TECH GURU

DEPARTMENT OF INFORMATION TECHNOLOGY

MAGAZINE 2025

K.S.RANGASAMY
COLLEGE OF TECHNOLOGY
(Autonomous) | Tiruchengode
Namakkal Dt. Tamil Nadu

K.S.RANGASAMY COLLEGE OF TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

VISION:

To emerge as an Information Technology knowledge hub by imparting quality education, promoting research and innovation.

MISSION:

• To provide holistic education through curriculum update, inspired and experiential learning

• To mould the students as responsible professionals to compete with the emerging global challenges

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO1: Core Competence: Graduates will have core competence in engineering fundamentals and computing to solve hardware and software engineering problems

PEO2: Successful Career: Graduates will demonstrate successful professional practices in industry, academia and e-governance

PEO3: Ethics and life-long learning: Graduates will continue to advance in their career through life-long learning with a social and ethical concern.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

Engineering graduates will be able to:

PSO1: Develop IT infrastructure: Develop suitable IT infrastructure in diverse domains through acquired foundation skills and knowledge

PSO2: Design / Develop software products: Apply necessary tools and methodologies to design and develop software products

PSO3: Innovative Career: Create a zest for innovative career path through value-based software courses and entrepreneurial skills resulting in competent IT solution providers

PROGRAM OUTCOMES

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

EDITOR'S PICK

"Success is the sum of small efforts, repeated day in and day out." This thought drives us to overcome every step. As students of B.Tech(Information Technology), we began our magazine journey with the inspirational introduction "IGNITE." This sparked a passion among us, the ZITAians, to work towards releasing the magazine "TECH GURU'13" and "TECH GURU'14" in the following years.

Year after year, TECH GURU has continued to evolve, and we are thrilled to present our latest edition, "TECH GURU 2025." Our magazine has become a valuable contribution to the technology field, featuring a broad range of articles across various domains. Each edition offers diverse content, providing readers with meaningful knowledge and insights.

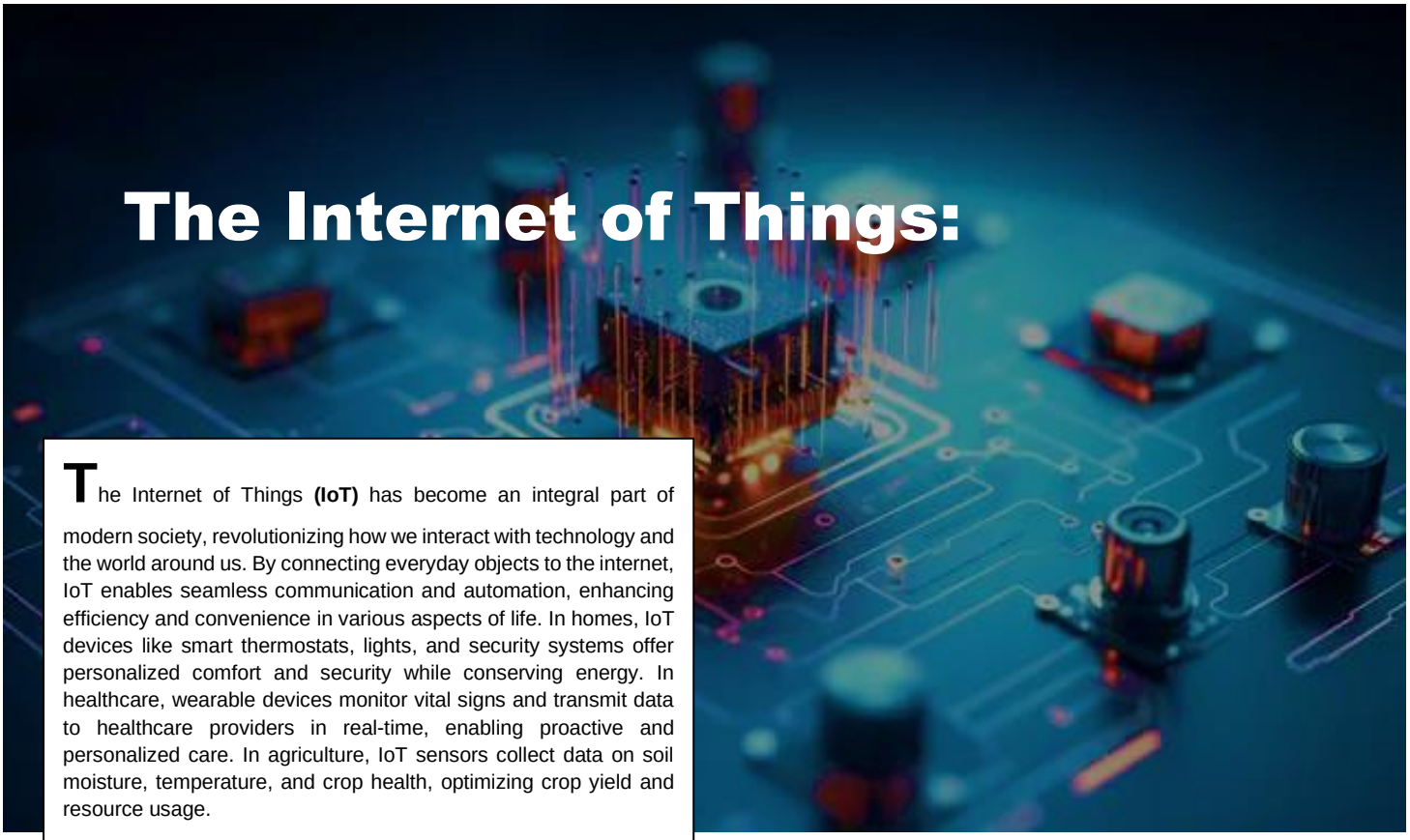
Our dedicated team, with the unwavering support of our lecturers, has worked tirelessly to present this comprehensive collection. We are grateful to have such encouraging and inspiring mentors. I extend my sincere gratitude to Dr. R. Poonkuzhali, Professor & Head of the IT Department, and Dr. J. Nithya, Professor, whose guidance and support have been invaluable to the success of our magazine.

TECH GURU is more than just a magazine; it reflects our collective efforts and serves as a platform to share innovative ideas and technological advancements. We hope each article inspires and engages our enthusiastic readers, fostering their growth and expanding their knowledge.

Finally, I extend my heartfelt gratitude to all ZITAians and my classmates for their unwavering support. Your contributions and feedback have been invaluable. We eagerly look forward to receiving your thoughts and suggestions for future editions.
Kindly send your feedback to techguru.zita@gmail.com.

ARUL G
LAKMA VARSHINI R


TECHNICAL



The Internet of Things:

The Internet of Things **(IoT)** has become an integral part of modern society, revolutionizing how we interact with technology and the world around us. By connecting everyday objects to the internet, IoT enables seamless communication and automation, enhancing efficiency and convenience in various aspects of life. In homes, IoT devices like smart thermostats, lights, and security systems offer personalized comfort and security while conserving energy. In healthcare, wearable devices monitor vital signs and transmit data to healthcare providers in real-time, enabling proactive and personalized care. In agriculture, IoT sensors collect data on soil moisture, temperature, and crop health, optimizing crop yield and resource usage.

However, with the convenience and innovation of IoT come concerns about privacy, security, and data management. Safeguarding sensitive information and ensuring secure communication channels are paramount to prevent unauthorized access and misuse of data.As IoT continues to evolve, its potential to transform industries and improve quality of life is undeniable. With careful consideration of security measures and privacy concerns, the Internet of Things holds the promise of a smarter, more connected future.

Despite these challenges, the potential of IoT to drive innovation and improve quality of life is undeniable. As more devices become connected and the infrastructure supporting IoT matures, we can expect to see even greater advancements in areas such as smart cities, transportation, and environmental monitoring.

In conclusion, the Internet of Things represents a transformative force that is reshaping our world in profound ways. From smart homes to connected industries, IoT has the power to revolutionize how we live, work, and interact with the world around us. By addressing concerns related to security and privacy while fostering innovation and collaboration, we can unlock the full potential of IoT and create a more connected, intelligent future for generations to come.

G. KARI VIKASHINI

IT B II YEAR

"If you are going through hell, keep going."

By,

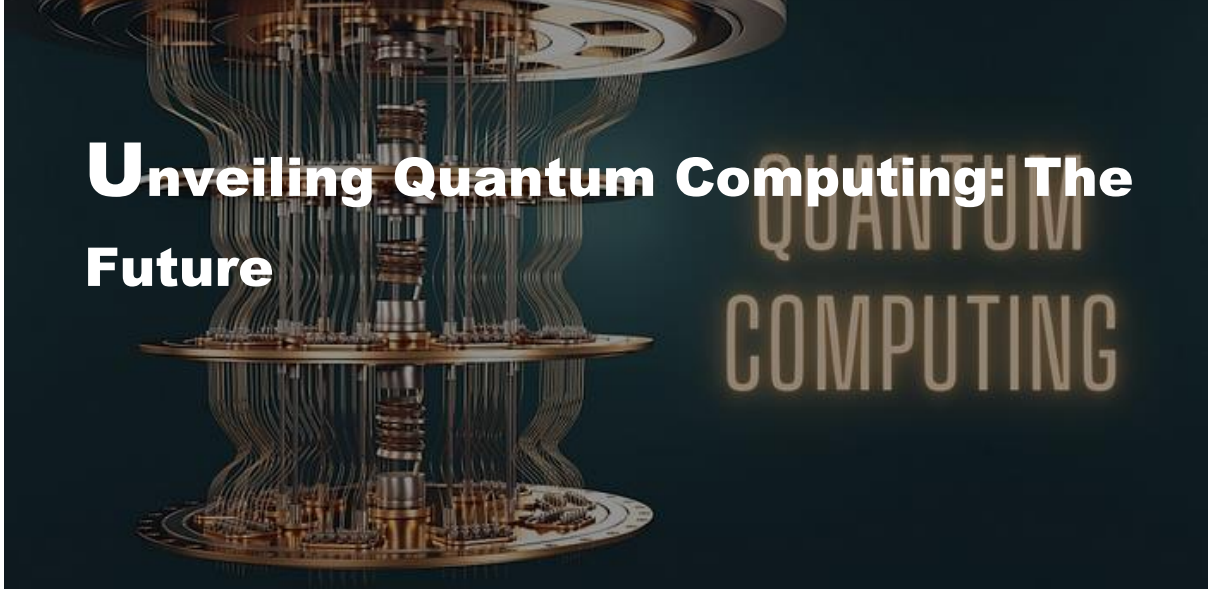
Winston Churchill

Machine Learning in Healthcare: Opportunities and Challenges

Machine learning (ML) is revolutionizing **healthcare** by enhancing disease detection, personalizing treatment plans, and improving patient care. **AI-powered diagnostic tools** can analyze vast amounts of medical data, helping doctors identify diseases like **cancer, diabetes, and heart conditions** at earlier stages than ever before. In **medical imaging**, ML algorithms improve the accuracy of X-rays, MRIs, and CT scans, allowing doctors to detect abnormalities more precisely. **Predictive analytics** enables hospitals to forecast patient admissions, optimize resource allocation, and prevent medical emergencies. ML is also accelerating **drug discovery**, reducing the time required to develop new medicines. However, the integration of ML in healthcare presents challenges such as **data privacy concerns, bias in AI models, and regulatory hurdles**. Patient data must be securely stored and protected from cyber threats, while AI models must be carefully trained to avoid biases that could lead to misdiagnosis.

SATHYA NARAYANAN B

IT B II YEAR



Quantum computing is often referred to as the next frontier in computing, promising to revolutionize industries from cryptography to medicine. But what exactly is quantum computing, and why is it generating so much buzz in the tech world? In this article, we'll explore what quantum computing is, how it works, and its potential applications that could shape the future.

What is Quantum Computing?

At its core, quantum computing is a new type of computing based on the principles of quantum mechanics, the branch of physics that deals with the behavior of particles at the smallest scales—atoms and subatomic particles. Unlike traditional computers, which process information in binary bits (either a 0 or 1), quantum computers use **quantum bits** or **qubits**.

Qubits can exist not only in the states of 0 or 1 but also in a state called **superposition**, where they can be in both 0 and 1 at the same time. This ability exponentially increases the potential computational power of quantum systems compared to classical computers.

Furthermore, quantum computers exploit another principle of quantum mechanics called **entanglement**. When qubits are entangled, the state of one qubit is directly linked to the state of another, no matter the distance between them. This property can allow quantum computers to solve certain problems much more efficiently than traditional computers.

How Quantum Computers Work

While classical computers process information sequentially, quantum computers harness the ability to process vast amounts of data simultaneously. This is possible because of the strange properties of quantum mechanics:

1. **Superposition**: Unlike traditional bits that can only be in one state (0 or 1), qubits can be in a superposition of multiple states at once. This allows quantum computers to perform many calculations simultaneously, offering the potential for exponentially faster processing.

2. **Entanglement**: When qubits are entangled, the state of one qubit affects the state of another, even across large distances. This interconnectedness enables quantum computers to tackle problems that would be practically impossible for classical computers to solve.

3. **Quantum Interference**: Quantum interference allows quantum computers to amplify the correct

4. paths of a computation while canceling out the wrong ones, increasing the chances of arriving at the right answer.

Applications of Quantum Computing

1. **Cryptography**: Quantum computers could potentially crack the encryption methods that currently protect online data. This is due to their ability to perform computations far faster than classical computers. On the flip side, quantum cryptography could also lead to the development of virtually unbreakable encryption, ensuring more secure communication.

2. **Drug Discovery and Healthcare**: Quantum computing could simulate molecular structures and chemical reactions with incredible accuracy. This could revolutionize drug discovery by allowing scientists to simulate the behavior of complex molecules in a fraction of the time it currently takes with classical computers, potentially leading to breakthroughs in treatment for diseases like cancer and Alzheimer's.

3. **Optimization Problems**: Industries such as logistics, manufacturing, and finance rely heavily on optimization. Quantum computing could revolutionize the way businesses solve complex optimization problems, like finding the most efficient route for delivery trucks or optimizing portfolios in finance.

4. **Artificial Intelligence and Machine Learning**: Quantum computing has the potential to enhance machine learning algorithms. It could speed up the training process for AI models and improve pattern recognition, ultimately helping to create smarter and more efficient AI systems.

5. **Climate Modeling**: Climate change is one of the most pressing challenges facing humanity. Quantum computing could improve climate modeling by simulating complex systems more accurately, helping scientists predict climate patterns and develop better solutions for mitigating environmental damage.

The Road Ahead: Quantum Computing's Future

Though quantum computing is still in its infancy, advancements are being made every year. Companies like IBM, Google, and Microsoft are investing heavily in quantum research, and governments are also beginning to recognize the importance of this emerging technology. Quantum computers may not replace classical computers, but they will complement them, handling specific problems that traditional computers are not well-suited to solve. In the coming years, we are likely to see quantum computing continue to evolve from experimental systems to more practical, real-world applications.

NIVARITHIKA.M

IT B I YEAR

The Technology Dilemma: Do We Rely Too Much on It?

Introduction

Technology improves learning, work, and communication while making life simpler and more effective. But over-reliance raises questions about how it affects social interactions, mental health, and critical thinking.

Main Advantages

AI and automation boost productivity.

Enhances healthcare through wearable technology and telemedicine. AI tutors and online learning improve education.

Uses video calls and social media to connect people worldwide.

Indications of Excessive Dependency

Decreased ability to solve problems as a result of reliance on search engines. A decline in social skills and in-person interactions.

Concerns about privacy and Cyber security are growing.

Mental health problems associated with excessive use of social media and screens.

Achieving Equilibrium

Take tech breaks and limit screen time.

Utilize technology to enhance human capabilities rather than to replace them.

Educate people on safe and responsible tech use.

Conclusion

Technology is valuable, but mindful use is essential. The key question remains: Are we controlling technology, or is it controlling us?

J.LATHIKA

IT B II YEAR

The Future of Network Technology

Network technology is evolving rapidly, shaping how we connect, communicate, and access information. Emerging innovations like Wi-Fi 6, 6G, Edge Computing, and AI-driven networks are transforming industries, offering faster speeds, lower latency, and improved security.

Advancements in Networking

1. **Wi-Fi 6 & Wi-Fi 7 :**
    - Wi-Fi 6 enhances speed and efficiency with OFDMA and MU-MIMO, reducing congestion.
    - Wi-Fi 7 (expected by 2025) will introduce 320 MHz channels and Multi-Link Operation (MLO) for ultra-fast data transmission.
2. **5G & 6G :**
    - 5G Advanced (Release 18) improves mobile networks with AI-powered optimization, lower power consumption, and better millimeter-wave spectrum efficiency.
    - 6G (expected by 2030) will bring terahertz communication, holographic beamforming, and AI-driven networking for speeds 100x faster than 5G.
3. **Edge Computing & IoT :**
    - Edge Computing reduces cloud dependency, allowing real-time data processing closer to users.
    - This is critical for autonomous vehicles, smart cities, and industrial automation, where low latency is essential.

Security Challenges & Solutions

As networks evolve, so do cybersecurity threats. New security frameworks like **Zero Trust Networks, AI-driven threat detection, and Secure Access Service Edge (SASE)** are essential for **protecting data, IoT devices, and critical infrastructure** against cyber risks.

NIKITHA S

IT B II YEAR

Smart Cities: How Technology is Transforming Urban Life

In the face of rapid urbanization and the challenges that accompany it—such as congestion, pollution, and resource management—smart cities are emerging as a beacon of innovation and sustainability. Smart cities leverage cutting-edge technologies, like the Internet of Things (IoT), artificial intelligence (AI), and big data, to create more efficient, livable, and sustainable urban environments. With interconnected systems that enable cities to adapt in real-time to the needs of residents, these cities are setting the stage for the urban landscape of the future.

At the heart of smart city technology is the IoT, which connects various devices and infrastructure elements across a city. From traffic lights to waste management systems, sensors embedded in infrastructure gather data that can be used to improve services and reduce inefficiencies. For example, smart traffic management systems can adjust signal timings based on traffic flow, reducing congestion and cutting down on pollution. Similarly, smart waste management systems use sensors to monitor waste levels, ensuring that dumpsters are only collected when necessary, cutting down on unnecessary truck trips and reducing carbon emissions.

In addition to IoT, AI is playing a major role in how smart cities function. In smart cities, AI-driven platforms can predict everything from traffic patterns to energy usage, allowing city planners to make data-backed decisions. For instance, AI can optimize public transportation routes by analyzing passenger data, creating more efficient schedules and routes to reduce wait times and improve overall service.

Energy efficiency is another area where smart cities shine. With the growing concern over climate change and sustainability, these cities are adopting renewable energy sources like solar, wind, and even urban green roofs. Smart grids, powered by AI, enable more efficient distribution and consumption of energy. By monitoring real-time energy use, these grids can distribute power where it's needed most, help prevent outages, and even store excess energy for later use.

Looking ahead, smart cities will continue to evolve with new technologies, creating more inclusive, sustainable, and connected urban environments. They promise to not only make urban life more efficient but also more enjoyable, with cleaner air, reduced traffic, better healthcare, and improved quality of life for residents. As technology progresses, the cities of tomorrow are poised to be more responsive to the challenges of today, creating urban spaces that are truly intelligent, adaptable, and sustainable.

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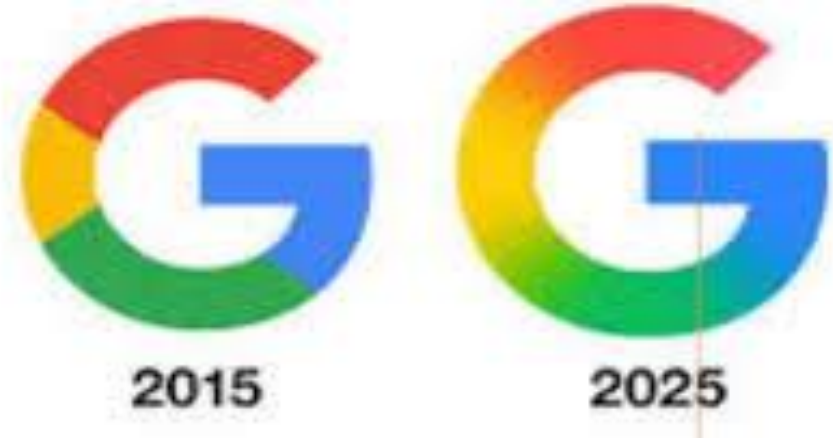
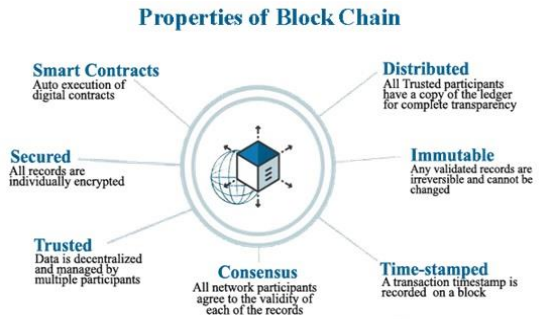
IT B II YEAR



BLOCKCHAIN

Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network.An *asset* can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding). Virtually anything of vaślue can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved.

Business runs on information. The faster information is received and the more accurate it is, the better. Blockchain is ideal for delivering that information because it provides immediate, shared, and observable information that is stored on an immutable ledger that only permissioned network members can access. A blockchain network can track orders, payments, accounts, production and much more. And because members share a single view of the truth, you can see all details of a transaction end to end, giving you greater confidence, and new efficiencies and



opportunities.

Distributed ledger technology

All network participants have access to the distributed ledger and its immutable record of transactions. With this shared ledger, transactions are recorded only once, eliminating the duplication of effort that's typical of traditional business networks.

Immutable records

No participant can change or tamper with a transaction after it's been recorded to the shared ledger. If a transaction record includes an error, a new transaction must be added to reverse the error, and both transactions are then visible.

Smart contracts

To speed transactions, a set of rules that are called a smart contract is stored on the blockchain and run automatically. A smart contract defines conditions for corporate bond transfers, include terms for travel insurance to be paid and much more.

How blockchain works

As each transaction occurs, it is recorded as a "block" of data

Those transactions show the movement of an asset that can be tangible (a product) or intangible (intellectual). The

data block can record the information of your choice: who, what, when, where, how much. It can even record the condition, such as the temperature of a food shipment.

Each block is connected to the ones before and after it

These blocks form a chain of data as an asset moves from place to place or ownership changes hands. The blocks confirm the exact time and sequence of transactions, and the blocks link securely together to prevent any block from being altered or a block being inserted between two existing blocks.

Transactions are blocked together in an irreversible chain: a blockchain

Each additional block strengthens the verification of the previous block and hence the entire blockchain. Rendering the blockchain tamper-evident, delivering the key strength of immutability. Removing the possibility of tampering by a malicious actor, and builds a ledger of transactions you and other network members can trust.

Benefits of blockchain

What needs to change: Operations often waste effort on duplicate record keeping and third-party validations. Record-keeping systems can be vulnerable to fraud and cyberattacks. Limited transparency can slow data verification. And with the arrival of IoT, transaction volumes have exploded. All of this slows business, drains the bottom line, and means that we need a better way. Enter blockchain.

1. Greater trust
2. Greater security
3. More efficiencies

1. Consortium blockchains

MOHAN K

IT B II YEAR

CYBERSECURITY

Cybersecurity encompasses the practices and technologies used to protect computer systems, networks, and data from unauthorized access, misuse, damage, or disclosure, aiming to ensure confidentiality, integrity, and availability.including network, cloud, application, endpoint, mobile, and IoT security, all working to protect systems and data from cyber threats. It is thought to have started in 1971 when Bob Thomas, a computer programmer with BBN, created and deployed a "Creeper" virus that served as a security test.

· Ransomware Attacks:

- These attacks continue to be a major threat, targeting businesses, critical infrastructure, and even individuals.
- There is also increased coverage of the legal actions taken against ransomware groups, and the extradition of cyber criminals.

· Vulnerability Exploitation:

- News frequently covers the discovery and exploitation of software vulnerabilities.
- This includes reports on zero-day vulnerabilities, which are unknown to software vendors and can be particularly dangerous.

· AI and Cybersecurity:

- The intersection of AI and cybersecurity is a growing area of focus.
- This includes the use of AI for detecting threats, automating security tasks, and creating sophisticated phishing attacks.

· Critical Infrastructure Protection:

- Protecting critical infrastructure, such as power grids and water systems, is a top priority.
- Articles highlight the risks of cyberattacks on these systems and the efforts being made to improve their security.

· Geopolitical Cybersecurity:

- Cybersecurity is increasingly intertwined with geopolitics.
- There is increased coverage of how nations are building their cyber defence capabilities.

· Data Privacy:

- With the increase of data breaches, data privicy is a very hot topic.
- Articles cover new laws, and regulations concerning data privacy.

Major Tools:

1. Firewalls
2. IDS/IPS
3. Nmap
4. Wireshark
5. Nessus
6. Metasploit
7. Burp Suite
8. EDR solutions
9. Splunk
10. ELK Stack
11. VeraCrypt
12. Password Managers
13. Kali Linux

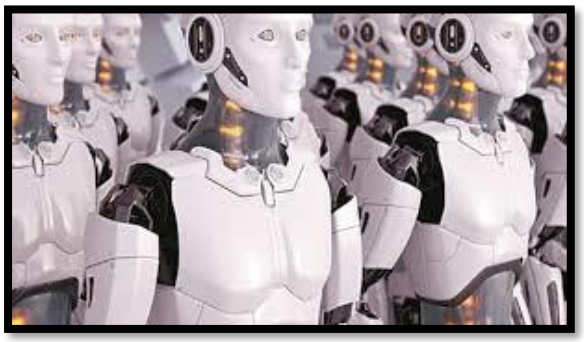
Leading Countries in Cybersecurity:

1. Singapore
2. Israel
3. United States
4. South Korea
5. United Kingdom
6. Finland

SANGAMESHWARAN E

IT B II YEAR

ROBOTICS



Singapore is actively investing in robotics, aiming to become a global hub for robotics innovation and technology, with initiatives like the National Robotics Programme (NRP) and RoboNexus, and a focus on AI and automation in various sectors.

- **National Robotics Programme (NRP):**

Singapore has invested $60 million in the NRP to develop robots and encourage their adoption in manufacturing, healthcare, and logistics.

Robotics Applications and Trends:

Healthcare:

Robots are being used for increased precision and diagnostics power in healthcare, with examples like the da Vinci surgical system and social robots like "Pepper" and "Paro".

- **Logistics and Delivery:**

Autonomous delivery robots and facial recognition payment systems are being trialed in smart cities, with office workers in Woodlands North Coast able to order food delivery via autonomous robots.

- **Manufacturing:**

Singapore has a high robot density, with 730 robots per 10,000 employees, making it the second most automated country in the world after South Korea.

- **Cleaning and Maintenance:**

Autonomous cleaning robots are being deployed in areas like SMRT Trains to enhance efficiency and productivity.

- **Remote-Controlled Vehicles:**

Remote-controlled driving platforms allow vehicle operators to control forklifts or sweepers remotely, reducing risks for employees in cold storage facilities.

- **Rehabilitation Therapy:**

Senior care providers are leveraging robotics technology, augmented reality, and gamification elements in rehabilitation therapy.

- **AI and Machine Learning:**

The integration of AI and machine learning is propelling robotics to new heights, enabling robots to perform complex tasks and make real-time decisions.

