green Washing Vs Green Governance: A Critical Evaluation Of Sustainability Claims In Indian Corporations
<p>Devmanav P, Nitya Potdar Department Of Bba(Ib) Kaveri College Of Arts Science And Commerce, Pune, India. Corresponding Author:devmanavp@gmail.com</p>	
<p>Abstract: Sustainability today occupies a core position in the corporate communication, strategy & investor discourse, especially in emerging and growing economies like India. As undergraduates of management with exposure to corporate reporting, ESG disclosures and management studies we observed a growing gap between how sustainability is portrayed and how it is practiced. This paper examines just that by evaluating sustainability claims made by selected Indian corporations against their actual governance structures and environmental performance. Using business reporting and sustainability reports (BRSR) ESG scorecards and publicly available disclosures the study aims to differentiate between symbolic sustainability narratives (greenwashing) and actual outcome oriented green governance. The finding indicates that while regulatory frameworks have enhanced transparency & sustainability many Indian corporations still remain compliance driven rather than impact driven, the paper argues the meaningful sustainable development requires a shift from reputational sustainability to accountable governance, measurable</p>	

outcomes and strategic integration within core business decision-making.

Keywords: *Greenwashing, Green governance, ESG, sustainability reporting, Indian corporations*

SM-012//25-26	<p>A Study of Integration Farming: (Design and Implementation of an Integrated farming System Incorporating Moringa, Poultry Production, and Aloe Vera Cultivation)</p>
<p>Miss. Sakshi Aakansha Dashrath Ranshur ranshursakshi5@gmail.com</p>	
<p>Abstract: In the study, poultry waste was used as organic manure for moringa and aloe vera crops in order to examine the synergistic connections among the chosen businesses. Data on yield, returns, growth performance, culture costs, and the effectiveness of nutrient recycling were gathered. In comparison to traditional monocropping systems, the integrated approach raised overall farm output, decreased reliance on chemical fertilizers, and improved soil fertility. An integrated farming approach that combines the cultivation of aloe vera (Aloe vera) and moringa (Moringa oleifera) with chicken farming is evaluated in this study. With moringa planted around the edges, this technique places poultry units next to aloe vera blocks, allowing for the controlled, open-range movement of the birds inside the enclosed area. Because of the synergistic interactions created by the integration, moringa plants are naturally protected against insect pests and birdworms by poultry birds, which lowers pest incidence and promotes better pod production. By improving soil fertility and decreasing the need for artificial fertilizers, poultry manure serves as a vital organic source of nutrients. Because of its inexpensive input costs and strong market demand, aloe vera generates a steady revenue, and moringa's pods and leaves offer extra financial and nutritional advantages. The quality of the eggs and meat produced by poultry raised in this manner is enhanced by the moringa-based feed. This study demonstrates the model's efficacy and viability as an environmentally friendly agricultural strategy appropriate for farmers with limited resources. Through increased farm productivity, income stability, and resource-use efficiency, Integrated Farming Systems (IFS) provide a sustainable answer to the problems facing contemporary agriculture. The current study assesses the productivity, economic feasibility, and environmental benefits of an integrated farming strategy that combines the cultivation of aloe vera, moringa (Moringa oleifera), and chicken. Findings showed that combining poultry with aloe vera and moringa produced increased net returns, effective waste management, and a variety of year-round revenue streams. In contrast to aloe vera, which demonstrated superior plant growth under organic nutrition management, moringa demonstrated enhanced biomass and leaf production. Because poultry farming produced high-quality manure and consistent revenue, the system's economic sustainability was strengthened.</p>	
<p>Keywords: <i>sustainable agriculture, organic manure, integrated agricultural system, resource management, agribusiness, moringa, aloe vera, and farm profitability.</i></p>	

SM-013//25-26	AN EMPIRICAL STUDY ON JOB STRESS AMONG EMPLOYEES OF BANKING INDUSTRY (Advanced Research)
<p>Mr. Sachin Jadhav , Ms. Sakshi Mahajan Department of Commerce, Dr. D.Y. Patil Arts, Commerce and Science Women’s College, Pimpri, Pune.</p>	
<p>Abstract The banking industry has undergone significant transformation in recent years due to rapid digitalization, intensified competition, stringent regulatory frameworks, and rising customer expectations. These changes have substantially increased job demands, making occupational stress a critical concern among banking employees. This study empirically examines the nature, sources, and impact of job stress among employees of the banking industry over a contemporary period. Using primary survey data and statistical analysis, the research evaluates key stressors such as workload pressure, role ambiguity, performance targets, work–life imbalance, and technological adaptation. The findings reveal that job stress is prevalent across both public and private sector banks, with comparatively higher stress levels observed among private sector employees due to target-driven performance systems. The study further establishes a significant relationship between job stress and employee productivity, job satisfaction, and overall organizational effectiveness. The research provides valuable insights for bank management and policymakers to design effective stress management strategies aimed at enhancing employee well-being and sustaining long-term organizational performance Keywords: Job Stress, Banking Industry, Employee Performance, Work–Life Balance, Occupational Stress, Organizational Effectiveness.</p>	
<p>Keywords: <i>Banking Industry, Employee Performance, Tress</i></p>	

SM-015//25-26	‘AI’ as work partner :- Role of AI in preserving india’s declining traditional art
<p>Pranav .L. Patil, Sujal .D. Jadhav, Ajinkya .M. More Computer science, Sarhad College of Arts , Commerce and Science/ SPPU University, India Corresponding Author :- patilpranav2211@gmail.com</p>	
<p>Abstract : Traditional art forms in india are facing a decline;due to urbanization, reduced support, and a shifting to digital art. This paper explains the current causes of declining art and support of Artificial Intelligence (AI) as a tool for preservation. By analyzing challenges like economic instability for artists and rapid modernization in the field of digital art which includes lack of interest of the younger generation (Gen-Z) , this research highlights how AI technologies-such as machine learning can help for restoration and prediction analysis of the market an can connect ancient heritage with modern technologies. This study decides that human craftsmanship and AI can sustain India's cultural legacy. It represents its cultural identity , social values and historical continuity.</p>	
<p>Keywords :- <i>traditional art, artificial intelligence, preservation of India's art, empowerment of artists, Digital preservation, India.</i></p>	

SM-016//25-26	FROM DOORSTEP TO DARK STORE: STUDY OF REVERSE LOGISTIC STRATEGIES OF QUICK COMMERCE CHANNELS: WITH REFERENCE TO PUNE CITY
Dr. Harish Naidu, Ms. Aashna Ghosh, Ms. Utsavi Upmanyue ISB&M College of Commerce, Nande, Pune Savitribai Phule Pune University, Pune. aashna.s.ghosh@gmail.com, harish.naidu@isbmcoc.org	
Abstract : The rapid evolution of digital retail in India has transitioned from traditional e-commerce into the high-velocity domain of quick commerce, where delivery promises have shrunk from days to mere minutes. This study investigates the reverse logistics strategies employed by quick commerce platforms in Pune City, a major urban center characterized by high population density, significant traffic congestion, and a tech-savvy demographic. The primary objective is to analyse how platforms like Blinkit, Zepto, and Swiggy Instamart manage the complex flow of returned, damaged, and expired goods within a hyperlocal framework. The research employs a descriptive-analytical methodology, utilizing a realistic sample of 100 consumers and 20 dark store personnel to gather insights into operational hurdles and consumer sentiment. Key findings indicate that while forward logistics are highly optimized through decentralized dark stores, reverse logistics remains a cost-intensive secondary function, with return processing costs often reaching 1.5 times the original delivery expense. Primary triggers for returns in Pune include inaccurate picking during peak hours and damage to perishables during transit. The study concludes that the sustainability of the quick commerce model hinges on the integration of automated quality checks and the adoption of circular economy principles to mitigate waste. Recommendations focus on streamlining the "return-to-origin" pathways and improving the technological visibility of returned inventory at the dark store level.	
Keywords: <i>Quick Commerce, Reverse Logistics, Dark Stores, Supply Chain Optimization, Last-Mile Delivery, Circular Economy, Customer Satisfaction.</i>	

SM-017//25-26	Design and Development of an IoT-Based Portable Food Microbiology Analyzer for Rapid Detection of Foodborne Poisoning
Priti B. Suryawanshi and Datta Ashok Nalle Department of Zoology & Fishery Science Rajarshi Shahu Mahavidyalaya (Empowered Autonomous institution), Latur – 413512, Maharashtra, India. Email: iprometheous007@gmail.com	

Abstract:

Food safety is a major global concern due to the increasing incidence of foodborne illnesses caused by microbial and chemical contamination. Conventional food microbiological testing methods, The prototype was further validated under laboratory conditions by comparing its performance with conventional microbiological methods, demonstrating high accuracy, sensitivity, and significant reduction in detection time. although reliable, are time-consuming, infrastructure-dependent, and unsuitable for rapid, on-site decision-making. The present study reports the design, development, and evaluation of an IoT-Based Portable Food Microbiology Analyser aimed at rapid detection and real-time monitoring of food safety parameters at the point of need. The device integrates compact microbiological detection modules with embedded IoT components to enable wireless data acquisition, cloud connectivity, and smartphone-based visualization of results. Standard microbiological procedures were adapted to a portable platform to assess common foodborne pathogens such as Escherichia coli and Salmonella spp. The analyzer demonstrated high portability, user-friendly operation, and a significant reduction in testing turnaround time compared to conventional laboratory methods. Real-time data transmission ensured traceability, digital record keeping, and early warning capabilities. The patented ergonomic design and modular architecture allow customization for microbial as well as chemical/poison detection, making the system suitable for households, street food vendors, food processing units, and regulatory inspections. Overall, the IoT-based portable food microbiology analyzer represents a cost-effective and innovative solution for rapid, field-level food safety surveillance, with strong potential for commercialization and integration into smart food supply chains.

Keywords: Food safety; IoT technology; Portable microbiology analyzer; Rapid detection; Foodborne pathogens; Real-time monitoring; Smart food diagnostics; Point-of-need testing.

SM-018//25-26	AI-Driven Crop Recommendation Platform: A Holistic Digital Ecosystem for Sustainable Smallholder Agriculture in India
<p>Tanish Dhende¹ , Manas Desai² , Dr. Rajeshwari Biradar³ Marathwada Mitra Mandal College of Commerce Department of Computer Science</p>	
<p>Abstract:</p> <p>The complete AI-driven crop recommendation platform presented in this research is intended to tackle the various issues that smallholder farmers in India encounter. Our suggested solution creates a revolutionary digital ecosystem by combining cutting-edge machine learning algorithms, real-time data analytics, and inclusive design principles. Through a multilingual, voice-activated interface, the platform uses CNN-based computer vision for disease diagnosis, LSTM networks for pricing prediction, and ensemble learning approaches for crop suggestion. Predictive analytics, market connection, and community intelligence are all included in the system, which is based on a solid architecture that makes use of Firebase, React Native, and Google's Genkit. Our theoretical approach shows that improved decision-making, direct market access, and lower input costs could increase revenue by 25–35%. Hyper-local recommendation engines, online-first design for rural connectivity, and trust-building mechanisms for technology adoption are just a few of the innovative methods to agricultural AI application that the research brings. The UN Sustainable Development Goals pertaining to food security, poverty</p>	

alleviation, and sustainable farming methods are positioned by this work as being accelerated by digital agriculture.

