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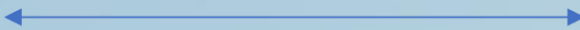
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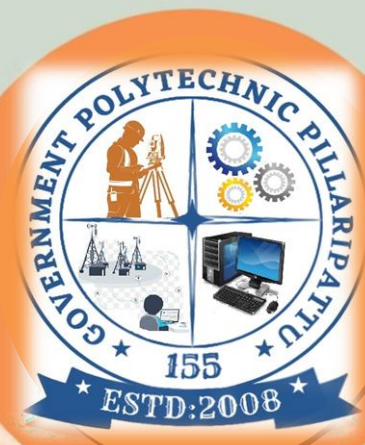


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ADA LOVELACE: MOTHER OF COMPUTER SCIENCE

G. MADHULATHA REDDY,

22155-CM-030



Ada Lovelace was an English mathematician and writer chiefly known for her work on Charles Babbage's proposed mechanical general-purpose computer, the Analytical Engine. She was the first to recognize that the machine had applications beyond pure calculation.

She was born on 10 December 1815 in London, England. Lovelace was often ill, beginning in early childhood. At the age of eight, she had headaches that obscured her vision. In June 1829, she was paralyzed after a bout of measles. She was subjected to continuous bed rest for nearly a year, something which may have extended her period of disability. By 1831, she was able to walk with crutches. Despite the illnesses, she developed her mathematical and technological skills.

From 1832, when she was seventeen, her mathematical abilities began to emerge, and her interest in mathematics dominated the majority of her adult life. Her mother's obsession with rooting out any of the insanity of which she accused Byron was one of the reasons that Ada was taught mathematics from an early age. She was privately educated in mathematics and science by William Frend, William King

and Mary Somerville, the noted 19th-century researcher and scientific author. In the 1840s, the mathematician Augustus De Morgan extended her "much help in her mathematical studies" including study of advanced calculus topics including the "numbers of Bernoulli" (that formed her celebrated algorithm for Babbage's Analytical Engine). In a letter to Lady Byron, De Morgan suggested that Ada's skill in mathematics might lead her to become "an original mathematical investigator, perhaps of first-rate eminence."

In 1840, Babbage was invited to give a seminar at the University of Turin about his Analytical Engine. Luigi Menabrea, a young Italian engineer and the future Prime Minister of Italy, transcribed Babbage's lecture into French, and this transcript was subsequently published in the *Bibliothèque universelle de Genève* in October 1842. Babbage's friend Charles Wheatstone commissioned Ada Lovelace to translate Menabrea's paper into English. She then augmented the paper with notes, which were added to the translation. Ada Lovelace spent the better part of a year doing this, assisted with input from Babbage. These notes, which are more extensive than Menabrea's paper, were then published in the September 1843 edition of Taylor's *Scientific Memoirs* under the initials *AAL*.

Ada Lovelace's notes were labeled alphabetically from A to G. In Note G, she describes an algorithm for the Analytical Engine to compute Bernoulli numbers. It is considered to be the first published algorithm ever specifically tailored for implementation on a computer, and Ada Lovelace has often been cited as the first computer programmer for this reason. The engine was never completed and so her program was never tested.

ARTIFICIAL NEURAL NETWORKS

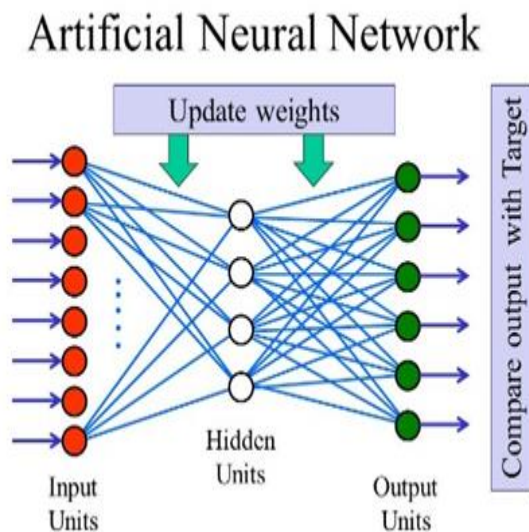
S.Jyothi

Pin no :-24155-CM-020

Introduction:-

Artificial Neural Networks (ANNs) are a fundamental part of artificial intelligence (AI) and machine learning (ML). Inspired by the human brain, ANNs are computational models designed to recognize patterns, analyze data, and make decisions. They are widely used in areas like image recognition, speech processing, healthcare, finance, and robotics. This article explores the structure, working principles, types, applications, advantages, and challenges of ANNs.