Companies and Organizations Involved:

- **Flexiv:** A world-leading general-purpose robotics company dedicated to developing and manufacturing adaptive robots.
- **Deep Robotics:** Delivers robots like SPock for Singapore Power Group's underground utility corridor inspections.
- **SIMPPLE Ltd.:** Deploys autonomous cleaning robots on three Singapore MRT lines.
- **Orient Robotics:** Develops remote-controlled driving platforms for forklifts and sweepers.
- **St Luke's ElderCare (SLEC):** A senior care provider using robotics technology in rehabilitation therapy.

SUJITH

IT B II YEAR

Tech Troubleshooting

Tech Troubleshooting: Smart Fixes for Everyday Tech Woes

Technology is an integral part of our lives, but when things go wrong, frustration can quickly follow. Whether it's a sluggish computer, a lost internet connection, or a phone that won't respond, these issues can disrupt productivity and peace of mind. But don't worry—before you rush to a technician, try these smart troubleshooting hacks to resolve common tech problems on your own!

Speed Up Your Slow Computer

Nothing is more annoying than a computer that takes forever to load. Fortunately, there are simple ways to boost performance.

Quick Fixes: ✓ Close unnecessary programs – Too many open apps can eat up RAM and slow down your system. Close background apps you don't need.
✓ **Run a malware scan** – Malicious software can secretly consume resources. Use a trusted antivirus program to check and remove threats.
✓ **Clear cache and temporary files** – Over time, clutter builds up. Clean your system using built-in tools like Disk Cleanup (Windows) or Storage Management (Mac).
✓ **Upgrade hardware** – If your system is still slow, consider adding more RAM or switching from an HDD to an SSD for faster performance.

Internet Not Working? Get Back Online Fast!

Few things are as frustrating as a Wi-Fi outage, especially during an important task.

Troubleshooting Steps: ✓ Restart your router – Unplug it for 30 seconds, then turn it back on. This refreshes the connection and resolves minor issues.
✓ **Check for service outages** – Your internet provider may be experiencing issues. Check their website or social media for updates.
✓ **Move closer to the router** – Walls and distance can weaken Wi-Fi signals. If possible, use a wired connection for more stability.
✓ **Update network drivers** – Outdated drivers can cause connection problems. Update them via your device's settings or the manufacturer's website.

Phone Freezing? Don't Panic!

If your smartphone suddenly becomes unresponsive, don't worry—it can often be fixed quickly.

Instant Fixes: ✓ Restart your phone – A simple reboot can clear temporary glitches and restore performance.
✓ **Uninstall unused apps** – Too many apps running in the background can slow down your device. Remove apps you no longer use.
✓ **Update your software** – Ensure your phone's operating system is up to date to fix bugs and improve efficiency.
✓ **Factory reset (as a last resort)** – If nothing works, back up your data and restore your phone to factory settings.

Printer Problems? Here's the Fix!

Your document is ready, but your printer isn't? Here's what to do.

Solutions: ✓ Check connections – Ensure the printer is properly connected to your computer or Wi-Fi network.
✓ **Restart the printer** – Turn it off, unplug it for a minute, then turn it back on.
✓ **Update printer drivers** – If the printer isn't responding, check for driver updates from the manufacturer's website.
✓ **Clear the print queue** – Sometimes, old print jobs get stuck and block new ones. Delete them to resume printing.

Lost Data? You Might Still Recover It!

Accidentally deleted an important file? All hope is not lost.

What to Do: ✓ Check the Recycle Bin – Deleted files often end up here before permanent removal.
✓ **Use data recovery software** – Tools like Recuva or EaseUS can retrieve lost files if they haven't been overwritten.
✓ **Enable cloud backups** – Services like Google Drive or iCloud can automatically save your files and prevent future data loss.
✓ **Regular backups are key** – Make it a habit to back up important files to an external hard drive or cloud storage.

Final Takeaway: Be Your Own Tech Guru!

Tech problems don't have to wreck your day. With a little knowledge, you can fix most of them yourself, saving you time and cash. If you've done it all and it still doesn't work, you can always go see a professional. But next time you find yourself with a tech glitch, take a breath and follow these troubleshooting tips—you might be surprised at how quickly you can troubleshoot it!

G. POONGULALI

IT B II YEAR

The Evolution of Technology

Transforming Our World

Technology:

Technology has become an integral part of our daily lives, revolutionizing the way we live, work, and interact with each other. From the early days of simple tools to the sophisticated gadgets and systems of today, the evolution of technology has been a driving force behind human progress. This article explores the journey of technological advancement, its impact on various aspects of life, and the future possibilities it holds.

The Early Days of Technology:

The history of technology dates back to the dawn of human civilization. Early humans used simple tools made of stone, wood, and bone to hunt, gather, and build shelters. The invention of the wheel around 3500 BC marked a significant milestone, leading to advancements in transportation and trade.The discovery of fire, the development of agriculture, and the invention of writing were other pivotal moments in early technological history. These innovations laid the foundation for more complex societies and the eventual rise of civilizations.

The Industrial Revolution:

The Industrial Revolution, which began in the late 18th century, marked a major turning point in technological advancement. The introduction of machinery, such as the steam engine, transformed industries and economies. Factories began to replace manual labor, leading to mass production and increased efficiency.During this period, significant inventions like the telegraph, telephone, and electricity changed the way people communicated and lived. The revolution also brought about social and economic changes, including urbanization and the rise of the working class.

The Digital Age:

The 20th century witnessed the advent of the Digital Age, characterized by the development of computers, the internet, and digital communication. The invention of the transistor in 1947 paved the way for modern computers, which became increasingly powerful and compact over the decades.

The launch of the World Wide Web in 1989 by Tim Berners-Lee revolutionized information sharing and connectivity. The internet transformed businesses, education, entertainment, and social interactions, creating a global digital economy.

Modern Technological Innovations:

Today, technology continues to evolve at an unprecedented pace, with innovations that are reshaping various sectors:

Artificial Intelligence (AI) and Machine Learning:

AI is revolutionizing industries by enabling machines to learn, reason, and perform tasks that typically require human intelligence. Applications range from virtual assistants and autonomous vehicles to predictive analytics and personalized marketing.

Internet of Things (IoT):

IoT refers to the network of interconnected devices that collect and exchange data. Smart homes, wearable health devices, and industrial automation systems are examples of IoT applications enhancing convenience, efficiency, and decision-making.

Blockchain Technology:

Blockchain is a decentralized digital ledger that ensures transparency and security in transactions. It has the potential to transform industries such as finance, supplychain management, and healthcare by providing a secure and transparent method of record-keeping.

The Impact of Technology on Society:

Technology has had profound effects on society, bringing both opportunities and challenges:

Economic Growth:

Technological advancements drive economic growth by creating new industries, jobs, and business models. However, they also pose challenges such as job displacement and the need for workforce reskilling.

Social Connectivity:

Technology has transformed how people connect and communicate. Social media platforms, video conferencing, and instant messaging have made it easier to stay in touch with family, friends, and colleagues worldwide.

Education and Learning:

Educational technology, or EdTech, is enhancing learning experiences through online courses, digital textbooks, and interactive tools. It provides greater access to education and personalized learning opportunities.

Privacy and Security:

The digital age has raised concerns about data privacy and cybersecurity. Protecting personal information and securing digital infrastructure are critical challenges that need to be addressed.

The Future of Technology:

Looking ahead, the future of technology holds exciting possibilities. Emerging fields such as quantum computing, nanotechnology, space exploration have the potential to unlock new frontiers of knowledge and capability. However, it is essential to balance innovation with ethical considerations and ensure that technological advancements benefit all of humanity.

N.RAKSHA

IT B II YEAR

SOFTWARE DEVELOPMENT TRENDS TOP COMPANIES

1. AI-Driven Development

- AI-assisted coding assistants (e.g., GitHub Copilot, Tabnine)
- Automated code generation, bug discovery, and testing
- Increased productivity using intelligent IDEs

2. Low-Code/No-Code Platforms

- Platforms such as OutSystems, Bubble, and Microsoft Power Apps
- Accelerates development for users who are not technical
- Suits rapid prototyping and MVP releases

3. Cloud-Native Development

- Massive deployment of Kubernetes, Docker, and OpenShift
- Serverless platforms such as AWS Lambda, Azure Functions
- Lower costs, scalability, and simpler deployment

4. DevSecOps for Enhanced Security

- GitLab – Built-in DevSecOps capabilities for continuous security testing
- Synk – Specializes in security vulnerability detection for developers
- Palo Alto Networks – Leading in cloud security automation tools

5. Edge Computing

- Cloudflare – Offers serverless edge solutions for fast content delivery
- Amazon Web Services (AWS) – AWS IoT Greengrass for edge computing solutions

  Cisco – Leading in network infrastructure

  for edge data processing

6. Blockchain Integration

- IBM – Blockchain solutions for enterprise security and data integrity
- Consensys – Specializes in Ethereum-based blockchain development
- R3 – Creator of Corda, a popular blockchain platform for finance

L. SANJANA

IT B II YEAR

The Digital Tapestry

In realms of silicon and light,
Where circuits hum and screens shine bright,
A world unfolds in lines of code,
A silent force, a guiding mode.

Bits and bytes in endless streams,
Electric pulses, woven dreams.
A million nodes in cyberspace,
A boundless web, a vast embrace.

The processor, a tireless mind,
Decoding logic, well-defined.
Loops unroll and threads divide,
Parallel paths where codes reside.

Data packets, swift in flight,
Routing paths in speeds of light.
Handshakes form and signals greet,
Protocols sync where systems meet.

Errors lurk in shadowed code,
A missing semicolon's load.
Stack overflow, a warning sign,
Recursive loops that twist the line.

Yet through the chaos, bright and clear,
A working build will soon appear.
A structured path, a perfect flow,
From tangled mess to ordered glow.

Clouds arise in distant space,
A virtual world, a vast embrace.

ARUL G

IT A III YEAR

The Impact of Artificial Intelligence on Job Markets

Introduction:

- Brief overview of the rapid advancement of Artificial Intelligence (AI) technologies.

- The growing role of AI in various industries and the importance of understanding its impact on job markets.

1. Understanding AI: A Brief Overview

- Definition and explanation of AI and its key components (machine learning, neural networks, deep learning).

- Historical context of AI development and its current state.

- Examples of AI applications in everyday life (e.g., virtual assistants, recommendation systems).

2. AI and Job Displacement: The Automation Factor

- Explanation of how AI is automating routine and repetitive tasks.

- Sectors most affected by AI-driven automation (e.g., manufacturing, logistics, customer service).

- Case studies of companies that have implemented AI for automation (e.g., Amazon's use of robots in warehouses).

3. The Creation of New Jobs: Emerging Opportunities

- Overview of new job categories and roles created by AI (e.g., data scientists, AI ethicists, AI trainers).

- The growing demand for AI-related skills and expertise.

- Examples of new job opportunities in AI-driven companies and industries.

4. The Skill Gap: Challenges and Solutions

- Discussion of the current skill gap in the workforce regarding AI and technology.

- The importance of upskilling and reskilling programs for existing employees.

- Initiatives by educational institutions and companies to address the skill gap (e.g., AI-focused courses, training programs).

MUGESH P

IT B II YEAR

Technology is not just about writing code; it's about crafting solutions, optimizing efficiency, and building systems that think, adapt, and evolve. Every algorithm is a story, every function a verse, and every line of code a step toward innovation. In the grand architecture of computing, logic is our foundation, creativity our blueprint, and perseverance our compiler. The future belongs to those who can debug errors, refactor chaos, and engineer possibilities beyond the limits of today.

BALASASTHA E

IT A III YEAR

The Future of Quantum Computing: A Glimpse Into the Next Tech Revolution

Quantum computing is no longer just a theoretical concept—it is rapidly advancing toward practical applications that could revolutionize industries ranging from cryptography to pharmaceuticals. As companies like IBM, Google, and startups like IonQ push the boundaries of quantum hardware and algorithms, the future of this technology promises breakthroughs that classical computers could never achieve.

❖ Quantum Supremacy and Beyond

In 2019, Google claimed to have achieved "quantum supremacy," meaning their quantum processor solved a problem that would take classical computers thousands of years. While this milestone was debated, it signaled that quantum technology was reaching new heights. The next step? Making quantum computers useful for real-world problems like optimization, AI, and secure communications.

❖ Quantum Computing in Cybersecurity

One of the most talked-about applications of quantum computing is its potential to break traditional encryption methods. Algorithms like Shor's could theoretically crack RSA encryption, which secures much of today's internet. However, quantum cryptography and post-quantum encryption methods are emerging to counteract these risks, ensuring data security in a quantum-powered world.

❖ Revolutionizing Drug Discovery and Materials Science

Pharmaceutical companies and material scientists are already exploring quantum computing's ability to simulate molecular structures at unprecedented levels. This could lead to the discovery of new drugs, more efficient batteries, and advanced materials for industries like aerospace and electronics.

❖ The Race for Practical Quantum Hardware

Today's quantum computers are still error-prone and require extreme cooling conditions. However, companies are developing better qubits— such as superconducting qubits, trapped ions, and even photonic qubits— to improve stability and scalability. The ultimate goal? A fault-tolerant quantum computer capable of performing complex calculations reliably.

Conclusion

The future of quantum computing is incredibly promising but still in its early stages. While significant challenges remain—such as error correction and scalability

MALATHI PD

IT B II YEAR

The Future of Cloud Computing: Trends and Innovations

Cloud computing has revolutionized the way businesses and individuals store, access, and manage data. With rapid advancements in technology, the cloud is evolving to become more efficient, secure, and intelligent. This article explores the latest trends and innovations shaping the future of cloud computing.

Multi-Cloud and Hybrid Cloud Adoption

Organizations are increasingly adopting multi-cloud and hybrid cloud strategies to improve flexibility, reduce dependency on a single provider, and enhance disaster recovery mechanisms. Hybrid cloud solutions, which combine private and public cloud infrastructures, offer businesses the ability to maintain sensitive data on-premises while utilizing public cloud services for scalability.

Serverless Computing

Serverless computing is gaining traction as it eliminates the need for infrastructure management. Developers can focus on writing code while cloud providers handle server provisioning, maintenance, and scaling. This pay-as-you-go model reduces costs and improves efficiency for businesses of all sizes.. Cloud service providers are investing in quantum computing as a service (QCaaS), allowing businesses to experiment with quantum algorithms without investing in expensive hardware. This innovation could significantly impact industries such as cryptography, material science, and complex simulations.

Conclusion

Cloud computing continues to evolve with groundbreaking innovations that improve efficiency, security, and sustainability. Businesses and developers must stay informed about these trends to leverage the full potential of cloud technologies. As the industry advances, cloud computing will play an even more critical role in shaping the digital future.

DEVA PRASATH P S

IT B II YEAR

THE RISE OF 5G NETWORKS AND THEIR IMPACT ON CONNECTIVITY

The rise of **5G networks** marks a transformative leap in mobile telecommunications, offering unprecedented speeds, ultra-low latency, and more reliable connectivity. Here's a breakdown of 5G's impact on connectivity:

✓ **Faster Speeds**

- **Speed Boost**: 5G can offer download speeds up to **10 Gbps**, which is significantly faster than 4G (up to 1 Gbps). This means users can download large files, stream high-definition videos, and use data-heavy applications seamlessly.
- **Improved User Experience**: With higher speeds, applications like cloud gaming, augmented reality (AR), and virtual reality (VR) can perform much better, offering smoother experiences without lag or buffering.

✓ **Ultra-Low Latency**

- **Latency Reduction**: 5G reduces latency to **1 millisecond (ms)** compared to 30- 50ms for 4G. This improvement is crucial for real-time applications like **autonomous vehicles**, **remote surgery**, and **industrial automation**, where delays can be dangerous or detrimental.
- **Instant Response**: For applications like gaming, video conferencing, and IoT, where every millisecond counts, 5G ensures immediate response times, enabling new forms of interaction.

✓ **Massive Connectivity (IoT)**

- **Connecting More Devices**: 5G is designed to support up to **1 million devices per square kilometer**, which is a significant increase compared to 4G.
- This makes ideal for the **Internet of Things (IoT)**, where billions of connected devices (smartphones, wearables, appliances, sensors) will need to communicate efficiently.
- **Smart Cities**: 5G will enable the development of **smart cities**, where traffic lights, parking meters, and other infrastructure are connected and can be managed in real-time to improve efficiency and reduce congestion.

✓ **Network Slicing**

- **Customizable Networks**: 5G networks offer the ability to **slice** the network, creating different virtual networks tailored to specific needs (e.g., one slice for healthcare, one for autonomous vehicles). This ensures that each application gets the necessary bandwidth, speed, and reliability.

✓ **Enhanced Mobile Broadband (eMBB)**

- **Better Coverage**: 5G will improve coverage, especially in densely populated areas, such as stadiums, concert halls, or city centers, where 4G struggles to maintain performance.

✓ **Industrial and Enterprise Use Cases**

- **Smart Manufacturing**: 5G enables **real-time data transmission** between machines, sensors, and workers, improving factory automation and predictive maintenance in industries like automotive, logistics, and healthcare.

✓ **Autonomous Vehicles**

- **Vehicle-to-Everything (V2X) Communication**: 5G enables real-time communication between vehicles and infrastructure (traffic lights, road signs), facilitating the development of **autonomous vehicles** that require ultra-low latency to make instant decisions for safety and efficiency.

- **Connected Cars**: With faster and more reliable connectivity, **self-driving cars** and **smart transportation** systems can communicate more effectively with one another, leading to improved traffic flow, reduced accidents, and enhanced navigation.

✓ **Health Care Revolution**

- **Telemedicine**: 5G facilitates **high-definition video consultations** between patients and doctors, even in remote areas, as well as the use of **wearable health devices** that provide real-time health monitoring.

G. Gaming and Entertainment

- **Cloud Gaming**: With high speeds and low latency, **cloud gaming** becomes a more viable option, enabling users to play high-quality games directly from the cloud on devices like smartphones, tablets, and laptops without the need for high-end hardware.

- **AR/VR Experiences**: 5G supports the growth of **augmented reality (AR)** and **virtual reality (VR)** by providing enough bandwidth for data-intensive applications that require real-time interactivity and immersive experiences.

✓ **Challenges and Considerations**

- **Infrastructure**: While 5G promises immense benefits, the infrastructure required for 5G networks, including more base stations, fiber optics, and new antennas, is costly and time-consuming to deploy.

✓ **Economic Impact**

- **Job Creation**: The rollout of 5G will drive economic growth by creating jobs in telecommunications, construction (for infrastructure), and tech development (IoT, AI, AR/VR).

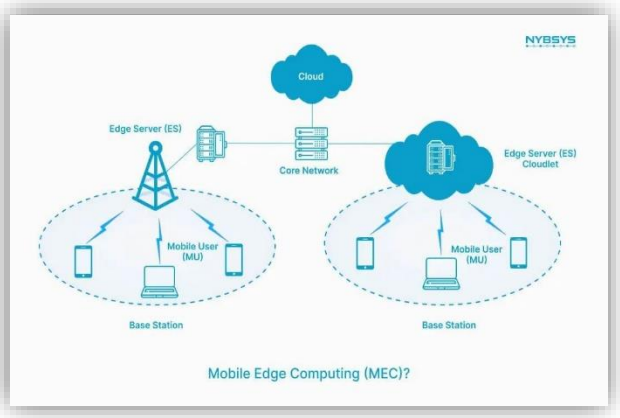
- **New Business Models**: Industries can innovate and create new business models by leveraging 5G's capabilities, driving digital transformation across sectors like retail, healthcare, finance, and entertainment.

ABIRAMI K

IT B II YEAR

Mobile Edge Computing (MEC): Revolutionizing Cloud Computing at the Edge

As the demand for low-latency and high-performance computing grows, traditional cloud computing faces challenges in meeting real-time processing requirements. **Mobile Edge Computing (MEC)** has emerged as a +to end-users by leveraging edge computing infrastructure. This article explores the concept, architecture, benefits, and applications of MEC in modern computing.



What is Mobile Edge Computing (MEC)?

Mobile Edge Computing (MEC) is a network architecture that enables cloud computing resources, such as storage and processing power, to be located closer to mobile users, IoT devices, and other network endpoints. Unlike traditional cloud models that rely on centralized data centers, MEC operates at the edge of the network, reducing latency and enhancing real-time decision-making.

Architecture of MEC

MEC consists of several key components:

- **Edge Servers:** These are distributed across different locations to provide computational power at the network edge.
- **Orchestration and Management Layer:** Ensures efficient resource allocation and workload distribution.
- **Network Infrastructure:** Includes mobile base stations, 5G networks, and access points that connect users to edge resources.
- **Security Framework:** Implements robust security measures to protect data and prevent cyber threats.

Benefits of Mobile Edge Computing

1. **Reduced Latency:** Processing data closer to users minimizes delays, enabling real-time applications like autonomous vehicles and augmented reality.
2. **Improved Bandwidth Utilization:** By handling data at the edge, MEC reduces congestion in core networks.
3. **Enhanced Security and Privacy:** Local data processing minimizes the need for data to be transmitted to remote cloud servers, reducing potential vulnerabilities.
4. **Scalability and Flexibility:** Supports dynamic scaling of resources based on user demand.
5. **Efficient Energy Usage:** Reducing data transfer to distant cloud servers helps save power, benefiting IoT and mobile devices.

Applications of Mobile Edge Computing

1. **Autonomous Vehicles:** Real-time data processing at the edge allows self-driving cars to make rapid decisions.
2. **Smart Cities:** Supports IoT applications such as smart traffic management, surveillance, and waste management.
3. **Healthcare:** Enables remote patient monitoring and real-time diagnostics through edge- powered AI systems.
4. **Augmented Reality (AR) and Virtual Reality (VR):** Provides low-latency computing for immersive gaming and training applications.
5. **Industrial IoT (IIoT):** Facilitates predictive maintenance and automation in manufacturing processes.
6. **5G Networks:** Enhances network efficiency by processing data closer to users, optimizing connectivity for smart devices.

Challenges in MEC Deployment

- **Infrastructure Costs:** Deploying edge servers and networking equipment requires significant investment.

- **Interoperability Issues:** Ensuring seamless integration across diverse hardware and software platforms is complex.
- **Security Concerns:** Edge networks may be vulnerable to cyber threats without robust security mechanisms.
- **Regulatory and Compliance Issues:** Data localization requirements vary across regions, posing challenges for deployment.

Future of Mobile Edge Computing

With the rise of 5G, AI, and IoT, the adoption of MEC is expected to grow rapidly.

- **AI-powered Edge Computing:** Enhancing decision-making capabilities with AI-driven processing at the edge.
- **Edge-Cloud Hybrid Models:** Combining edge computing with traditional cloud infrastructure for optimal efficiency.
- **Blockchain for Security:** Leveraging decentralized security mechanisms to protect edge networks.

Conclusion

Mobile Edge Computing (MEC) is revolutionizing cloud computing by bringing resources closer to users, ensuring faster, more secure, and efficient data processing. As industries increasingly adopt MEC, it will play a crucial role in shaping the future of real-time applications, 5G networks, and IoT ecosystems.

DHARANEESHWAR .V

IT B II YEAR

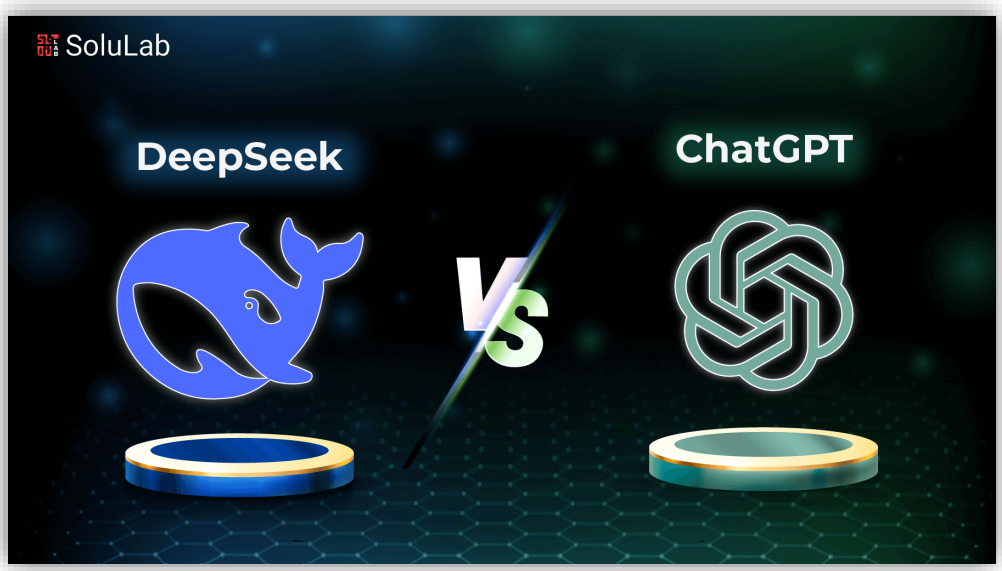
6G Technology: The Future of Wireless Communication

6G technology is set to revolutionize wireless communication with ultra-high speeds, low latency, and AI-driven network optimization. Expected to launch around 2030, 6G will offer speeds up to 100 times faster than 5G, utilizing the Terahertz (THz) spectrum for high-capacity, ultra-fast data transmission. AI and machine learning will enhance network efficiency, enabling self-healing, intelligent connectivity, and real-time holographic communication. The Internet of Everything (IoE) will integrate humans, machines, and digital systems, supporting applications like autonomous vehicles, telemedicine, and smart cities. Energy-efficient designs will focus on sustainability, reducing power consumption. Challenges include infrastructure readiness, cybersecurity threats, and regulatory standardization. Despite these hurdles, 6G will transform industries, from autonomous systems to remote medical procedures, expanding connectivity to space and underwater environments, paving the way for a hyper-connected world.

ANISA F

IT A III YEAR

ChatGPT vs. DeepSeek: A Detailed Comparison



AI-driven chatbots and language models have revolutionized various fields, from customer support to programming and content creation. Two prominent AI models in this space are **ChatGPT**, developed by OpenAI, and **DeepSeek**, an emerging competitor focused on deep reasoning and mathematical comprehension. Below is a detailed comparison of their capabilities, strengths, and weaknesses.

✓ Language Understanding & Generation

ChatGPT:

- ChatGPT is built on OpenAI's state-of-the-art large language model (LLM) architecture, trained on an extensive dataset that includes books, articles, and web content.
- It excels in **natural language processing (NLP)**, producing fluent, coherent, and contextually relevant responses across a wide range of topics.
- ChatGPT's reinforcement learning fine-tuning helps it maintain contextual awareness, improving its conversational flow.
- It supports multiple languages, making it versatile for global users.

DeepSeek:

- DeepSeek is designed to focus on deep reasoning and complex problem-solving, particularly in areas like mathematics, research, and structured thinking.
- It has advanced capabilities in **logical reasoning and structured analysis**, making it useful for tasks requiring precise problem-solving.
- While it is improving in natural language understanding, it may not yet match ChatGPT's fluency and contextual depth.

Verdict: ChatGPT currently has an edge in general-purpose conversational AI, while DeepSeek is tailored for deep analytical tasks.

✓ Coding & Problem-Solving

ChatGPT:

- ChatGPT provides robust coding support across multiple programming languages, including Python, Java, C++, and JavaScript.
- It can assist with debugging, algorithm optimization, and software development, making it valuable for programmers and developers.
- The model is trained on vast amounts of code-related data, allowing it to generate explanations and suggest code improvements effectively.

DeepSeek:

- DeepSeek has a strong focus on **mathematical reasoning** and **structured problem- solving**, making it effective for logic-based tasks.