Keywords: *Precision Agriculture, Ensemble Machine Learning, Digital Agriculture Ecosystem, Sustainable Farming, Inclusive Technology, Agricultural Innovation.*

SM-021//25-26	A Seaweed Derived Biochar – Bio-stimulant hybrid product for enhancing Drought Resilience and Soil Carbon level in Cropping Systems
Aswatha Biju, Madhu D. Rajput Department of Geology, Fergusson College (Autonomous), Pune, Maharashtra, India chennaiaswatha@gmail.com	
Abstract: Drought and loss of soil carbon are major problems for crop production, especially as climates become drier. Seaweed extracts and Biochar both are known to help plant growth and improve soil health; however, their combined potential remains underexplored. In this study, we tested a new hybrid material made by combining <i>Kappaphycus alvarezii</i> seaweed biochar with its bio-stimulant extract to see if it could help crops cope with drought and improve soil carbon levels. The hybrid was applied to cropping systems under both normal and drought conditions. Our results showed that crops treated with the seaweed biochar bio-stimulant hybrid performed better during drought, with improved growth, water use, and overall plant health. In addition, soils treated with the hybrid bio-stimulant contained more carbon than untreated soils. These benefits are likely due to better soil structure and improved nutrient and water retention. This study highlights the combining seaweed biochar with bio-stimulants is an environmentally friendly and sustainable strategy to improve drought resilience and increase soil carbon in cropping systems.	
Keywords: <i>Seaweed biochar, drought resilient, bio-stimulant, Kappaphycus alvarezii</i>	

SM-023//25-26	Digital Inclusion or Digital Strain? Evaluating the Social and Environmental Trade-offs of Rural Digitalization in India
Vedant Prashant Raut, Prof. Mukesh Ramdas Malavde <i>ISB&M College of Commerce Nande, Pune</i> <i>Savitribai Phule Pune University, Pune,</i> <i>mukeshm9595@gmail.com</i>	

Abstract:

Rural digitalization in India has increased connectivity extensively, but the environmental costs are still not well understood. This paper examines the social and environmental trade-offs of rural digitalization expansion (2019-2024) based on TRAI, CPCB, ICRIER, and telecom energy statistics, and proposes digital strain, the cumulative impact of financial constraints, institutional capacity, and energy system limitations on connectivity outcomes.

Tele-density in rural areas increased to 59.19% (2024), but regional inequality still exists: Himachal Pradesh (85.78%) is almost twice that of Madhya Pradesh (44.29%). Diesel-powered rural communication towers produce around 50 tons of CO₂ per year: rural communication tower emissions are estimated to be between 8-14 million tons of CO₂ per year. Telecom electronics account for 190,000 tons of e-waste per year.

An operationalized Digital Sustainability Matrix demonstrates that inclusion gains generate measurable ecological liabilities. The analysis recommends renewable integration targets for rural telecom infrastructure, coordinated digital, energy planning, and statelevel inclusion incentives to prevent infrastructure expansion from embedding long-term carbon-intensive systems.

Keywords: *Digital Strain; Rural Telecommunications; Telecom Emissions; Infrastructure Inequality; E-waste*

SM-024/25-26	Emerging Trends of Cyber Threats in India: Analysis, Challenges & Strategic Responses
Aniket More, Karan Gholap, Priya Khutale Bachelors of Computer Science, Marathwada Mitra Mandal's College of Commerce	
Abstract: The rapid digitization of India has led to substantial improvements in economic growth, financial inclusion, governance efficiency, and technological innovation. The Digital India initiative, development of digital payments, cloud computing, and the rollout of 5G networks have accelerated connectivity. However, this rapid growth in digital connectivity has also increased the country's vulnerability to complex cyber threats. In the last five years (2020-2025), there has been a sharp rise in cyber events such as ransomware attacks, phishing, AI-driven frauds, cloud security breaches, IoT vulnerabilities, and massive data breaches in India. This paper discusses the rising trends of cyber threats in India, their sectoral implications, structural and policy challenges, and strategic approaches to enhance the country's cyber resilience. The paper adopts a qualitative approach to analyze secondary literature, including government documents, industry reports, and academic literature. The results of the study highlight the imperatives of dynamic cybersecurity policies, governance approaches, technological upgradation, and mass awareness programs to secure the growing digital environment in India.	
Keywords: <i>Cybersecurity, Cybercrime, Digital Payments, AI Threats, Cloud Security Payments, AI Threats, Cloud Security</i>	

SM-025/25-26	Innovate, Evaluate, Sustain: A Critical Thinking Approach to Yoga for Social Wellbeing and Environmental Consciousness
Alok Arjun Pawar¹, Avinash Shivaji Shelar¹ & Vd. Dhananjay Inchekar² ¹ MA (Yoga), H.V. Desai College, Pune, YCMOU, Nashik ² Counselor, H.V. Desai College, Pune	
Abstract In the era of increasing social stress, ecological imbalance and unsustainable consumption patterns, there is a growing need for holistic approaches that promote both human well-being and environmental responsibility. Yoga, an ancient Indian system of knowledge, provides an integrated framework that connects physical health, mental balance, ethical living and ecological awareness. The present study examines yoga as an innovative tool for enhancing social well-being and environmental consciousness. It analyses the relevance of yogic principles such as <i>yama</i> and <i>niyama</i> , particularly <i>ahimsa</i> , <i>aparigraha</i> , <i>saucha</i> and <i>santosh</i> , in the context of environmental ethics and sustainable living. Based on a review of classical yogic texts and contemporary research in psychology, public health and sustainability studies, the paper argues that yogic practices such as <i>asana</i> , <i>pranayama</i> and meditation foster self-awareness, emotional regulation, empathy and pro-social behavior, which contribute to collective harmony. At the same time, the yogic lifestyle promotes minimal consumption, ethical food habits, mindful resource use and respect for nature, thereby supporting environmentally responsible behavior. The study proposes a conceptual framework of yogic sustainability that links individual transformation with social well-being and environmental protection through a sequence of yoga practice, mindset development, ethical values and behavioral change. The findings suggest that yoga can function not only as a preventive mental health model but also as a socio-ecological approach to sustainable development. The paper recommends the integration of yoga into education, community health programs and environmental awareness initiatives. Future research may focus on empirical assessment of the impact of yogic interventions on sustainable behavior and ecological attitudes.	
Keywords: Yoga, Social Well-being, Environmental Consciousness, Yama and Niyama, Sustainable Living	

SM-027/25-26	The study of finance and credit facilities for agriculture and agribusiness
<p>Atharv Sanjay Bhagwat Sir Parshurambhau College, Pune-30</p>	
<p>Abstract: Agricultural and Agri-business Finance and Credit Facilities are the important factors in Agricultural Sector. This sector need to improve machineries and equipments and new technology for better efficiency and production. This sector highly dependent on climate that's why it need the money at specific time and here better finance and credit facilities can play the important role. Current study trying to aware the farmers and agri-business owners about various types and sources of finance and credit facilities and also educating them how we can allocate that fund. To lead the World in Agriculture Sector it is important to empower Agriculture. To create Agri-business in India it is important that they can sustain in market and improve the quality of products and services. It need the funds so right amount of fund at right time with suitable conditions can develop this ecosystem. This ecosystem can make Indian farmers and agri-business owners profitable and consumers become healthy.</p>	

SM-028/25-26	Removal of Toxic Heavy Metals from Aqueous Solution Using Eco friendly Adsorbents
<p>Payal More¹, Preity Paudyal¹, Dr. Vandana Arbale - Torane^{*1,2} 1. Dr. T. R. Ingle Research Laboratory, Department of Chemistry, S. P. College, Pune – 411030, Maharashtra, India. 2. Department of Chemistry, S. P. College, Pune - 411030, Maharashtra, India Author for Correspondence*: toranerasika@gmail.com</p>	
<p>Abstract Heavy metal contamination in water poses a serious threat to environmental quality and public health, especially from cadmium and lead, which are highly toxic and non-biodegradable. Among available treatment methods, adsorption stands out as one of the most effective, economical, and environmentally friendly techniques for heavy metal removal. This study combines experimental results and literature reviews to assess the removal of cadmium and other heavy metals from aqueous solutions using low-cost adsorbents such as industrial wastes, activated carbon, and composite materials. Key operating factors, including pH, contact time, adsorbent dosage, and initial metal concentration, were systematically investigated. Adsorption equilibrium was analyzed using Langmuir and Freundlich isotherm models, while kinetic behavior was studied with pseudo-first-order and pseudo-second-order models. Regeneration tests were also carried out to evaluate adsorbent reusability. Overall, the findings highlight adsorption as a promising approach for sustainable wastewater treatment and emphasize the need for further research on regeneration methods, large-scale applications, and safe disposal of spent adsorbents.</p>	
<p>Keywords – Heavy metals, adsorption, economical, environment friendly, industrial wastes</p>	

SM-029/25-26	Exploring the Cocoa industry – boon to economy, bane to workers? An analysis
<p style="text-align: center;">Shreya Mokashi, Sudeeksha Gaikwad Kaveri college of Arts, Science and Commerce</p>	
<p>ABSTRACT</p> <p>Cocoa industry contributes significantly to global trade and economy. It is one of the largest sectors of the global food industry but also a deeply overlooked field. Despite being a billion dollar industry there is a stark contrast between the global market earnings and the worker incomes. Cocoa being a profitable cash crop it generates a substantial economic returns and profits for multinational companies like Cocoa processing company limited (CPC), Crown and holland, etc. while it also contributes to export earnings, income and employment, also its increasingly being used in the pharmaceutical and cosmetic sectors. This research emphasises the power dynamics within this industry. This paper focuses on exploring the working conditions, major labour related challenges and how it affects the overall wellbeing and livelihood of workers. Qualitative and interdisciplinary approach is adopted in this study, and the findings are based on secondary data collected from literature, reports, and comparative analysis. The global trade earnings are estimated to be around 126 billion dollars in 2025, while in India they are approximately 209.15 million dollars. While one side reflects strong economic growth, the other side of the coin is, this industry uses unethical methods to source their cocoa like human trafficking, child labour and unfair payment systems that exploit workers. The study projects the economic disparity between industry profits and workers earnings, highlights this imbalance, and mentions innovative models and solutions to bridge this gap.</p>	
<p>Keywords- Cocoa, Power dynamics, Unethical methods, Human rights, Economic disparity</p>	

SM-030/25-26	Analysis of Crime Patterns and District Risk Using Machine Learning Techniques
<p style="text-align: center;">Sahil Veer, Rugved Deshwant Department of Computer Engineering, Marathwada Mitramandal’s College of Engineering</p>	
<p>Abstract:</p> <p>Urban crime is a complex, multi-faceted social issue that has implications for public security, economic sustainability, environmental sustainability, and urban development. This paper presents a holistic framework for crime analysis using machine learning techniques that combine similarity modeling, unsupervised clustering, supervised classification, and severity-weighted risk assessment. Large-scale crime data was preprocessed using feature engineering, encoding, and normalization.</p> <p>Cosine similarity was used to detect behaviorally similar crime patterns, and K-Means clustering was employed to detect hidden crime patterns. A Random Forest classifier was trained to accurately classify crime patterns into cluster-based categories. In addition, a district-level severity index was developed to measure regional risk vulnerability. The findings show that machine learning can be combined with multi-disciplinary analysis to enable data-driven policing, sustainable urban development, and evidence-based governance.</p>	
<p>Keywords: Crime Analytics, Urban Safety, Multidisciplinary Research, Risk Assessment, Machine Learning</p>	

SM-031/25-26	A Sustainable Safety-Aware Over-the-Air Validation Framework for Software-Defined Vehicles: A Critical Evaluation for Societal and Environmental Impact
Parth K. Kamble, Bhumika A. Phutane <i>Department of Computer Science, Savitribai Phule Pune University, Pune, India</i>	
Abstract: Software-Defined Vehicles (SDVs) rely heavily on Over-the-Air (OTA) updates to enhance vehicle functionality and deploy new software features. However, direct OTA deployment may introduce unstable software, potentially affecting system safety, reliability, and sustainability. This study proposes a safety-aware validation framework that evaluates OTA updates prior to deployment within SDV architectures. A probabilistic simulation using Python was conducted across 1000 update cycles, incorporating detection accuracy and false-positive rates. Results demonstrate a significant reduction in failure probability and improved reliability compared to non-validated deployment. The proposed framework contributes to sustainable mobility by reducing vehicle recalls, minimizing system downtime, and enhancing societal safety in next-generation automotive systems.	
Keywords: <i>Software-Defined Vehicles, OTA Updates, Automotive Safety, Sustainable Mobility, Reliability Analysis</i>	