What is an Artificial Neural Network?



An ANN consists of interconnected processing units called neurons, similar to biological neurons in the human brain. These neurons are arranged in layers and communicate through weighted connections. The structure of an ANN includes:

1. Input Layer: Receives raw data (e.g., images, text, or numbers).

2. Hidden Layer: Process information, extract features, and recognize patterns.

3. Output Layer: Produces the final result, such as a classification or prediction.

Each neuron applies a mathematical function to the input data and transmits the result to the next layer.

How Artificial Neural Networks Work?

ANNs learn by adjusting weights through a process called training. The key steps include:

1. Forward Propagation: Data moves through the layers, and each neuron applies an activation function.

2. Loss Calculation: The network compares its prediction to the actual output using a loss function.

3. Backpropagation: The model adjusts the weights to minimize errors using gradient descent.

4. Iteration: The process repeats over multiple cycles (epochs) until the network achieves accuracy.

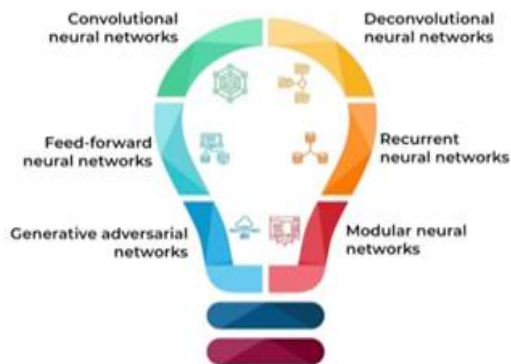
Common activation functions include Sigmoid, ReLU (Rectified Linear Unit), Tanh, and Softmax, each with specific use cases.

Types of Artificial Neural Networks?

- 1. Feedforward Neural Networks (FNNs):** The simplest type, where data moves in one direction. Used in image recognition and speech processing.
- 2. Convolutional Neural Networks (CNNs):** Specialized for image and video analysis, commonly used in facial recognition and medical imaging.

3. Recurrent Neural Networks (RNNs): Designed for sequential data processing, such as speech recognition and language translation.

TYPES OF ARTIFICIAL NEURAL NETWORKS



4. Generative Adversarial Networks (GANs): Used for image synthesis, deepfake generation, and creative AI applications.

5. Deconvolutional neural network (DeconvNet): It is the reverse effects of convolutional layers and used for image reconstruction, feature visualization, semantic segmentation, super-resolution and generative tasks.

6. Modular neural networks (MNNs): To improve efficiency, scalability and accuracy by dividing complex tasks into smaller, specialized modules.

Applications of ANNs:-

1. Healthcare: Disease detection, medical imaging, and drug discovery.

2. Finance: Fraud detection, stock market prediction, and credit scoring.

3. Autonomous Vehicles: Object recognition and decision-making in self-driving cars.

4. Natural Language Processing (NLP): Chatbots, translation, and sentiment analysis.

5. Cybersecurity: Identifying malware and preventing cyber threats.

Advantages:

1. Self-learning: Can recognize complex patterns without explicit programming.

2. High accuracy: Outperforms traditional algorithms in tasks like image and speech recognition.

3. Scalability: Works efficiently with large datasets.

Challenges:

1. Computational cost: Requires significant processing power.

2. Black-box nature: Difficult to interpret decision-making processes.

3. Data dependency: Needs large and high-quality datasets for accurate predictions.

Conclusion:- Artificial Neural Networks have revolutionized AI and machine learning, making them essential in modern technology. While they offer numerous advantages, challenges like high computational requirements and interpretability remain. Continued research in deep learning and AI ethics will drive further advancements in ANN technology, shaping the future of intelligent systems.

BLUE EYES TECHNOLOGY

Reshmi and Swathi

23155-CM-007



Introduction:

·Blue Eyes is a technology conducted by the research team of IBM at its Almaden Research Center (ARC) in San Jose, California since 1997.

·Blue eyes technology makes a computer to understand and sense human feelings and behaviour and also enables the computer to react according to the sensed emotional level

1.What is Blue Eyes?

Bluetooth: Blue refers to the reliable wireless communication Bluetooth. Eye acts as a sensor for collecting movement information.

2.Why Blue Eyes?