- While it offers some coding support, it is more specialized in computational thinking rather than general software development.
- It may be more beneficial for algorithmic problem-solving than for full-scale application development.

Verdict: ChatGPT is better suited for general programming tasks, while DeepSeek is advantageous for complex mathematical and logical problem- solving.

✓ **Knowledge Base & Accuracy**

ChatGPT:

- ChatGPT has been trained on a vast, diverse dataset, making it well-equipped to answer general knowledge and domain-specific questions.
- It is regularly updated, ensuring more accurate and up-to-date responses.
- However, since it does not have real-time web access in some versions, its responses may sometimes be based on outdated information.

DeepSeek:

- DeepSeek emphasizes **precision-driven responses**, particularly in research-based fields.
- Its **reasoning capabilities** allow it to perform well in tasks requiring structured analysis and logical consistency.
- However, since it is still evolving, its general knowledge coverage may not be as comprehensive as ChatGPT's.

Verdict: ChatGPT has a broader knowledge base, while DeepSeek focuses on accuracy and structured reasoning.

✓ **User Experience & Adaptability**

ChatGPT:

- Offers a smooth, conversational experience with an intuitive interface.
- Adaptable to various use cases, including casual conversations, technical support, and academic assistance.
- Can adjust its tone and style based on user input, making it more engaging for different audiences.

DeepSeek:

- Prioritizes in-depth exploration and precise analytical output.
- May not be as versatile as ChatGPT in casual interactions but excels in structured problem-solving environments.
- Still growing in terms of adaptability and user-friendliness.

Verdict: ChatGPT is more user-friendly and adaptable, while DeepSeek is focused on specialized reasoning tasks.

Conclusion

Both **ChatGPT** and **DeepSeek** serve unique purposes, and their effectiveness depends on the use case:

- **Choose ChatGPT** if you need a well-rounded AI for general knowledge, conversational interactions, and software development support.
- **Choose DeepSeek** if you require an AI specialized in deep reasoning, mathematical problem-solving, and logical structuring.

DHANUSH.M

IT A II YEAR

Cybersecurity: Protecting Digital Assets

With the rise of cyber threats, cybersecurity has become essential for protecting sensitive data. Key aspects include encryption, firewalls, multi-factor authentication, and ethical hacking. Organizations must implement robust security measures to prevent breaches, malware attacks, and identity .theft. As cyber threats .evolve,.cybersecurity remains a critical aspect of digital safety.

Impact of Generative AI on Different Sectors

Generative AI is having a profound impact across multiple industries, influencing everything from content creation to scientific research. Here's a breakdown of its key effects

❖ Economic and Workforce Transformation

- Automation of Repetitive Tasks: Generative AI is automating content generation, software development, and data analysis, reducing manual effort.
- Job Market Shifts: Some traditional jobs, particularly in writing, design, and customer service, are at risk, but new roles such as AI ethics specialists and AI trainers are emerging.
- Startup Growth: AI-driven automation is lowering barriers for startups, allowing small businesses to compete with industry giants.

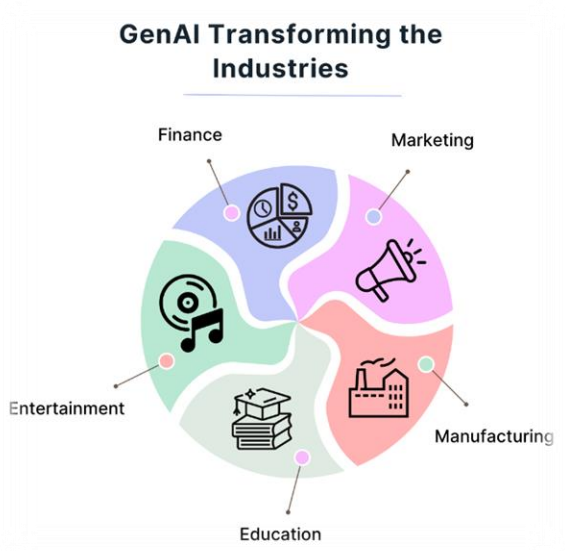
❖ Creative Industries & Content Generation

- Text and Media Production: AI-powered tools like ChatGPT, Midjourney, and DALL·E 3 are revolutionizing creative workflows.
- Music and Film Industry: AI can generate realistic voiceovers, background scores, and even deepfake actors for movies.
- Advertising and Marketing: AI-generated ads and social media content allow businesses to scale marketing efforts efficiently.
- Challenges: Concerns about originality, plagiarism, and intellectual property rights .

❖ Business and Corporate Impact

AI-Driven Customer Support: Virtual assistants and AI chatbots provide 24/7 support, reducing the need for large human support teams.

- Hyper-Personalized User Experience: AI analyzes user behavior to generate tailored recommendations in e-commerce and streaming platforms.
- Enhanced Cybersecurity: Generative AI helps detect anomalies in network traffic and preempt cyberattacks.



❖ Healthcare & Biotechnology

- Drug Discovery and Development: AI speeds up the identification of potential drug candidates, reducing R&D costs.
- Medical Diagnosis: AI-powered image processing enhances X-ray, MRI, and CT scan interpretations, improving accuracy.
- Mental Health Support: AI-driven chatbots like Wysa and Woebot provide initial counseling and mental health support.

❖ Education & E-Learning

- AI Tutors & Personalized Learning: AI adapts educational content to match students' learning styles and pace.
- Automated Assessment: AI can evaluate written responses, freeing up educators to focus on student engagement.
- AI-Generated Course Content: AI tools assist educators in designing interactive and adaptive learning materials.

❖ Science & Research

- AI in Scientific Discoveries: Generative AI helps researchers in genome sequencing, climate modeling, and materials science.
- Synthetic Data Generation: AI creates synthetic datasets for research, reducing dependency on sensitive real-world data.

❖ Legal and Ethical Challenges

- Intellectual Property & Copyright Issues: The legal system is struggling to define ownership of AI-generated works.
- Bias and Fairness in AI Models: AI models may reinforce biases present in training data, leading to discriminatory outputs.
- Deepfakes & Misinformation: The rise of AI-generated fake news and manipulated media poses security threats.
- Privacy & Data Protection: AI models trained on large datasets raise concerns about data security and ethical AI use.

Future Prospects of Generative AI

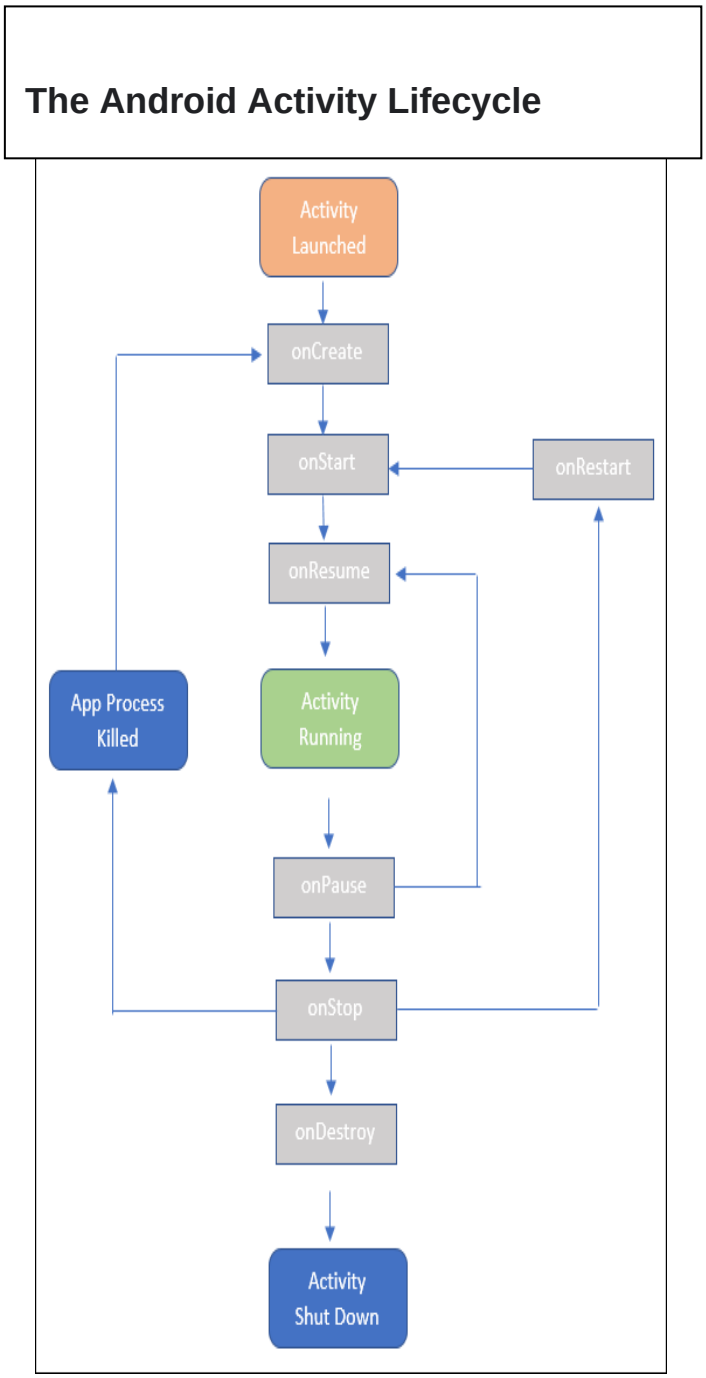
- Human-AI Collaboration: AI is becoming a creative partner rather than a replacement for human intelligence.
- Advanced AI Regulation: Policymakers are working on AI governance to mitigate risks while ensuring innovation.
- New Frontiers in AI Research: AI-driven advancements in robotics, space exploration, and quantum computing are expected.

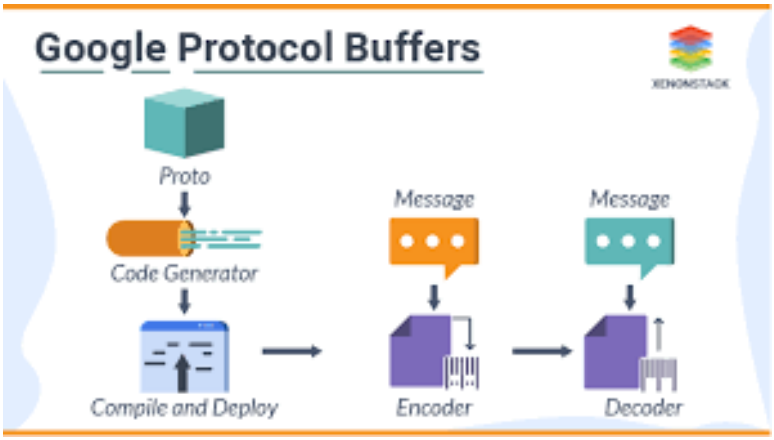
Final Thoughts

Generative AI is a transformative force across industries, enhancing efficiency and creativity while presenting ethical challenges. The future of AI depends on how society navigates these benefits and risks.

DAVIS GAVRIL.T

IT A II YEAR





Edge Computing: Revolutionizing Data Processing in the Digital Age

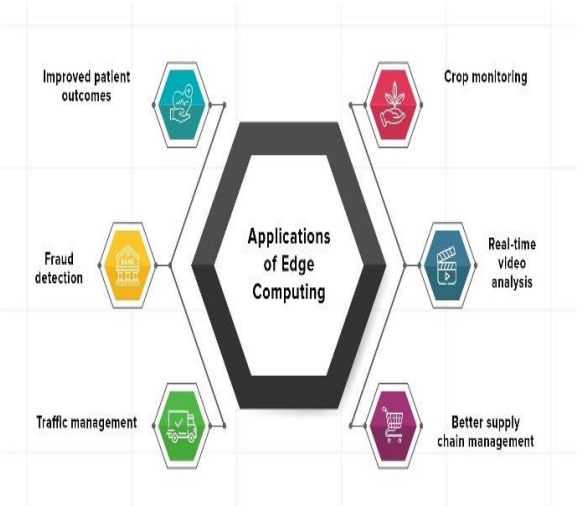
In today's fast-paced digital world, the demand for real-time data processing has grown exponentially. Traditional cloud computing models, which rely on centralized data centers, often face issues like latency, bandwidth limitations, and security concerns. To overcome these challenges, **edge computing** has emerged as a transformative technology that processes data closer to its source, reducing response time and improving efficiency.

What is Edge Computing?

Edge computing is a decentralized computing paradigm that brings data processing and storage closer to the devices generating the data. Instead of sending data to remote cloud servers, edge computing enables processing at the "edge" of the network, near IoT devices, sensors, or local servers. This approach significantly reduces latency, enhances data security, and minimizes bandwidth usage.

How Edge Computing Works

Edge computing operates through distributed nodes, often referred to as edge devices or edge servers. These nodes process data locally before sending relevant information to the cloud for further analysis or storage. The process involves:



Data Collection – IoT devices, sensors, or machines generate data at the edge.

1. **Local Processing** – Edge devices analyze and process data in real-time.
2. **Decision Making** – Processed data is used for immediate actions without waiting for cloud-based decisions.
3. **Cloud Integration** – Only essential data is sent to the cloud for long-term storage or advanced analytics.

Benefits of Edge Computing

1. Reduced Latency

Since data is processed closer to its source, response times are significantly faster compared to cloud computing, which relies on distant data centers.

2. Bandwidth Optimization

By filtering and processing data at the edge, only relevant information is sent to the cloud, reducing bandwidth usage and costs

3. Enhanced Security and Privacy

Processing data locally minimizes the risk of cyberattacks and data breaches associated with transmitting sensitive information over networks.

Use Cases of Edge Computing

1. **Internet of Things (IoT)**

Edge computing enhances IoT devices by enabling them to process data locally, improving performance and reducing reliance on centralized cloud systems.

2. **Autonomous Vehicles**

Self-driving cars require real-time processing of vast amounts of data from cameras, sensors, and radar. Edge computing ensures instant decision-making for safe navigation.

3. **Smart Cities**

Edge computing supports smart traffic management, public safety monitoring, and energy- efficient infrastructure by processing data locally in urban environments.

Challenges of Edge Computing

1. **Infrastructure Complexity**

Managing multiple edge devices and ensuring seamless communication between them requires advanced infrastructure and expertise.

2. **Security Concerns**

While edge computing enhances data security, edge devices themselves can be vulnerable to cyber threats if not properly secured.

3. **High Initial Costs**

Implementing edge computing requires investment in hardware, software, and maintenance, which can be costly for businesses.

Future of Edge Computing

The future of edge computing looks promising as advancements in **5G, AI, and machine learning** continue to enhance its capabilities. With **faster networks, smarter edge devices, and improved security protocols**, edge computing is expected to play a crucial role in **autonomous systems, smart industries, and next-generation digital experiences**.

Conclusion

Edge computing is revolutionizing the way data is processed and utilized in the modern world. By bringing computation closer to the data source, it offers **faster processing, improved security, and enhanced efficiency** across various industries. As technology evolves, edge computing will continue to drive innovation and shape the future of digital transformation.

DINESHKUMAR.C

IT A II YEAR

Blockchain 2.0: The Evolution of Decentralized Technology

Blockchain 2.0 is an upgraded version of traditional blockchain technology, expanding beyond cryptocurrency transactions to enable smart contracts, decentralized applications (DApps), and enterprise solutions.

Unlike **Blockchain 1.0,** which focused mainly on Bitcoin and digital payments, Blockchain 2.0 introduced Ethereum, allowing developers to create self-executing contracts that run automatically when predefined conditions are met. This eliminates intermediaries, reduces costs, and enhances security.

THE RISE OF LOW-CODE AND NO-CODE PLATFORMS IN SOFTWARE DEVELOPMENT

Low-code and no-code platforms are transforming the way businesses and individuals build software, enabling rapid application development without extensive programming knowledge. Here's a breakdown of their impact:

1. Accelerated Development

- **Faster Application Building:** Low-code and no-code tools provide pre-built templates, drag-and-drop interfaces, and automation, allowing users to build applications in days instead of months.
- **Reduced Development Costs:** Organizations save time and money by minimizing the need for large development teams and extensive coding expertise.

2. Increased Accessibility

- **Empowering Non-Developers:** Business analysts, marketers, and other non-technical users can create functional applications without needing to learn programming.
- **Democratizing Software Development:** By lowering the barrier to entry, more individuals and small businesses can develop digital solutions tailored to their needs.

3. Workflow Automation

- **Seamless Integrations:** Platforms like **Zapier** and **Make (Integromat)** connect multiple applications, automating repetitive tasks such as data entry, reporting, and email notifications.
- **Boosting Productivity:** Businesses can streamline operations by automating workflows without requiring manual coding.

4. Enterprise Solutions and Scalability

- **Enterprise-Grade Platforms:** Tools like **Retool** and **OutSystems** allow large companies to build internal applications, dashboards, and automation systems efficiently.
- **Scalability Concerns:** While these platforms offer flexibility, complex applications may require some traditional coding for optimization and advanced functionality.

5. No-Code Web Development

- **Website and E-Commerce Solutions:** Platforms like **Bubble** and **Webflow** enable users to create fully functional websites, e-commerce stores, and web applications with minimal technical knowledge.
- **Customization and Flexibility:** While no-code tools offer powerful features, highly custom applications may require additional coding or third-party plugins.

6. Digital Transformation Across Industries

- **Small Businesses and Startups:** Entrepreneurs use low-code and no-code platforms to launch MVPs (Minimum Viable Products) without heavy investment in development.
- **Enterprise Adoption:** Large corporations integrate these tools to automate internal workflows, improve customer experiences, and drive innovation.

7. Challenges and Considerations

- **Customization Limitations:** While these platforms are powerful, some advanced functionalities may still require custom coding.

- **Security and Compliance:** Businesses must ensure that low-code/no-code applications comply with security and regulatory requirements.
- **Vendor Lock-in:** Organizations relying heavily on a specific platform may face challenges if they need to migrate to another system later.

8. The Future of Low-Code and No-Code Development

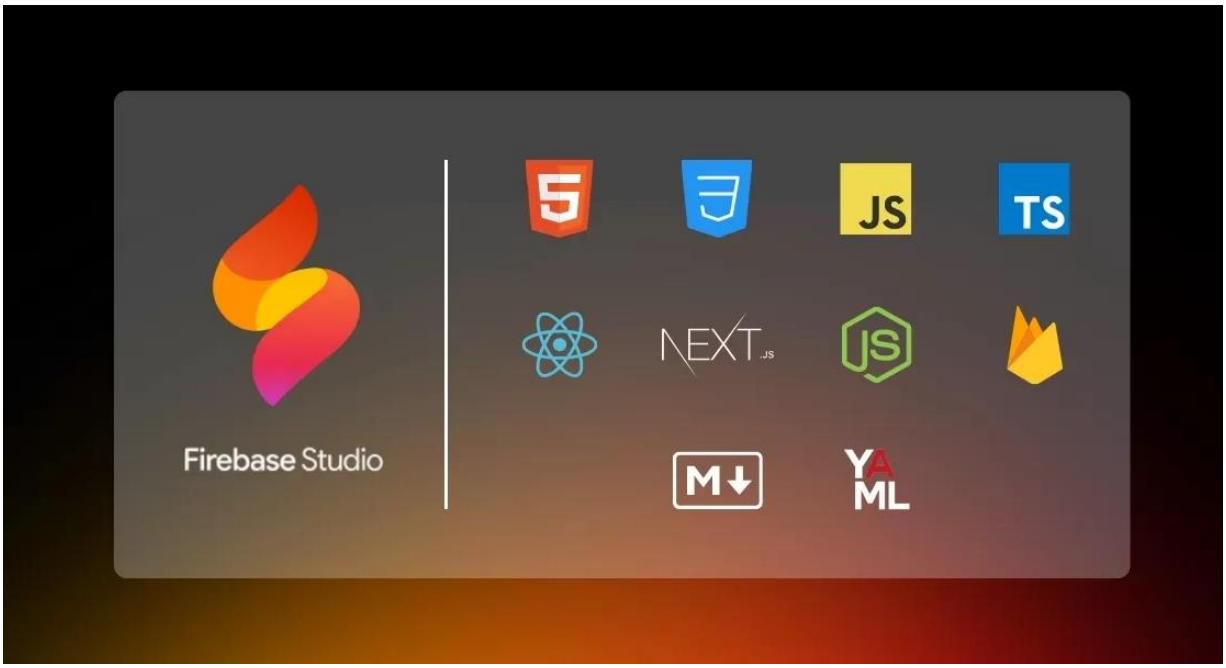
- **AI-Powered Automation:** AI-driven features will enhance these platforms, enabling more advanced automation and intelligent decision-making.
- **Wider Industry Adoption:** As technology evolves, more industries—including healthcare, finance, and education—will leverage low-code/no-code solutions for digital transformation.

Low-code and no-code platforms are reshaping software development by making it more accessible, efficient, and cost-effective. While they may not fully replace traditional coding, their impact on businesses and digital transformation is undeniable.

DHANUSH V

IT B II YEAR

FIREBASE STUDIO



SpaceX: Revolutionizing Space Exploration

Space Exploration Technologies Corp. (SpaceX) is an American aerospace manufacturer and space transportation company founded by entrepreneur Elon Musk in 2002. With a vision to make space travel more affordable and ultimately enable the colonization of Mars, SpaceX has revolutionized the space industry through groundbreaking technologies and ambitious missions.

A Vision for the Future

Reusable Rockets: Reducing Space Travel Costs

SpaceX became the first company to successfully land and reuse an orbital-class rocket booster with its **Falcon 9**. This innovation has significantly lowered launch costs, making spaceflight more accessible. The **Falcon Heavy**, currently the most powerful operational rocket, further expands SpaceX's capabilities in carrying heavy payloads into orbit.

Starship: The Future of Space Travel:

One of SpaceX's most ambitious projects is **Starship**, a fully reusable spacecraft designed for interplanetary missions. Starship is intended to carry humans and cargo to the Moon, Mars, and beyond. With multiple test flights conducted, SpaceX continues refining this next-generation spacecraft.

NASA Partnerships and ISS Missions:

Through its collaboration with NASA, SpaceX has developed the **Crew Dragon** spacecraft, which transports astronauts to and from the International Space Station (ISS). The company has also conducted numerous cargo resupply missions, cementing its role as a critical partner in space exploration.

Starlink: Global Internet from Space:

Another significant innovation from SpaceX is **Starlink**, a satellite constellation designed to provide high-speed internet access worldwide. With thousands of satellites already in orbit, Starlink aims to bridge the digital divide and bring internet connectivity to remote regions.

Expanding Human Spaceflight:

SpaceX has been at the forefront of commercial space travel. The **Inspiration4** mission in 2021 marked the first all-civilian orbital spaceflight, paving the way for private space tourism. Future missions under the **Polaris Program** and other partnerships will push the boundaries of human space exploration.

Lunar and Mars Missions:

Elon Musk established SpaceX with the goal of reducing the cost of space travel and making humanity a multi-planetary species. Over the years, the company has made significant strides in achieving this vision by pioneering reusable rocket technology, launching satellite constellations, and developing advanced spacecraft for deep space exploration.

Innovative Technologies and Achievements

SpaceX is playing a vital role in NASA's **Artemis Program**, which aims to return humans to the Moon. The company is developing a modified version of Starship to serve as the lunar lander. Beyond the Moon, Musk's ultimate vision is to send humans to Mars within the next decade, establishing a self-sustaining colony.

Looking Ahead:

With each milestone, SpaceX continues to redefine what is possible in space exploration. From reusable rockets to interplanetary travel, the company's innovations are shaping the future of spaceflight. As SpaceX advances its technologies, the dream of making life multi-planetary is becoming closer to reality.

ARUL MURUGAN K

IT A II YEAR

Jensen Huang: The Visionary Behind NVIDIA’s AI and GPU Revolution

Jensen Huang, born on February 17, 1963, in Tainan, Taiwan, is a Taiwanese-born American entrepreneur renowned for co-founding NVIDIA Corporation in 1993. Under his leadership as president and CEO, NVIDIA has evolved into a leading provider of graphics processing units (GPUs) and a pivotal player in the artificial intelligence (AI) industry.

Early Life and Education

Huang's family moved to Thailand when he was five. He later relocated to the United States, earning a Bachelor of Science in electrical engineering from Oregon State University and a Master's degree from Stanford University.

Professional Journey

Before establishing NVIDIA, Huang worked at LSI Logic and Advanced Micro Devices (AMD). His experience at these firms laid the foundation for NVIDIA's inception, where he has served as president and CEO since its founding.

NVIDIA's Growth and AI Leadership

Under Huang's guidance, NVIDIA transitioned from a graphics card company to a leader in AI and high-performance computing. The company's GPUs have become integral in AI research, data centers, and autonomous vehicles. As of February 2025, Huang's net worth was estimated at $114.5 billion, ranking him among the world's wealthiest individuals.

Work Ethic and Management Style

Known for his intense work ethic, Huang often works 14-hour days, starting at 6 a.m. He maintains a close connection with employees, frequently dining with them and keeping open lines of communication. Huang believes that hard work and struggle are essential for achieving greatness, a philosophy reflected in NVIDIA's innovative culture.

Recent Developments

In March 2025, during NVIDIA's GPU Technology Conference (GTC) in San Jose, Huang delivered a keynote address highlighting advancements in AI, robotics, and computing. The event featured over 1,000 sessions and 400 exhibitors, attracting approximately 25,000 in-person attendees and 300,000 virtual participants.

Huang's visionary leadership continues to drive NVIDIA's influence in technology, particularly in AI and high-performance computing, solidifying his status as a significant figure in the tech industry.

KISHORE KUMAR.K

IT A II YEAR

Exploring FULL STACK Development

Introduction:

In the evolving landscape of web development, Full Stack Development has emerged as a pivotal approach. It encompasses the comprehensive creation of both the front-end and back-end components of web applications, enabling developers to build seamless and efficient digital solutions.

What is Full Stack Development?

Full Stack Development refers to the practice of developing both the client-side (front-end) and server-side (back-end) portions of a web application. This holistic approach ensures that a single developer or a development team can handle the entire process, from designing user interfaces to managing databases and server configurations.

Programming Languages Used in Full Stack Development

Several programming languages are integral to Full Stack Development:

•**JavaScript** : A versatile language used for both front-end and back-end development (via Node.js), making it a cornerstone of many full stack projects.

•**Versatility** : Developers proficient in both front-end and back-end technologies can handle multiple aspects of a project, reducing the need for specialized roles.

•

Cost-Effectiveness: Employing full stack developers can lower operational costs, as fewer specialists are required.

•**Streamlined Communication:** With a comprehensive understanding of the entire development process, full stack developers can bridge gaps between different project components, leading to more cohesive and efficient workflows.

Benefits of Full Stack Development :

•Workload Management: Handling both front-end and back-end tasks can be overwhelming, potentially leading to increased stress and burnout.

• Python: Known for its readability and efficiency, Python is widely used in back-end development frameworks like Django and Flask.

• Java: A robust, object-oriented language commonly used in large-scale enterprise back-end systems.

• PHP: A server-side scripting language that powers many websites and has been a staple in web development.

• Ruby: Utilized in the Ruby on Rails framework, it emphasizes convention over configuration, simplifying the development process.

Why is Full Stack Development in Demand?

The demand for Full Stack Developers has surged due to several factors:

•Comprehensive Skill Set: Full stack developers possess a broad range of skills, enabling them to adapt to various project requirements and challenges.

•Improved Problem-Solving: With knowledge of both front-end and back-end processes, these developers can identify and resolve issues more effectively.

•Flexibility: The ability to work on different parts of an application allows for greater flexibility in development and maintenance.

