



VELAMMAL
INSTITUTE OF TECHNOLOGY
Chennai - Kolkata Highway, Panchetti, Ponneri



Department Of Information Technology

BYTE CODE

2024-2025

BYTE CODE MAGAZINE EDITORIAL MEMBERS



CHIEF EDITOR



JANISH KUMAR U (IV year IT)

CO-EDITOR



YUVARAJ (IV year IT)

TEAM MEMBERS



MONIKA (III year IT)



MUNIVEL (III year IT)



NITESH (II year IT)



THARUN M (I year IT)



RAKESH R.P (I year IT)



PONNARASU C (I year IT)

STAFF COORDINATOR



Mrs.J MINI

Velammal Institute of Technology



Vision and Mission of College

Vision of Institute

To be a leader in imparting quality technical education, research & enterprising skills in pursuit of professional excellence

Mission of Institute

- To promote quality education & technical skills to meet the industry requirements
- To incorporate team work, leadership skills & lifelong learning
- To facilitate career development & higher education assistance
- To encourage innovative ideas for research & development and entrepreneurship for societal needs
- To inculcate ethical responsibility & human values

Velammal Institute of Technology



Vision and Mission of Department

Vision Of Department

To be a center of excellence in the field of Information Technology to solve complex industrial and societal needs.

Mission Of Department

- To impart strong knowledge to students in recent technologies by organizing various technical events.
- To provide platform for the students to encourage creativity, team work, leadership quality and social responsibility.
- To develop the employability and entrepreneurial skills of the students by conducting industry collaborated training.
- To inculcate the importance of research and higher education through awareness programs

Velammal Institute of Technology



Department

PROGRAM EDUCATIONAL OBJECTIVES(PEO'S)

- **PEO-1:** Demonstrate technical competence with analytical and critical thinking to understand and meet the diversified requirements of industry, academia and research.
- **PEO-2:** Exhibit technical leadership, team skills and entrepreneurship skills to provide business solutions to real world problems.
- **PEO-3:** Work in multi-disciplinary industries with social and environmental responsibility, work ethics and adaptability to address complex engineering and social problems.
- **PEO-4:** Pursue lifelong learning, use cutting edge technologies and involve in applied research to design optimal solutions.

PROGRAM SPECIFIC OUTCOMES(PSO'S)

- **PSO1:** Understand, analyze engineering fundamentals, mathematics, database, algorithms, design, analytics and programming skills to develop various computing applications.
- **PSO2:** Apply modern tools and technologies to develop research and innovative solutions to contribute societal and industrial needs.

Chairman Message



Dear Participants and Distinguished Guests,

It gives me immense pleasure to present another edition of Bytecode, the magazine of the Department of Information Technology. This magazine reflects the vision, creativity, and relentless efforts of our students and faculty members.

In today's rapidly evolving technological landscape, learning extends beyond classrooms. Bytecode serves as a platform where students can showcase their technical expertise, creative thinking, leadership, and communication skills. It is heartening to witness their enthusiasm in contributing meaningful articles, innovative ideas, research insights, and creative works.

I congratulate the editorial team for their dedication in bringing out this wonderful edition. I also encourage every student to actively participate in future editions and continue striving for excellence in both academic and extracurricular pursuits.

May Bytecode continue to inspire innovation, knowledge sharing, and lifelong learning. I extend my best wishes to everyone associated with this publication and look forward to its continued success.

Shri.M V Muthuramalingam
Chairman
Velammal Institute of Technology

Director Message



Dear Students, Faculty, and Esteemed Guests,

I am delighted to see the continued growth of Bytecode, a magazine that beautifully represents the academic excellence and innovative spirit of the Department of Information Technology.

This publication showcases the remarkable talents of our students, highlighting their achievements in technical, creative, and co-curricular activities. It serves as a valuable platform for exchanging ideas, promoting research, and encouraging intellectual curiosity.

I appreciate the sincere efforts of the students, faculty members, and editorial team whose dedication has made this edition possible. Their commitment reflects the culture of excellence our institution strives to uphold.

I wish Bytecode greater success in the coming years and hope it continues to motivate students to explore, innovate, and contribute positively to society.

May Bytecode continue to inspire innovation, knowledge sharing, and lifelong learning. I extend my best wishes to everyone associated with this publication and look forward to its continued success.