- * To avoid and reduce human limitations such as tiredness, oversight, mental illness etc..
- * Monitoring of conscious brain involvement
- * Build a machine that can understand your emotions
- * Verify your identity, feel your presence and interact with you

Technologies used:

- * Emotion Mouse
- * Manual And Gaze Input Cascaded(MAGIC)
- * Artificial Intelligent speech recognition

* Simple User Interest Tracker (SUITOR)

* The Eye movement sensor

There are six types of emotions can be sensed by the computer:

ØAnger

ØFear

ØSadness

ØDisgust

ØJoy

ØSurprise



Expression Glass:

1. Expression Glass is an alternative for the usually available machine vision face or eye recognition methods.
2. By analyzing pattern recognition methods and facial muscle variations, the glass senses and identifies the expressions such as interest or confusion of the user.



3. The prototype used for this glass uses piezoelectric sensors.

Simple User Interest Tracker(SUITOR)

- Help by fetching more information at desktop
- Noticing where the user's eyes focus on the computer screen
- More precise in determining User's topic of interest.

Eg: If reading the news.

System Overview

Blue Eyes system is a combination of hardware and software components

- DAU(Data Acquisition Unit)
- CSU(Central System Unit)

Hardware

DAU(Data Acquisition Unit)

The Atmel 89C52 microcontroller

- A Bluetooth module
- A small LCD display
- A removable ID card i.e. 24C16-12C EEPROM
- A 13 bit PCM code

- Jazz multi-sensors
- The LED indicators
- A beeper
- The 6AA batteries
- A voltage level monitor

Features:

- * Lightweight
- * Runs on batteries-low power consumption
- * Easy to use-Does not disturb the operator working
- * ID cards for operator authorization
- * Voice transmission using hardware PCM codec

➤CSU(Central System Unit)

- *Connection Manager : low level bluetooth connection
- * Data Analysis Module: Analysis of raw sensor data
- * Data Logger Module: Support for storing monitored data
- * Visualization Module: User interface for supervisor

Conclusion:

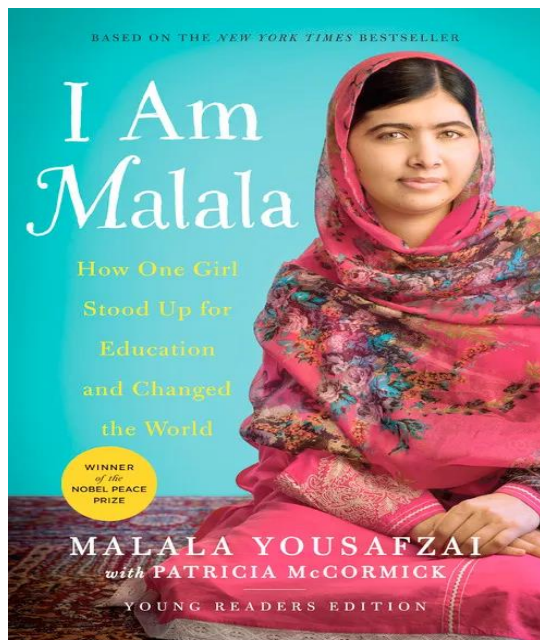
BLUE EYES technological approach assures a convenient technique that simplifies life by supporting more elegant and user friendly provision in computing devices. The day is very near, that this Blue Eyes technology will advance its way towards your household devices and make you lazier. In future, even this Blue Eyes will reach your hand held mobile device.

MALALA YOUSAFZAI (Pakistani education activist)

KS Chethana
23155-CM-035

Introduction:

Malala Yousafzai, born on July 12, 1997, in Mingora, Pakistan, grew up in a family that valued education deeply. Her father, Ziauddin Yousafzai, ran a school and instilled in her a passion for learning. However, her life changed dramatically in 2007 when the Taliban took control of the Swat Valley, banning girls from attending school and imposing strict cultural restrictions. Despite the danger, Malala, inspired by her father's activism, became a vocal advocate for girls' education.