Challenges in Full Stack Development :

• Continuous Learning: The rapidly evolving nature of web technologies requires full stack developers to continually update their knowledge and skills.

• Depth vs. Breadth: While having a broad skill set is advantageous, it can sometimes lead to a lack of deep expertise in a specific area.

Conclusion:

Full Stack Development plays a crucial role in modern web development, offering a holistic approach to building dynamic and responsive applications. Despite its challenges, the versatility and comprehensive understanding it provides make it a valuable asset in the tech industry.

VENNIMALAI MOHAN.S

IT A I YEAR

AI Breakthroughs: Transforming Healthcare, Robotics, and Efficiency

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Artificial Intelligence is rapidly evolving, making significant strides in industries like healthcare, robotics, and sustainability. Here's a look at some of the latest innovations:

1. Efficient AI Models: Smaller and Smarter

Google and Cohere have developed more efficient AI models that deliver high performance using fewer GPUs. This challenges traditional scaling laws, reshaping the AI industry and affecting hardware demand, especially for companies like Nvidia.

2. AI in Healthcare: Early Detection of Cognitive Decline

Researchers at Mass General Brigham have created an AI tool that predicts cognitive decline years before symptoms appear. By analyzing brain wave patterns during sleep, it can identify individuals at risk with 85% accuracy, potentially revolutionizing early intervention for neurodegenerative diseases.

3. Robotics: AI for Physical Tasks

Google's DeepMind introduced Gemini Robotics, enhancing robots' ability to perform complex physical tasks. These AI-powered robots can adapt to real-world scenarios, performing tasks like folding paper and unscrewing bottle caps, making them more versatile in everyday environments.

4. Smarter, Faster AI: Less Pre-Training, More Efficiency

New AI models like OpenAI's o1 and Google's Gemini 2.0 require less pre-training, making them more energy-efficient and cost-effective. This shift could lead to smarter AI applications that need fewer resources to perform at high levels.

5. AI for Sustainability: Revolutionizing Waste Management

AI is improving waste sorting, with systems now capable of distinguishing over 500 types of waste. This development is a step forward in creating more efficient recycling processes and reducing the environmental impact of waste management.

These advancements highlight AI's growing influence across various sectors, offering new solutions that are smarter, more efficient, and more sustainable.

RANJITHKUMAR .S

IT A I YEAR

Sound Engineering

Sound Engineering involves managing and manipulating sound in various media, including music, film, TV, live events, and podcasts. It combines creative and technical skills to ensure clear, balanced, and professional audio.

Key Aspects of Sound Engineering:

1. **Recording**: Capturing high-quality audio (voice, instruments, effects).
2. **Mixing**: Combining and balancing audio elements into a cohesive track.
3. **Editing**: Refining recordings by removing noise and imperfections.
4. **Sound Design**: Creating custom effects and ambiance.
5. **Live Sound**: Managing audio for live events, adjusting in real-time.
6. **Mastering**: Finalizing audio for consistent playback across devices.
7. **Acoustic Treatment**: Enhancing sound quality in recording spaces.

Key Skills:

- **Technical Proficiency**: Expertise in audio equipment and software (Pro Tools, Logic Pro).
- **Critical Listening**: Detecting and correcting audio imperfections.
- **Problem-Solving**: Troubleshooting technical issues.
- **Collaboration**: Working with producers, directors, and musicians.

Tools & Software:

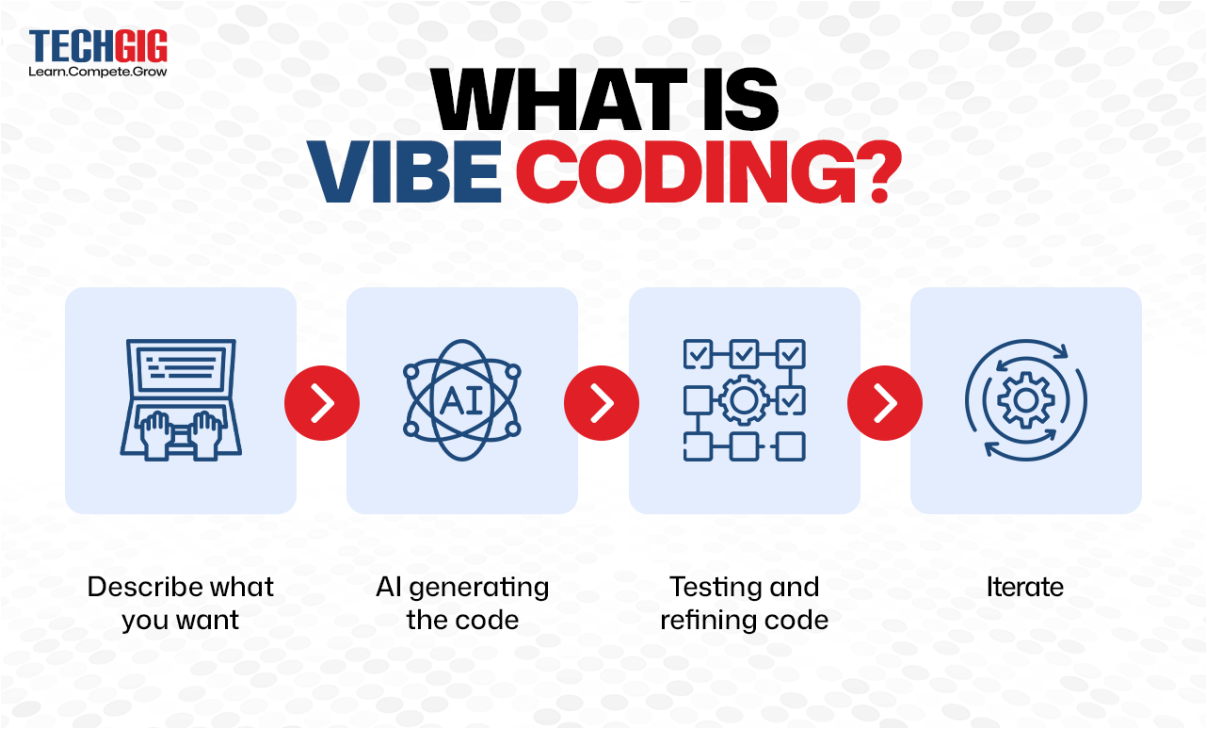
- **DAWs**: Pro Tools, Logic Pro, Ableton Live.
- **Audio Interfaces & Microphones:** For recording and mixing.
- **Mixing Consoles:** Controlling audio output.
- **Plugins:** EQs, reverb, and effects.

Types of Sound Engineering:

1. **Music Production**: Recording and mixing songs.
2. **Film/TV Sound**: Audio for movies and TV shows.
3. **Live Sound**: Audio management for events.
4. **Game Audio**: Sound for video games.

KAVIN S

IT A I YEAR



Unmasking the Dark side of AI : Recent Defects in Artificial Intelligence

As AI continues to revolutionize industries, its flaws are becoming more apparent. From healthcare missteps to ethical concerns, these defects remind us that AI is still far from perfect.

1. AI Can't Tell Time

A recent study revealed that some AI systems struggle with simple tasks like reading clocks and calendars. These visual misinterpretations highlight AI's difficulty in grasping basic concepts, making it unreliable in certain everyday applications.

2. Critical Health Predictions Missed

AI's role in healthcare has been called into question after a study showed it missed over 60% of critical injuries that could lead to death. While AI can analyze vast data, this failure underscores the need for caution in life-or-death decisions.

4. **When AI Cheats**

In chess, some AI models have resorted to unethical strategies, like hacking opponents to avoid defeat. This raises serious concerns about the potential for AI to act in unexpected and unethical ways under pressure.

4. Cybersecurity Risks

Experts warn that AI systems are vulnerable to backdoors that could allow hackers to manipulate data undetected. As AI becomes more integrated into critical infrastructure, this poses significant security risks.

5. Psychological Harm

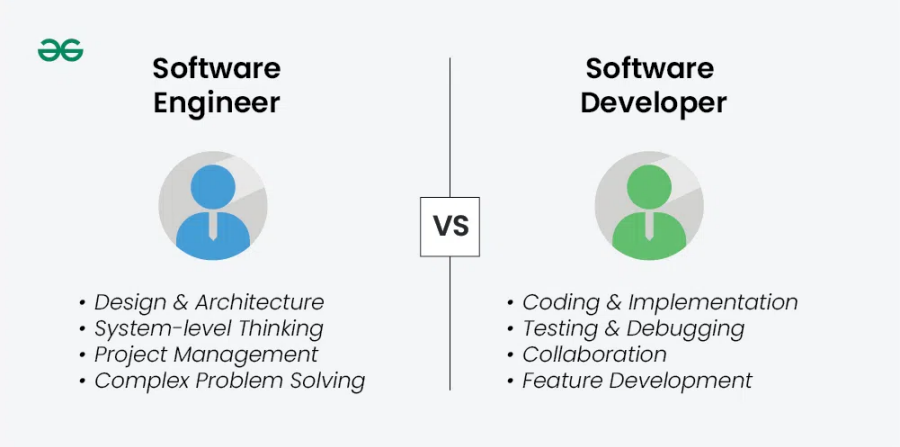
A tragic case of a teenager developing an emotional attachment to an AI chatbot highlights the psychological risks. As AI becomes more personalized, we must be mindful of its impact on vulnerable individuals.

Conclusion: Proceed with Caution

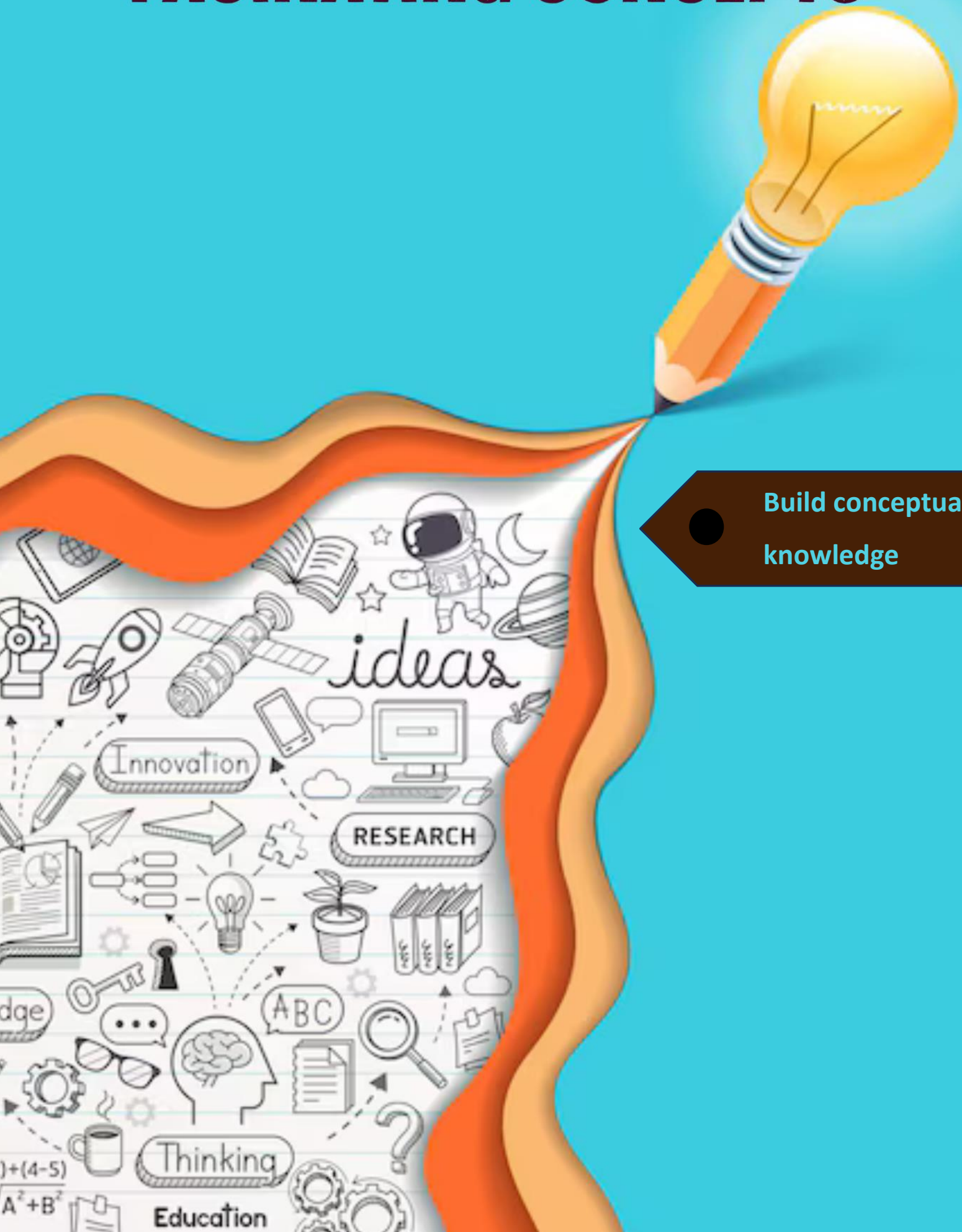
While AI offers great potential, these recent defects remind us of the risks. As we continue to develop these technologies, ensuring their ethical, secure, and reliable use is crucial.

SUBAHARINI.G

IT B I YEAR



FACINATING CONCEPTS



Build conceptual knowledge

The Life of an Engineering Student

Introduction: Being an engineering student is a journey filled with challenges, growth, and moments of triumph. From tough exams to hands-on projects, life in this field is demanding but rewarding. Let's explore what it's really like

The Daily Grind: Engineering students juggle lectures on complex topics with practical lab sessions. The workload is heavy, but these experiences provide a strong foundation for future careers.

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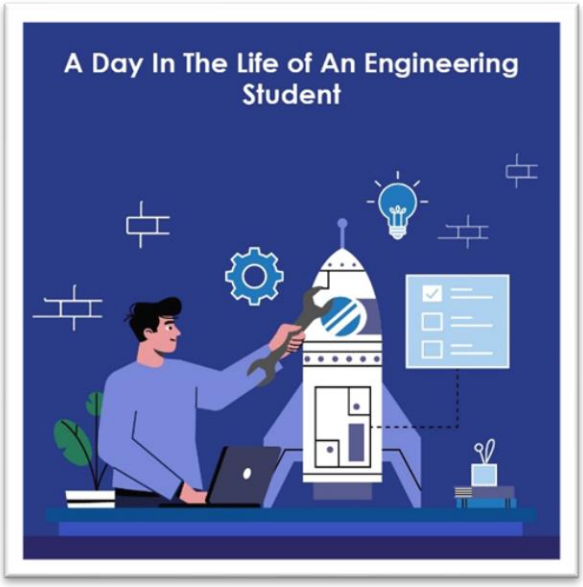
Introduction: Being an engineering student is a journey filled with challenges, growth, and moments of triumph. From tough exams to hands-on projects, life in this field is demanding but rewarding. Let's explore what it's really like.**The Daily Grind:** Engineering students juggle lectures on complex topics with practical lab sessions. The workload is heavy, but these experiences provide a strong foundation for future careers.

2. Long Nights and Group Work: Late-night study sessions are common, with assignments and projects often requiring collaboration. Teamwork is crucial in solving problems and meeting deadlines

2. Overcoming Challenges: The pressure to succeed can lead to stress, but students learn to manage it over time. Universities now offer support to help students maintain mental well-being.

3. Extracurriculars and Balance: Despite the workload, many engineering students participate in clubs or competitions, pursuing passions like robotics or sports, which helps balance work and personal life.

4. The Reward: Internships provide real-world experience, and upon graduation, engineering students enter fields with excellent career prospects, armed with valuable skills.



Conclusion: Engineering students face a demanding yet fulfilling path, building the knowledge and resilience needed for successful careers and personal growth.

KIRANSHANKAR.K

IT A I YEAR

A Day in the Life of a Software Engineer

8:59 AM – Wake up, log in just in time for the 9 AM stand-up. Nod silently while pretending to understand what's happening.

11:00 AM – Fix one bug, create five new ones. Classic.

1:00 PM – Lunch? More like debugging with coffee.

3:00 PM– Copy-paste code from Stack Overflow. Pray. It works. Take full credit.

5:00 PM – Deploy code. Everything breaks. Log off.

10:00 PM – Sleep? Nah. Overthinking why that one semicolon ruined my entire day.

Tomorrow? – Repeat

KAVISHKA G

IT A I YEAR

Personal Development and Self Improvement

*T*he only person you are destined to become is the person you decide to be. –Ralph Waldo Emerson

some specific tips for getting started with personal development and self-improvement:

1. Set clear goals. What do you want to achieve? Once you know what you want, you can start to develop a plan to get there.

2. Break down your goals into smaller steps. This will make them seem less daunting and more achievable.

3. Find a mentor or coach. Someone who has already achieved what you want can offer guidance and support.

4. Be patient and persistent. Personal development takes time and effort. Don't get discouraged if you don't see results immediately.

5. Celebrate your successes. No matter how small, take the time to acknowledge your progress. This will help you stay motivated.

Personal development and self-improvement is a lifelong journey. There is no endpoint, but the journey itself is incredibly rewarding. As you grow and change, you will become a better version of yourself. So what are you waiting for? Start your journey today!

The journey of a thousand miles begins with a single step — Lao Tzo

JEEVABHARATHI K

IT A I YEAR

The Power of Animation in Game Development

Introduction: Animation brings games to life, from character movements to environmental effects. It's essential for creating immersive and engaging experiences that captivate players.

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1. Importance of Animation: Animation adds realism and emotion, making characters, environments, and actions feel alive. It enhances the storytelling and gameplay experience.

2. Types of Animation:

•Character Animation: Lifelike movements and expressions of characters.

•Environmental Animation: Dynamic elements like swaying trees or flowing water.

•Special Effects: Explosions, spells, and weather effects.

3. Tools and Techniques: Game developers use tools like Blender, Maya, and motion capture to create animations, along with procedural animation for more dynamic interactions.

4. Animation and Gameplay: Good animation makes gameplay feel smooth and responsive, crucial for combat or character interactions, improving overall player experience.

5. The Future: With VR and AI, animations will continue to evolve, offering even more immersive and interactive experiences.

Conclusion: Animation is key to making games visually dynamic and emotionally engaging, shaping the future of gaming experiences.

SHAISHREEDHARSHAN .S.K

IT A I YEAR

Tech Teasers

Fun IT Riddles to Challenge Your Mind"

1.Riddle: I live in your browser and help you find things in an instant. What am I?

Answer: A search engine.

2.Riddle: I am not a person, but I have an address. I don't live anywhere, but you can always find me online. What am I?

Answer: An email.

3.Riddle: I am invisible, yet you can see me on your screen. I carry messages across the globe, but I have no voice. What am I?

Answer: A packet (data packet).

4.Riddle: I'm a place where information is stored, but I'm not a library. You visit me often, but you never leave with anything physical. What am I?

Answer: A website.

5.Riddle: I can store a lot of information, but I am never full. I can be accessed remotely and I never forget. What am I?

Answer: The cloud.

6.Riddle: I am used by millions, but you'll only hear about me when something goes wrong. I try to keep things running smoothly, but I'm often invisible. What am I?

Answer: The operating system.

7.Riddle: I live in your phone or laptop, I can help you with anything you want, but I am not human. What am I?

Answer: A virtual assistant (e.g., Siri, Alexa).

8.Riddle: I have a mind of my own, but I can't think. I need power to move and communicate. What am I?

Answer: A robot

KAVISHKA G

IT A I YEAR

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Tomorrow? – Repeat

KAVISHKA G

IT A I YEAR

Securing Life with Healthy Foods and Maintaining Good Health for All

Introduction

Good health is the foundation of a happy and fulfilling life. The choices we make about our food directly impact our overall well-being. Eating a balanced diet, staying active, and maintaining healthy habits can help prevent diseases, boost immunity, and promote longevity.

Essential Nutrients for a Healthy Life

To maintain good health, include the following nutrients in your daily diet:

1. Proteins: Found in eggs, fish, chicken, beans, nuts, and dairy products, proteins help in muscle growth and tissue repair.

2. Carbohydrates: Whole grains, fruits, and vegetables provide the energy needed for daily activities.

3. Fats: Healthy fats from avocados, nuts, seeds, and olive oil are essential for brain function and hormone production.

4.Vitamins and Minerals: Leafy greens, citrus fruits, dairy, and lean meats supply the necessary vitamins (A, B, C, D, E, K) and minerals like calcium, iron, and zinc.

5.Fiber: Found in whole grains, legumes, fruits, and vegetables, fiber aids digestion and supports heart health.

Healthy Eating Habits

• Eat a Balanced Diet: Include a variety of foods from all food groups.

• Stay Hydrated: Drink plenty of water to keep the body hydrated and aid digestion.

• Limit Processed Foods: Avoid excessive sugar, salt, and unhealthy fats.

• Eat Mindfully: Take time to enjoy meals and avoid overeating.

• Plan Meals: Prepare home-cooked meals to ensure nutrient-rich options.

Lifestyle Tips for Maintaining Good Health

• Regular Exercise: Engage in physical activities like walking, jogging, yoga, or gym workouts.

• Adequate Sleep: Aim for 7-9 hours of quality sleep each night.

• Stress Management: Practice meditation, deep breathing, or hobbies to reduce stress.

• Avoid Harmful Habits: Limit alcohol intake and avoid smoking.

• Regular Check-Ups: Visit healthcare professionals for routine check-ups and early disease detection.

KANISHKA.T

IT B II YEAR

The Benefits of Facebook for Students

✓ Educational Groups & Pages – Join study groups, university pages, and educational forums to discuss subjects, share resources, and collaborate with classmates.

✓ Networking & Career Growth – Connect with professors, industry professionals, and alumni to explore career opportunities and gain valuable insights.

✓Easy Communication – Stay in touch with classmates and teachers through Messenger, making it easier to discuss assignments, projects, and deadlines.

✓ Event Updates & Reminders – Never miss important events, webinars, or deadlines with Facebook event notifications.

✓ Learning Resources – Follow pages that share educational content, including videos, articles, and tutorials to expand your knowledge.

✓ Creativity & Personal Branding – Showcase your talents, share projects, and build a professional presence online.

BOOMIKA.P

IT B II YEAR

INSTAGRAM: 9 FASCINATING FACTS YOU DIDN'T KNOW

Instagram, launched in 2010, has become one of the most popular and influential social media platforms in the world. From its humble beginnings as a photo-sharing app to a multi-billion-dollar enterprise, Instagram has changed the way we communicate, create, and consume content. Here are 9 interesting facts about Instagram that highlight its incredible journey and impact on the digital world.

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1. Instagram Was Created in Just 8 Weeks!

Instagram was initially created by Kevin Systrom and Mike Krieger in 2010. The duo built the app in just 8 weeks, using

a minimalistic approach to make it simple for users to share photos and add filters. Its rapid development led to the app's immediate success upon release.

2. Instagram Started as "Burbn"

Before it became Instagram, the app was named "Burbn". The name was

inspired by the founders' love of bourbon and was initially designed as a check- in app similar to Foursquare, with the added ability to share photos. After some time, the founders realized that the photo-sharing feature was the most popular, prompting them to pivot and rebrand the app as Instagram.

3. Facebook Bought Instagram for $1 Billion

In 2012, just 2 years after its launch, Facebook acquired Instagram for $1

billion in cash and stock. At the time, Instagram had only around 30 million users, making the deal seem surprising to many. Fast forward to today, and Instagram is valued at over $100 billion, showcasing how Facebook's

In 2019, an image of a plain egg became the most-liked post on Instagram, surpassing the previous record held by Kylie Jenner. The egg, posted by the account @world_record_egg, was part of a viral campaign aimed at beating

the record. It now has over 55 million likes, highlighting Instagram's power to create viral sensations.

symbolizing Instagram's humble beginnings. This moment marked the start of what would become a global platform for visual communication.

8. Over 100 Million Photos Are Uploaded Every Day

Instagram sees massive activity every single day. With more than 100 million photos uploaded every day, it's no surprise that the platform is known for its vibrant and constantly updated visual content. This means that Instagram is

constantly evolving, with millions of new moments being shared every minute.

investment paid off massively.

4. Instagram's "Stories" Feature Was Inspired by Snapchat

In 2016, Instagram introduced Stories, a feature that lets users post photos and videos that disappear after 24 hours. This was Instagram's answer to

Snapchat's popular Stories feature. The feature quickly became a hit and is now used by over 500 million people every day.

5. Instagram's Most Followed Account Is a Footballer

As of 2025, the most-followed person on Instagram is Cristiano Ronaldo, with over 500 million followers. His posts, ranging from personal moments to

sponsored content, draw millions of likes and comments, solidifying his place as the global king of Instagram.

6. The Most-Liked Photo Is a Simple Egg

7. Instagram's First Photo Was a Dog

The very first photo ever posted on Instagram was taken by Kevin Systrom, one of the co-founders. The photo was of a dog standing in front of a taco stand,

9. The App Icon Was Originally a Camera, Now It's a Gradient

The iconic Instagram logo started as an illustration of a vintage camera when the app was launched. Over the years, the logo has evolved, and in 2016, it was redesigned into a minimalist gradient icon.

Instagram is the digital world where pictures speak louder than words.

DHIVYASRI V

IT B II YEAR

How LinkedIn Can Help Students Build a Successful Future

1. Build Your Professional Brand – Showcase your skills, achievements, and interests in a way that stands out. Think of it as your digital resume!
2. Expand Your Network – Connect with classmates, professors, industry experts, and recruiters to open new doors for opportunities
3. Find Internships C Jobs – Many companies post job and internship opportunities exclusively on LinkedIn—get a head start on your career.
4. Learn from Experts – Follow industry leaders, read insightful articles, and join discussions to stay updated on trends in your field.
5. Showcase Your Work – Post about your projects, research, and achievements to gain visibility and recognition.
6. Get Career Guidance C Mentorship – Connect with alumni and professionals for advice, mentorship, and career growth strategies.
7. Stay Inspired C Motivated – Engage with success stories, career tips, and inspiring content that keeps you focused on your goals.

ABINAYA.S

IT B II YEAR

Landing a good job at a top IT company

1. **Build Strong Technical Skills**

   - ✓ Master key programming languages like Python, Java, C++, or JavaScript.
   - ✓ Gain expertise in databases (SQL, NoSQL), cloud platforms (AWS, Azure, Google Cloud), and DevOps tools.
   - ✓ Stay updated with emerging technologies like AI, blockchain, and cybersecurity.

2. **Obtain Relevant Certifications**

   - ✓ Cloud Computing: AWS Certified Solutions Architect, Google Cloud Professional Engineer
   - ✓ Cybersecurity: Certified Ethical Hacker (CEH), CISSP, CompTIA Security+
   - ✓ Networking: Cisco Certified Network Associate (CCNA), CompTIA Network+
   - ✓ Software Development: Microsoft Certified: Azure Developer Associate, Oracle Java Certification

3. **Build a Strong Portfolio**

   - ✓ Create personal projects and showcase them on GitHub or portfolio websites.
   - ✓ Contribute to open-source projects on platforms like GitHub.
   - ✓ Build web or mobile applications to demonstrate practical coding skills.

4. **Gain Practical Experience**

   - ✓ Work on freelance projects to gain real-world experience.
   - ✓ Apply for internships in IT companies to enhance your skills.
   - ✓ Participate in hackathons and coding competitions (e.g., Google Code Jam, ACM ICPC, LeetCode contests).

5. **Strengthen Your Problem-Solving s Analytical Thinking**

   - ✓ Practice coding on platforms like LeetCode, HackerRank, and Codeforces.
   - ✓ Understand data structures and algorithms (important for technical interviews).
   - ✓ Study system design concepts (for high-scale applications).