Shri MVM Sasikumar
Director
Velammal Institute of Technology

Director Message



Dear Students, Faculty, and Honored Guests,

It is with great pleasure that I extend my warm greetings on the release of the latest edition of Bytecode, the Department of Information Technology magazine. This publication stands as a reflection of the talent, innovation, and determination of our students and faculty members.

In today's dynamic technological era, it is essential for students to cultivate not only technical expertise but also creativity, leadership, and effective communication. Bytecode provides an excellent platform for students to share their knowledge, express their ideas, and showcase their accomplishments across a wide range of technical and non-technical fields.

I am delighted to see the enthusiasm and commitment displayed by the students in contributing meaningful articles, research insights, creative works, and innovative ideas. Such initiatives foster a culture of continuous learning, collaboration, and academic excellence.

I sincerely appreciate the efforts of the editorial board, faculty coordinators, and every student contributor whose dedication has made this publication a reality. Their hard work reflects the values of discipline, teamwork, and perseverance that our institution upholds.

Shri S.Santhosh Kumar
Director
Velammal Global Hospital, Chennai

Principal Message



Dear Students and Faculty Members,

It gives me immense pleasure and pride to witness the remarkable journey and continuous growth of our department magazine, Bytecode, over the years. This magazine has become a wonderful platform that reflects the creativity, innovation, and dedication of our students.

I am delighted to see the enthusiastic participation of students in both technical and non-technical domains. Their willingness to explore new ideas, express their thoughts, and showcase their talents is truly commendable. Every article, project, artwork, and achievement featured in this magazine stands as a testament to the hard work and passion of our student community.

A magazine is much more than a collection of pages—it is a reflection of the vibrant culture, values, and aspirations of an institution. Bytecode successfully captures the spirit of learning, collaboration, and excellence that defines our department.

I also extend my sincere appreciation to the editorial team, faculty members, and everyone who worked tirelessly to make this edition a success. Their dedication and commitment deserve heartfelt recognition.

I look forward to seeing Evolve reach even greater heights in the years to come, with richer content, broader participation, and fresh ideas that continue to inspire future generations of students.

I wish the editorial team and all contributors my heartfelt congratulations and best wishes for the continued success of Bytecode.

Dr.N.Balaji
Principal
Velammal Institute of Technology

Vice Principal Message



Dear Students and Esteemed Colleagues,

It is a matter of great pride to witness the continued success of Bytecode, the Department of Information Technology's magazine. This publication reflects the creativity, innovation, and dedication of our students and faculty.

I am pleased to see students actively participating in both technical and non-technical activities, demonstrating their talents beyond academics. Such initiatives help nurture confidence, teamwork, leadership, and critical thinking, which are essential qualities for future professionals.

My sincere appreciation goes to the editorial committee and faculty coordinators for their hard work in producing this excellent edition. I encourage every student to continue contributing with enthusiasm and make Bytecode an even more vibrant platform in the years ahead.

I extend my heartfelt congratulations to everyone involved and wish the magazine continued success.

Dr.S.Soundararajan
Vice Principal
Velammal Institute of Technology

HOD Message



Dear Faculty Members and Respected Participants,

I am delighted to witness the active participation of students in both technical and non-technical domains. Their articles, project ideas, achievements, creative expressions, and innovative thinking truly demonstrate the vibrant learning culture of our department.

Bytecode is more than just a magazine; it is a platform that encourages knowledge sharing, critical thinking, creativity, and collaboration. It inspires students to explore new ideas, develop confidence, and express themselves beyond the boundaries of the classroom.

I extend my heartfelt appreciation to the editorial team, faculty members, and every student contributor for their dedication and hard work in making this edition a success. I encourage all students to continue participating actively and contribute even more enthusiastically in the years to come.

I wish Bytecode continued success and hope it grows into an even stronger platform that celebrates innovation, excellence, and the limitless potential of our students. My best wishes to everyone associated with this wonderful publication.

Dr.P.DEIVENDRAN
Head of the Department
Information Technology
Velammal Institute of Technology

ARTICLES OF INFORMATION TECHNOLOGY



Information Technology (IT) has become an essential part of our daily lives, transforming the way people communicate, learn, and work. From smartphones and cloud computing to artificial intelligence and cybersecurity, IT continues to drive innovation across every industry.

Businesses rely on advanced software and digital tools to improve productivity, while educational institutions use technology to make learning more interactive and accessible. At the same time, IT professionals play a crucial role in protecting data from cyber threats.

One of the greatest advantages of IT is its ability to connect people and share information instantly. The internet has enabled global collaboration, online shopping, digital banking, and remote work, making everyday tasks more convenient.