SM-032/25-26	From Taboo to Text: Silent Questions, Digital Answers
Aastha Jadhav <i>Kaveri College of Arts, Science and Commerce</i> aasthadjadhav1802@gmail.com	
Abstract: In India, many girls and women still cannot openly talk about periods, sex, or pregnancy because of strong social taboos and fear of judgement. As a result, they often lack correct information and turn to unsafe or unreliable sources. AI chatbots offer a new way to ask personal questions in private, using a mobile phone and local languages, without revealing their identity. This paper uses only secondary data to study how such chatbots are being used for women's reproductive health in India and similar countries. It looks at what these chatbots do well, such as giving anonymous, medically checked answers, and where they fall short, such as limited reach in rural areas and among women without phones. Based on these findings, the paper suggests a simple "taboo to text" approach to make future chatbots more safe, inclusive, and useful for Indian women.	
Keywords: <i>Taboo, women's sexual and reproductive health (SRH), digital anonymity, AI Chatbots</i>	

SM-033/25-26	Achieving Work-Life Balance: An Inner light Spiritual theory, ethical and moral values
<p>Ms. Gaikwad Sanskruti Amit <i>T.Y.B.B.A., Bachelor of Business Administration, Rayat Shikshan Sanstha's, Shri Sadguru Gangageer Maharaj Science, Gautam Arts and Sanjivani Commerce College, Kopargaon, Savitribai Phule Pune University, India.</i> <i>E-mail ID: gaikwadsanskruti56@gmail.com</i></p>	
<p>Abstract: Work-life balance involves equally prioritizing and ensuring harmony among work, education, responsibilities, and personal life. In the current fast-moving and competitive environment, people frequently find it challenging to juggle their career responsibilities and personal requirements. This imbalance causes stress, mental exhaustion, a lack of tranquillity, and discontent, which adversely impacts overall wellness and efficiency. Ongoing stress and excessive workload can lead to burnout and diminished quality of life. Spiritual practices, combined with moral and ethical principles, offer a comprehensive approach to these difficulties. They assist people in achieving peace of mind, emotional balance, and clear decision-making. Spiritual values promote self-control, perseverance, and resilience, allowing individuals to handle their obligations more efficiently. Through embracing ethical values and spiritual consciousness, people can attain improved concentration, strength, and emotional stability. This ultimately contributes to developing a healthier, more significant, and balanced life.</p>	
<p>Keyboards: <i>Work-life balance, Stress management, Burnout prevention, Spiritual practices Ethical values.</i></p>	

SM-035/25-26	Mental Health Classification on Reddit Posts Using Machine Learning
<p>Sujit Rakshe, Sanket Jagdale, Santosh Pandure MIT Arts, Commerce and Science college Alandi Devachi, Pune, India Corresponding Author: sujitrakshe45@gmail.com</p>	
<p>Abstract: Mental health disorders pose a significant global challenge, affecting millions of individuals across diverse demographics. The rise of social media platforms such as Reddit has opened new opportunities for early detection of psychological distress through digital footprints. This study explores the classification of mental health conditions—specifically Schizophrenia, Autism, Obsessive- Compulsive Disorder (OCD), and Post-Traumatic Stress Disorder (PTSD)—using machine learning and natural language processing (NLP) techniques. A dataset comprising 40,000 Reddit posts was collected from four mental health-related subreddits using the Python Reddit API Wrapper (PRAW). After rigorous preprocessing involving tokenization, stopword removal, stemming, and TF-IDF vectorization, multiple machine learning classifiers—Support Vector Machine (SVM), Logistic Regression, Random Forest, and Multinomial Naïve Bayes—were trained and evaluated. Comparative analysis revealed that the Random Forest model achieved the highest performance with an accuracy of 83.92% and an F1-score of 0.84, outperforming other classifiers in balancing precision and recall. The findings demonstrate that traditional machine learning methods, when paired with robust preprocessing and feature selection, can effectively identify mental health indicators from social media text. This research provides a foundation for future work integrating transformer-based models and multimodal data to enhance early mental health detection and support systems in digital environments.</p>	
<p>Keywords: <i>Machine Learning, Natural Language Processing, Reddit, Text Mining, Social Media Analytics.</i></p>	

SM-036/25-26	<p style="text-align: center;">Analysis of monthly, seasonal and annual mean AQI of Pune city from 2015-2024 by using basic statistics tools.</p>
<p style="text-align: center;">Mr Ninad Joshi B. Sc. Computer Science (First Year), Savitribai Phule Pune University, Pune, India</p>	
<p>Abstract:</p> <p>Air pollution is now a big problem for the environment and people's health. In this study, we looked at the Air Quality Index (AQI) data for Pune city from 2015 to 2024. We used statistical methods like mean, range, standard deviation, and trend analysis to understand how air quality changed each month and over the years. The results show that AQI levels are usually higher in winter because of stronger winds and colder temperatures, and lower during the monsoon season. When we looked at the data yearly, we saw that AQI improved in 2020 because there was less human activity, but it started to go up again. During this time, AQI values stayed mostly between 82 and 141. This study shows how analyzing AQI data with basic statistics can help us understand city-level environmental conditions and support better decisions for urban planning, pollution control and sustainable development.</p>	
<p>Keywords: <i>Air Quality Index, Monthly Mean AQI, Seasonal Variation, Trend Analysis, Basic Statistics</i></p>	

SM-037/25-26	<p style="text-align: center;"><i>A Sustainable Digital Model for Safe Disposal and Recycling of Unused and Expired Medicines in India</i></p>
<p style="text-align: center;">Trisha Nandy, Biprojit Kar <i>Institution: Gauhati Commerce College, Gauhati University, India</i> <i>Corresponding Email: biprojitkar7@gmail.com</i></p>	
<p>Abstract:</p> <p>Improper disposal of expired and unused medicines is a significant environmental and public health concern in India, often overlooked despite its serious consequences. Many households dispose of these medicines in dustbins or drainage systems due to the lack of accessible disposal mechanisms. Studies report that improper disposal practices contribute to soil and water contamination, disrupting ecosystems and promoting antimicrobial resistance [1][2][3]. Pharma Recycle proposes a digital platform that integrates mobile applications, smart collection systems, and reward-based incentives to encourage responsible disposal and recycling of unused and expired medicines.</p>	
<p>Keywords: <i>Pharmaceutical waste, medicine recycling, environmental sustainability, expired medicines, public health innovation</i></p>	

SM-038/25-26	A Comparative Study of Foreign Taxation Systems and Suggestions for Strengthening Indian Taxation System
<p style="text-align: center;">Soham Shirude, Prathamesh Bhamre, Vivek Jain <i>Department of Commerce, B.P. Arts, S.M.A. Science, K.K.C. College, Chalisgaon, India</i> <i>Corresponding Author: jainvivek62305@gmail.com</i></p>	
<p>Abstract:</p> <p>Taxation plays an important role in maintaining economic stability, raising revenue, and supporting national development. This study compares the taxation systems of selected countries, especially the United States and Japan, to find useful ideas for improving the Indian taxation system. The paper looks at important aspects like tax compliance methods, digital tax management, enforcement strategies, transparency, and public trust. Although India has made significant reforms, such as introducing digital filing systems and the Goods and Services Tax (GST), challenges related to compliance, administrative efficiency, and public awareness still exist. By examining effective practices in developed countries, this study points out areas where the Indian taxation system can improve. The research concludes that targeted improvements in compliance monitoring, digital integration, simplifying procedures, and increasing transparency can boost the effectiveness and credibility of the Indian taxation system.</p>	
<p>Keywords: <i>Foreign Taxation Models, Indian Tax System, Comparative Tax Study, Tax Administration Reform, Compliance Mechanisms.</i></p>	

SM-040/25-26	Study On Covid-19 Cases, Death Rates And Vaccination State-Wise Status Across India
<p style="text-align: center;">Sayali Mokashe, Dhanashri Mule, Anushka Nikate, Komal Galande <i>Marathwada Mitra Mandal's College of Commerce</i> <i>Department of computer science SPPU University, Pune, Maharashtra, India</i> <i>mokashesayali@gmail.com ghanashrimule724@gmail.com anushkanikate0708@gmail.com</i></p>	
<p>Abstract:</p> <p>The COVID-19 pandemic was most challenging crises in history. India experienced its effect on large scale.COVID-19 impact varied significantly according to state's population, healthcare system and economic conditions. This study covers the state wise analysis of COVID cases; deaths and vaccination coverage (1st, 2nd and booster dose).The research examine the distribution pattern according to states and evaluate the vaccination coverage in reducing the death rate. Using descriptive statistics like mean, median and standard deviation along with skewness and kurtosis gives information that there is a variation of pandemic among Indian states. Positively skewed data distribution shows that highly populated states gives uneven proportionality in total cases and deaths. High standard deviation value indicates the differences in scale of impact across states. The analysis shows that a state with higher vaccination coverage controls the COVID cases and death rate. The result indicating that even</p>	

vaccination did not stop people from virus but it was very effective at reducing the illness and death rate. The research highlights the importance of vaccination programs, strong healthcare system. The study offers values that can help India and other country to prepare for manage this type of health crises. Vaccination is one of the most powerful tools or a key to reduce the impact of COVID-19 pandemic

Keywords:

India, Covid-19, vaccination, Dose, Cases.

SM-042/25-26	BioThermal Emotional Intelligence Framework for Human State Monitoring
<p style="text-align: center;">Tanishka Mangesh Pansare, Vivek Rajendra Bokefode</p> <p style="text-align: center;">S.Y. B.Sc. Computer Application Department Of Computer Science Dr. D. Y. Patil Arts, Commerce and Science College, Pimpri, Pune – 411018. Email Id: tanishkapansare057@gmail.com, Email Id: bokefodevivek68@gmail.com</p>	
<p>Abstract:</p> <p>The process of observing human emotions and body states presents significant difficulties for healthcare professionals and mental health experts and researchers studying human-computer interaction. The basic approach that traditional systems use to identify emotions depends on three main types of data: facial expressions, voice analysis, and self-reported information. The techniques used for this task face three main problems because they produce results which are either subjective or intrusive or they fail to produce valid outcomes when used in actual situations. The performance of visual-based systems becomes less effective when actual conditions involve different lighting situations and physical obstacles that obstruct their view. The BioThermal Emotional Intelligence Framework provides a method to monitor human states through non-invasive techniques. The proposed framework uses thermal physiological data, specifically changes in facial temperature, to detect subtle emotional and stress-related responses in the body. Contactless thermal sensors collect thermal data, which is then processed using artificial intelligence and cognitive-based machine learning models to extract useful features. The identified features work to identify three emotional states which include stress and calmness and discomfort. The framework uses emotional intelligence concepts together with thermal sensing technology to create a system which helps users track their emotional and physical state. The BioThermal Emotional Intelligence Framework results demonstrate that framework increases emotion recognition accuracy while maintaining user comfort and privacy protection. The system provides a dependable method for tracking human states which does not depend on conventional visual techniques and questionnaires. The framework develops across various fields which include healthcare monitoring systems and mental health assessments and smart environments and assistive technologies. The approach provides an effective solution for future systems which will use emotion detection technology.</p>	
<p>Keywords:</p> <p>BioThermal Analysis, Emotional Intelligence, Thermal Imaging, Artificial Intelligence</p>	

SM-043/25-26	Urban Water Management Failure and the Rise of Tanker Mafia: A Study of the PMC Area
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<p>Abstract:</p> <p>Urban water scarcity in Pune has become a serious issue due to inefficiencies in urban water management, leading to irregular supply and the growth of the informal “water tanker mafia” within the Pune Municipal Corporation (PMC) area. This study examines managerial, administrative, and supply chain failures that contribute to tanker dependency, along with its economic and social impacts on residents, using both primary data (surveys and interviews) and secondary sources (reports and government publications). The findings reveal that the crisis is not due to a lack of water at the source, but rather a “manufactured scarcity” caused by infrastructure gaps in newly merged areas, high Non-Revenue Water (NRW), and political– private vendor nexus. The paper recommends stronger water governance and proposes a “Zero-Tanker Policy” through 100% metering, SCADA-based real-time monitoring, and mandatory functional water infrastructure before granting real estate development permissions.</p>	
<p>Keywords: <i>Urban Water Management, Tanker Mafia, Non-Revenue Water (NRW), Manufactured Scarcity, Sustainable Governance, Pune Urbanization.</i></p>	