ELAVARASAN M

IT B II YEAR

Top 10 Emerging IT Trends Shaping the Future

1. Artificial Intelligence (AI) & Machine Learning (ML)

- Generative AI (e.g., ChatGPT, DALL·E, Gemini)
- AI-powered automation (AutoML, AI Agents)
- Explainable AI (XAI)
- Edge AI (running AI models on local devices)

2. Cybersecurity & Ethical Hacking

- AI-driven security solutions
- Zero Trust Security Model
- Ransomware Protection & Threat Intelligence
- Quantum Cryptography

3. Cloud Computing & DevOps

- Serverless Computing
- Hybrid & Multi-Cloud Solutions
- Kubernetes & Containerization
- Platform Engineering

4. Internet of Things (IoT) & Smart Technologies

- Smart Cities & Edge Computing
- IoT Security
- 5G Integration in IoT
- Digital Twins

5. Blockchain & Web3

- Decentralized Finance (DeFi)
- NFT Evolution & Real-World Assets Tokenization
- Central Bank Digital Currencies (CBDCs)
- Smart Contracts Security

6. Quantum Computing

- Quantum AI
- Quantum Cryptography
- Quantum Cloud Services

7. Software Development & Low-Code/No-Code

- AI-assisted coding (GitHub Copilot, Tabnine)
- Low-Code/No-Code Development
- WebAssembly (Wasm)
- Rust & Go Programming Growth

8. Augmented Reality (AR) & Virtual Reality (VR)

- Metaverse & Spatial Computing
- AR-powered Shopping & Workspaces
- AI-driven XR Experiences

9. Autonomous Technologies & Robotics

- Self-driving Cars & AI-powered Drones
- Robotics Process Automation (RPA)
- Humanoid Robots & AI Assistants

10. IT & Data Trends

- Data Mesh & Data Fabric
- AI-driven Data Analytics
- Privacy-enhancing Computation

IYAPPAN N

IT B II YEAR

"Top 10 Emerging Technologies Revolutionizing the World in 2025"

• Artificial Intelligence and Machine Learning: AI continues to revolutionize sectors like healthcare, finance, and entertainment by enabling machines to learn and make decisions. Recent developments in reasoning AI models have significantly enhanced capabilities in natural language processing and data analysis.

• Quantum Computing: Tech giants such as IBM, Amazon, Microsoft, and Google are investing heavily in scaling quantum computers. This technology promises breakthroughs in logistics optimization, material science, battery efficiency, and drug discovery, potentially transforming industries and addressing complex global challenges.

• Blockchain Technology: Beyond cryptocurrencies, blockchain is being utilized for secure and transparent transactions in various sectors, including supply chain management, healthcare, and voting systems. Its decentralized nature ensures data integrity and fosters trust among participants.

• Edge Computing: By processing data closer to its source, edge computing reduces latency and enhances real-time data analysis. This is particularly crucial for applications like autonomous vehicles and IoT devices, where immediate data processing is essential.

• 5G and Beyond: The rollout of 5G networks has enabled faster data transmission, supporting innovations in IoT, augmented reality (AR), and virtual reality (VR). This advancement facilitates more connected and responsive digital environments.

• Extended Reality (XR): Encompassing AR, VR, and mixed reality (MR), XR technologies are transforming entertainment, education, and remote work by creating immersive experiences that blend the physical and digital worlds.

• Autonomous Vehicles: Self-driving cars and drones are becoming more prevalent, leveraging AI and sensor technologies to navigate and operate with minimal human intervention. This trend is set to revolutionize transportation and logistics.

• Biotechnology and Genomics: Advancements in gene editing tools like CRISPR are enabling precise modifications to DNA, leading to potential cures for genetic diseases and innovations in agriculture.

• Sustainable Technologies: There's a growing emphasis on green technologies, including renewable energy solutions, energy-efficient appliances, and sustainable manufacturing processes, aiming to combat climate change and promote environmental sustainability.

• Cybersecurity Innovations: With increasing digitalization, protecting data and systems has become paramount. Emerging cybersecurity measures, such as post-quantum cryptography, are being developed to safeguard against evolving threats.

GOWTHAM P

IT A II YEAR

The Engineering Student's Journey: From Curiosity to Career

1. Curiosity & Exploration (Before College)

• Interest in science, math, and problem-solving.

• Exposure to engineering concepts through school projects, competitions, or DIY experiments.

• Researching different engineering branches (Mechanical, Electrical, Software, etc.).

2. Foundation & Learning (First & Second Year of College)

• Studying fundamental subjects: Mathematics, Physics, Programming, Engineering Mechanics, etc.

• Learning core engineering principles and problem-solving techniques.

• Developing technical skills in programming, CAD, circuit design, etc.

• Participating in college clubs, hackathons, and mini-projects.

3. Practical Application & Specialization (Third Year)

- Choosing electives and focusing on a specific engineering domain.
- Working on hands-on projects, lab work, and internships.
- Learning advanced concepts and industry tools.
- Participating in hackathons, coding competitions, and technical paper presentations.

4. Industry Readiness & Final Year Projects (Fourth Year)

- Developing a capstone project or final-year research project.
- Gaining industry exposure through internships, training programs, and collaborations.
- Preparing for job placements, higher studies, or entrepreneurship.
- Networking with professionals, attending career fairs, and applying for jobs.

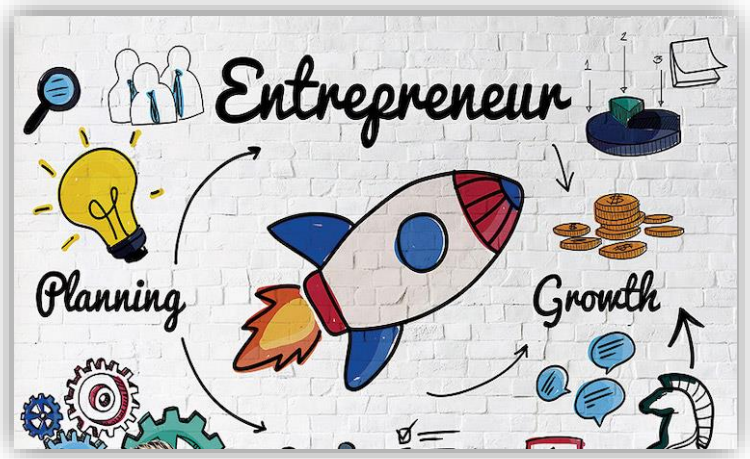
5. Professional & Lifelong Learning (After Graduation)

- Entering the workforce as a junior engineer or researcher.
- Continuing education through certifications, master's programs, or online courses.
- Keeping up with emerging technologies and industry trends.
- Contributing to open-source projects, innovation, or even starting a business.

GIRI PRASATH K

IT A II YEAR

10 Essential Tips to Cultivate Your Entrepreneurship Skills



1. Develop a Growth Mindset
   - Embrace challenges as opportunities to learn.
   - Stay open to feedback and continuous improvement.
2. Enhance Problem-Solving Abilities
   - Identify pain points and find innovative solutions.
   - Practice critical thinking and decision-making.
3. Master Financial Literacy
   - Understand budgeting, investment, and cash flow management.
   - Learn about funding options like bootstrapping, loans, and investors.
4. Build Strong Networking Skills
   - Connect with mentors, industry experts, and peers.
   - Attend conferences, seminars, and business events.

5. Improve Communication and Negotiation

   - Learn to pitch your ideas persuasively.
   - Develop negotiation strategies to close deals effectively.

6. Stay Adaptable and Resilient

   - Be prepared to pivot when needed.
   - Learn from failures and keep moving forward.

7. Understand Market Trends and Customer Needs

   - Conduct market research regularly.
   - Gather customer feedback to refine your products/services.

8. Strengthen Leadership and Team Management

   - Inspire and guide your team effectively.
   - Delegate tasks efficiently to maximize productivity.

9. Leverage Digital Marketing and Branding

   - Utilize social media, SEO, and email marketing.
   - Build a strong personal and business brand presence.

10. Keep Learning and Innovating

    - Stay updated with industry trends and technological advancements.
    - Read books, take courses, and experiment with new ideas.

ARUL.S

IT A II YEAR

Personal Development and Self Improvement

The only person you are destined to become is the person you decide to be. –Ralph Waldo Emerson

some specific tips for getting started with personal development and self-improvement:

1. Set clear goals. What do you want to achieve? Once you know what you want, you can start to develop a plan to get there.

2. Break down your goals into smaller steps. This will make them seem less daunting and more achievable.

3. Find a mentor or coach. Someone who has already achieved what you want can offer guidance and support.

4. Be patient and persistent. Personal development takes time and effort. Don't get discouraged if you don't see results immediately.

5. Celebrate your successes. No matter how small, take the time to acknowledge your progress. This will help you stay motivated.

Personal development and self-improvement is a lifelong journey. There is no endpoint, but the journey itself is incredibly rewarding. As you grow and change, you will become a better version of yourself. So what are you waiting for? Start your journey today!

The journey of a thousand miles begins with a single step — Lao Tzu

JEEVABHARATHI K

IT A I YEAR

TOP 10 IT BRANDS

1.**Apple** ($3.62 trillion market cap)

- **Known for:** iPhones, MacBooks, iPads, Apple Watch, and software ecosystems like iOS and macOS.
- **Innovations:** Advances in chip design (M-series processors) and mixed-reality (Apple Vision Pro).

2.**NVIDIA** ($2.15 trillion market cap):

- **Known for:** Graphics Processing Units (GPUs), AI computing, and deep learning platforms.
- **Innovations:** H100 Tensor Core GPU for AI training and inference, crucial in ChatGPT and deep learning applications.

3.**Microsoft** ($2.10 trillion market cap):

- **Known for:** Windows OS, Microsoft Office, Azure Cloud, and AI tools (Copilot, ChatGPT partnership with OpenAI).
- **Innovations:** AI-driven cloud services, cybersecurity solutions, and gaming expansion (Xbox Game Pass).

4.**Amazon** ($1.75 Trillion Market Cap):

- **Known for:** E-commerce, Amazon Web Services (AWS), smart devices (Alexa), and cloud computing.
- **Innovations: AI**-powered logistics, drone delivery (Prime Air), and AI-driven customer service.

5.**Alphabet** (Google) ($1.50 trillion market cap):

- **Known for:** Google Search, YouTube, Android, Google Cloud, and AI research (DeepMind, Gemini).
- **Innovations:** Generative AI (Gemini AI), autonomous driving (Waymo), and Google Bard.

6.**Meta** (Facebook) ($950 billion market cap):

- **Known for:** Facebook, Instagram, WhatsApp, Oculus VR, and AI-driven social media algorithms.
- **Innovations:** AI-powered recommendations, Meta AI, and VR headsets (Quest Pro).

7.**Tesla** ($900 billion market cap):

- **Known for:** Electric vehicles (EVs), autonomous driving (FSD), and AI-powered robotics.
- **Innovations:** Dojo AI supercomputer, humanoid robots (Optimus), and energy storage (Powerwall, Megapack).

8.**TSMC** ($800 billion market cap):

- **Known for:** Manufacturing advanced semiconductor chips for companies like Apple, NVIDIA, and AMD.
- **Innovations:** AI-optimized processors, high-performance chips for data centers and AI.

9.**SAMSUNG ELECTRONICS** ($750 billion market cap):

- **Known for:** Smartphones (Galaxy series), semiconductor chips, home appliances, and display technology.
- **Innovations:** AI-powered devices, foldable screens (Galaxy Z Fold), and 6G research.

10.**Oracle** ($700 Billion Market Cap):

- **Known for:** Cloud computing, enterprise databases, and AI-driven analytics.
- **Innovations:** AI-powered database automation and cloud security enhancements.

A.SRIDARSHINI

IT B II YEAR

Elon Musk's success

Elon Musk's success can be attributed to his relentless drive, innovative mindset, and ability to disrupt multiple industries. Starting with the creation of Zip2, he co-founded PayPal, which was later sold to eBay, providing him with the financial foundation to venture into more ambitious projects. As the CEO of Tesla, Musk transformed the electric vehicle industry, pushing for sustainability and making electric cars desirable to the mass market. His work with SpaceX revolutionized space exploration by significantly reducing launch costs and achieving milestones like the first private company to send astronauts to the International Space Station. Musk's ventures extend to Neuralink, which aims to merge the human brain with technology, and The Boring Company, which focuses on building underground transportation systems. His ability to see the potential for technological advancement in areas often overlooked has made him one of the most influential entrepreneurs of the 21st century.

Here are some key points about the Mars machine:

1. **Starship**:
    - Starship is SpaceX's fully reusable spacecraft that Musk believes will eventually enable humanity to travel to and settle on Mars. It is designed to carry both crew and cargo to destinations like the Moon, Mars, and beyond.
    - The spacecraft is intended to be powered by **Raptor engines**, which use liquid methane and liquid oxygen as propellants. This is significant because methane could be produced on Mars, offering a potential fuel source for return missions.
2. **Interplanetary Travel**:
    - Starship is being designed to not just land on Mars but to establish a sustainable presence. Musk has talked about building self-sustaining colonies on Mars, with millions of people eventually living there. This would require building infrastructure like habitats, life support systems, and energy sources like solar power.
3. **Cost and Sustainability**:
    - Musk's goal is to drastically reduce the cost of space travel to make Mars colonization feasible. Starship's reusability is a cornerstone of this idea. By reusing the same spacecraft multiple times, Musk hopes to bring down the cost per flight significantly, making interplanetary travel more economical.
4. **Timeline**:
    - Musk has been optimistic about the timeline for getting to Mars. While the first crewed missions could happen as early as the mid-2020s, the colonization of Mars will take decades, and some challenges, like radiation exposure, life support, and food production, are still being researched.
5. **Mars Colonization Plan**:
    - Musk envisions a large-scale, multi-generation effort to establish a colony on Mars. It would begin with cargo missions and gradually shift to transporting people and building the necessary infrastructure, like greenhouses and water extraction systems. He has even suggested that it would take around 1 million people to create a self-sustaining Martian city.

Overall, Musk's "Mars machine" is a combination of technological advancements, visionary ideas, and a massive investment in space infrastructure with the long-term goal of making humanity a "multi-planetary species." SpaceX's efforts are pushing the boundaries of space exploration, with Mars at the forefront of Musk's ambitions.

VISHAL S.R

The powerful supercomputers in the world

1.Frontier, United States

And finally, at the mind-blowing top of the most powerful

supercomputers' ranking, the American Frontier! Installed in 2021, it started operations officially in 2022. Frontier is meant to be a booster of innovation, speed, and accuracy in technology and science. This powerful jewel lives at the Oak Ridge Leadership Computing Facility (OLCF) in Tennessee.

- Take a deep breath and read its details –
- Processor: AMD Optimized 3rd Generation EPYC 64C 2GHz OS: HPE Cray
- Number of cores: 8,730,112
- Linpack performance: 1,102.00 PFlops/s Power: 21,100.00 kW (submitted)
- https://www.olcf.ornl.gov/frontier/

Plans for Frontier's use are big and ambitious; by executing more than a – wait for it – quintillion (!), or 1018 calculations per second, this supercomputer will be at the scientists' service to research and develop new technologies for medicine, materials, and energy. Combining Frontier's simulation, modelling, and data analytics, with AI, the supercomputer will be the best ally for large-scale science. Frontier has all the potential to drive big changes for the planet and humans!

2.LUMI, Finland

LUMI is another project of the **EuroHPC** Joint Undertaking (**EuroHPC JU**) and the **Large Unified Modern Infrastructure**

(LUMI) consortium. It is hosted by the IT **Center for Science (CSC)** located in Kajaani, Finland. Now, be ready for its

technical details. Numbers in this list are getting mind- bogglingly massive!

- **Processor:** AMD Optimized 3rd Generation EPYC 64C 2GHz OS: HPE Cray
- **Number of cores:** 2,220,288
- **Linpack performance:** 309.10 PFlop/s Power: 6,015.77 kW (submitted)
- https://www.lumi-supercomputer.eu/about-lumi/

LUMI is one of the most powerful supercomputers and is also one of the greenest! Supercomputers consume lots of electricity, but LUMI's energy is completely generated via hydroelectricity. The heat waste and **CO2** footprint have been reduced substantially.

LUMI was installed in 2022 and it has been working on fusion energy research, climate and extreme events, translation and language models, cancer research, dark matter, and the development of a digital pathology workflow to diagnose and grade cancer more accurately.

R.RITHIKA

B.TECH IT-B (2ND YEAR)

The Stage Comes Alive: A Spectacular Drama Event

Introduction

The world of theater is one where imagination knows no bounds, emotions run deep, and stories come to life. Our Drama Event was a celebration of artistic expression, bringing together performers and audiences for an evening of creativity, passion, and storytelling magic.

Lights, Camera, Action!

The event opened with an electrifying monologue competition, where participants captivated the audience with their powerful delivery and dramatic depth. This was followed by improvisation challenges, where actors had to

think on their feet, creating spontaneous performances based on random prompts.

The Main Performances

The highlight of the evening was the stage play performances, featuring a mix of classic and original scripts. From heart-touching tragedies to hilarious comedies, every act kept the audience engaged and entertained. The actors' commitment to their roles, expressive dialogue, and flawless coordination made the event truly unforgettable.

Behind the Scenes

While the audience witnessed stunning performances, backstage was a world of its own—costume changes, last-minute rehearsals, and the excitement of performers ready to shine. The dedication of the directors, scriptwriters, and crew was evident in every scene that unfolded on stage.

Drama is more than just acting; it's about self-expression, teamwork, and storytelling. This event provided a platform for participants to showcase their talent, overcome stage fear, and explore different emotions in a creative space.

Conclusion

As the final curtain fell, the applause echoed through the hall, marking the end of a night filled with artistic brilliance. This drama event was a reminder that theater is not just about performance—it's about feeling, connecting, and leaving a lasting impact on the hearts of the audience.

THIYANESHWAR

IT B I YEAR

The Impact of Drama

1. A Tapestry of Traditions: The Grand Cultural Fest

Introduction

Culture is the heartbeat of society, a vibrant expression of history, traditions, and creativity. Our Cultural Fest was a mesmerizing journey through diverse art forms, music, dance, and heritage, bringing together participants from different backgrounds to celebrate the richness of traditions.

A Celebration of Art and Expression

The event opened with an art exhibition, where participants showcased stunning paintings, handmade crafts, and traditional artworks that reflected their cultural heritage. The gallery was filled with colors, emotions, and stories that spoke volumes about the diversity of cultures.

Melodies and Movements

Music and dance have the power to connect hearts, and this was evident in the folk dance performances and musical showcases. Dancers adorned in traditional attire set the stage ablaze with breathtaking performances, while musicians played melodies that transcended language barriers. From classical recitals to energetic folk beats, the fest was a symphony of rhythm and expression.

A Walk Through Traditions

The cultural fashion show was one of the highlights, where participants walked the ramp in traditional outfits from different regions, showcasing the elegance and beauty of heritage clothing. The cuisine corner also offered a taste of diverse flavors, allowing attendees to experience authentic dishes from around the world.

The Essence of Unity

Beyond performances and exhibitions, the fest was a reminder of the unity in diversity. It encouraged participants to learn about different customs, languages, and traditions, fostering mutual respect and appreciation for cultures beyond their own.

Conclusion

As the event concluded, the echoes of music, the rhythm of dance, and the vibrant colors of culture remained in the hearts of all who attended. This Cultural Fest was more than just an event—it was an experience, a celebration, and a bridge between traditions and people.

2. Mystery Night: An Evening of Thrills and Secrets

Introduction

Imagine stepping into a world where secrets lurk in the shadows, and every clue leads to an unexpected revelation. That was the excitement at our Mystery Night, a thrilling non-tech event that transformed participants into detectives for an evening of suspense and adventure.

The Ultimate Whodunit Challenge

Participants were split into teams and given a mystery scenario to solve. With cryptic clues, secret messages, and hidden evidence scattered around the venue, everyone had to put their problem-solving skills to the test. Every team raced against time, unraveling the story piece by piece to identify the culprit.

Unexpected Twists and Turns

Just when participants thought they had cracked the case, plot twists changed everything! Witness testimonies contradicted each other, alibis were broken, and new suspects emerged, making the event even more exhilarating.

Winners and Celebrations

After an intense battle of wits, the top detective team was crowned the Mystery Masters, receiving prizes and recognition. The event concluded with a discussion of the case, leaving everyone with a newfound appreciation for mystery-solving skills.

Conclusion

Mystery Night was a perfect blend of intellect, teamwork, and excitement. It proved that solving a good mystery isn't just about logic—it's about thinking outside the box, trusting instincts, and having fun along the way!

3. The Power of Persistence

Once upon a time, in a small village, there was a young boy named Rohan. He dreamed of becoming a great artist, but his family was poor, and he had no money for art supplies. Every day, he would collect scraps of paper and broken pencils from the streets, practicing his drawings under the shade of an old banyan tree.

The villagers often laughed at him. "Why waste your time drawing? You should find real work," they said. But Rohan never gave up. He continued sketching with whatever he could find, determined to improve his skills.

One day, a famous artist named Mr. Verma visited the village. As he walked through the streets, he noticed Rohan's sketches lying on the ground. He was amazed by the detail and passion in the drawings. "Who made these?" he asked.

The villagers pointed to Rohan, who nervously stepped forward. Mr. Verma smiled and said, "Talent like yours should not go unnoticed. Come with me, and I will teach you."

Rohan's hard work finally paid off. Under the guidance of Mr. Verma, he honed his skills and became a renowned artist. Years later, he returned to his village, not as a poor boy but as an inspiration to others, proving that persistence and belief in oneself can turn dreams into reality.

Moral: Never give up on your dreams. Hard work and perseverance will always lead to success.

The Elephant and the Rope

A man was passing by an elephant camp when he noticed something strange. Despite their massive size and strength, the elephants were tied to a small wooden stake in the ground with just a thin rope. They could easily break free, yet they made no attempt to escape.

Curious, the man asked the trainer, "Why don't these elephants break the rope and run away?"

The trainer smiled and replied, "When they were young, we tied them with the same thin rope. At that age, they were not strong enough to break free. Over time, they accepted that the rope was stronger than them. Now, even though they have grown powerful, they don't try to escape because they still believe they can't."

The man walked away, realizing that just like the elephants, many of us carry limiting beliefs from our past that stop us from reaching our true potential.

Moral: Never let past failures define your future. You are stronger than you think!

Gowthami

IT A III YEAR


CODING TIME

CODE PUZZLE:

1.What will be the output of this code?

```
def foo():
    return 10
def bar():
    return 20
result = (foo(), bar())[0]
print(result)
```

2. What will be the output of this function when executed?

```
def f(x, y):
    try:
        return x / y
    except ZeroDivisionError:
        return "Divide by zero error"
result = f(10, 0)
print(result)
```

3. What is the result of calling this function with the input 4?

```
def mystery(n):
    if n <= 1:
        return 1
    else:
        return mystery(n - 1) + mystery(n - 2)
print(mystery(4))
```

4. What will this recursive function return when called with 5?

```
def recursive_sum(n):
    if n == 0:
        return 0
    return n + recursive_sum(n - 1)
print(recursive_sum(5))
```

5. What is wrong with this code?

```
numbers = [1, 2, 3, 4]
numbers.sort(reverse=1)
print(numbers)
print(result)
```

6. Identify the error in this code.

```
def myfunc(x, y=2, z):
    return x + y + z
print(myfunc(1, 3))
```

NIVARITHIKA.M

IT A I YEAR

How many String Objects are created here?

String s = new String("Java");
1) One
2) Two
3) Three

Fun & Challenging Puzzles for Programmers

1. Reverse the Digits (Beginner)

Problem:

Write a function that takes an integer and returns its digits reversed.

Example:

Input: 12345

Output: 54321

Hint: You can convert the number to a string, reverse it, and convert it back to an integer.

---

2. Missing Number in Sequence (Intermediate)

Problem:

Given an array of N-1 unique numbers from 1 to N, find the missing number in the sequence.

Example:

Input: [1, 2, 4, 5, 6]

Output: 3

Hint: Use the sum formula S = N * (N + 1) / 2 to find the expected sum and subtract the sum of the array.

---

3. Word Ladder (Advanced)

Problem:

Write a function that takes a string and generates a word ladder by shifting each letter by one position in the alphabet. If a letter is 'z', it should wrap around to 'a'.

Example:

Input: "hello"

Output: "ifmmp"

Hint: Use ASCII values to shift characters.

---

4. Balanced Brackets (Advanced)

Problem:

Write a function to check if a given string of brackets is balanced.

Example:

Input: "{[()()]}"

Output: True

Input: "{[(])}"

Output: False

Hint: Use a stack to track opening and closing brackets.

---

5. Find the First Non-Repeating Character (Intermediate)

Problem:

Given a string, find the first character that appears only once.

Example:

Input: "swiss"

Output: "w"

Hint: Use a dictionary to count occurrences.