The future of Information Technology promises even more exciting developments. Emerging technologies such as artificial intelligence, the Internet of Things (IoT), blockchain, and quantum computing are expected to reshape industries and create new career opportunities. While these advancements bring many benefits, they also require responsible use and strong ethical practices. By embracing innovation and continuous learning, individuals and organizations can make the most of the opportunities offered by the ever-changing world of IT.

Artificial Intelligence (AI) is changing the way we live and work. AI-powered systems can perform tasks such as recognizing speech, analyzing data, and making recommendations in just a few seconds. From virtual assistants to self-driving technology, AI has become an important part of many industries, including healthcare, education, banking, and entertainment.

One of the biggest benefits of AI is its ability to improve efficiency and accuracy. In healthcare, AI helps doctors diagnose diseases earlier, while in education, it provides personalized learning experiences for students. Businesses use AI to automate routine tasks, reduce costs, and improve customer service. However, as AI becomes more powerful, it is also important to address challenges such as data privacy, security, and ethical use.



The Role of Information Technology in Modern Society



Information Technology (IT) has become one of the most important fields in today's digital world. It refers to the use of computers, software, networks, and digital systems to store, process, and share information. IT has transformed the way people communicate, learn, work, and conduct business, making life more efficient and connected. One of the greatest contributions of IT is in the field of communication.

The healthcare industry has also benefited significantly from IT. Electronic health records, telemedicine, and artificial intelligence help doctors diagnose diseases more accurately and provide better patient care. IT systems also enable hospitals to manage patient data securely and efficiently. In the education sector, IT has revolutionized learning through online platforms, virtual classrooms, and digital libraries.

**~NITESH
II YEAR**

Emerging Technologies Shaping the Future of Information Technology



Businesses rely heavily on IT for managing operations, analyzing data, improving customer service, and making informed decisions. Technologies like cloud computing, big data analytics, and cybersecurity have become essential for organizations of all sizes. E-commerce platforms have also expanded business opportunities by allowing companies to reach customers worldwide.

**~BALAVIGNESH
II YEAR**

Information Technology acts As the digital Backbone of the Modern world



From the foundational software development, networking, and database management that power daily business transactions, to cutting-edge advancements in cloud computing, cybersecurity, and artificial intelligence, technology continuously redefines human capability.

As industries shift entirely to cloud-based infrastructures and data-driven decision-making, the demand for tech architecture and engineering solutions remains unparalleled. Ultimately, the field is a rapidly evolving ecosystem where mastering technical frameworks directly translates into solving complex, real-world problems and future-proofing the global economy.

~SINIL PRASANNA
II YEAR

The Evolution and Future of Information Technology

The history of information technology is a tale of rapid miniaturization and exponential capacity growth. From massive, room-sized, vacuum-tube computers like the ENIAC in the mid-20th century to modern quantum computing and edge computing, the industry continues to evolve at a breakneck pace

Looking ahead, trends such as automation, blockchain, and deeper integration of AI into daily operations will continue to shape the IT sector. As organizations increasingly rely on digital operations, robust IT frameworks and stringent cybersecurity protocols will remain critical to protect sensitive information and sustain global digital infrastructure.



~NAVEEN
II YEAR

**MOVIES AN
ENGINEER
SHOULD
WATCH!**



1. INTERSTELLAR (2014)

TER DISCOVERING A SECRET NASA FACILITY, COOPER IS RECRUITED FOR A DARING MISSION ABOARD THE SPACECRAFT ENDURANCE. ALONG WITH A TEAM OF ASTRONAUTS, HE TRAVELS THROUGH A MYSTERIOUS WORMHOLE NEAR SATURN TO EXPLORE DISTANT PLANETS THAT COULD BECOME HUMANITY'S NEW HOME. AS THE CREW VENTURES DEEPER INTO SPACE, THEY ENCOUNTER EXTRAORDINARY WORLDS WHERE THE EFFECTS OF TIME DILATION DRAMATICALLY ALTER THE PASSAGE OF TIME, FORCING IMPOSSIBLE CHOICES BETWEEN PERSONAL SACRIFICE AND THE SURVIVAL OF THE HUMAN RACE.



~MUGUNTHAN
1 YEAR

2. APOLLO 13 (1995)

Based on the real Apollo 13 space mission, the film shows how engineers and astronauts respond to a life-threatening spacecraft failure. With limited resources, NASA teams design creative solutions to repair systems and safely bring the astronauts back to Earth. It demonstrates teamwork, engineering design, and crisis management.