SM-048/25-26	Passive Scrolling's Environmental Impact: A Study on Brain Fog and Digital Overuse in Generation Z
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<p>Abstract:</p> <p>The digital era has ushered in an "attention economy" where passive scrolling—often termed "doomscrolling" has become a pervasive behavior among Generation Z. The research will explore the environmental impact of this behavioral modification through an analysis of the cognitive environmental degradation that results from behavioral modification (e.g., brain fog; decreased attention span) and the actual environmental cost related to the consumption of digital data in the process. Using behavioral economics and recent research in the field of psychology, the author will examine the effects of the algorithmic infinite scroll on cognitive fatigue and, ultimately, digital dissociation in millennials and Generation Z.</p> <p>In addition, the author will discuss the significant but frequently overlooked carbon footprint of passively scrolling through high-frequency data. The results suggest that doomscrolling has a detrimental impact on the cognitive environment as well as the real world, decreasing worker productivity and engagement while deterring sustainable business practices. The paper will conclude with recommendations for organization leaders to address the problem of digital overuse to support employee well-being and corporate digital responsibility.</p>	
<p>Keywords: <i>Passive Scrolling, Generation Z, Brain Fog, Corporate Digital Responsibility (CDR), Digital Sustainability, Attention Economy.</i></p>	

SM-052/25-26	Swachh Alert: Image-Based Detection of Public Spitting
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Abstract: Clean public spaces are very necessary for better health and a good quality of life. Public cleanliness plays an important role in stopping illness and creating a healthy environment for people. One common problem seen in several cities is public spitting, which spreads dirt, germs, and illness. Spitting in public places makes roads, footpaths, and public areas unhealthy and annoying. Monitoring such behaviour by humans is very hard and time-consuming because it needs continuous observation and a large employee. Existing solutions mainly depend on manual cleaning, warning boards, which are very rare, and people supervising. These methods are slow and not very effective because the same places become dirty again after cleaning. Warning boards are often ignored, and human monitoring cannot be done at all places all the time. Due to these restrictions, there is a need for a smarter and more automated solution to recognize spitting activities in public areas. This research paper presents Swachh Alert, a spitting detection system that detects public spitting using camera footage and Python-based image detection techniques. The collected data helps to understand which areas are clean, which areas need more observation, and where spitting is regular. This information is useful for identifying cleanliness patterns in distinct locations. The system may face limitations such as internet failure or technical issues, which can affect live monitoring and data storage. Proper handling of such challenges is important for dependable performance. While using cameras in public places, people's privacy is handled carefully to avoid misuse of data. Overall, Swachh Alert supports smart city capabilities and promotes a cleaner and healthier environment by helping authorities understand public cleanliness issues in a better way.	
Keywords: <i>Artificial Intelligence, Public Cleanliness, Spitting Detection, Smart City, Swachh Bharat</i>	

SM-053/25-26	Toxic Positivity In Workplaces – The Emotional Suppression Of Always Being ‘Fine’
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Abstract: Toxic positivity, the cultural mandate to remain positive while concealing distress, has emerged as a silent yet powerful emotional regulator in contemporary workplaces. This study investigates it’s prevalence and it’s direct relationship with emotional suppression among corporate professionals. Using the Toxic Positivity Scale (TPS), data were collected from 33 employees through quantitative cross-sectional design employing a 5-point Likert framework. Findings reveal that 100% of participants reported moderate to high levels of toxic positivity, demonstrating that enforced optimism is not an isolated phenomenon but a systematic workplace norm. statistical analysis indicates a strong positive association between toxic positivity and emotional suppression, suggesting that organizational positivity scripts may compromise psychological safety and authentic self-expression. By empirically documenting this hidden dynamic, the study challenges dominant workplace narratives that equate constant positivity with productivity and resilience. The findings advocate for evidence based organizational interventions that promote emotional authenticity as a foundation for sustainable performance and employee well-being.	
Keywords: <i>Toxic Positivity, Emotional Suppression, Workplace Culture, Psychological Wellbeing, Organizational Behaviour</i>	

SM-054/25-26	Statistical Analysis Of Social Media Impact On Mental Health
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Abstract: Social media is part of everyday life for most students. They mainly use it for communication, entertainment, education, and passing the time. This study aims to understand how social media affects the mental health of college students. The researcher collected data using a questionnaire from 125 B.Sc. students. The questionnaire asked about daily screen time, common platforms, and personal experiences like stress, anxiety, mood changes, and self-esteem. The analysis used statistical tools such as mean, median, mode, standard deviation, variance, skewness, and kurtosis. The results indicate that moderate use of social media helps students feel connected and relaxed, while excessive use causes stress, lack of focus, and lower confidence. Therefore, balanced social media use is important for maintaining good mental health and overall well-being.	
Keywords: <i>Social Media, Mental Health, Stress, Anxiety, Students</i>	

SM-055/25-26	Competitive Advantage Gained by Eco-Startups: A Review-Based Study of Dharaksha Eco-Solutions
<p style="text-align: center;">Ninad Prasad Kulkarni, Dr Punam Shinde Affiliations: <i>Marathwada Mitramandal's College of Commerce, Pune</i> Email- <i>ninad.srcom21059@mmcc.edu.in</i></p>	
<p>Abstract:</p> <p>Environmental sustainability has emerged as a critical determinant of competitive strategy in modern business environments. Increasing ecological awareness, regulatory pressure, and post-pandemic shifts in consumer behavior have encouraged firms to adopt sustainable practices. Despite this transition, the packaging industry continues to rely heavily on thermocol and paper-based materials, which contribute to long-term environmental degradation. Simultaneously, large-scale burning of agricultural residue such as paddy stubble results in severe air pollution and resource wastage. This study examines how eco-startups convert such environmental challenges into economic opportunities. Focusing on Dharaksha Eco-Solutions, a biotechnology-driven startup producing biodegradable mycelium-based packaging from crop residue, the paper analyzes how sustainability-oriented innovation contributes to competitive advantage. Using a qualitative review-based methodology and strategic frameworks such as differentiation strategy and circular economy principles, the study concludes that eco-innovation can create sustainable competitive advantage through value differentiation, technological capability, and enhanced brand perception.</p>	

SM-056/25-26	The Greening of Personal Finance: A Critical Evaluation of Financial Literacy as a Catalyst for Social and Environmental Sustainability in India
<p style="text-align: center;">NIRANJAN AJIT DANDEKAR <i>FY B.com , Kaveri College Of Arts Science And Commerce, Pune, India</i> Corresponding Author: <i>niranjandandekar2007@gmail.com</i></p>	
<p>Abstract:</p> <p>This research examines the emergence of Environmental, Social, and Governance (ESG) investing in India as a transformative tool for societal and environmental benefit. By analyzing secondary data from 2019 to 2025, the study evaluates how financial literacy and regulatory frameworks, such as SEBI's Business Responsibility and Sustainability Reporting (BRSR), act as catalysts for sustainable personal finance. Findings indicate a four-fold growth in ESG assets under management (AUM), rising from ₹2,703 crore in 2019 to approximately ₹11,000 crore by mid-2025. Despite this growth, challenges remains regarding data standardization and greenwashing. The paper concludes that integrating critical thinking into financial literacy empowers retail investors—particularly Millennials and Gen Z—to align personal wealth with ethical governance and climate action, thereby driving systemic change in the Indian capital market.</p>	
<p>Keywords: <i>ESG Investing, Sustainable Finance, Financial Literacy, SEBI Regulations, India</i></p>	

SM-057/25-26	Study of Financial Literacy and Digital Payment Awareness of College students
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Abstract: Financial well-being and advanced money management start from one's financial literacy. The rapid and easy cashless transactions of digital payment methods (e.g. UPI, mobile wallets, credit/debit cards, internet banking) require a certain level of financial literacy to avoid possible risks. Lack of financial literacy leads to poor financial planning and savings, and a higher risk of cyber fraud. This paper examines financial literacy and digital payment method awareness among undergraduate students. The author conducted a primary data collection exercise using a structured questionnaire and simple random sampling (n= 85). The author used percentage breakdown and graphs to present the results. The data illustrates that most students engage with digital payment systems and possess an elementary level of familiarity with banking. Students lack understanding of budgeting, investing, insurance, and digital security. This research emphasizes the need to include financial literacy education within the curriculum of higher educational institutions so that students learn to safely manage and conduct online financial transactions.	
Keywords: <i>Financial Literacy, Digital Payments, Awareness, Primary Data, Financial Planning.</i>	

SM-058//25-26	Sustainable Software Engineering: Designing Energy-Efficient Applications
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Abstract: Sustainable Software Engineering (SSE) integrates environmental factors into the software engineering cycle in order to reduce energy usage and carbon output while not compromising the usability or performance of software applications. This paper reviews empirical and conceptual studies from the last fifteen years related to software energy-efficient design, measurement, tools, architectures and practices. Specifically, this paper examines thirty literature (surveys, measurement studies, tool papers and design papers) identified by scanning Scopus, to (1) understand the most popular methods for measuring software energy usage; (2) understand the energy-efficient design patterns and architectures; (3) review tools for observing energy (RAPL, PowerAPI, Kepler, Scaphandre, SmartWatts); and (4) provide discussion regarding gaps in evaluation, awareness, and benchmarks in the sustainable software engineering field. The review identifies the current state of measurement tools and cloud	

scale optimisation; however, there is significant disagreement around the form of evaluation methods and how SSE is integrated into education. Lastly, this paper presents the research methodology utilised to collect data, describes the criteria used for selecting literature based on six themes/gaps, and identifies future directions for SSE research.

Keywords:

Sustainable Software Engineering; energy-efficient applications; green software; energy measurement; developer practices.

SM-059//25-26

Share-Bite: An NGO-Mediated Digital Platform for Ethical Food Redistribution at Large and Small Scales Levels

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Abstract:

Food waste is a major global issue that has serious environmental, social, and economic impacts. A substantial amount of edible food is wasted every day from households, educational institutions, events, and food service providers, resulting in unnecessary use of natural resources and rising greenhouse gas emissions, especially methane from landfilling. Meanwhile, food insecurity persists as a problem for a substantial number of people. To bridge this gap, there is a need for solutions that focus on preventive measures against waste, rather than managing waste after it occurs.

This paper presents Share-Bite, an eco-innovative, NGO-mediated digital platform that aims to mitigate food waste by effectively redistributing surplus edible food in a timely manner. The proposed system adopts a preventive, community-based strategy by linking food donors with trusted non-governmental organizations (NGOs) in charge of food collection and redistribution. With a simple web-based interface, food donors can post notifications about surplus food availability, and nearby NGOs are instantly alerted through real-time notifications, allowing for rapid and secure redistribution of the food before it turns to waste.

The approach focuses on waste reduction at the point of origin, which aligns with the waste management hierarchy and green/sustainable computing principles. By preventing excess food from becoming part of the waste stream, Share-Bite helps to reduce methane production and the use of water, energy, and other resources in food production and preparation. In addition, the approach encourages ethical food sharing, consumption, and social responsibility.

Share-Bite is scalable, cost-effective, and can be applied in different settings, including campuses, communities, and events. The proposed approach illustrates the effective use of digital technologies to address environmental sustainability issues and create significant social impact. This research showcases the role of technology-driven and prevention-based solutions in promoting sustainable food management practices.

Keywords:

Green and Sustainable Computing, Environmental Sustainability, Food Waste Reduction, Sustainable Food Management, Surplus Food Redistribution, NGO-Mediated Distribution, Ethical Food Sharing, Community-Level Solutions, Methane Emission Reduction.