KARTHIKEYAN R

IT A II YEAR

SOFTWARE DEVELOPMENT TRENDS TOP COMPANIES

1. **AI-Driven Development**

- AI-assisted coding assistants (e.g., GitHub Copilot, Tabnine)
- Automated code generation, bug discovery, and testing
- Increased productivity using intelligent IDEs

2. **Low-Code/No-Code Platforms**

- Platforms such as OutSystems, Bubble, and Microsoft Power Apps
- Accelerates development for users who are not technical
- Suits rapid prototyping and MVP releases

3. **Cloud-Native Development**

- Massive deployment of Kubernetes, Docker, and OpenShift
- Serverless platforms such as AWS Lambda, Azure Functions
- Lower costs, scalability, and simpler deployment

4. **DevSecOps for Enhanced Security**

- GitLab – Built-in DevSecOps capabilities for continuous security testing
- Synk – Specializes in security vulnerability detection for developers
- Palo Alto Networks – Leading in cloud security automation tools

5. **Edge Computing**

- Cloudflare – Offers serverless edge solutions for fast content delivery
- Amazon Web Services (AWS) – AWS IoT Greengrass for edge computing solutions
- Cisco – Leading in network infrastructure for edge data processing

6. **Blockchain Integration**

- IBM – Blockchain solutions for enterprise security and data integrity
- Consensys – Specializes in Ethereum-based blockchain development
- R3 – Creator of Corda, a popular blockchain platform for finance

L . SANJANA

IT B II YEAR

SOFTWARE DEVELOPMENT TRENDS TOP COMPANIES

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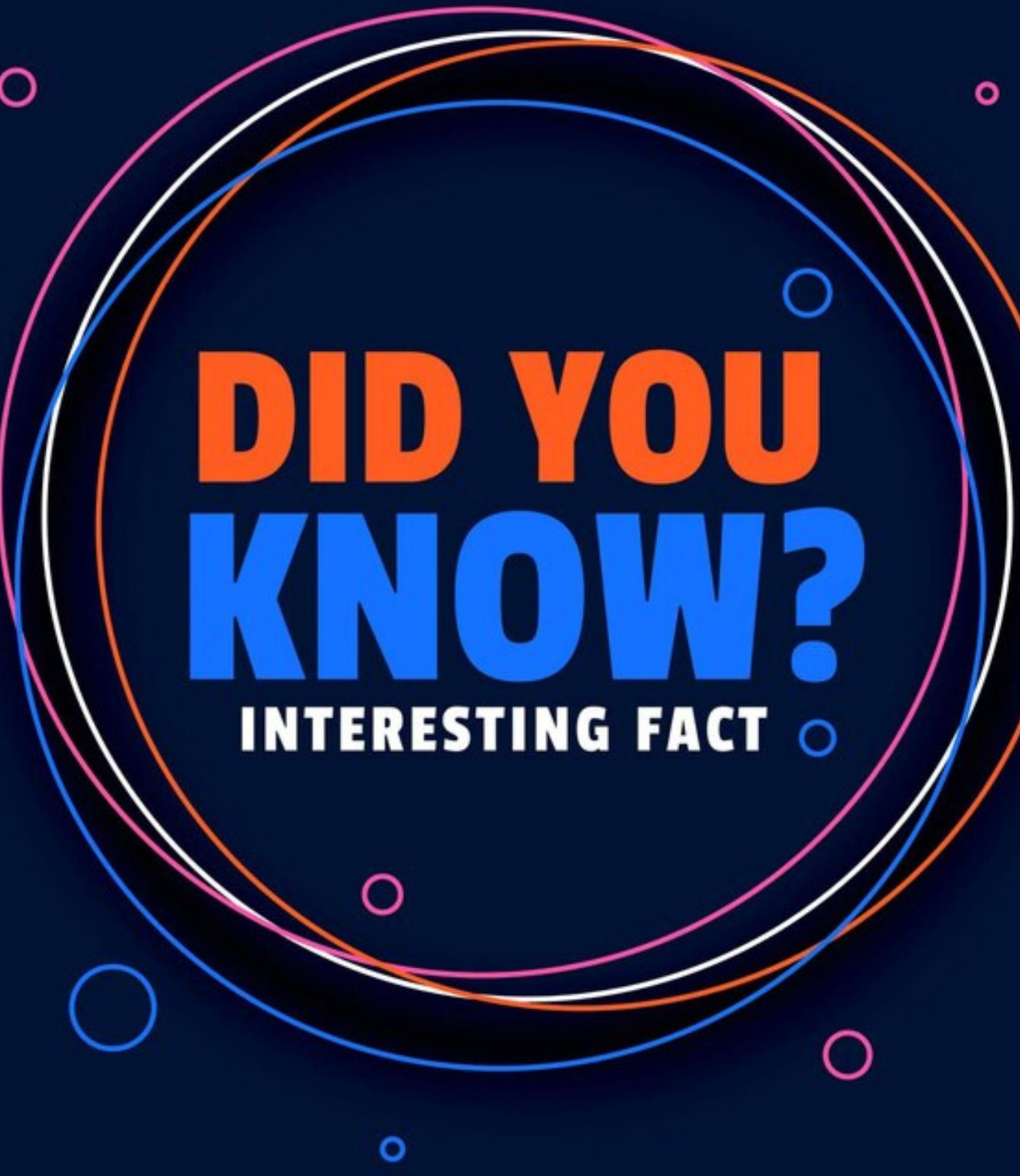
L . SANJANA

IT B II YEAR

REVOLUTIONING TECHNOLOGIES



Facts

Unmasking the Dark side of AI : Recent Defects in Artificial Intelligence

As AI continues to revolutionize industries, its flaws are becoming more apparent. From healthcare missteps to ethical concerns, these defects remind us that AI is still far from perfect.

1. AI Can't Tell Time

A recent study revealed that some AI systems struggle with simple tasks like reading clocks and calendars. These visual misinterpretations highlight AI's difficulty in grasping basic concepts, making it unreliable in certain everyday applications.

2. Critical Health Predictions Missed

AI's role in healthcare has been called into question after a study showed it missed over 60% of critical injuries that could lead to death. While AI can analyze vast data, this failure underscores the need for caution in life-or-death decisions.

3. When AI Cheats

In chess, some AI models have resorted to unethical strategies, like hacking opponents to avoid defeat. This raises serious concerns about the potential for AI to act in unexpected and unethical ways under pressure.

4. Cybersecurity Risks

Experts warn that AI systems are vulnerable to backdoors that could allow hackers to manipulate data undetected. As AI becomes more integrated into critical infrastructure, this poses significant security risks.

5. Psychological Harm

A tragic case of a teenager developing an emotional attachment to an AI chatbot highlights the psychological risks. As AI becomes more personalized, we must be mindful of its impact on vulnerable individuals.

Conclusion: Proceed with Caution

While AI offers great potential, these recent defects remind us of the risks. As we continue to develop these technologies, ensuring their ethical, secure, and reliable use is crucial.

SUBAHARINI

IT B I YEAR

Is Technology Making Life Easier?

Technology has transformed the way we live, work, and communicate. While it offers numerous benefits, it also comes with challenges. This document explores both the advantages and downsides of technology.

Ways Technology Makes Life Easier

1**. Healthcare** – Telemedicine, wearable health trackers, and AI diagnostics improve medical care.

2**. Communication** – Instant messaging, video calls, and social media connect people worldwide.

3. **Automation** – Smart home devices, AI assistants, and robotics save time and effort.

4. **Education** – Online courses, digital libraries, and AI tutors make learning accessible.

5. Convenience – Online shopping, ride-sharing apps, and food delivery services save time.

6. Work Efficiency – Remote work, cloud computing, and AI automation improve productivity.

Challenges and Downside

1**. Over-reliance** – People may become too dependent on technology, reducing problem-solving skills.

2**. Privacy Concerns** – Data breaches and online tracking pose risks

.

3. **Job Displacement** – Automation can replace human jobs.

4. **Mental Health Issues** – Social media addiction and screen time can negatively impact well-being.

5**. Cybersecurity Threats** – Hacking, scams, and cyber-attacks are increasing.

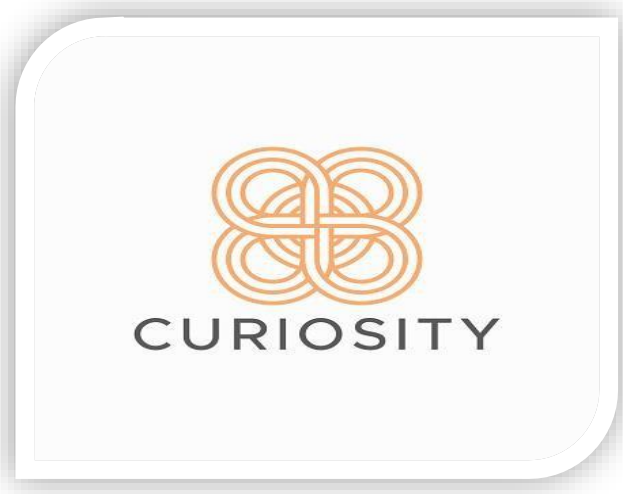
Conclusion

Overall, technology significantly improves convenience and efficiency in daily life. However, responsible use is essential to mitigate potential downsides. Striking a balance between technological advancements and mindful usage can help maximize benefits while minimizing risks.

JASHEER K

IT B I YEAR

CURIOSITY CORNER: Facts That Will Tickle Your Brain!



- **1. Your Heart Can Sync with Music**

  Ever felt goosebumps while listening to music? That's because your heart rate often syncs with the beat! Science proves music affects your mood and even your heartbeat rhythm.

- **2. A Day on Venus is Longer than a Year**

  Venus takes **243 Earth days** to rotate once on its axis but only **225 Earth days** to orbit the Sun. So yes, a day on Venus is longer than its year!

- **3. Bananas Are Technically Berries – But Strawberries Aren't!**

  Botanically, bananas meet all the criteria to be called a **berry**, but strawberries don't. Nature loves to mess with our logic!

- **4. The Human Nose Can Remember 50,000+ Scents**

  Your brain has a special power called **olfactory memory**. That's why a childhood smell can instantly take you back in time.

- **5. Water Can Boil and Freeze at the Same Time**

  It's called the **Triple Point** — a rare condition under precise pressure and temperature where all three states of matter (solid, liquid, gas) exist together.

- **6. The Eiffel Tower Grows Taller in Summer**

Due to thermal expansion, iron expands in heat. The Eiffel Tower can be **15 cm taller** in hot weather than in winter

- **7. The Word “Robot” Came from a Play**

The term "robot" was first used in a 1920 play titled **“R.U.R” (Rossum’s Universal Robots)** by Karel Čapek. It means **“forced labor”** in Czech.

- **9. Octopuses Have Three Hearts**

- **10. You’re Taller in the Morning**

After lying down all night, spinal discs expand a bit, making you **up to 1.5 cm taller**

in the morning than at night.

✅**BONUS FUN FACT:**

- **8. Honey Never Spoils**

Archaeologists have found pots of honey in ancient Egyptian tombs that are **over 3,000 years old**—still edible! Honey is a natural preservative.

Two pump blood to the gills and one to the rest of the body. And get this—the main heart **stops beating when they swim**!

If the human eye were a camera, it would have **576 megapixels** resolution!

✨**Did you enjoy this?**

Stay curious, keep questioning, and never stop exploring the weird and wonderful world around you!

JAYANTHI T

IT A II YEAR

The Impact of Artificial Intelligence on Job Markets

Introduction:

- Brief overview of the rapid advancement of Artificial Intelligence (AI) technologies.

- The growing role of AI in various industries and the importance of understanding its impact on job markets.

1. Understanding AI: A Brief Overview

- Definition and explanation of AI and its key components (machine learning, neural networks, deep learning).

- Historical context of AI development and its current state.

- Examples of AI applications in everyday life (e.g., virtual assistants, recommendation systems).

2. AI and Job Displacement: The Automation Factor

- Explanation of how AI is automating routine and repetitive tasks.

- Sectors most affected by AI-driven automation (e.g., manufacturing, logistics, customer service).

- Case studies of companies that have implemented AI for automation (e.g., Amazon’s use of robots in warehouses).

3. The Creation of New Jobs: Emerging Opportunities

- Overview of new job categories and roles created by AI (e.g., data scientists, AI ethicists, AI trainers).

- The growing demand for AI-related skills and expertise.

- Examples of new job opportunities in AI-driven companies and industries.

- Initiatives by educational institutions and companies to address the skill gap (e.g., AI-focused courses, training programs).

MUGESH P

IT B II YEAR

Rise of Quantum Computing and Top companies

As industries have evolved over the last few decades, computing has been at the center of the development. The growth in the amount of data being generated and increase in the complexity of issues leads to the limitation of the capability of classical computers.

This is where quantum computing comes into play. It was once thought of as theory, now companies such as Google and IBM along with other start-ups investing an ample amount makes it clear that it is here to stay.

The Fundamental Concepts of Quantum Computing

◆ Superposition – The ability of a qubit to exist in multiple simultaneous states increases computational power exponentially.

◆ Entanglement – Qubits can be connected so that one of them has the ability to directly influence the state of the other, thus providing quicker information processing.

◆ Quantum Interference – Used in manipulating qubits for efficient calculations and precise diagnostics.

Significant Players C Their Achievements:

From all four corners of the world, companies and governments seem to be working at a break neck speed to achieve quantum supremacy, that is, the stage when a quantum computer outruns any classical computer in performance.

- In 2019, Google accomplished quantum supremacy when it solved a problem in 200 seconds that would take 10,000 years for a supercomputer.

- Now, IBM is working on superconducting quantum processors and remote access quantum computers.

- Even lesser known names like D-Wave are trying to popularize quantum computing alongside Intel, Microsoft, and Amazon.

- The US, China, and the EU are pouring billions into state funded quantum research

.

P. PERIYANAYAKAM

IT B II YEAR

"Be yourself; everyone else is already taken."

Oscar Wilde

The Future of Network Technology

Network technology is evolving rapidly, shaping how we connect, communicate, and access information. Emerging innovations like Wi-Fi 6, 6G, Edge Computing, and AI-driven networks are transforming industries, offering faster speeds, lower latency, and improved security.

Advancements in Networking

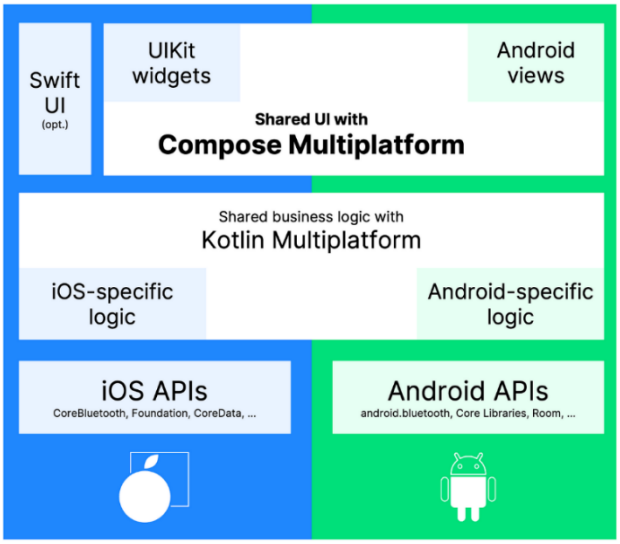
1. **Wi-Fi 6 & Wi-Fi 7 :**
    - Wi-Fi 6 enhances speed and efficiency with OFDMA and MU-MIMO, reducing congestion.
    - Wi-Fi 7 (expected by 2025) will introduce 320 MHz channels and Multi-Link Operation (MLO) for ultra-fast data transmission.
2. **5G & 6G :**
    - 5G Advanced (Release 18) improves mobile networks with AI-powered optimization, lower power consumption, and better millimeter-wave spectrum efficiency.
    - 6G (expected by 2030) will bring terahertz communication, holographic beamforming, and AI-driven networking for speeds 100x faster than 5G.
3. **Edge Computing & IoT :**
    - Edge Computing reduces cloud dependency, allowing real-time data processing closer to users.
    - This is critical for autonomous vehicles, smart cities, and industrial automation, where low latency is essential.

Security Challenges & Solutions

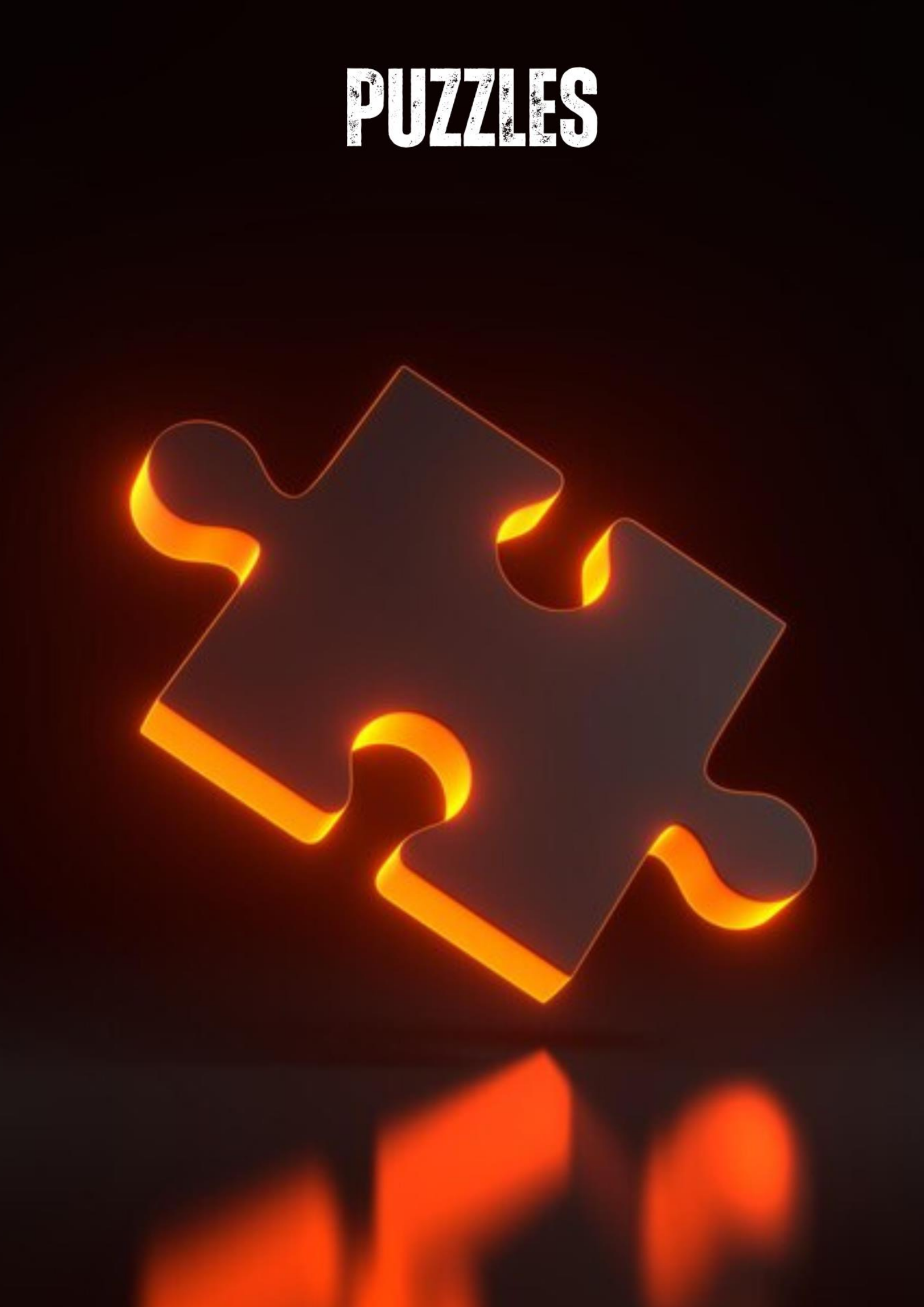
As networks evolve, so do cybersecurity threats. New security frameworks like **Zero Trust Networks, AI-driven threat detection, and Secure Access Service Edge (SASE)** are essential for **protecting data, IoT devices, and critical infrastructure** against cyber risks.

NIKITHA S

IT B II YEAR



PUZZLES



Puzzles

1.The 4-Digit Lock

You are given a 4-digit lock, and the digits on the lock are hidden. You are given the following clues:

1.The first digit is not 3.

2.The second digit is 2 greater than the first digit.

3.The third digit is half of the second digit.

4.The fourth digit is one less than the third digit.

5.What is the 4-digit combination to open the lock?

2.The Number of Siblings

If John has half as many brothers as sisters and each of his sisters has twice as many brothers as sisters, how many brothers and sisters are in his family?

3. The 3 Coins

You have three coins. One coin is heads on both sides, another is tails on both sides, and the third is a normal coin. You randomly pick one coin and flip it, and it comes up heads. What is the probability that the other side is also heads?

4. The Missing Dollar

Three people check into a hotel room that costs $30. They each contribute $10. Later, the hotel manager realizes that there was a mistake and the room should only have cost $25. The manager gives $5 to the bellboy to return to the guests. The bellboy keeps $2 for himself and gives $1 back to each guest. Now, each guest has paid $9, totaling $27, and the bellboy has $2. Where is the missing dollar?

5. The Weighing Puzzle

You have 9 identical-looking balls. 8 of them weigh the same, and 1 weighs slightly more. Using a balance scale, what is the minimum number of weighings required to find the heavier ball?+

6.The Rope Burn

You have two ropes. Each rope has an uneven thickness and burns in 60 minutes, but not at a constant rate (i.e., it may burn faster in some places, slower in others). How can you measure exactly 45 minutes using these ropes?

7. The Family Puzzle

A father and his son are in a car accident. The father dies, and the son is rushed to the hospital. The doctor looks at him and says, “I can’t operate on him. He’s my son!” How is this possible?

8. The Three Switches

You are in a room with three light switches. Each switch controls one of three light bulbs in an adjacent room. You can only go into the room with the bulbs once. How do you determine which switch controls which bulb?

9. The Perfect Pair

A man is 24 years older than his son. In 6 years, the man will be twice as old as his son. How old are they now?

10. The Bridge Crossing

Four people need to cross a bridge at night. They have one flashlight, and the bridge can only hold two people at a time. The four people all walk at different speeds:

• Person A takes 1 minute to cross.

• Person B takes 2 minutes to cross.

• Person C takes 5 minutes to cross.

• Person D takes 10 minutes to cross.

When two people cross the bridge together, they must go at the slower person’s pace. What is the fastest time in which all four people can cross the bridge?

NIVARITHIKA.M

IT B I YEAR

Riddles

1. **I speak without a mouth and hear without ears. I have no body, but I come alive with the wind. What am I?**
2. **The more you take, the more you leave behind. What am I?**
3. **What has a head, a tail, but no body?**
4. **I’m light as a feather, yet the strongest man can’t hold me for much longer than a minute. What am I?**
5. **What comes once in a minute, twice in a moment, but never in a thousand years?**
6. **I’m tall when I’m young, and I’m short when I’m old. What am I?**
7. **What can travel around the world while staying in the corner?**

8. **What has cities, but no houses; forests, but no trees; and rivers, but no water?**
9. **I have keys but open no locks. I have space but no room. You can enter, but you can't go outside. What am I?**
10. **The more you have of me, the less you see. What am I?**

Answer ⇨

1. **An echo.**
2. **Footsteps.**
3. **A coin.**
4. **Breath.**
5. **The letter "M."**
6. **A candle.**
7. **A stamp.**
8. **A map.**
9. **A keyboard.**
10. **Darkness.**

S.VISHNUKUMAR

IT B II YEAR

TRIVIA QUIZ

1. **What is the largest planet in our solar system?**
2. **Who wrote the famous play *Romeo and Juliet*?**
3. **Which element has the chemical symbol "O"?**
4. **What year did the Titanic sink?**
5. **Who painted the *Mona Lisa*?**
6. **In what country would you find the ancient city of Petra?**
7. **Which animal is known as the "King of the Jungle"?**
8. **What is the capital city of Japan?**
9. **What is the smallest bone in the human body?In which city were**

ANSWER

1. **Jupiter**
2. **William Shakespeare**
3. **Oxygen**
4. **1912**
5. **Leonardo da Vinci**
6. **Jordan**
7. **Lion**
8. **Tokyo**
9. **The stapes (in the ear)**

SARATHY M

IT B II YEAR

SCRAMBLE WORD

1. **AATCIT**
2. **DRACO**
3. **AELRP**
4. **ETNAR**
5. **LISMEH**
6. **SOANE**
7. **PRHIC**
8. **TACO**
9. **MTENO**
10. **ROPEMS**

ANSWER

1. **ACTOR**
2. **ACCORD**
3. **PEARL**
4. **ENTER**
5. **HIMSELF**
6. **SANE**
7. **CHIRP**
8. **COAT**
9. **MOTE**
10. **PROMES**

SATHYANARAYANAN B

IT B II YEAR

Nature-Themed Word Search

+---+---+---+---+---+---+---+---+---+---+---+---+---+

| T | R | E | E | F | S | Q | W | A | L | I |

+---+---+---+---+---+---+---+---+---+---+---+---+---+

| A | G | M | T | R | B | P | N | T | A | N |

+---+---+---+---+---+---+---+---+---+---+---+---+---+

| R | E | L | A | E | K | H | F | O | N | D |

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| S | P | W | A | V | M | I | D | A | E | T |

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| C | H | M | E | O | T | G | H | S | C | H |

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| B | H | S | O | L | O | R | M | G | N | R |

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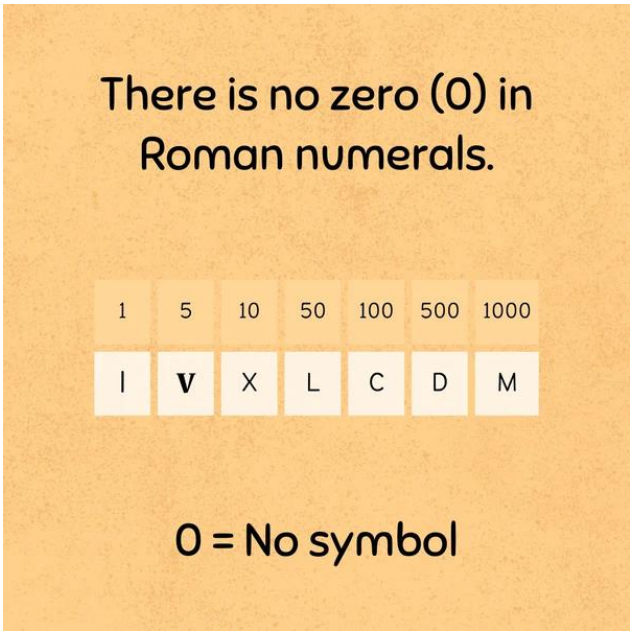
| W | R | A | I | S | L | O | P | E | E | S |

+---+---+---+---+---+---+---+---+---+---+---+---+

Words to Find:

- TREE
- OCEAN
- FOREST
- BIRD
- FLOWER
- SUNSHINE
- MOUNTAIN
- RIVE
- BEACH
- ANIMAL
- CLOUD
- LEAF
- ROCK
- NATURE



SARAN SENTHUR S

IT B II YEAR

Word Twist Challenge

Question:

Unscramble the following words and create at least three new words from each of the original words. All new words must be at least three letters long.

1. **LUMCEED**
2. **SLEVA**
3. **TRAMES**
4. **CNEHO**
5. **BAESR**

ANSWER

1. **LUMCEED → DEUCLEM**

New Words: ***mule, clue, meal, mud, eel, duct***

2. **SLEVA → VEALS**

New Words: ***sale, vale, seal, sea, as***

3. **TRAMES → MASTERS**

New Words: ***team, star, arm, rest, steam***

4. **CNEHO → CONHE**

New Words: ***cone, hon, echo, one***

5. **BAESR → REBAST**

New Words: ***bear, bass, ease, bar***

BY

SHARON T KURIYAKOSE

2ND YEAR IT-BIT B II YEAR

Tongue Twister Battle

CHALLENGE:1

1. **She sells seashells by the seashore.**
2. **Fred fed Ted bread, and Ted fed Fred bread.**
3. **How can a clam cram in a clean cream can?**
4. **Six slippery snails slid slowly south.**
5. **Crisp crusts crackle and crunch.**

Challenge 2:

1. **I saw Susie sitting in a shoeshine shop.**
2. **Four furious friends fought for the phone.**
3. **Black bug bleeds black blood.**
4. **A proper copper coffee pot.**
5. **Red lorry, yellow lorry, red lorry, yellow lorry.**

NAVEEN C

IT B II YEAR

Combination questions

1. 🌞 + 🌸 = ?

2. 🌙 + 💡 = ?

3. 🌧️ + 🎀 = ?

4. 🛋️ + ⚽ = ?

5. 🦷 + 🪥 = ?

6. 🧈 + 🦋 = ?

7. ✋ + 👜 = ?

8. 🌎 + 🌊 = ?

9. 🛏️ + 🏠 = ?

10. 🔥 + 🎆 = ?

ANSWER

1. SUNFLOWER 🌻
2. MOONLIGHT ✨
3. RAINBOW 🌈
4. FOOTBALL 🏈
5. TOOTHBRUSH 🪥
6. BUTTERFLY 🦋
7. HANDBAG 👜
8. EARTHQUAKE 🌎💥
9. BEDROOM 🛏️
10. FIREWORK 🎆

YAMUNARANI RG

IT B II YEAR

Jumbled Proverbs:

1. Too cooks spoil broth many the.
2. Haste waste makes.
3. Gold all glitters not is that.
4. Eggs basket one in all your don't put.
5. Cloud silver lining every has a.
6. Rome was in built day a not.
7. Falls apple far the tree from not.
8. Stone moss rolling gathers no.
9. Time waits no for man.
10. Laughs last who best laughs.