~YUVARAJ
1 YEAR

3.HIDDEN FIGURES (2016)

**THE INSPIRING TRUE STORY OF
THREE BRILLIANT AFRICAN
AMERICAN MATHEMATICIANS
AND ENGINEERS WHOSE WORK AT
NASA PLAYED A VITAL ROLE IN
AMERICA'S EARLY SPACE
PROGRAM.**



**~RAKESH R.P
I YEAR**

4.THE IMITATION GAME (2014)

**THE MOVIE TELLS THE STORY OF ALAN
TURING AND HIS TEAM, WHO BUILD A
MACHINE TO DECODE ENCRYPTED MESSAGES
DURING WORLD WAR II. IT SHOWS THE
FOUNDATIONS OF COMPUTER ENGINEERING,
ARTIFICIAL INTELLIGENCE, AND THE IMPACT
OF TECHNOLOGICAL INNOVATION.**



**~PONNARASU C
I YEAR**

VERSES BY

VOICES

Guiding Light

In the silence of the night,
Where shadows dance in moonlight,
I find solace in the stars above,
And whispers of the ones I love.

Through trials and storms we've braved,
In memories cherished and saved,

A bond unbroken, strong and true,
Guiding me, I follow through.

In the depths of darkest hour,

When hope seems lost, devoid of power,
I hold onto this guiding light,

And find the strength to fight the night.

**~Keerthana.M
IV Year**

Whispers of the Heart

In the stillness of the dawn,
Where the world is hushed and drawn,
I hear whispers of the heart,
Softly urging me to start.

Through the mist and morning dew,
Dreams awaken, bold and true,
Guiding me along the way,

With each step, I find my stride, In the
rhythm of life's tide, For in whispers of
the heart, I find courage to depart.

**~Boomika jayasri
III Year**

கனவுகளின் குரல்

அருள் செய்யும் முறையில் வளரும் கனவுகள்,
காலையில் மூழ்கும் பார்வைகள்,
இதயத்தின் பார்வையில் இதயங்கள் தெரிந்து சொல்கின்றன;
அவர்களின் குரலில் நான் வழியை கண்டுகொள்ளுகிறேன்.

புதிய நாள் பார்த்துக்கொள்ளும் போது,
என் கனவுகள் எழுந்து நிற்கின்றன,
என் பார்வைக்கு நான் மட்டுமே அந்த பார்வைகளைக்
கொண்டுகொள்ள வேண்டும்;
அந்த முதல் நாளில், என் முடிவு உறுதியாக உள்ளது.

~NITESH D.V
II YEAR

விசித்திரங்கள் கதை.

கதை ஒரு பாட்டின் மூலம் உணர்ந்தால்,
அது மனிதர்களின் உருவத்தைக் கடந்துபோகும்.
சாதனை மற்றும் செயல் அதில் விளக்குகளை பயன்படுத்துகின்றன.

நிரந்தரமாக பார்த்து வெளியே வந்தால்,
ஒரு மரத்தின் குளிர்கள் தமிழகத்தின் மன்னர்கள் ஆவலுடன்
துளிகளில் பொய் வந்தன.
அவர்கள் பல பணிகளையும் செய்யவில்லை என்றார்கள்.

திரும்பி சமீபத்தில் வந்து நீரை சொல்லிய ஒரு குடும்பம்
கதையின் மூலம் தெரியவில்லை;
அவர்கள் சூழ்நிலை அனுபவம் எல்லோருக்கும் உள்ளது.
பொதுவாக அனைத்துத் தொழில்களும் அவர்களை நாடுகின்றன.
கதை முடிந்தது. அது ஒரு அற்புதமான வரிசையானது;
அந்த வரிசை மனிதர்களின் கதைகளை அறிந்து கொள்கின்றது.