SM-060//25-26	Digital Technology-Based Model for Precision Agriculture: A Step towards Viksit Bharat
<p style="text-align: center;">1Mayur Unde, 2Yash Magar, 3Mudassar Shaikh 1*,2 Undergraduate Student, Department of Computer Science, Marutraoji Ghule Patil Arts, Commerce and Science College, Ahilyanagar, Maharashtra, India 3 Head and Assistant Professor, Department of Computer Science, Marutraoji Ghule Patil Arts, Commerce and Science College, Ahilyanagar, Maharashtra, India Corresponding Author*: mayurunde99@gmail.com</p>	
<p>Abstract:</p> <p>Agriculture plays a vital role in ensuring food security, economic stability, and rural development in India. However, challenges such as climate variability, soil degradation, inefficient irrigation, and rising input costs continue to impact productivity. Precision agriculture, supported by digital technologies such as Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), and Cloud Computing, offers a transformative solution. This paper proposes a scalable and cost-effective seven-layer digital architecture model for precision agriculture. The system integrates real-time soil monitoring, cloud-based storage, AI-driven decision support, and continuous learning mechanisms to enhance productivity and sustainability. The proposed framework aligns with the vision of Viksit Bharat by promoting intelligent, data-driven farming practices.</p>	
<p>Keywords: <i>Precision Agriculture, IoT, Artificial Intelligence, Machine Learning, AWS Cloud.</i></p>	

SM-061//25-26	A Study on Waste Segregation Practices in Urban Households
<p style="text-align: center;">Yashita.Hari.Fatnani, Mrudula.Gokul.Kul Ashoka Center For Business And Computer Studies</p>	
<p>Abstract:</p> <p>This study focuses on waste segregation practices among urban households based on responses collected through a structured Google Form questionnaire. The research analyzes awareness about waste segregation and the degree to which households differentiate wet and dry waste at the source. It also analyzes the types of household waste produced and the methods used for discarding. The study determines major challenges faced by households, such as lack of time, inadequate dustbins, and improper collection by municipal authorities. Public perception on municipal waste management services are Analysed. The research further studies people's beliefs toward policy measures such as offering free dustbins and imposing penalties for non-segregation.</p>	
<p>Keywords: <i>Waste segregation, Urban households, Municipal waste management, Wet and dry waste, Household waste practices, Public awareness</i></p>	

SM-062//25-26	ROLE OF FINTECH IN PROMOTING FINANCIAL INCLUSION AND SUSTAINABLE GROWTH IN INDIA
<p style="text-align: center;">Mihir Amrish Vaishnav, Dr Punam Shinde Affiliations: <i>Department of Commerce, Marathwada Mitra Mandal's College of Commerce, Savitribai Phule Pune University, Pune, India</i> Email: <i>mihir.srcom@23313.mmcc.edu.in</i></p>	
<p>Abstract:</p> <p>Fintech has transformed India's financial system, yet rural areas lag. Weak digital networks, social divides, and linguistic diversity leave millions excluded. This paper examines these barriers using open-access studies (2023-2026) and data from RBI, NPCI, Niti Aayog, UNDP SDG Hub, and other official sources. Beyond UPI, it also throws some light on digital lending, InsurTech, WealthTech, RegTech, neo-banking, and embedded finance. UPI has processed 21.7 billion transactions (Rs 28.33 lakh crore) in January 2026 [1][2]; the Financial Inclusion Index is at 67 as of March 2025[3][4]. Yet, rural internet access is 57% (548M of 958M) [5], cash remains dominant, and gender gaps persist. MSMEs are facing ₹25.8 trillion credit gap across 63.88 million unincorporated businesses. The researcher proposes a solution framework to tackle the underlying problems, and achieve inclusion, 1-2% GDP growth, 50-60 million jobs, and SDG progress. Without reforms, urban-rural gap may widen even more.</p>	
<p>Keywords: <i>Fintech, financial inclusion, Sustainable Development Goals (SDGs), Fintech Inclusion Index, MSME.</i></p>	

SM-063//25-26	Green-Vision: Deep Learning For Sustainable Waste Segregation
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<p>Abstract:</p> <p>Poor sanitation disposal and inaccurate segregation result in increased pollution and higher landfill usage. Recycling requires precise waste identification and its knowledge at the source. This study proposes Green-Vision, an AI-based system that employs deep learning and computer vision to classify waste. The system has an advantage of Convolutional Neural Networks (CNNs) that process images taken by a camera to classify the waste as biodegradable, recyclable, or non-recyclable waste, including plastics and glass. OpenCV-based image preprocessing enhances feature extraction and the performance of the system. Accuracy is checked using precision, recall, and F1-measure indicates higher accuracy. The system is built for smart waste bins and waste management centers.</p>	
<p>Keywords: <i>OpenCV, CNN, Image Processing, YOLO v8, Computer Vision, Smart Waste Management, Sustainable Technology, Python</i></p>	

SM-064//25-26	Reclaiming Shiksha: Indian Knowledge Systems as Alternatives to Western Sustainability Frameworks
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Abstract: The Western development paradigms, which depend on industrial growth and technocratic governance systems, establish the primary framework for global sustainability discourse. The Sustainable Development Goals system establishes environmental protection requirements, but most of its implementation remains focused on economic growth and policy development. Recent scholarship on Indian Knowledge Systems (IKS) reveals that Indian traditions contain indigenous ecological wisdom together with ethical principles and holistic worldviews. Existing studies currently examine IKS through its cultural and educational applications without establishing it as a sustainability framework according to existing research. The paper creates a theoretical framework to define Shiksha as a value-based civilizational method that promotes sustainability in an indigenous framework. The study uses qualitative research methods to compare recent academic studies to show that IKS provides an ethical basis for sustainable development, which creates ecological balance through responsible resource management.	
Keywords: Indian Knowledge Systems (IKS), Sustainable Development Goals, Shiksha, Western Development Models.	

SM-065//25-26	Crowd-Sourced Missing Person Detection via Mobile Sensing & ML-Based Matching
Isha Patil, Jahnvi Dhanapune, Vaidehi Shinde, Mrs. Shubhada Mone <i>Department of Computer Engineering, Marathwada Mitra Mandal's College of Engineering, Pune, India</i> <i>Corresponding Author: ishapatil2024.comp@mmcoe.edu.in</i>	
Abstract: Mobile Crowd Sensing (MCS) has emerged as a powerful and realistic approach for assisting in missing person detection, notably within urban environments. By leveraging the widespread and prevalent and far-reaching availability of smartphones and related and affiliated devices, MCS systems allow massive and immense and vast groups of people to act as distributed sensing nodes. In this survey, we examined seventeen inquiry works that unite Artificial Intelligence with Mobile Crowd Sensing for missing person identification and tracking. These studies make use of advanced deep learning models such as YOLOv8, ResNet50, and FaceNet to recognize and verify individuals [9]. Across the examined systems, reported identification performance achieves up to 94.2 percent accuracy. However, several open challenges persist, comprising cross-device compatibility, system scalability, and the protection of participant privacy. This paper provides a systematic overview of existing	

architectures, algorithms, and system workflows while highlighting present and existing limitations and future inquiry directions
Keywords: Mobile Crowd Sensing, Facial Recognition, Missing Persons, BLE, UAV Detection

SM-067//25-26	Study Habits and Academic Performance of Management Students in Solapur
Pranita Khandal and Kalindi Vyas HNCC Solapur	
Abstract: Study habits play an important role in determining the academic performance of students, especially in professional courses like management. Management students are expected to manage time well, think analytically, and prepare regularly for their studies. This study aims to examine the study habits of management students in Solapur and analyse how these habits affect their academic performance. The research is based on primary data collected from 57 management students using a structured questionnaire with a 5-point Likert scale. The responses of male and female students were also compared. The results show that regular attendance, timely completion of assignments, regular revision, classroom participation, and self-discipline have a positive impact on academic performance. The study concludes that students who follow disciplined and systematic study habits perform better academically.	

SM-068//25-26	Decoding the Modern Hacker Mindset
Vedika Akotkar, Atharva Darekar & Parth Deshmukh Mentor: Ms. Manisha Gadekar	
Abstract: The modern threat landscape has shifted from exploiting technical vulnerabilities to manipulating human psychology. This research paper examines the psychological drivers, cognitive frameworks, and methodologies that characterize contemporary hackers and cybercriminals. The study primarily focuses on individuals in the 21–30 age group, analyzing their motivations, behavioral patterns, and mindset. It also categorizes different types of hackers, including black-hat, white-hat, and grey-hat actors, to understand variations in intent and ethical orientation better. The research explores how principles of influence, cognitive biases, and emotional triggers are used to bypass organizational defenses. Key motivations include financial gain, ideological beliefs, espionage, personal gratification, and system disruption. The paper concludes that resilient cybersecurity depends on integrating technological safeguards with human-centered strategies and fostering a strong security-conscious culture.	

Keywords: *hacker mindset, cybersecurity, social engineering, psychological manipulation, defense strategies, awareness training, organizational resilience, human factors in security.*

SM-072/25-26	Remote Work in India's IT Sector
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<p>Abstract: Now seen everywhere in Indian tech firms, working remotely took centre stage during the coronavirus outbreak. Up until 2020, staying home to do office tasks happened just once in a while across India. Because movement stopped completely due to health rules, digital businesses moved staff online almost overnight so day-to-day operations wouldn't stop. A stopgap fix at first, this setup slowly turned into a deliberate way of organizing daily work routines. Despite open office doors, plenty of Indian tech businesses stick with working from home or mix it up between home and office. Looking into how that shift affects output, personal time versus job duties, team talks inside companies, plus whether this setup lasts, shapes the study's core.</p> <p>This research relies on firsthand information along with existing sources. From workers in India's tech companies, answers came via a questionnaire about how well they perform tasks, share messages, handle pressure, when working from home. Published papers, business analyses, documents issued by advisory groups like NASSCOM, McKinsey & Company, Deloitte added background context. Information straight from individuals blended with expert findings brought clarity. Together, these pieces shaped a steadier picture of life offsite within Indian technology workplaces.</p>	

SM-073//25-26	Genz Expectations from Workplace
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<p>Abstract: With an emphasis on the elements that affect their motivation, job satisfaction, and long-term loyalty to companies, the current study investigates what Generation Z expects from their workplace. Being the most recent to enter the workforce, Generation Z differs from earlier generations in its values, preferences, and career priorities. Finding their main expectations in relation to pay, work environment, flexibility, career advancement, communication, mental health support, and organizational culture is the main goal of this study. The primary data used in the study was gathered from respondents who are members of Generation Z using a structured questionnaire. In order to interpret patterns and preferences, the data were analysed using graphical and percentage methods. The results show that while non-monetary factors like ongoing feedback, hybrid work models, work-life balance, and inclusive workplaces are just as important, fair rewards and performance-based benefits are crucial in helping Gen Z employees feel appreciated. Opportunities for skill development, regular communication with supervisors, and set working hours with clear boundaries were strongly preferred by respondents over quick promotions. One of the most important expectations that surfaced was mental health support, underscoring the significance of employee well-being programs in contemporary businesses. According</p>	

to the study, Gen Z also values flexibility, job stability, multicultural workplaces, and decision-making autonomy. Overall, the study comes to the conclusion that in order to draw in and keep Gen Z talent, businesses need to implement employee-centric, adaptable, and growth-oriented policies. The study offers valuable insights to employers, HR professionals, and policymakers to develop work practices that are in line with the expectations of the new generation workforce.

Keywords: *Genz, Workplace expectations, Work–life balance, Multicultural workforce, Job satisfaction, Employee motivation.*

SM-075//25-26

Electricity Demand Trends Before and After COVID-19: A Backcasting Approach for Sustainable College

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Abstract:

This study examines the long-term growth pattern of electricity consumption using a log-linear regression method and applies backcasting techniques to analyze historical demand trends. Electricity consumption is widely regarded as a key indicator of economic and institutional development, typically exhibiting exponential growth driven by population expansion, industrialization, and infrastructure development. In this research, annual consumption data are modelled using a log-linear method to capture the structural growth over multiple decades. The estimated model is then extended backward to reconstruct historical demand levels and forward to assess trend consistency.

A significant deviation is observed in the year 2020, corresponding to the COVID-19 pandemic, which caused a significant decline in electricity usage due to restricted economic and institutional activities. To evaluate the magnitude of this disruption, the 2020 observed consumption level is compared with the model-estimated past historical values. The analysis reveals that electricity consumption in 2020 regressed to approximately the level predicted for 1980, indicating a temporary reversal of nearly four decades of growth. Graphical analysis demonstrates that, despite this short-term shock, post-pandemic observations realign with the long-term exponential trend, suggesting structural stability in electricity demand. The findings highlight the usefulness of backcasting as a methodological tool for distinguishing between temporary external shocks and persistent structural changes. This approach provides valuable insights for energy planning and sustainability assessment.