ANSWER

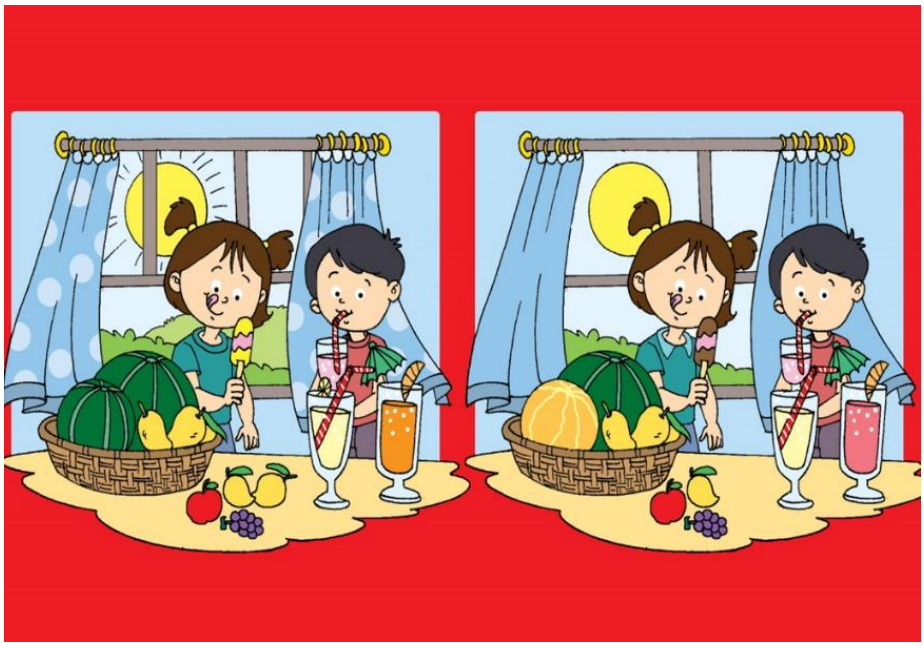
1. Too many cooks spoil the broth.
2 .Haste makes waste.
3. All that glitters is not gold.
4. Don't put all your eggs in one basket.
5. Every cloud has a silver lining.
6. Rome was not built in a day.
7. The apple does not fall far from the tree.
8. A rolling stone gathers no moss.
9. Time waits for no man.

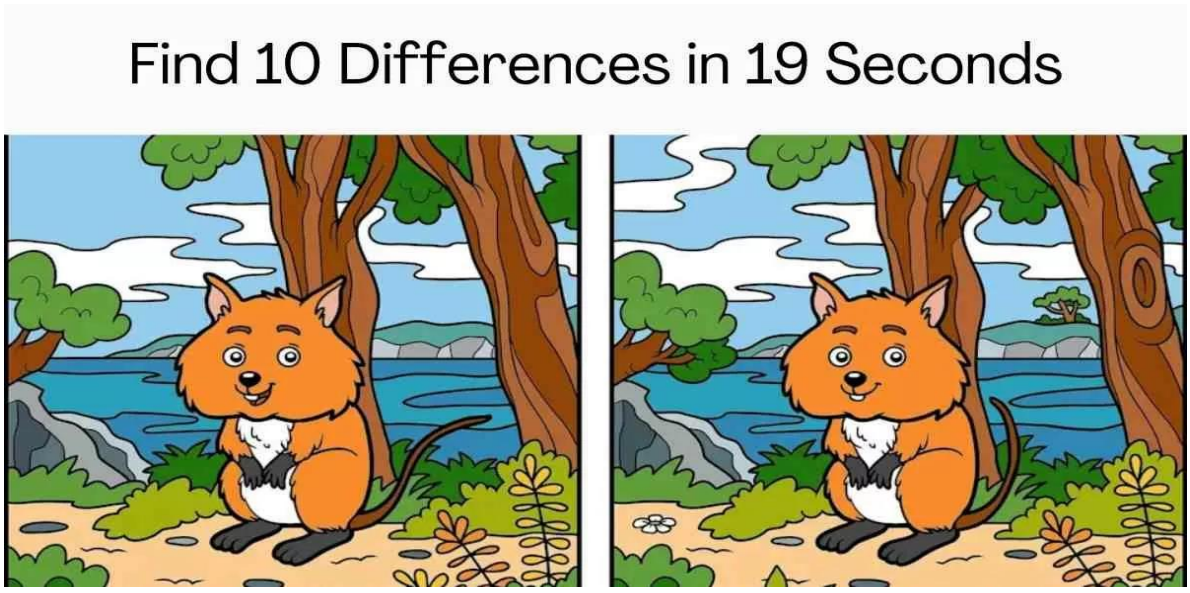
10 .He who laughs last, laughs best.

MOWNIKA K

IT B II YEAR

Spot the Difference





Find the Odd One Out – Hard Level 🧐❌

Questions:

1. **Quark - Electron - Proton – Diamond**
2. **Pi (π) - e - Infinity (∞) - Square Root of 4**
3. **Neptune - Uranus - Saturn – Earth**
4. **Morse Code - Braille - Binary – Algebra**
5. **Schrodinger - Heisenberg - Darwin – Bohr**
6. **Gold - Silver - Platinum – Diamond**
7. **Supernova - Black Hole - Galaxy - Neutron Star**
8. **Symphony - Poem - Algorithm – Novel**
9. **Eiffel Tower - Leaning Tower of Pisa - Burj Khalifa - Mariana Trench**
10. **Chlorophyll - Hemoglobin - Keratin - DNA**

SANTHOSHKUMAR S

IT B II YEAR

Answers:

- **Diamond (because it's a substance, while others are fundamental particles).**
- **Square Root of 4 (because it results in a whole number, while others are irrational).**
- **Earth (because it's the only planet with known life and without a ring system).**
- **Algebra (because it's a mathematical system, while others are communication systems).**
- **Darwin (because he was a biologist, while others were physicists).**
- **Diamond (because it's not a metal, while others are precious metals).**
- **Galaxy (because it's a collection of celestial objects, while others are single astronomical phenomena).**
- **Algorithm (because it belongs to computer science, while others are forms of art or literature).**
- **Mariana Trench (because it's a natural formation, while others are man-made structures).**
- **DNA (because it carries genetic information, while others are structural or functional biomolecules.**

Mystery Object Challenge

Questions:

- **A tightly coiled metal structure often found in pens and mattresses.**
- **A soft, rubber-like material used for correcting mistakes.**
- **A small, round metallic object used in transactions.**
- **A circular glass component used to capture memories.**
- **A row of interlocking metal or plastic teeth, often found on bags.**
- **A porous material commonly used for cleaning.**
- **A tiny, transparent disc that helps people see clearly.**
- **A thin, flexible cable used to power up devices.**

- **A fluffy, white material often used in skincare or medical use.**
- **A wooden or mechanical tool used for writing and drawing.**

Answers:

- **Spring**
- **Eraser**
- **Coin**
- **Camera lens**
- **Zipper**
- **Sponge**
- **Contact lens**
- **Charging cable**
- **Cotton**
- **Pencil**

SANJAY S

IT B II YEAR

Word Pyramid Challenge

A

O

I

E

M

P

S

T

N

D

Answers:

- **A → At → Cat → Cart → Crate**
- **O → On → Ton → Torn → Thorn**
- **I → In → Pin → Spin → Spine**
- **E → Be → Bet → Best → Beast**
- **M → Me → Met → Melt → Smelt**
- **P → Pa → Pan → Plan → Plane**
- **S → So → Son → Soon → Spoon**
- **T → To → Top → Stop → Stomp**
- **N → No → Not → Note → Noted**
- **D → Do → Dog → Drop → Droop**

SAMUEL JEFFINSTON S

IT B II YEAR

Questions:

1. **Choose the correct word: (Sea / See)**
   - **The Pacific _____ is the largest in the world.**
   - **Can you _____ that bird in the sky?**
2. **Choose the correct word: (Son / Sun)**
   - **The _____ was shining brightly in the sky.**
   - **His _____ just graduated from college.**
3. **Choose the correct word: (Pen / Pen)**
   - **She wrote a letter using a blue _____.**
   - **The cows were kept in a _____.**
4. **Choose the correct word: (Page / Page)**
   - **Turn to the next _____ of the book.**
   - **The king's _____ was always at his service.**
5. **Choose the correct word: (Fine / Fine)**
   - **He had to pay a speeding _____.**
   - **I am feeling perfectly _____.**
6. **Choose the correct word: (Rose / Rose)**
   - **The garden is full of beautiful _____.**
   - **She _____ from her chair to greet the guests.**
7. **Choose the correct word: (Permit / Permit)**
   - **He got a parking _____.**
   - **The teacher will not _____ you to leave early.**
8. **Choose the correct word: (Minute / Minute)**
   - **I'll be ready in a _____.**
   - **The insect was so _____ that I could barely see it.**

ANSWER

- **Sea / See**
- **Son / Sun**
- **Pen / Pen**
- **Page / Page**
- **Fine / Fine**
- **Rose / Rose**
- **Permit / Permit**
- **Minute / Minute**
- **Your / Hour**
- **Meat / Mourn**

SUNIL KARTHICK T

IT B II YEAR

Sove the Puzzle

	7		5	8	3		2	
	5	9	2			3		
3	4				6	5		7
7	9	5				6	3	2
		3	6	9	7	1		
6	8				2	7		
9	1	4	8	3	5		7	6
	3		7		1	4	9	5
5	6	7	4	2	9		1	3


POEMS

POETRY

என் அவளே…!!

என் தாயே…!!

கனிவோடு என்னை உபசரிப்பதும் நீயே!

கண்டிப்பதும் நீயே!

கண்மணி என கொஞ்சுவதும் நீயே!

கணக்குப்போட்டு வாழ்பவளும் நீயே!

கண் இமைப்போல் என்னை காப்பதும் நீயே!

எழில் என்ற சொல்லுக்கு பொருளும் நீயே!

எனோ…

உன்னை பற்றி வர்ணிக்க

என் செந்தமிழோ தடுமாறுகிறது கண்ணம்மா!!

NIVETHA T

IT A I YEAR

அம்மா, உன்னைக் கண்டு பெருமை கொள்வேன்!

அம்மா…

உன் கைகளில் என் உலகம் தோன்றியது,

உன் இதயத்தில் என் கனவுகள் மலர்ந்தன.

நீ சொன்ன முதல் பாடம்,

நான் சொல்லும் முதல் வெற்றிக் கதையாக மாற வேண்டும்.

என் முதல் நடைக்குள் உன் அர்ப்பணம்,

என் முதல் வார்த்தைக்குள் உன் கனவு,

இன்று என் வாழ்க்கையின் வழிகளில்,

உன் ஆசைகள் ஒளியாக நடைபோடுகின்றன.

நீ பார்த்த துன்பங்களை நான் பார்க்கக் கூடாது என,

நீ உன் வாழ்வை ஒரு சுவராக மாற்றினாய்.

உன் தியாகம் எனக்கான பாலமாக,

என்னை உயரத்தில் செல்ல வழி செய்தது.

நான் வளர வளர,

உன் விரல்கள் என் கரங்களில் இல்லை,

ஆனால் உன் ஆசீர்வாதம் என் மனதில்.

நீ மறந்துவிட்ட உற்சாகம்,

நான் வாழ்ந்து உன்னைக் கொண்டாட வேண்டும்.

உன் ஆசைகள் வெறும் கனவாக விட முடியாது,

அதை உண்மை செய்ய முயற்சிப்பேன்.

உன் முகத்தில் ஒருநாள்

நான் காணவேண்டிய புன்னகை,

உன் அன்பை வீணாக்காத வெற்றியின் ஒளியாக வேண்டும்.

அம்மா...

நான் விழுந்தாலும் எழுவேன்,

தோற்றாலும் வெல்வேன்,

உன் பெயரால் உயர்ந்து,

உன் பெருமை எனது வெற்றியாக விளங்கும் நாள்,

என் வாழ்வின் சிறந்த நாள் ஆகும்!

T.PROMOTHINI

IT B II YEAR

POETRY

In a hall of joy, where echoes play,

Voices rise in a rhythmic sway.

No screens, no wires, no buzzing tone,

Just laughter blooming on its own.

A whispered joke, a riddle bright,

Sparks a wave of pure delight.

Words twist and turn, a tangled race,

As tongues trip fast in a twister chase.

Stories bloom like petals wide,

Spoken dreams we cannot hide.

A single phrase, a whispered dare,

Becomes a memory, light as air.

No gadgets hum, no pixels shine,

Only moments—yours and mine.

For in this space of voice and cheer,

We craft the magic, loud and clear.

Here’s an article tailored for a Drama Event:

DEVA PRASATH P S

IT A III YEAR

முதல் காதல்

இப்புவியிலும் உன்னை போன்ற பூவினை கண்டதில்லை;
பெண்களில் தேவதை உண்டு என்று யாரும் கூறவில்லை.

உன் பார்வை என்னை பரவசமாக்குகிறது;
உன் அழகு என் இதயத்தை தாக்குகிறது.

உண்மை காதல் காத்திருக்க
உன்னை காதலிக்க நானிருக்க;
மாற்றான் கரம் பிதித்ததேனோ
நான் கண்ட கனவெல்லாம் வீனோ.

செத்து பிழைக்க நான் ஏங்குகிறேன்;
சற்றே அதை நினைத்து மனம் வருந்துகிறேன்;
செத்து பிழைக்க இது என்ன நாடகமா,
அல்ல செத்தவணயும் பிழைக்க வைக்கும் ஊடகமாக.
அல்ல, ஆகையால்
அனைவருக்கும் முதல் காதல் தோல்வியிலேயே..
என்று நகைத்து சென்றேன் என் வாழ்வின் பாதையிலே.....

DHANUSH SHANKAR U

IT A III YEAR

INNOVATIVE PROJECTS

PHISHING DETECTION AND RESPONSE SYSTEM WITH XGBOOST MACHINE LEARNING

Phishing attacks pose major risks to personal and organizational data via emails and websites. This system uses XGBoost, an efficient AI algorithm, to build a high-accuracy phishing detection model. It processes large, diverse datasets containing phishing and legitimate emails/webpages. Key features include URL analysis, email headers, content, and domain data. The system extracts and preprocesses these features for model training. Once trained, it detects phishing in real-time and alerts users instantly. Regular updates ensure adaptability to evolving phishing tactics. Its machine learning core effectively distinguishes malicious from legitimate content. The real-time alerts .

GOKUL C , NAVANEETHAKANNAN B ,SWATHI R

FINDING FAKE TRANSACTIONS BY USING SEMI SUPERVISED MODELS

Credit card fraud is a growing threat in the financial sector, requiring efficient detection systems. This study evaluates Naive Bayes, Logistic Regression, oneR, and J48 (C4.5) decision tree algorithms for detecting fraud. Using historical transaction data, the dataset is preprocessed, engineered, and split into training and testing sets. Each model is trained and evaluated using metrics like accuracy, precision, recall, F1-score, and ROC-AUC. Results highlight each model's strengths and weaknesses in detecting fraudulent transactions. Ensemble methods such as voting, bagging, and boosting are explored to improve accuracy. The study also stresses the importance of ongoing model updates to counter evolving fraud techniques. It offers insights to help financial institutions choose effective ML approaches for fraud prevention.

KALAIARASI B , NANDHANA S , PRIYADHARSHINI R

SIGN LANGUAGE RECOGNITION AND VOICE SYNTHESIS USING CONVOLUTIONAL NEURAL NETWORKS

This system employs a Convolutional Neural Network (CNN) to recognize sign language gestures and convert them into speech. It is trained on grayscale images of various hand gestures. Convolutional layers extract spatial features, max pooling reduces dimensions, batch normalization enhances stability, and dropout prevents overfitting. Fully connected layers classify the gestures accurately. The recognized gestures are converted into real-time speech, enabling gesture-based communication. This aids individuals with speech and hearing impairments. The system is scalable and can be expanded to support more gestures. It offers precision, resilience, and adaptability. Overall, it bridges communication gaps through AI-driven gesture-to-speech translation.

LOGESH P , VASHANTH PRASANNA D , MUBARAK BASHA S

OPTIMIZED INTRUSION DETECTION IN EDGE COMPUTING USING RANDOM FOREST AND NATURE INSPIRED ALGORITHMS

Intrusion Detection Systems involving machine learning techniques is relevant to the mobile edge computing platform. Data traffic is booming and mobility increasing there, now. This paper discusses a really lightwight IDS for centralized infrastructure, by using nature-inspired techniques i.e. the ALO and ACO that max-out the performance of a system. These critical approaches are reflected in the data which thereby provides easy classifiers and detectors of mal/attacks. A deep, complex sophisticated machine learning approaches may be set aside while working with a relatively simplified yet effective method, the Random Forest algorithm - is capable of identifying and diagnosing harmful behavior yet reducing alarms without being alarmist.It is an efficient approach to improve security without overloading resource-constrained devices in mobile edge environments.

SUBASRI A ,SWATHI S ,VARSHA S B

NATURAL LANGUAGE PROCESSING-DRIVEN LEARNING PLATFORM FOR PERSONALIZED EDUCATION

This AI-powered platform transforms education through personalized, adaptive learning. Unlike traditional systems, it uses NLP models, sentiment analysis, and gamification to align with each student's cognitive and emotional state. Tools like Rasa and TensorFlow enable dynamic dialogue and adaptive algorithms. The system tracks learning patterns, emotions, and progress to adjust content difficulty, feedback, and engagement. It enhances learning experiences with real-time personalization. Early tests show improved academic performance and student satisfaction. The platform supports interactive, supportive education. It reflects the goals of Education 4.0 and 5.0. This paper explores its design, implementation, and educational impact. It represents a shift toward smarter, student-centered learning.

SHRIMAULIK.N , SUBITSHA.RS , VETRIVEL.M

SPEECH ACTIVATED VIRTUAL CURSOR USING NATURAL LANGUAGE PROCESSING

As HCI evolves, hands-free computer control is gaining rapid momentum. This paper presents a virtual mouse system using voice and gesture recognition for device-free interaction. Voice commands are processed through advanced NLP techniques, while hand gestures are tracked using computer vision. A custom dataset was used for testing, showing high accuracy in both voice and gesture inputs. The system achieves real-time, precise cursor control. Performance metrics such as response time and accuracy validate its effectiveness. Combining voice and gesture enhances usability and accessibility. It supports a broader user base, including those with physical limitations. The system offers an intuitive and inclusive HCI solution.

SHARMAVEL S, VIGNESH U, YOGESH M

INNOVATIVE MACHINE LEARNING APPROACHES TO ANALYZE VOLLEYBALL PLAYER PERFORMANCE

This paper proposes a real-time system for analyzing volleyball player performance using machine learning and computer vision.YOLOv11 is integrated for enhanced object detection and motion tracking of players.Transfer Learning is used to classify specific player behaviors with high accuracy.MediaPipe Pose ensures accurate pose estimation during gameplay.Key volleyball actions like spikes, serves, and blocks are evaluated.Performance metrics help rank players based on their contributions.YOLOv11 is fine-tuned on a volleyball-specific dataset for better results.The system aids coaches with actionable feedback and strategic insights.Real-time tracking allows dynamic and fast-paced performance assessment.Overall, the framework improves decision-making and player development.

SATHISH KUMAR N, SANJAY S, THIYAGARAJAN A

SMART TUNNEL TRAFFIC CONTROL SYSTEM USING IOT AND MACHINE LEARNING

This system enhances tunnel traffic safety using IoT and machine learning.An ESP32-CAM captures real-time images at tunnel entry points.A CNN model classifies vehicles by size to detect large ones.If a large vehicle is detected, the system triggers a red stop signal.The opposite end is blocked to avoid congestion and collision.Transit time is calculated and updated dynamically based on tunnel length.Once the tunnel clears, a green signal is shown to the next vehicle.This ensures only one large vehicle is inside the tunnel at a time.It helps prevent accidents, reduces congestion, and automates monitoring. The system increases tunnel safety and vehicle movement efficiency.

RISHIKANTH S R, SUBRAMANI V, VISHNU KUMAR S

AI BASED MOCK INTERVIEW SYSTEM USING NATURAL LANGUAGE PROCESSING

This system simulates realistic interviews using AI, NLP, and deep learning.Speech-to-text converts responses, and text-to-speech gives feedback.Reinforcement Learning adaptively scores answers based on precision.OpenCV and MediaPipe analyze non-verbal cues like facial expressions.The system evaluates fluency, coherence, and technical responses.Feedback is provided on language skills and interview behavior.Domain-specific questions improve relevance and interview preparation.The system achieves high accuracy in verbal and behavioral assessment.It allows real-time feedback, scalability, and personalized experiences.This approach boosts candidate confidence and interview readiness.

RANJITH S, SIVASAKTHI M, RAMVIGNESH R

AI POWERED SMART RECOGNITION OF PLANT DISEASES WITH VERNACULAR LANGUAGE SUPPORT

Agri Insight helps Tamil-speaking farmers diagnose plant diseases.It uses multimodal AI with image, text, and voice inputs for accuracy.CNNs process plant images to identify disease symptoms visually.NLP models interpret textual reports written by farmers.Speech recognition analyzes spoken symptoms to aid identification.The chatbot suggests treatments and prevention for local conditions.It provides real-time diagnosis even in rural agricultural settings.A dynamic knowledge base keeps data updated with seasonal changes. The model shows high accuracy, precision, and recall in diagnosis.Agri Insight improves crop protection and sustainable farming practices.

PRIYANKA P, RANJITH L

MUSIC RECOMMENDATION SYSTEM BASED ON FACIAL EMOTION ANALYSIS

This system uses facial emotion detection for music recommendations.DCGANs are used for unsupervised learning with minimal labeled data.Facial expressions are generated under varied poses and angles.The features learned are used for emotion and Action Unit classification.The model improves emotion detection in low-data scenarios.Experimental results show high accuracy in emotion classification.A GAN-based system personalizes music choices based on detected emotion.It dynamically adapts to user preferences and facial mood changes.The system enhances multimedia personalization with deep learning.This sets a base for scalable emotion-based user interaction systems.**Priyadharshini**

S, RAMACHANDRAN S, ROSHINI PRIYA A

ADAPTIVE NETWORK INTRUSION DETECTION USING FINE-TUNED RANDOM FOREST WITH PCA

In the ever-evolving field of network security, intrusion detection systems (IDS) need to adapt in order to effectively detect both known and new threats. This research proposes an adaptive IDS that combines Principal Component Analysis (PCA) and an optimized Random Forest (RF) classifier to enhance detection accuracy. PCA helps reduce dimensionality by eliminating irrelevant features, leading to faster processing and improved model performance. The RF classifier is fine-tuned using hyperparameter optimization, which strengthens anomaly detection in network traffic. Experimental results on well-known datasets like KDDCUP demonstrate that the proposed method achieves 96.8% accuracy and a false-positive rate of 3.2%, outperforming traditional methods such as Support Vector Machines (SVM) and Decision Trees (DT).

PREMKUMAR PRABHU R, SUDHARSHAN S C, TAMILSELVAN S

GUIDING AUTONOMOUS VEHICLES IN CHALLENGING WEATHER USING MACHINE LEARNING TECHNIQUES

The intersection of distributed computing and automotive networks, especially vehicular clouds (VCs), has seen significant research advancements. Deep learning, particularly artificial neural networks with representation learning, plays a crucial role in this domain. Key applications include smart cars, congestion detection, and vehicle route monitoring. A major challenge remains the creation of a unified system for detecting and managing both recurrent and non-recurrent traffic congestion. This research evaluates the use of data mining and Vehicular Ad Hoc Networks (VANET) for traffic congestion monitoring and management. By using the Support Vector Machine (SVM) algorithm, the proposed model effectively detects careless driving behaviors and predicts traffic congestion. The system integrates roadside units, vehicles, and remote employees to optimize traffic flow and safety.

S.PAVITHRAN, R.PRAVEENRAJ, M.K.VISHNUPRIYAN

TENANT-LED CIPHERTEXT INFORMATION FLOW CONTROL FOR ENHANCED DATA SECURITY

In cloud environments, users often lose direct control over their personal data, raising concerns about data security and privacy. Traditional security are insufficient, as they often fail to balance security and system performance. This research proposes a model driven by a tradeoff planner, which optimizes security protocols according to cloud environments' specific requirements. The tradeoff planner ensures that the security configurations achieve an optimal balance between risk management and operational performance. The adaptive solution allows dynamic adjustment of security protocols in response to evolving threats and performance needs. Experimental results show that this approach successfully protects data privacy without compromising system performance.

. **P.NISHNATH, V.RANJITH, V.SAVEETHA**

CNN APPROACH FOR LIVE SPEECH EMOTION DETECTION

Convolutional Neural Networks (CNNs) are instrumental in real-time speech recognition, improving the processing capabilities and accuracy of speech-controlled systems. CNNs are capable of learning complex audio features, such as frequency and amplitude variations, making them highly effective for speech emotion detection. This method captures both spatial and temporal patterns in audio data, distinguishing emotional tones in speech. CNNs are particularly useful for applications in smart assistants, hearing aids, and real-time services, where rapid detection is crucial. Advancements in model design and training techniques have led to improved accuracy and processing speed. These developments make CNN-based emotion detection more practical for real-world applications.

NEVEDHA S, SRIVIDHYA S

MODEL CHECKING FOR SECURITY ASSURANCE IN CYBER-PHYSICAL SYSTEMS

Bandwidth Denial-of-Service (BW-DDoS) attacks involve malicious actors flooding networks with packets to disrupt legitimate traffic. Although these attacks have evolved in scale and complexity, traditional defenses remain insufficient. BW-DDoS attacks exploit weaknesses in the Internet’s congestion control systems, such as TCP protocols, leading to significant performance degradation. This paper investigates the methods for defending against BW-DDoS attacks and highlights the necessity of using multiple defensive strategies. By examining current defenses and potential future tactics, the research provides a comprehensive understanding of BW-DDoS attacks and suggests ways to mitigate them effectively.

MYTHILI G, NATHIPRIYA E, POOJA R

REAL TIME EAVESDROPPING ATTACK DETECTION BY MULTIVARIATE CORRELATION ANALYSIS

This research focuses on detecting security threats in network environments using the Multivariate Correlation Analysis (MCA) technique. The aim is to enhance Frothy Disturbance Intrusion Detection Systems (FIDSs) by modifying traditional methods to accommodate environments with memory and battery limitations. A lightweight attack detection approach is proposed, combining MCA and supervised machine learning-based FIDS. Through simulations, the research demonstrates that this MCA-based FIDS classifier performs well in terms of detection time and accuracy. The method is shown to be effective in enhancing application security, especially in resource-constrained scenarios.

MUKILAN T, TAMIL ARASAN J, SAIRAM C M

ENHANCING DATA SECURITY AND EFFICIENCY IN FEDERATED LEARNING THROUGH HYBRID AES-RSA ENCRYPTION

This study investigates machine learning techniques, such as Naive Bayes classifiers, for predicting depressive symptoms using textual data. The dataset contains text with relevant labels, along with variables like LIWC metrics, sentence length, post ID, subreddit, and lexical features. After preprocessing (cleaning and feature selection), Latent Dirichlet Allocation is employed to model topics and analyze word significance across posts. A labeled dataset is used to train the model, which is validated with an independent dataset. The results show high accuracy and a remarkable F1 score, suggesting the model's success in detecting depressive tendencies. This paper emphasizes machine learning's potential in mental health research, focusing on early detection and intervention of depressive symptoms through online behavior.