~LOKESH K
IV YEAR

அன்புள்ள அம்மா

அன்புள்ள அம்மா மா! என் முதல்
சிரிப்பு முதல் நான் உன் கருவறையில்
உதைக்கும் முதல் உன் விரலை என்
கரத்தால் பிடித்து நடக்கும் முதல்
என் அனைத்து முதல் தருணத்தில்
இருப்பவளே நான் கோவித்து
கொள்ளும் போதும் எனக்கு துயரம்
எழும் போதும் நான் கஷ்டத்தில்
அழும் போதும் அதை முன்கூட்டியே
அறிந்து எனக்கு தோள் கொடுப்பவளே
நான் உன்னை காயப்படுத்தினாலும்
உன்னை பொருட்படுத்தாது போனாலும்
உன்னோடு பேசாமல் போனாலும் நீயே
எனை சமாதானம் செய்து எனக்கு சோறு
ஊட்டுவாயே உன்னோடு பேசும்போது
என்னுள் மறைந்த சந்தோஷம்
புத்துணர்ச்சி பெறுகிறது எனது துக்கம்
காணாமல் போகிறது இப்படி ஒரு
வரத்தை நான் எங்கு போய் பெறுவேன்
எனக்கு உன் தோள் கொடுத்து எனை
உயர செய்து நீ காணா உலகை என்
கண்முன்னே காட்டி எனது கண்ணில்
உனது சந்தோஷத்தை பார்க்கும் பாக்கியத்தை கொடுத்தாயே!

நான் கண்திறக்கும் முதல் என் கண்
மூடும் வரை என்னோடு இருக்கும்
நீ எங்கும் எப்போதும் எப்பொழுதும்
இருக்க வேண்டும் என வேண்டுகிறேன்!
அம்மா! இந்த மடல், அல்ல இந்த கவிதை உனக்கே