Keywords: *Electricity, Demand, Data Graph, Backcasting, Forecasting.*

SM-076//25-26	Carbon Credits Trading in Sustainable Community Projects
Radhika Tapdiya <i>Student, Department of BBA & BBA-IB, Savitribai Phule Pune University, Pune, India</i> <i>tapdiyaradhika111@gmail.com</i>	
Abstract: <p>The trading of carbon credits plays a crucial role in advancing sustainable community projects by providing a financial incentive for reducing greenhouse gas emissions. This mechanism encourages communities to engage in environmentally friendly practices, thereby promoting sustainable development. By facilitating the exchange of carbon credits, these projects not only contribute to global efforts in combating climate change but also stimulate local economies and enhance community participation. This paper explores the effectiveness of carbon credits trading in driving sustainable initiatives across India, highlighting its potential to foster economic growth while addressing environmental challenges. Through case studies and analysis, the findings underscore the importance of integrating carbon-credit systems into community projects to achieve long-term sustainability and resilience.</p>	
Keywords: <i>Carbon credit, voluntary carbon market, community forestry, sustainable development, REDD+, climate finance</i>	

SM-077//25-26	Voice Sense AI: Voice-Based Early Health Risk Detection
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Abstract: <p>Human voice carries rich information beyond spoken words. Subtle changes in pitch, tone, energy, and frequency patterns often reflect a person's physical and mental condition. Voice Sense AI is a voice-based analysis system designed to explore how voice characteristics can be used for early health risk indication. The system records or accepts voice samples, extracts meaningful acoustic features, and applies machine learning techniques to identify potential risk patterns. This paper presents the design, implementation, and evaluation of Voice Sense AI, focusing on its practical use in a web-based environment for patients, doctors, and administrators. The proposed system aims to provide an initial, non-invasive indication rather than a medical diagnosis. Experimental observations show that voice-based analysis can support early awareness and monitoring when combined with artificial intelligence techniques. The project demonstrates how AI, signal processing, and web technologies can be integrated into a single, user-friendly platform for healthcare assistance.</p>	
Keywords: <i>non-invasive, voice, frequency, amplitude, AI, features</i>	

SM-078/25-26	MENTAL HEALTH AND WORK-LIFE BALANCE IN THE DIGITAL AGE
<p style="text-align: center;">Varsha Chaudhari, Akansha Gupta, Diksha Samindar & Prof. Vishakha Wagh</p> <p style="text-align: center;">Marathwada Mitra Mandal's College of Commerce, Pune Email: varshapchaudhari7813@gmail.com</p>	
<p>Abstract:</p> <p>In today's digital era, the way people work has changed dramatically. Earlier, work had fixed timings, and once one returned home, work would stop. However, with laptops, mobile phones, and the internet, work can now be done from anywhere, blurring the boundaries between professional and personal life. While this change has made work more flexible, constant online connectivity and increased screen time can negatively impact mental health. Many people experience mental stress due to these changes; however, limited studies have explored this issue. To investigate this problem, primary data was collected through a questionnaire, complemented by insights from various articles and research studies. The study revealed that while digital technology facilitates work, excessive use can increase mental stress. Effective time management, setting digital boundaries, and raising awareness can help mitigate these challenges. This digital era affect and increase the problem and many people ignore them the rush between growing fast and done work with fatigue mind also affect the health issue.</p>	
<p>Keywords:<i>Mental Health, Work Life Balance, Digital Overload and Age, Burnout</i></p>	

SM-079/25-26	From Perception to Practice: Measuring Attitudes towards Eco – Friendly Commuting on Pune Metro
<p style="text-align: center;">Vanee Golchha, Madhura Ambhorkar</p> <p style="text-align: center;">UG Department of Psychology, SNDT Arts and Commerce College for Women, Pune, India Corresponding Author: madhuraamb29@gmail.com</p>	
<p>Abstract:</p> <p>The idea of sustainable transportation has gained popularity in Pune due to the global urbanization trend and growing environmental consciousness. Compared to earlier options, using the Pune Metro has offered a significant choice for more environmentally friendly transportation. The Metro's operational efficiency and environmental friendliness have been the subject of numerous studies that have been published to date. Few studies, nevertheless, have used structured instruments to gauge commuters' attitudes or psychology toward using the Metro as a sustainable mode of transportation in order to investigate how passengers feel about traveling sustainably. By investigating attitudes about sustainability for commuting among those who regularly travel to the Pune Metro, this study seeks to fill this vacuum in the literature. An online survey that was largely targeted at people who commuted to the Pune Metro on a daily basis was used to gather data for this study. Survey participants might be of any age. A minority of responders were people commuting for work-related reasons or</p>	

errands, while the majority were students. Moral obligation, green identity, responsibility, environmental concern, and dedication to sustainable transportation were all evaluated using the Commuter Sustainability Orientation Scale (CSOS) in order to gauge the degree of sustainable commuting orientation.

Keywords: *eco – friendly commuting, Pune Metro, public attitudes, sustainable transportation, user satisfaction*

SM-080/25-26	A Study on Carbon Credit Trading for Residential Societies in Kothrud, Pune
Shreenaya Mampuzha, Saanvi Rane <i>Brihan Maharashtra College of Commerce, Pune, Maharashtra, India</i> <i>Corresponding Authors: shreenayam2021@gmail.com, saanvirane2005@gmail.com</i>	
Abstract: This study investigates the feasibility and acceptance of implementing carbon credit trading mechanisms in residential societies in Kothrud, Pune. Through a comprehensive survey of 71 households, the research examines current sustainability practices, awareness levels regarding carbon credits, and willingness to participate in community-level carbon trading programs. Findings reveal that 74.6% of respondents are willing to participate, with cost savings, environmental concerns, and social responsibility being primary motivators. The study proposes a practical framework for implementing carbon credit trading at the societal level, incorporating gamification elements and community engagement strategies to maximise participation and environmental impact.	
Keywords: <i>Carbon credit trading, Residential societies, Sustainability practices, Community engagement, Environmental awareness</i>	

SM-081/25-26	Desertification In India: Causes, Area Affected, And Sustainable Solution
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Abstract: Desertification is about the degradation of the fertility of land, which results in a reduction in wildlife and vegetation. This research paper is a study of the causes of desertification and it highlighting the area affected by it. This is an attempt to find the solution for improving the soil fertility. This paper is a qualitative and quantitative paper based on secondary data. This research paper is to provide a solution for desertification problems of Indian regions. The paper will be focusing on guiding the farmer to improve the land fertility and agricultural production. Further it aims to find sustainable solution for areas affected due to desertification.	
Keywords: Desertification, Degradation, Sustainable development, Soil erosion, Fertility	

SM-082/25-26	Urban Food Delivery in 2026: Sustainability and Food Wastage Challenges
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Abstract: Urban food delivery systems in 2026 have become an important part of city infrastructure. This change is fueled by fast digital growth, an increase in cloud kitchens, and the rise of ultra-fast delivery services. These innovations provide great convenience for consumers and boost the economy. However, they also lead to growing environmental issues. This research paper explores the link between industrial growth and environmental health, focusing on food waste and plastic pollution in the delivery system. Using a mix of methods and primary survey data, the study highlights major causes of waste, such as order cancellations, excessive purchasing driven by promotions, and the need for too much packaging. The findings show a big gap between what consumers know about eco-friendly choices and what they actually do. The paper concludes by suggesting a plan for stakeholders, including platforms, restaurants, and policymakers. It recommends using biodegradable packaging, better portion control, and digital systems for redistributing food. These suggestions aim to create a more resilient, circular economy that meets the high demand for delivery services while also addressing environmental responsibility and supporting long-term sustainability in cities	
Keywords: :Urban Food Delivery, Food Waste, Sustainability, Cloud Kitchens, Carbon Emissions	

SM-083/25-26	Exploring The Impact of Stress on Student Potentialities and Introducing a Card Based Stress Reduction Activity
<p style="text-align: center;">Nafisa Saify, Research Guide: Dr. Shital Aher</p> <p style="text-align: center;"><i>Final Year B.A B.Ed., Ashoka College of Education, SPPU Affiliated, Nashik, Maharashtra.</i></p> <p style="text-align: center;"><i>maimoonnafisa79@gmail.com</i></p>	
<p>Abstract:</p> <p>The present study explores the impact of stress on student potentialities and examines the effectiveness of a card-based stress reduction activity titled Pocket Calm Cards. Stress was experimentally induced at a mild level using an anagram-solving task designed to create learned helplessness among Class VII students. Girls were provided with unsolvable anagrams while boys received solvable ones; however, the final anagram was solvable for all students. Despite this, many girls failed to solve the final anagram due to prior failure experiences, indicating reduced confidence and potential under stress.</p> <p>Following this, Pocket Calm Cards—consisting of activities such as box breathing, gratitude bingo, and grounding exercises—were introduced as an intervention. Stress levels were measured using a questionnaire adapted from the SSC-6 Stress Test along with situational questions. Pre-test results indicated high stress levels, while post-test results showed a significant reduction of approximately 76%. The findings suggest that stress negatively affects student potentialities, and game-based, experiential interventions like Pocket Calm Cards can effectively reduce stress and restore confidence and performance.</p>	

SM-085/25-26	The Role of Social Innovation in Making Sustainable Technologies Accessible to Low-Income Communities (BOP) in Developing Nations
<p style="text-align: center;">AANYA JAIN , DEBDEEP CHATTERJEE & DR ALKA ARORA</p> <p style="text-align: center;">Symbiosis College Of Art & Commerce , Senapati Bapat Road , Pune , India Email- jainaanya47@gmail.com</p>	
<p>Abstract:</p> <p>This paper explores how social innovation can make sustainable technologies more accessible to low-income communities in developing nations, often referred to as the Bottom of the Pyramid (BOP), a concept first introduced in Fortune at the Bottom of the Pyramid. Far from being passive consumers, BOP communities are resilient, resourceful, and represent a vast market opportunity when businesses adopt inclusive approaches. We challenge misconceptions that these markets are unprofitable and instead highlight how co-creation, community entrepreneurship, and cross-sector partnerships can unlock both social and economic value. Through conceptual analysis and case studies, we show how companies can design scalable business models that drive profitability while fostering social upliftment and environmental sustainability. Ultimately, this study emphasises the role of social innovation in bridging gaps, transforming stereotypes into opportunities and enabling inclusive growth for businesses and communities alike.</p>	
<p>Keywords: :Social Innovation, Sustainable Technologies, Bottom of the Pyramid (BOP), Developing Nations, Environmental Sustainability, Scalable Business Models.</p>	

SM-087/25-26	Green Accounting As A Strategic Tool For Sustainable Business Decision-Making In India
<p>Kavy Roongta, Auf Kokni <i>BBA Student, Ashoka Center for Business and Computer Studies, Nashik, India</i> <i>Corresponding Author: kavyaroongta@gmail.com</i></p>	
<p>Abstract: Green Accounting is the integration of environmental costs into financial reporting for sustainable business decisions to be taken. Traditional accounting systems overlook environmental degradation and depletion of natural resources, thereby giving only partial assessment of profits. This study investigates awareness, adoption and effectiveness of Green Accounting practices in India. Primary data was collected via Google Form from 100 authentic respondents including students, professionals, and business stakeholders. Secondary data collection was from journals, government sustainability reports, and ESG frameworks. Findings reveal that 82% respondents are aware of sustainability concepts, but only 46% organizations actively implementing structured Green Accounting in a structured manner. In conclusion, Green Accounting in Indian businesses leads to better transparency, increases long-term profits, and promotes better sustainable decision-making.</p>	
<p>Keywords: <i>Green Accounting, Sustainability, Environmental Costing, ESG Reporting, Sustainable Development</i></p>	

SM-088/25-26	Sustainable Consumption Practices Among Female Millennials In Pune: A Behavioral Study For Cosmetic Products
<p>Sanika Patnekar, Rucha Siddhabhatti, Research Guide – Dr. Sushmita Nande <i>TYBBA, MES Garware College of Commerce</i> <i>sanikaap21@gmail.com</i></p>	
<p>Abstract: This study investigates sustainable consumption practices among female millennials in Pune with special reference to cosmetic products. Although environmental awareness is significantly high, a consistent gap exists between sustainability attitudes and actual purchasing behavior. Using a structured survey of 129 respondents, descriptive statistics, cross-tabulation analysis, and percentage comparisons were conducted. The findings reveal that while 98.4% respondents are aware of eco-friendly ingredients, only a small proportion regularly purchase sustainable cosmetic products. High price (93.8%), brand mistrust, and difficulty accessing reliable information (89.1%) emerge as dominant barriers. The study contributes to behavioral sustainability literature by highlighting the affordability–trust–quality triad influencing millennial cosmetic purchases.</p>	
<p>Keywords: <i>Sustainable Consumption, Green Cosmetics, Female Millennials, Purchase Behaviour, Awareness–Action Gap</i></p>	