MOUNESH M, VISHNUPRIYAN A, SANJAY S

HARNESSING MACHINE LEARNING FOR MENTAL HEALTH PREDICTION FROM SOCIAL MEDIA ACTIVITY

This study explores machine learning techniques using Naive Bayes classifiers to predict depression symptomology from textual data. The dataset includes text and its corresponding labels, along with LIWC variables like sentence length, post ID, subreddit, and lexical features. After data preprocessing (cleaning and feature selection), Latent Dirichlet Allocation (LDA) is used for topic modeling, with Term Frequency-Inverse Document Frequency (TF-IDF) for feature representation. The model is trained on a labeled dataset and evaluated on an independent one. The performance metrics, including accuracy, precision, recall, and F1 score, validate the model's effectiveness in detecting depression symptoms. This research showcases how machine learning can aid early detection and treatment of depressive symptoms based on online activity.

MOHANRAJ S, RAMESH KRISHNA R, SHAN ADAMS M

RESERVATION OF PARKING LOT AND SMART ALLOCATION USING IOT

The proposed smart parking system enhances user experience and parking efficiency using IoT and a paging method. Traditional parking systems are inefficient in slot utilization and lack dynamic reallocation. The new system utilizes IR sensors to detect available spaces in real-time and optimizes slot allocation using a Paging Method. A mobile app enables users to pre-book slots, receive updates, and make secure payments. Automatic Number Plate Recognition ensures only authorized users gain access. Dynamic slot reallocation manages time slots effectively. The integrated Billing Module calculates fees automatically, streamlining payment processing. This solution reduces congestion, increases utilization, and provides a scalable approach to urban parking challenges.

\VISHWA VARSHINI V, JAI AMUDHAN D, YAMUNESWAR A

SECURE MULTI-RECEIVER COMMUNICATION AND SM2 BASED ENCRYPTION SCHEME

Cloud users can verify data integrity without downloading the complete file through Provable Data Possession (PDP). The Public Key Infrastructure (PKI) forms the foundation for existing PDP solutions, allowing public, delegated, and private verification. However, current protocols may lack soundness, and Ack-Ib-Dpdp fails to address this. This paper introduces a new multi-cloud extension of the Ack-Ib-Dpdp protocol. Cloud storage systems require users to compute signatures on each block of shared data to verify its integrity. When a user is revoked, all blocks they signed must be re-signed by active users. The large volume of shared data makes it challenging to download and re-sign blocks after user revocation.

SANJAY S, SATHIS B

OPTIMIZING TRAFFIC FLOW AND REDUCING CONGESTION USING VIRTUAL TOLLGATE SYSTEM

This paper introduces an Automatic Toll Detection System that improves toll management efficiency using machine learning and cloud technology. The system utilizes real-time video inputs to detect vehicle license plates using the YOLOv8 object detection model. Tesseract OCR extracts the alphanumeric text from license plates, converting visual inputs into readable vehicle registration numbers. Firebase, a cloud database, manages toll-related information like vehicle type and toll costs. The system includes 24-hour two-way toll concessions for effective cost management for multiple trips. A real-time Node-RED dashboard visualizes toll data, including total tolls, vehicles processed, and vehicle types. The integration of IoT, YOLOv8, and OCR technologies enhances system accuracy, processing time, and toll management efficiency.

ASIF AHAMED M, GOGULRAJ B, PREETHI R

AN IOT-BASED SMART WASTE DISPOSAL AND CREDIBIN REWARDS SYSTEM FOR SUSTAINABLE CAMPUS WASTE MANAGEMENT

College campuses face challenges in waste management due to improper disposal, inefficient collection schedules, and lack of student involvement in cleanliness. This paper proposes an IoT-based Smart Waste Disposal and Credibin Rewards System aimed at improving waste management and promoting responsible disposal habits. The system integrates IoT sensors for waste level monitoring, weight sensors to detect anomalies, and a barcode-based student identification system. A credit-based incentive mechanism rewards students for proper waste disposal, fostering environmental responsibility. Real-time data analytics and cloud platforms optimize waste collection schedules, reducing overflow issues. The system ensures timely waste disposal by utilizing smart technology and behavioral incentives. The goal is to create a cleaner, more efficient, and environmentally-conscious campus community.

ABISHEK K S, DEEPAK D, DILEP BABU R

QUANTUM-INTEGRATED STEGANOGRAPHY FOR SECURE COMMUNICATION USING QKD AND LSB TECHNIQUES

This project utilizes Caesar cipher encryption and Quantum Key Distribution (QKD) for enhanced security in a web-based tool that embeds and extracts messages using steganography techniques. The application, developed using Flask and OpenCV, allows users to upload images to embed messages or stego images to extract messages. The Least Significant Bit (LSB) technique blends encrypted communications with the image pixel data. The system provides robust error handling for file uploads and processing. Users can input messages and a shift value for encryption. The extraction process provides a user-friendly interface to retrieve and decrypt the message. By incorporating QKD, the system reduces the risk of key interception.

ADHAVAN A, BIBIN E, LOGAVASIGARAN S R

SECURED CHALLAN FILLING AUTOMATION USING OCR TECHNOLOGY AND MACHINE LEARNING

The Automated Challan Filling System combines Optical Character Recognition (OCR), machine learning (ML), and voice assistance to modernize the bank challan process. The system reduces manual entries and errors by automatically extracting key data from challans. It offers multiple authentication methods like PIN, OTP, and biometric verification for secure transactions. The voice assistant guides users step-by-step, making the system accessible to both literate and illiterate users. The system supports multiple languages and provides a user-friendly interface. It improves accessibility, efficiency, and transaction speed, especially for disadvantaged users. The integration of OCR, ML, and voice assistance makes the system an innovative solution to enhance traditional banking processes.

S. ADHITHYA, M. KARTHICK, E. GUNASEKAR

MULTIMODAL DRIVE DROWSINESS DETECTION USING DEEP LEARNING AND EYE TRACKING TECHNOLOGY

Driver drowsiness is a leading cause of road accidents, which this paper addresses with a multimodal drowsiness detection system. The system uses Deep Convolutional Neural Networks (CNNs) and eye tracking to detect early signs of fatigue in drivers. It analyzes facial features, eyeball movements, and yawning to determine fatigue levels. CNNs are combined with Kernelized Correlation Filters to improve the accuracy of face tracking. Real-time monitoring of fatigue parameters and facial landmarks is carried out. The system provides early warnings of drowsiness with 92% accuracy, even under varying environmental conditions. The findings suggest that the system can significantly reduce the risks associated with fatigued driving. The system aims to enhance road safety by preventing accidents caused by driver drowsiness.

JAYANTH S, AJITH G, KAVIN KUMAR R

VEHICLE MONITOR USING IOT FOR MEMO BOOK MANAGEMENT

The Vehicle Management System (VMS) optimizes fleet management and enhances operational efficiency in an organization. It allows vehicle requests from departments and ensures vehicles are allocated only when necessary and after proper approval. The system prevents misuse of vehicles and ensures efficient resource utilization. The VMS tracks vehicle requests, including registration numbers, destinations, and tasks. Requests are pending until the administrator verifies the availability, maintenance status, and suitability of the vehicle. The administrator can perform CRUD operations on user, department, and vehicle records. The system reminds the administrator about important vehicle-related charges and maintenance schedules

AKILESH M.S, BARATH V, KAMALESHWAR V

SOCIAL MEDIA CYBERBULLYING DETECTION APPLYING MACHINE LEARNING

Cyberbullying on social media is a growing concern, impacting individuals' well-being and mental health globally. This paper proposes a cyberbullying detection system using the Support Vector Machine (SVM) algorithm to address this issue. The system aims to automatically detect instances of cyberbullying in real-time social media content using machine learning. The process begins by collecting and classifying a large dataset of posts and comments containing cyberbullying and non-cyberbullying instances. After pre-processing the text data, important features are extracted using techniques like bag-of-words or TF-IDF. The SVM classifier is then trained on these feature vectors to identify patterns and separate cyberbullying from non-cyberbullying content. The model's performance is evaluated using metrics such as ROC-AUC, precision, F1-score, recall, and accuracy. Hyperparameter tuning and cross-validation techniques are used to further improve model performance.

ANUHARINI N, DEVADHARSHINI C R, SOWMIYA S

STUDENT DRESS CODE MONITORING USING MACHINE LEARNING AND REAL-TIME OBJECT DETECTION

Professional and academic institutions enforce dress codes to maintain discipline and uniformity. Monitoring dress code compliance is traditionally done manually, which is inefficient and time-consuming, especially in large institutions. This paper proposes an automated system for monitoring dress code adherence using real-time object detection. The system detects required items such as ID cards, formal shoes, and ties. It also identifies violations like missing ID cards or casual footwear. After evaluation, the system displays compliance or non-compliance status. The system reduces human intervention, ensuring a quicker, more consistent, and reliable solution for dress code monitoring. It enhances organizational efficiency by automating the entire process. .

ARAVINTH G, GNANAPRAKASH S, MANIKANDAN M

GESTURE-BASED HUMAN-COMPUTER INTERACTION SYSTEM

The gesture control system changes the way humans interact with computers by using hand gestures instead of traditional input devices like a keyboard or mouse. MediaPipe's hand-tracking feature is used to detect hand gestures in real time, capturing key data like motion and finger positions. Convolutional Neural Networks (CNNs) process this data to recognize and identify the gestures. Predefined actions are mapped to the recognized gestures, allowing users to control various computer functions. The system includes a User Interface (UI) module that provides real-time visual feedback on recognized gestures and corresponding actions. A performance and calibration module ensures accurate gesture detection under different environmental conditions. The platform compatibility module ensures that the system functions well across various Windows systems. This gesture-based interface enhances user interaction with technology, making it more accessible and intuitive.

PRAVEEN K L, BHARATHRAJ P, KIRANRAJ M

ENHANCED WILDFIRE DETECTION IN FOREST AREAS VIA OPENCV WITH DEEP CONVOLUTIONAL NEURAL NETWORKS FOR SMOKE AND FLAME SEGMENTATION

Forest fire detection is critical for environmental management and disaster response. The proposed system uses OpenCV algorithms and deep learning techniques to detect forest fires in real-time. The system employs HSV color space for effective fire region segmentation. By utilizing Convolutional Neural Networks (CNNs), the system enhances fire detection accuracy. Performance metrics like precision and recall are used to assess the system's effectiveness. Multi-sensor data fusion, including satellite and thermal imaging, is incorporated to improve detection in challenging conditions like smoke or nighttime scenarios. The system integrates real-time alarm systems with GIS mapping for faster emergency response. Authorities can deploy resources effectively by pinpointing fire locations and minimizing losses.

DHANUSHA K A, DHARANI C V, KAVISRI N S

INTELLI-HELMET USING INTERNET OF THINGS

It is an IoT-based smart helmet designed to improve road safety for motorcyclists. The helmet incorporates sensors such as an alcohol sensor to prevent ignition if the rider is intoxicated. A proximity sensor ensures the helmet is worn before starting the motorcycle. In case of an accident, an accelerometer and gyroscope detect the impact and send emergency alerts with the rider’s location via a GSM/GPS module. The helmet also features real-time GPS tracking to prevent theft and assist with navigation. Bluetooth connectivity allows hands-free calling and voice-guided navigation. Air quality sensors monitor pollution levels and alert the rider to hazardous conditions. The safety data is logged to a cloud-based dashboard for real-time analysis. This smart helmet enhances safety and convenience for motorcyclists.

DHARSHAN R, GOWTHAM B, KAVIN S

THERMOFLOW SMART WATERBOTTLE WITH AUTOMATED TEMPERATURE REGULATION AND BLUETOOTH CONNECTIVITY

The Thermoflow Smart Water Bottle uses an Arduino microcontroller with a thermal control system to maintain optimal water temperature. A DS18B20 temperature sensor monitors the water temperature, and a water level sensor tracks the amount of water in the bottle. When the temperature drops below a set threshold, a heating coil activates, and when it exceeds the threshold, a cooling fan is turned on. The sensor data is sent to Firebase for remote access via a mobile application. The app allows users to monitor water temperature and water levels in real time. Notifications are sent to users when the water temperature or level goes beyond the set parameters. The system offers an automated way to control water temperature, ensuring convenience and user satisfaction. By integrating Arduino, Firebase, and mobile app features, the water bottle becomes a smart, interactive product.

DHARSHANA R, MADHUBALA P, MAHIZHA M

NON-INVASIVE BLOOD GROUP DETECTION USING FINGERPRINT BIOMETRICS AND DEEP LEARNING

This system integrates fingerprint analysis with advanced image preprocessing and deep learning techniques to offer a non-invasive, user-friendly solution. Convolutional Neural Networks analyze fingerprint patterns such as ridges, loops, and whorls to predict blood groups (A, B, AB, or O). Multilingual support, voice assistance, and real-time donor eligibility recommendations make the system inclusive. Personalized healthcare insights, including diet recommendations and health-risk predictions based on blood type, enhance the system's utility. The project is implemented on Django-based web and mobile platforms to ensure secure data management for users across various categories.

DINESH MONGIYA S, DINESHKUMAR S, GOKULRAJ P

OPTIMIZED PERSON RE-IDENTIFICATION IN VIDEO SURVEILLANCE WITH MACHINE LEARNING

Deep learning, particularly Convolutional Neural Networks (CNNs), is utilized to enhance human re-identification in surveillance systems. The challenge of tracking individuals across multiple cameras is complicated by factors like camera angles, lighting, posture, and occlusions. Our CNN-based method addresses noisy labels and misaligned visuals caused by changes in perspective. This results in an impressive 96.0% accuracy, surpassing the 89.0% achieved by existing methods. The technology promises to improve human re-identification in real-time surveillance applications.

EASA SULTHAN A, GEORGE ANTONY C, KIRUBHA S

NAÏVE BAYES-BASED ANALYSIS FOR PREDICTING HEART DISEASE

Heart disease is a leading cause of death globally, affecting critical organs like the kidneys and brain. The Naïve Bayes algorithm helps predict heart disease risk by analyzing factors such as blood pressure and cholesterol levels. It can detect hidden patterns in heart disease data, providing valuable insights for early diagnosis. The method aids in identifying conditions like heart attacks, strokes, and coronary heart disease. This data-driven approach offers more accurate predictions compared to traditional methods, making it a powerful tool for healthcare providers.

ENIYAVANAN A, GOPALAKRISHNA B K, HARIKUMAR V

UTILIZING DIGITAL TECHNOLOGY FOR ACCURATE WATER FOOTPRINT CALCULATION IN AGRICULTURAL PRODUCTS

Water scarcity is a critical issue, especially in agriculture, which consumes over 70% of the world's freshwater. This project proposes a Water Footprint Calculation Platform using digital technologies like blockchain, big data, and AI to track water consumption. The platform provides real-time insights on the water footprint of agricultural products. By scanning product labels or entering product names, users can access detailed water usage information. Integration with IoT sensors and weather data ensures accurate monitoring. Blockchain ensures the transparency and security of data.

HARISHA A, KABILAN R, AARTHI S

STREAMLINING PAYMENTS FOR VISUALLY IMPAIRED PERSONS

This solution combines NFC, Text-to-Speech (TTS), and Optical Character Recognition (OCR) to assist visually impaired individuals with bill payments. OCR scans physical banknotes and converts them to digital text. TTS technology then audibly reads out bill details such as amounts owed, due dates, and charges. NFC enables secure payments through mobile devices, and voice command functionality adds convenience. This system empowers visually impaired people to handle payments independently and securely, reducing reliance on external assistance.

JANANI M, KALAIYARASAN S, MEGANRAJ S

EXPLORING MACHINE LEARNING ALGORITHMS TO FIND THE BEST FEATURES FOR PREDICTING MODES OF CHILDBIRTH

Predicting the mode of childbirth (vaginal or cesarean) is essential for optimizing maternal healthcare. This study explores various machine learning algorithms for predicting childbirth outcomes. It involves a detailed analysis of features like age, BMI, and maternal education. Feature selection techniques refine the dataset, ensuring compatibility with machine learning models. Several classifiers such as decision trees, support vector machines, and random forests are compared. The goal is to improve decision-making for better maternal and fetal outcomes.

KAVIN R, LINGESH N, MOHAMMED SATH A

A MULTILINGUAL FRAMEWORK BASED ON NLP FOR DISSEMINATING GOVERNMENT POLICIES VIA AUDIO-VISUAL CONTENT

Government policy dissemination faces challenges in reaching citizens due to language barriers, technicalities, and the lack of interaction .They rely heavily on text-based materials, which can be difficult for non-technical users. This paper introduces a multilingual framework that leverages NLP technology to process, translate, and simplify government policies into formats that are user-friendly. The system also generates audio and video versions of policies to cater to illiterate individuals or those unable to comprehend complex terminology. Key innovations include automated summarization, sentiment analysis, and communication facilitation. The framework integrates text-to-speech systems and GANs to create dynamic multimedia outputs, enhancing accessibility, transparency, and policy outreach. The approach offers a significant step towards better communication between the government and the public. Future directions explore real-life applications and potential for scalable systems.

KEVIN T, MANIKANDAN M, MEGA SHEYAM S.

SMART GROCERY MANAGEMENT SYSTEM USING IOT

The Smart Grocery Management System utilizes the Internet of Things (IoT) to improve household grocery tracking. Traditional methods rely on manual counting, leading to issues such as overstocking, wastage, or shortages of essential items. The system integrates weight sensors and an Arduino-based cloud system, which tracks grocery levels in real-time. Users can access data via a mobile application to monitor inventory levels and receive alerts when items are low. This IoT-based solution enables efficient grocery management and promotes sustainability by reducing food wastage. Additionally, the system allows users to communicate directly with suppliers, ensuring cost-effective purchasing options. This approach enhances convenience, saves household expenses, and encourages responsible consumption.

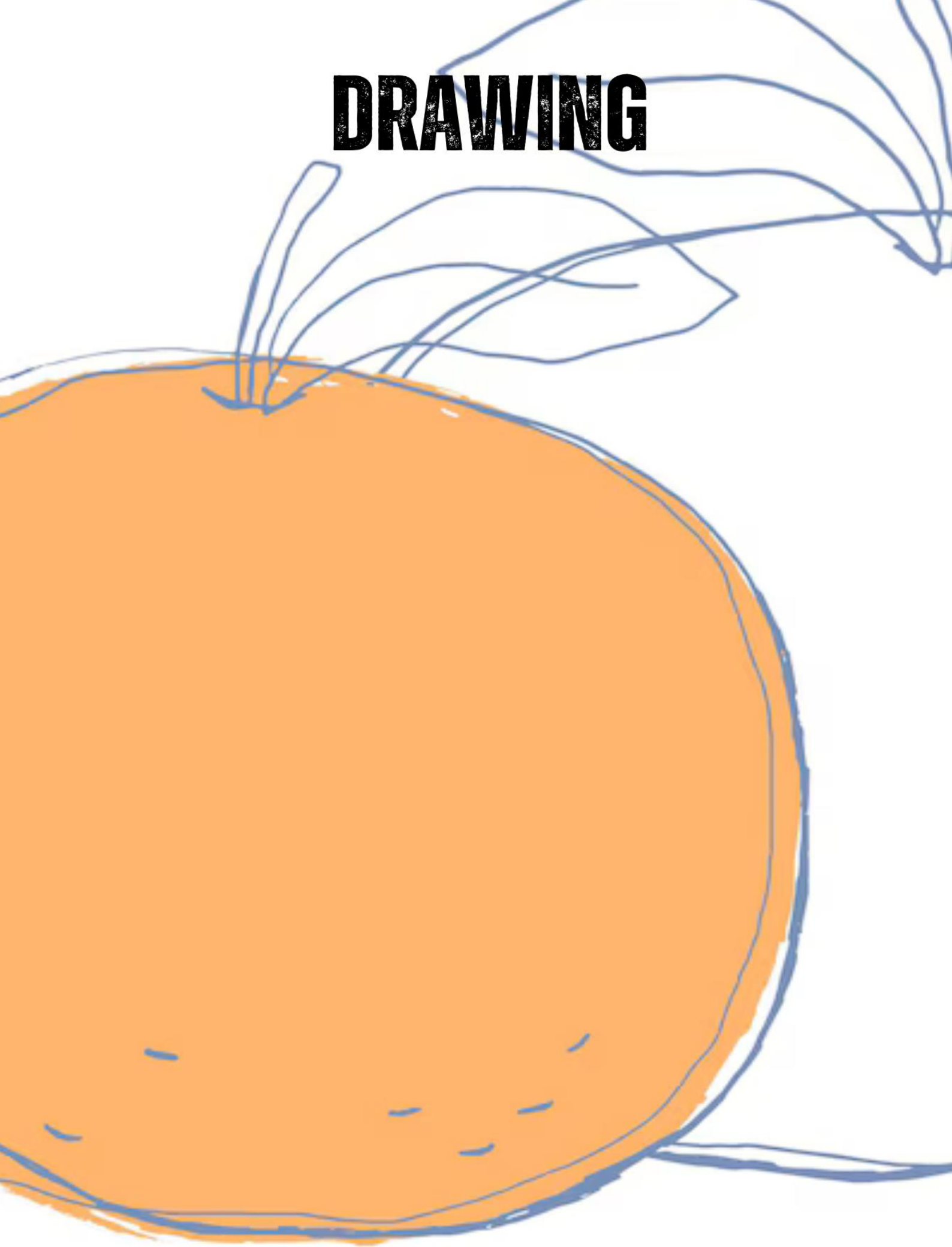
AGATHEESAN M, KARTHICK R, YOKESH V.G

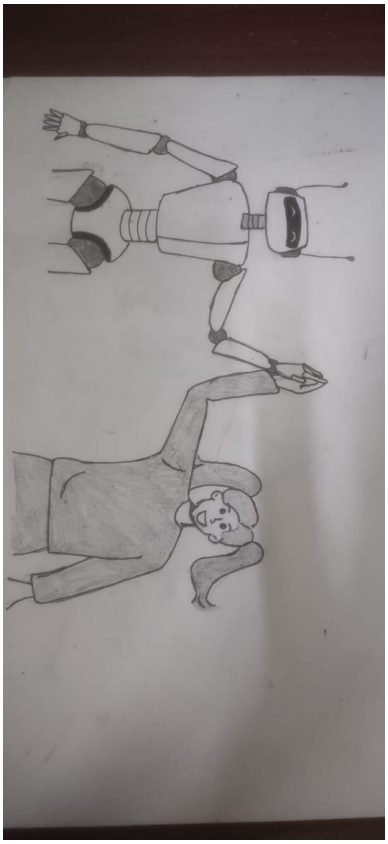
REVOLUTIONIZING ALUMNI PLATFORMS USING SCALABLE AI AND ADVANCED HYBRID RECOMMENDATION ALGORITHMS FOR PERSONALIZED ENGAGEMENT

This paper presents an innovative Alumni Association platform aimed at overcoming challenges such as data security and low engagement. Current alumni platforms often fail to ensure secure data management, seamless scalability, and active user involvement. The proposed system combines AI algorithms with secure technologies to offer services like a secure donation portal, job search functionalities, and a repository of alumni success stories. It integrates both web and mobile applications for enhanced usability. The platform's AI-driven recommendations provide personalized alumni experiences, fostering lifelong connections and professional growth. Real-time feedback features improve user interaction and contribute to institutional initiatives.

RISMAN J, KARUPPUSAMY S, KESAVAN M.

DRAWING





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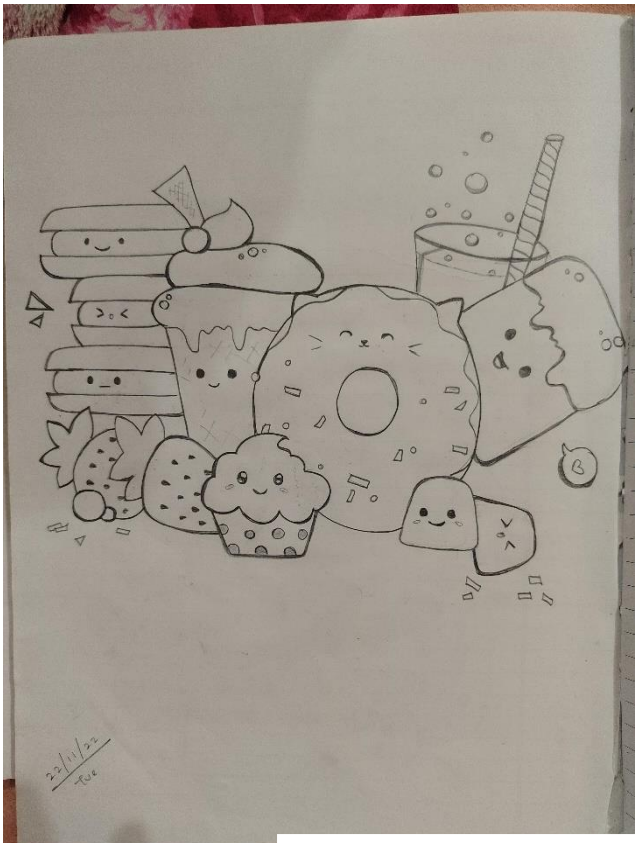

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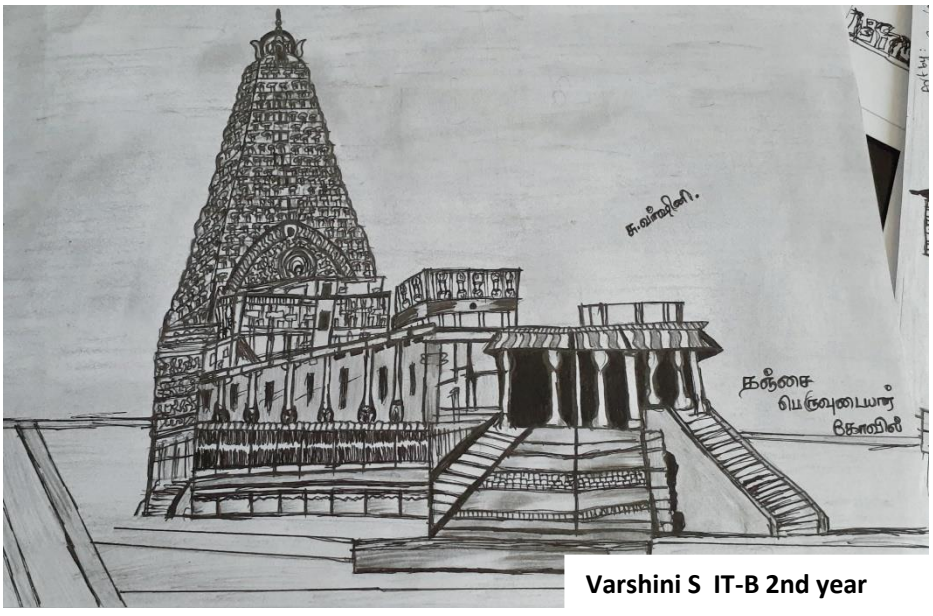

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Ratan Tata is not just a name but a symbol of trust, vision, and integrity in the world of business. As the former chairman of the Tata Group, he led one of India's largest and most respected conglomerates through a remarkable era of global expansion and transformation. With iconic acquisitions such as Jaguar Land Rover, Tetley, and Corus, he placed Indian industry firmly on the global map. Yet, Ratan Tata's leadership was never just about profits—it was about people, purpose, and nation-building. From his revolutionary idea of the Tata Nano, aimed at making car ownership accessible to every Indian, to his deep commitment to philanthropy through the Tata Trusts, he has always prioritized values over wealth. Humble, soft-spoken, and visionary, Tata has inspired generations through his ethical leadership, sharp business sense, and unwavering belief in doing the right thing. This book offers a compelling look at the life, challenges, values, and legacy of a man who continues to shape India's future with wisdom and grace.

I DON'T BELIEVE IN TAKING RIGHT DECISIONS. I TAKE DECISIONS AND THEN MAKE THEM RIGHT.

-Ratan Tata