~ந.தனிஷ்
II YEAR





~Sharmila
IV year



VAN GOGH

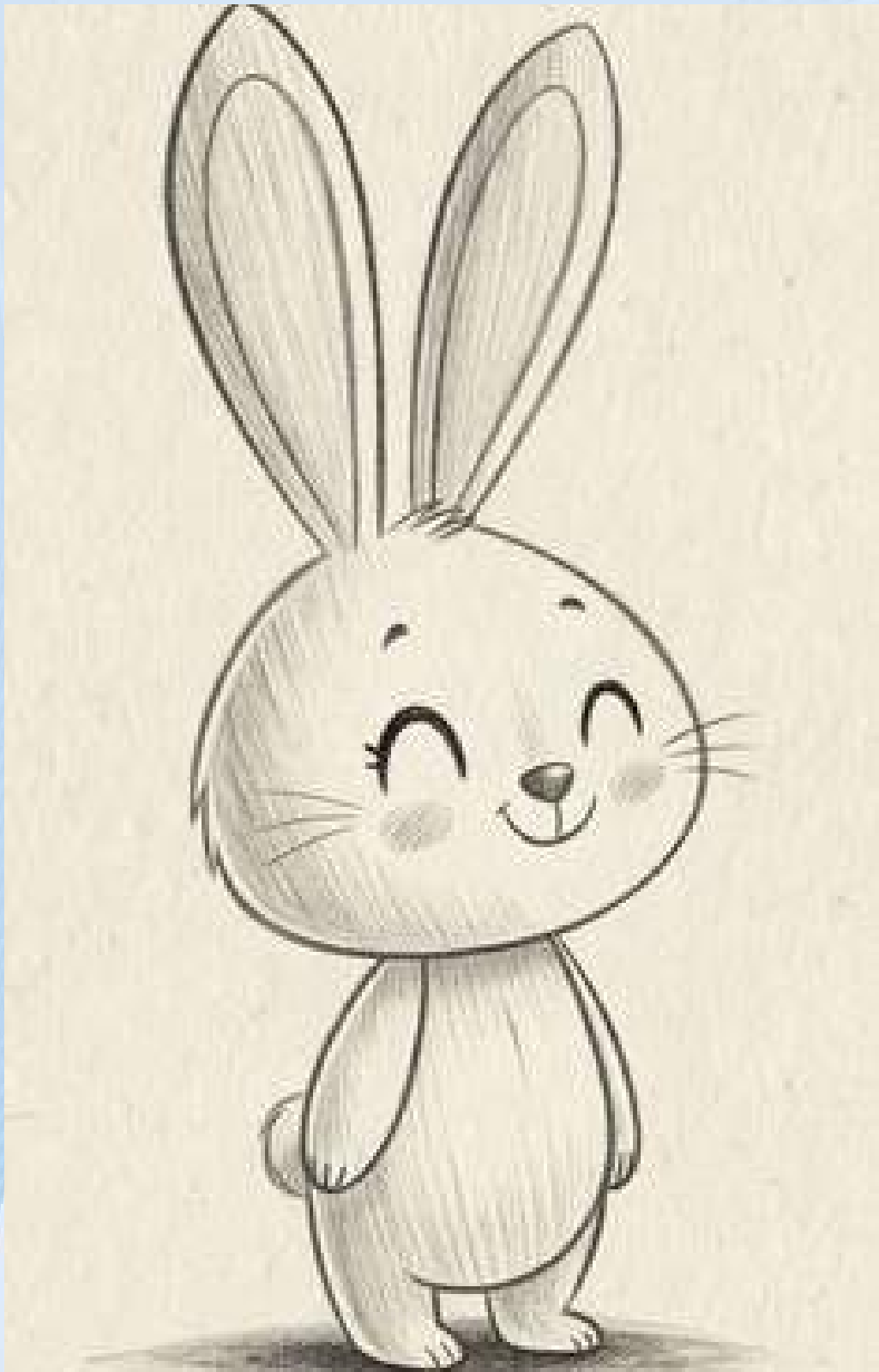
~Kokila Sruthi P
IV Year



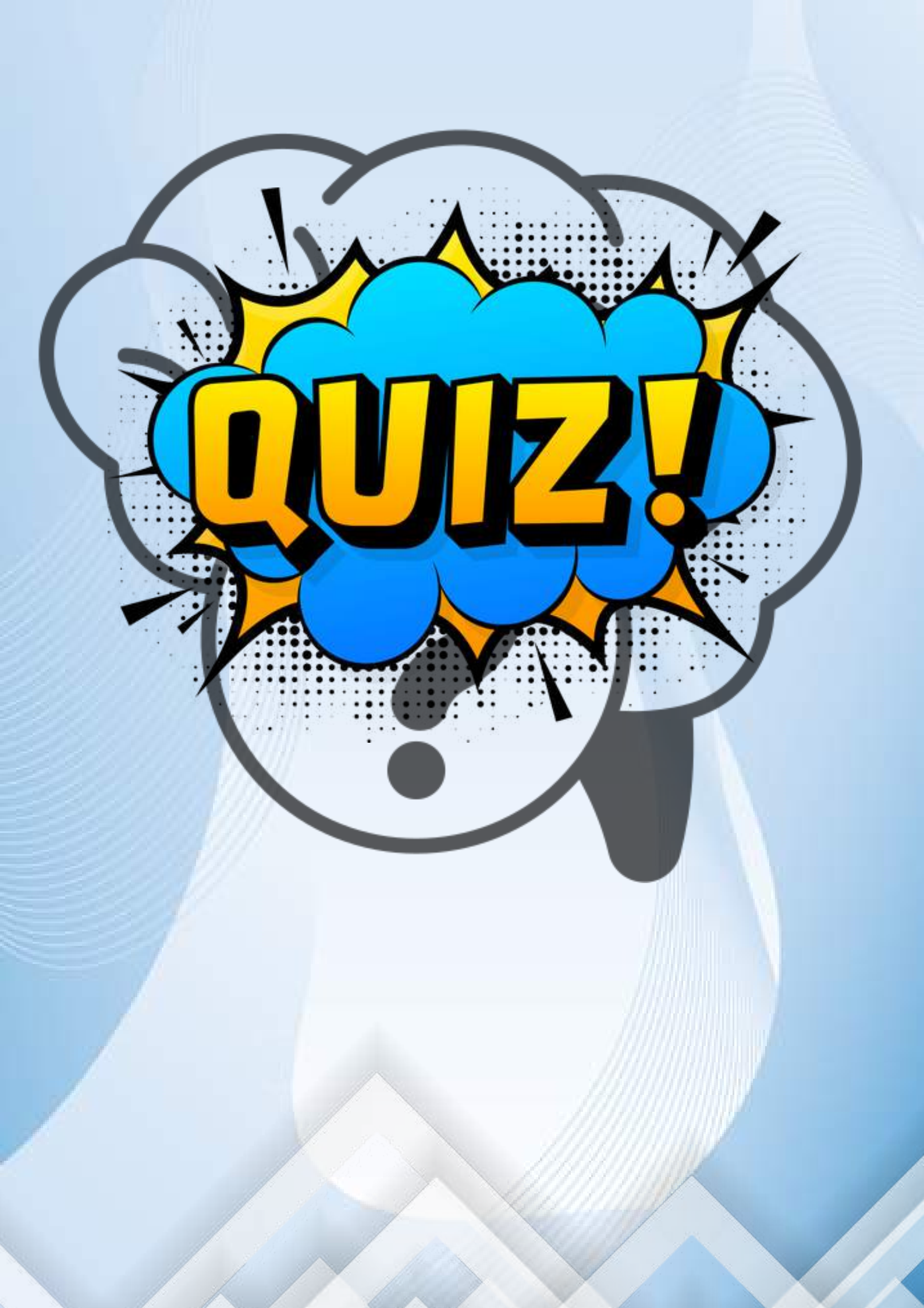
~Kokila Sruthi P
IV Year



**~THARUN M
I YEAR**



**~VEDAVYAS
I YEAR**



QUIZ!