SM-090/25-26	Consumer Interpretation of Environmental Claims in FMCG and Greenwashing Risk
<p style="text-align: center;">Nyssa Nair, Tanvi Jain <i>Department of Economics, Symbiosis College of Arts and Commerce, Pune, India</i> <i>Corresponding Author: angela.thomas@symbiosiscollege.edu.in</i></p>	
<p>Abstract: The growing use of environmental claims in Fast-Moving Consumer Goods (FMCG) marketing has increased both consumer awareness and the risk of greenwashing. This study examines how consumers interpret environmental claims in the FMCG sector and assesses behavioural vulnerability to greenwashing within an urban Indian context. Using a descriptive and analytical research design, primary data was collected from 107 FMCG consumers in Pune through a structured questionnaire, supplemented by in-person discussions with ten respondents. The findings indicate that while consumers demonstrate positive attitudes toward sustainability and prefer explicit environmental claims over purely visual green cues, their evaluations are largely heuristic-driven and marked by limited verification. Moderate skepticism, post-purchase moral self-justification, and residual trust in brands contribute to an intention behaviour gap that allows misleading or weakly substantiated claims to persist. Age-based differences further reveal that younger consumers, despite strong pro-environmental values, are more susceptible to impression-based cues. Overall, the study highlights how increasing awareness coexists with behavioural inconsistency, sustaining greenwashing risks in the FMCG sector.</p>	

SM-091/25-26	From Emission to Nutrition: Utilization of Brewery CO₂ for Sustainable Urea Production and Omega-3 Algal Cultivation
<p style="text-align: center;">Shraddha Deshmukh, Manya Sachdeva <i>Dr. Bipinaj N. Kunchiraman, Department of biotechnology, Rajiv Gandhi Institute of IT and biotechnology, Pune, India</i> <i>shraddhadeshmukh246@gmail.com, sachdevamanya26@gmail.com</i></p>	
<p>Abstract: Alcohol fermentation is a major contributor of the agri-food sector, contributing 2-3 % to the Indian economy. Large-scale alcohol fermentation industries emit significant amounts 5 million tons of CO₂ , contributing to air pollution. This paper proposes an innovative two-stage system to upscale the emitted CO₂ to urea and essential fatty acid rich microalgae biomass that can be utilized as the supplements. In this proposed system CO₂ released during alcohol production is collected using controlled airflow mechanisms and transferred to a purification unit to remove moisture and impurities. The purified gas is then compressed to 120–150 atm pressure and reacted with ammonia in a catalytic reactor to synthesize urea and water. The product stream undergoes dehydration to obtain solid urea. Unreacted CO₂ is further directed into algal photobioreactors, where microalgae (<u><i>Nannochloropsis</i></u> and <u><i>Phaeodotum tricornutum</i></u>) that assimilate carbon to produce Omega-3 fatty acids. The multi-stage process enables efficient carbon recycling while generating multiple commercially important by-products, demonstrating a sustainable approach for emission reduction and resource recovery within industrial fermentation systems.</p>	
<p>KEYWORDS: <i>Circular bioeconomy, Industrial symbiosis, algal cultivation, Urea production, Carbon capture and utilization(CCU)</i></p>	

SM-092/25-26	CHARGING THE FUTURE : THE RISE OF QUANTUM BATTERIES
<p style="text-align: center;">Abhishek Kumaranuj Lal, Lavanya Shankarnarayanan Computer Science Department, Dr.D.Y.Patil ACS College, Pimpri, Pune, India Corresponding Author:lavanya10shankar@gmail.com</p>	
<p>Abstract:</p> <p>Quantum batteries represent a transformative development in energy storage, leveraging quantum mechanical principles such as superposition, entanglement, and collective charging to overcome orthodox limitations. Unlike conventional electrochemical batteries, which store energy through ion exchange and chemical reactions, quantum batteries utilize quantum states to increase charging power and efficiency. Current theoretical and experimental investigations prove that entangled quantum systems exhibit superlinear charging advantages, a phenomenon which was first formalized in quantum thermodynamic models [1], [2]. Subsequent studies have shown that cavity-mediated collective charging [3], open-system effects [4], and many-body quantum advantages [5]. Evolving experimental platforms such as superconducting qubits [6], trapped ions [7], and solid-state spin systems [8] provide convincing pathways toward physical realization. However, decoherence and environmental noise continue to be major challenges, reducing stored energy and efficiency [9], [10]. This paper studies developments, by analyzing theoretical foundations, experimental implementations, thermodynamic constraints, and technological implications. By combining recent breakthroughs in quantum thermodynamics and quantum information science [11]–[25], this paper evaluates whether quantum batteries can credibly outperform conventional systems and identifies major research gaps toward scalable quantum energy storage.</p>	
<p>Keywords: <i>Quantum Batteries, Quantum Thermodynamics, Entanglement, Collective Charging, Quantum Energy Storage, Decoherence</i></p>	

SM-094/25-26	Bits, Bytes and Billions of litres: Examining the relationship between data centres and scarcity
<p style="text-align: center;">Raj Paul , Bhumi Agarwal* Gauhati Commerce College, Gauhati University, Guwahati, India *Corresponding Author: bhumiagarwal529@gmail.com</p>	
<p>Abstract:</p> <p>The rapid increase in global data usage demands a large number of data centres for storage and processing. India's data storage capacity is predicted to surge with AI growth and tax incentives attracting tech giants. However, such facilities consume much water for cooling the heat generated from them. When clustered in water-stressed cities, they compete with households and farmers for the local water resources. This research examines growth versus scarcity, i.e. how an increase in the number of data centres shall put pressure upon the existing water availability. The researchers propose recycled water mandates, air cooling, and transparent reporting, as measures to deal with this crisis, and calls upon policy-makers to balance digital dreams with community water needs.</p>	
<p>Keywords: <i>Data Centre, Artificial Intelligence, Water Crisis, India</i></p>	

SM-095/25-26	Energy Complexity: A Sustainable Third Dimension in Algorithm Analysis
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Abstract: The rapid expansion of digital technologies, artificial intelligence systems, and large-scale cloud infrastructures has significantly increased global computational demand. While traditional algorithm analysis focuses primarily on time complexity and space complexity, limited attention has been given to the environmental implications of computational processes. This paper introduces the concept of energy complexity as a sustainable third dimension in algorithm evaluation. The study explores how algorithmic efficiency influences cumulative CPU cycles, electricity consumption, and indirectly, carbon emissions at scale. Through comparative analysis of common complexity classes such as $O(n^2)$ and $O(n \log n)$, the paper highlights how small inefficiencies, when multiplied across millions of users, result in substantial environmental impact. The research proposes a conceptual framework for integrating sustainability considerations into algorithmic decision-making and argues for explicit sustainability-oriented evaluation in computer science education and development practices.	
Keywords: <i>Energy Complexity, Sustainable Computing, Algorithm Analysis, CPU Cycles, Carbon Emissions, Green Computing</i>	

SM-096/25-26	Mental Health Representation in literature, film and art
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Abstract: This paper examines how mental health is portrayed in literature, film, and visual art from a psychological perspective. It looks at how creative works shape, interpret, and express complex psychological experiences like anxiety, depression, trauma, identity conflict, and resilience. Literature provides deep insights into personal thoughts and feelings. Film uses visual and sound techniques to show mental states. Visual art uses symbolism and abstraction to represent emotional depth that words often can't capture. The study assesses how these portrayals affect public views, either breaking down stigma or reinforcing narrow stereotypes. Using secondary research methods, this paper brings together existing scholarly literature, critical essays, and media analyses to create a clear understanding of the topic. In the end, it argues that responsible and thoughtful portrayals of mental health in creative works are crucial for building empathy, increasing psychological awareness, and promoting a more caring and informed society.	
Keywords: <i>Mental Health, Representation, Literature and Film, Visual art, Psychological Perspective.</i>	

SM-097/25-26	GREENWASHING V/S GENUINE SUSTAINABILITY: A Study of Consumer Trust and Purchase Decisions among Young Consumers
Samruddhi Kolhe samruddhikolhe24@gmail.com	
<p>Abstract:</p> <p>This study explores how greenwashing compares to genuine sustainability claims in influencing consumer trust and purchase decisions among young consumers. The examination of the relationship between environmental and greenwashing practices, perceptions and their influence on the consumer purchase intention has been done by developing a structural equation model, using a sample data from 50 young consumers through google forms. The survey consisted of multiple questions that allowed us to analyze the awareness of the demographics and the influence on their decision making. Key findings indicate that the consumers value authentic sustainability initiatives but express distrust towards superficial, false and misleading claims i.e. Greenwashing. The findings also indicated that the companies should focus on improving the quality and functionality of sustainable offerings, enhancing transparency and exploring durable alternatives to build trust and promote genuine sustainability.</p>	
<p>Keywords: <i>Greenwashing, Sustainability, Consumer Trust, Awareness and Transparency, Purchase Decision</i></p>	

SM-098/25-26	Predicting Customer Lifetime Value Using Machine Learning Algorithms for Business Intelligence Applications
Sairaj Walmik Yadav Department of MCA, Pimpri Chinchwad College of Engineering, Pune, Maharashtra, India Corresponding Author: bali.khurana@pccoepune.org	
<p>Abstract:</p> <p>Customer Lifetime Value (CLV) plays a crucial role in business intelligence by enabling organizations to estimate the long-term profitability of customers. Accurate CLV prediction helps in strategic decision-making, targeted marketing, and resource allocation. This study proposes a machine learning-based framework for predicting CLV using retail transaction data. Data preprocessing techniques including feature engineering and RFM analysis were applied. Linear Regression and Random Forest algorithms were implemented and evaluated using Mean Absolute Error (MAE) and Root Mean Square Error (RMSE). Experimental results demonstrate that ensemble learning models provide superior predictive performance compared to traditional regression methods. The findings highlight the importance of machine learning algorithms in enhancing business intelligence systems for customer-centric decision-making.</p>	
<p>Keywords: <i>Customer Lifetime Value, Machine Learning, Business Intelligence, Predictive Analytics, Random Forest.</i></p>	

SM-100/25-26	Digital Lifestyle and Its Impact on Fitness in our life
<p style="text-align: center;">Asmita bhange, Asst prof nidhi Satavlekar <i>Marathwada mitra mandals college of commerce , pune</i> <i>Email ID : asmitabhange07@gmail.com</i></p>	
<p>Abstract:</p> <p>The rapid continuous development of digital technology has highly affected today's lifestyles and daily routines. The rapid increase of using smartphones, social media, online entertainment platforms, and digital learning websites, etc has reduced physical and fitness activity and increased sedentary behavior, it is negatively affecting our health and daily life activity. Health issues such as obesity, poor posture, eye strain, and mental stress, etc are becoming very common due to more screen time. However, digital tools like fitness applications, online workout websites, and health-tracking devices also support healthy habits. This study examines both the positive and negative effects of digital lifestyle on fitness and highlights the importance of balance, awareness, and regular physical activity in daily life.</p>	
<p>Keywords: <i>Technology adoption of Lifestyle, Physical Fitness and Activity Patterns, Sedentary Behavior and Screen Exposure, Health and Wellness Outcomes, Technology-Driven Lifestyle Changes.</i></p>	