1.Which foundational firmware performs hardware initialization during the booting process and provides runtime services for operating systems.

- A) Kernel
- B) BIOS
- C) CMOS
- D) UEFI

2.What does the acronym WORM stand for in data storage technology, a concept developed in the late 1970s for optical discs.

- A) Write Once, Read Many
- B) Wireless Open Routing Mechanism
- C) Web Object Retrieval Module
- D) Write Only, Random Memory

3.Who is widely recognized as the world's first computer programmer for her work on Charles Babbage's mechanical general-purpose computer, the Analytical Engine

- A) Grace Hopper
- B) Alan Turing
- C) Ada Lovelace
- D) Margaret Hamilton

4. What does the acronym "URL" stand for in web navigation?

- A) Uniform Resource Locator
- B) Universal Routing Link
- C) User Registration List
- D) Unified Resource Link

5. In 1983, a single floppy disk was used to distribute the first commercial version of which iconic operating system?

- A) macOS
- B) Windows
- C) MS-DOS
- D) Linux

**~HARI HARAN
I YEAR**

OUR



STUDENT

PROJECTS

ABSTRACT

This project addresses the growing inefficiency of manual inventory tracking in small-scale retail businesses by developing a cloud-based Inventory Management System. Utilizing a MERN stack (MongoDB, Express, React, Node.js) architecture, the implemented system features real-time stock updates, automated reorder alerts, and role-based access control.

System testing demonstrates a 40% reduction in processing time and highly accurate data synchronization. Ultimately, this platform provides a scalable, cost-effective digital solution that enhances operational efficiency, minimizes human error, and supports better decision-making for retail administrators.

T The MQ-3 sensor detects alcohol levels and prevents engine ignition if the rider is intoxicated.

The DHT11 sensor continuously monitors the helmet's internal temperature and activates the buzzer and LED alerts when the temperature exceeds a predefined threshold, helping to maintain rider comfort.

By preventing vehicle ignition in unsafe conditions, such as when the helmet is not worn or alcohol is detected, the proposed smart helmet system minimizes the risk of accidents caused by negligence and impaired riding. Experimental results demonstrate that the system effectively enhances rider safety, promotes compliance with traffic regulations, and illustrates the potential of smart technology in developing intelligent safety solutions for two-wheelers.