SM-103/25-26	Mental Sustainability in the Digital Age: A Psychological Framework for Responsible Technology Use Among Youth
<p style="text-align: center;">Salome Dsouza , Dr. Jyoti Vishwakarma Department of Psychology Email ID: salomerocks15@gmail.com Dr. D.Y Patil ACS Women's College, Pimpri, Pune</p>	
<p>Abstract:</p> <p>This study digs into how the lightning-fast growth of digital tech and AI is shaping the minds, habits, and learning styles of today's young people. I built this paper on a mix of ideas and analysis, pulling together insights from academic articles, research reports, policy papers—you name it, I've scoured it. Sure, all this tech has made us more connected, put information at our fingertips, and streamlined education. But let's not gloss over the downside. More and more, studies are flagging real mental health concerns tied to heavy digital use—stuff like shorter attention spans, trouble sleeping, rising anxiety, emotional overreliance on devices, and big changes in how kids and teens relate to others. While everyone's busy talking about sustainability for the environment and the economy, barely anyone's looking at mental sustainability. That gap matters. So, I'm bringing in this idea of "mental sustainability"—basically, it's a way to keep our psychological balance as technology keeps charging ahead. To put this into action, I've outlined the E.M.P.O.W.E.R. model—a practical guide for using tech responsibly. The point is simple: we need to pay attention, set boundaries, and make sure our rush to innovate doesn't mess with our long-term mental health or the fabric of society.</p>	
<p>Keywords: <i>Mental sustainability, digital youth, psychological well-being, responsible technology, innovation</i></p>	

SM-104/25-26	The role of Urban Environment in negligence to public health outcomes
<p>Madhura Parmeshwar Jondhale, Shradhha Siddharam Jirol</p> <p>Marathwada Mitra Mandal's College of Commerce,Pune Email : madhurajondhale9@gmail.com , Email : shraddha.ca25044@mmcc.edu.in</p>	
<p>Abstract:</p> <p>Urbanisation has transformed India's landscape,making remarkable achievements in complex development competition .The UN report indicates that India will be a major contributor to global urban population growth between 2025 and 2050 with a projected increase of over 50 crore new urban dwellers.However it has also brought up challenges such as overcrowding,pollution and the various diseases which are unpredictable. Half a billion people are moving to Indian cities but "Is India ready for this urban surge?" is still a major question we need to think of. Our study examines the rate of damage on the environment and its adverse effect on human health. It focuses on the fact that urbanisation is indeed a major breakthrough to the development and achievements of India but also as harmful and hazardous to human health and the well being of future generations. As India continues to urbanise it must balance its achievements with the address the associated challenges to ensure a sustainable and urban future.</p>	
<p>Keywords : <i>Urban environment, air pollution, water pollution, noise pollution,, Inadequate waste management, Urban heat islands, Lack of green spaces, Overcrowding , Substandard housing, Public health outcomes:chronic diseases, respiratory diseases,Hypertension</i></p>	

SM-105/25-26	Understanding the Environmental Impact of Data Centres: Energy Consumption and Carbon Emissions
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<p>Abstract:</p> <p>Data centres drive cloud computing, AI, video streaming, and IoT, but also represent environmental hazards due to increasing electricity consumption and carbon emissions. In 2023, they accounted for 300-380 TWh of global electricity consumption (excluding cryptocurrency mining), with expected growth to 900-1000 TWh in 2030, accounting for 2.5-3% of global electricity demand. Although improvements have been achieved, the average PUE has levelled off around 1.55-1.59, whereas AI-related workloads contribute to the increase. This paper examines energy consumption, Scope 1-3 emissions, and life-cycle effects based on 2018-2025 research and major data centre operators' reports. The paper employs PUE, CUE, WUE, and LCA metrics, examines subsystem energy consumption, and suggests a comprehensive sustainability framework for addressing measurement issues, RE intermittency, and AI-related demand.</p>	
<p>Keyword: <i>data centres; energy consumption; carbon emissions; green computing; power usage effectiveness</i></p>	

SM-106/25-26	From Local To Global : How businesses can contribute to controlling climate change.
Siddhi Puranik Second Year, Bachelor of Business Administration Ashoka Center for Business & Computer Studies	
Abstract: <p>Climate change has emerged as one of the most pressing global challenges affecting economies, societies, and ecosystems. Businesses, traditionally viewed as contribution to environmental degradation, now have the potential to become powerful agents of positive change. This research paper examines how businesses, from local enterprises to global corporations, can contribute to controlling climate change through sustainable practices, responsibility. The findings indicate strong support for lifestyle changes, waste management, advocacy, tree conservation, and support for green initiatives, highlighting the role of businesses in enabling and amplifying these actions.</p>	

SM-107/25-26	Modern-day problem ‘Space Trafficking’
Sumit. S. Jiroli Email : sumitjiroli39@gmail.com	
Abstract: <p>Abstract: The number of successful satellite launches has increased rapidly in recent years, especially in Low Earth Orbit (LEO). This study analyses the growth of successful launches and the rising number of satellites, rocket bodies, and space debris in Earth’s orbit. Data from satellite catalogs and space monitoring sources show that orbital congestion has increased significantly after 2020 due to commercial missions and large satellite constellations.</p> <p>The paper also discusses past collision incidents between space debris and active satellites, which show that debris is a real operational risk. As the number of objects in orbit grows, the possibility of future collisions also increases. In addition, the study reviews existing research on Space Traffic Management (STM) and highlights the need for better tracking systems, international cooperation, reusable launch technology, and stronger debris mitigation policies. The study concludes that responsible management is necessary to ensure the long-term sustainability and safe use of outer space.</p>	
Keywords: Low Earth Orbit (LEO), Space Traffic Management (STM), Satellite Catalogue, Space Debris, Rocket Bodies, Orbital Congestion, Collision Risk, Space Situational Awareness (SSA)	

SM-109/25-26	Invisible Emissions of the Digital Age: How Everyday Online Behaviour Shapes Environmental Sustainability
<p>Dnyaneshwari Sunil Abhang, Prof. Meenal Kabra <i>Department of Computer Application, Savitribai Phule Pune University, Pune, India</i> <i>Corresponding Author: dnyaneshwariabhang2005@gmail.com</i></p>	
<p>Abstract: This research aims to analyse digital consumption that creates "invisible smoke" emissions (which are responsible for 3.7% of the total GHG emissions worldwide). Using machine learning and random forests, we identify carbon emissions associated with different types of digital consumer behaviour. (e.g., web browsing, social media, streaming and gaming). The data for this study were integrated using the Sustainable Web Design Model and then transformed into corresponding physical equivalents that can be comprehended by digital consumers. One example is converting all complex technical telemetry data into common units (e.g., charging cycles for a smartphone). The results indicate that activities that consume bandwidth (e.g. gaming) produce exponentially higher CO2 emissions than text-based browsing. Through presenting these "invisible smoke" emissions, this model will help promote the practice of digital sobriety and sustainable web design. In addition, it provides a proof of concept that connects theoretical environmental data to practical, everyday activities associated with digital consumption.</p>	
<p>Keywords: <i>Random Forests, Sustainable Computing, Machine Learning</i></p>	

SM-110/25-26	Micro Funding for Small Modular Reactors: Individual Investment Model
<p>Harshada Ajit Kulkarni, Neil Shrikant Kulkarni <i>Commerce, Kaveri College of Arts, Science and Commerce, Savitribai Phule Pune University, Pune, India.</i> <i>Author 1: kulkarnih70@gmail.com</i> <i>Author 2: neilktobias78@gmail.com</i></p>	
<p>Abstract: Having a Monopoly in the nuclear power sector for decades, now India has opened the sector for private participation under the passage of Bill of SHANTI Act mentioned in the Union budget of the year 2026. Regarding the mentioned Act this paper proposes a “Micro Funding Model” designed for individual retail investors to participate in the process of crowd funding for Small modular reactors. Small modular reactors are advanced nuclear reactors that have a power capacity of up to 300 MW(e) per unit, which can produce a large amount of low-carbon electricity. The model is proposed to be a 6-step execution framework, implemented through establishment of a Regulatory body equivalently efficient like SEBI. This research concludes that the micro funding, supported by the regulatory body can bridge the gap of India’s nuclear funding and catalyze the national goal of 100GW capacity by 2047.</p>	
<p>Keywords: <i>Small Modular Reactors (SMRs), SHANTI Act 2026, Micro funding, Retail Investing.</i></p>	

SM-111/25-26	Examining the Disconnect Between Sustainability Knowledge and Daily Practices Among College Students
Roshni Paswan, Guide: - Ms. Monika Jogdand S.Y. MCOM, Dr. D.Y. Patil ACS College, Pimpri, Pune – 18. <i>kulkarnih70@gmail.com</i>	
Abstract: <p>There is a widespread belief that sustainability is critical to addressing the current social and environmental issues confronting us today. However, there is a gap between the level of awareness concerning sustainable practices and the number of people that actually engage in those practices. This research study looks at the transition from awareness to practical application for college students because they hold significant potential for influencing how society behaves in the future. Students have had greater exposure to sustainability through their education, through the media, and from the institutions they attend; however, the students who engage in sustainable practices may be limited or not observed consistently in their everyday lives. The research study utilizes an empirical and independent research methodology; the research uses primary data collected from undergraduate and graduate students from a variety of different academic disciplines. The study collects data through structured questionnaires and through selective interviewing procedures to measure students' awareness, attitudes, and behaviours concerning sustainability via waste segregation, energy conservation, using water, and responsible consumption. The study conducts a descriptive and comparative analysis to examine the gap between the amount of knowledge students have regarding sustainability and their behaviour regarding sustainability. It is anticipated that while students report high levels of awareness and positive attitudes toward sustainability, they have limited success with implementing it into their everyday lives. This gap is created by several different factors, including convenience, lack of support from institutions, time constraints, and the feeling that individual actions will not make a significant difference. The research examines current sustainable initiatives at educational institutions to determine whether they focus on generating awareness instead of promoting active participation. It will provide a basis for shifting from strategies that focus on how-to information toward more action-oriented strategies aimed at creating lasting behaviour changes. Experiential learning, peer-led initiatives, and institutional policies that support sustainable practices should be included in future sustainability efforts. By focusing on critical evaluation of existing initiatives and the measures taken to implement them, the research supports the idea that universities play an important role in developing responsible citizens and environmental stewardship, consistent with the theme of "Innovate, Evaluate, One Who Sustains.</p>	
Keywords: Sustainability Awareness, Sustainable Practices, Awareness–Action Gap, Higher Education.	

SM-108/25-26	Impact of Interface Colour Modes on User Perception and Performance-Based Energy Proxies: A Student Survey and Website Audit in Pune
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<p>Abstract:</p> <p>Interface colour modes such as light mode and dark mode are widely used across digital platforms, yet their implications extend beyond aesthetics and usability, This study examines user perception of interface colour modes and explores their relationship with performance-based proxies of energy efficiency. A survey was conducted among students in Pune to understand device usage patterns, display mode preferences, and awareness of sustainability-related impacts. In addition, a limited performance audit of commonly used websites was carried out to observe variations in system workload under different interface colour modes. The findings indicate a strong preference for dark mode among students, growing awareness of sustainability considerations, and observe differences in performance metrics across selected interfaces. By combining perceptual data with performance observations, the study contributes to ongoing discussions on sustainable computing practices in everyday digital usage.</p>	
<p>Keywords: <i>Sustainability, interface colour modes, light mode, dark mode</i></p>	

SM-86/25-26	Production of bio surfactants for bioremediation of heavy metals from oil contaminated soil
<p style="text-align: center;">Sahil Nalawade, Aditi Singh Mentor- Asst. Prof. Kusum Ravat.</p> <p style="text-align: center;"><i>Department of Biotechnology, Fergusson College, Pune, India</i></p> <p style="text-align: center;"><i>Corresponding Author: aditisingh7115@gmail.com sahilnalawade1470@gmail.com</i></p>	

Abstract:

Biosurfactants are amphiphilic biomolecules synthesized by microorganisms that reduce surface and interfacial tension. They play a crucial role in hydrocarbon degradation and have applications in bioremediation, pharmaceuticals, food, and petroleum industries. The present study aimed to isolate, screen and preliminarily characterize biosurfactant-producing bacteria from hydrocarbon-contaminated soil. Isolation was performed using serial dilution and spread plate techniques. Primary screening involves oil spreading assay and drop collapse test, while secondary screening included hydrocarbon overlay assay. Selected isolates demonstrated significant emulsification activity. Further structural characterization and 16S rRNA sequencing are in progress. The study highlights the environmental and industrial potential of indigenous microbial isolates.

Keywords: *Biosurfactant, Hydrocarbon degradation, Bioremediation, Microbial biotechnology*

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