TEAM MEMBERS: AGNAL CAJOLIN X I&TEAM



TEAM MEMBERS: YUARAJ &TEAM



TEAM MEMBERS: THARIQ HAMEED &TEAM

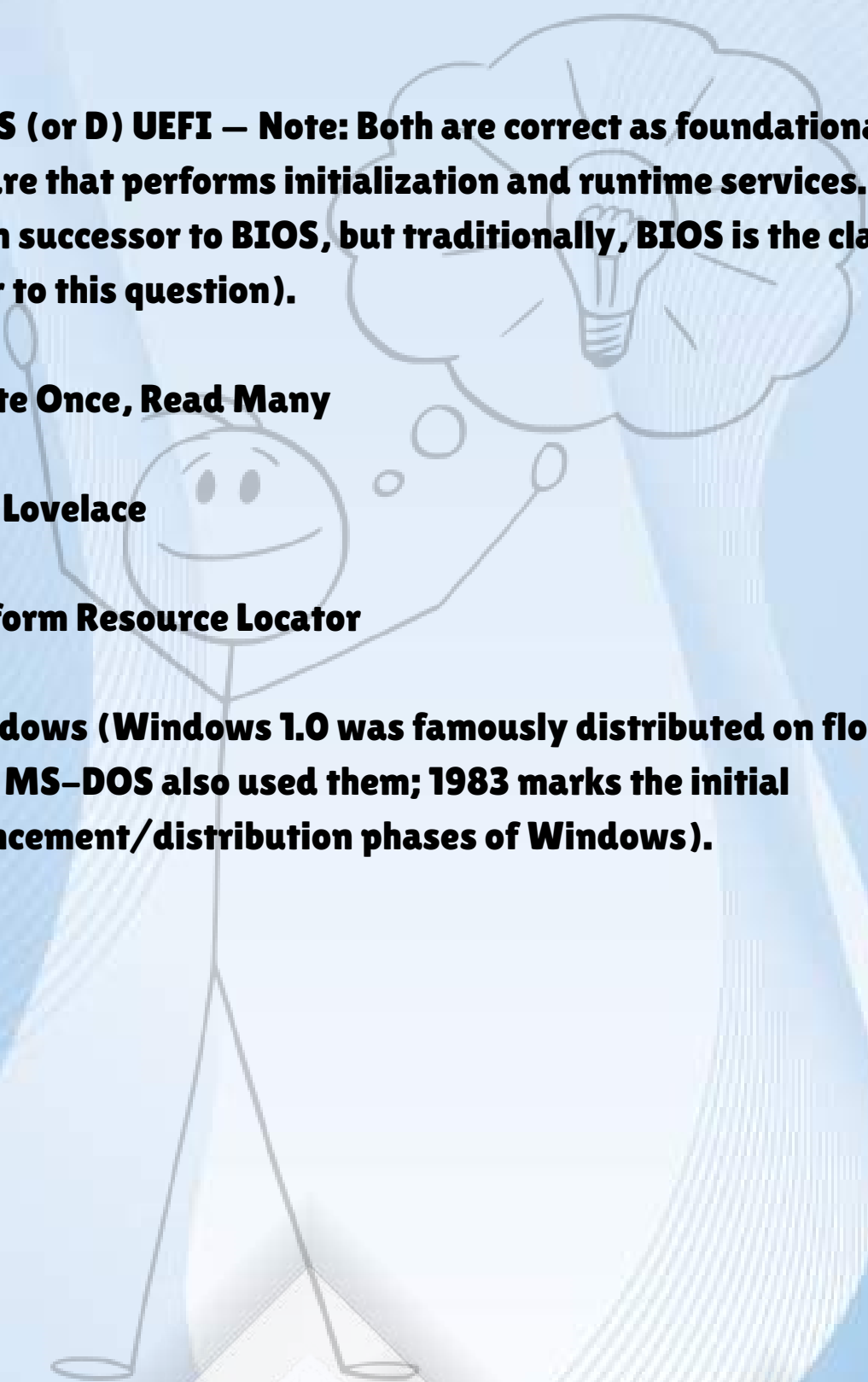
The evolution of intelligent retail systems has driven the need for seamless, efficient, and secure shopping solutions. This project, titled “Intelligent Scan-and-Go Mobile Shopping with Automated Billing and AI Theft Prevention,” presents a technologically advanced retail framework that leverages mobile applications, artificial intelligence, and computer vision to modernize the in-store shopping experience. The proposed system enables customers to scan product barcodes or QR codes using a mobile device, automatically update a virtual shopping cart, and complete transactions through a secure, automated billing process without reliance on conventional checkout infrastructure.

To address critical retail security challenges, the system integrates AI-driven theft prevention mechanisms using smart surveillance cameras and machine learning algorithms. These components continuously analyze customer behavior and product movement to identify anomalies such as unpaid item removal, concealment, or suspicious actions. Upon detection, real-time alerts are generated and communicated to store personnel through a centralized monitoring interface, thereby minimizing losses and enhancing store security.

By unifying mobile commerce, cloud-based data processing, and intelligent surveillance, the proposed solution improves operational efficiency, reduces human dependency, enhances customer convenience, and strengthens loss-prevention strategies. The system is scalable, adaptable, and well-suited for smart retail environments, offering a robust foundation for the future of automated and secure in-store shopping.



Quiz answer

- 
- A faint, light blue cartoon character is visible in the background. It is a stick figure with a round head, smiling, and its arms raised. Above its head is a thought bubble containing a lit lightbulb, symbolizing an idea or answer.
- 1. B) BIOS (or D) UEFI — Note: Both are correct as foundational firmware that performs initialization and runtime services. UEFI is the modern successor to BIOS, but traditionally, BIOS is the classic answer to this question).**
- 2. A) Write Once, Read Many**
- 3. C) Ada Lovelace**
- 4. A) Uniform Resource Locator**
- 5. B) Windows (Windows 1.0 was famously distributed on floppy disks, though MS-DOS also used them; 1983 marks the initial announcement/distribution phases of Windows).**