Desire to Go to School:

At just 11 years old, Malala began blogging anonymously for the BBC under the pseudonym "Gul Makai." She described life under Taliban rule, her fear of violence, and her determination to attend school. Her writings gained international attention, and she became a symbol of resistance against the Taliban's oppressive policies. In 2009, her family was forced to flee Swat due to the escalating conflict, but upon

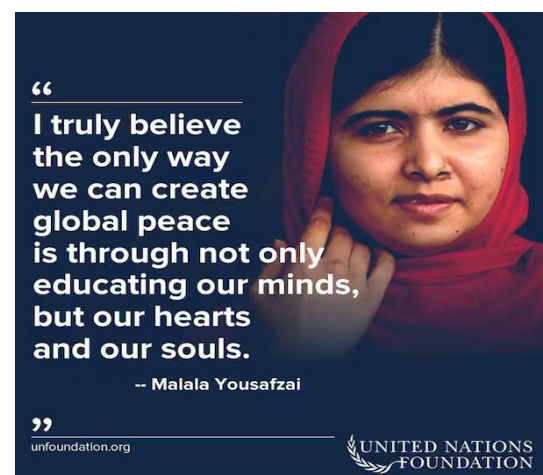
their return, Malala continued her activism, earning recognition and awards for her bravery.

The Attack and Recovery:

On October 9, 2012, Malala's life took a tragic turn when she was shot in the head by a Taliban gunman while riding a school bus. The attack sparked global outrage, and Malala was flown to the UK for life-saving treatment. Despite her injuries, she made a remarkable recovery and returned to school in Birmingham, England, in March 2013. Her resilience and courage inspired millions worldwide.

Global Advocacy and Recognition:

Malala's activism gained momentum after her recovery. On her 16th birthday, she spoke at the United Nations, emphasizing the importance of education for all children. She published her autobiography, *I Am Malala*, and was awarded the Sakharov Prize for Freedom of Thought. In 2014, she co-founded the Malala Fund to support girls' education globally and became the youngest-ever Nobel Peace Prize laureate at age 17.



Fight for Girls' Education:

Through the Malala Fund, Malala has worked tirelessly to expand access to education for girls in countries like Pakistan, Nigeria, and Kenya. She advocates for policy changes to ensure safe learning environments and empowers girls to become leaders in their communities. Her efforts have highlighted the transformative power of education in breaking cycles of poverty and inequality.



Quotes on Education:

Malala's words have become a source of inspiration worldwide. She famously said, "One child, one teacher, one pen, and one book can change the world." Her message underscores the importance of taking action and using education as a tool for change. She encourages individuals to speak out against injustice and work together to create a better future.



Importance of Women's Education:

Malala's advocacy highlights the critical role of education in achieving gender equality. Educated women are more likely to participate in the workforce, support their families, and contribute to their communities. By breaking down barriers to education, Malala is helping to create a world where girls can thrive and lead.

Conclusion:

Malala Yousafzai's story is one of courage, resilience, and hope. From surviving a Taliban attack to becoming a global advocate for education, she has shown that one voice can inspire change. Her journey reminds us that education is a fundamental right and a powerful tool for transforming lives. As Malala continues her fight for equality, her message resonates with millions: "Let us pick up our books and pens. They are our most powerful weapons."

FORTY YEARS OF THE INTERNET: HOW THE WORLD CHANGED FOREVER

K. Munendra Reddy
(24155-DME-028)

The Birth of the Internet: A Revolution in Communication

In October 1969, a seemingly mundane event marked the birth of the internet. A student named Charley Kline, under the guidance of Professor Leonard Kleinrock at the University of California, Los Angeles (UCLA), typed the letters “LO” on a computer connected to an Interface Message Processor (IMP). This was the first message sent over what would later become the internet. Though the system crashed before Kline could complete the word “LOGIN,” this moment symbolized the beginning of a technological revolution that would transform the world.



The IMP, a refrigerator-sized machine, was the cornerstone of the Advanced Research Projects Agency Network (ARPANET), a project funded by the U.S. Department of Defense. Its purpose was to enable researchers to share computing resources across long distances. At the time, computers were expensive and scarce, and the idea of connecting them remotely was groundbreaking. The ARPANET used a technology called “packet switching,” developed by British physicist Donald Davies, which broke data into smaller blocks for efficient transmission. This

innovation laid the foundation for modern internet communication.



The first message, sent on October 29, 1969, connected UCLA to the Stanford Research Institute. While it was a modest technical achievement, it foreshadowed the internet’s potential to revolutionize communication. By 1981, the ARPANET had grown to include 213 computers. By 1995, 16 million people were online, and by 2001, that number had skyrocketed to 513 million. Today, over 5 billion people use the internet, a testament to its rapid and transformative growth.

The Vision Behind the Internet

The internet’s origins were rooted in both practical necessity and visionary thinking. In the 1950s, the launch of the Soviet satellite Sputnik spurred the U.S. to invest heavily in scientific research, including computer technology. ARPA, the agency behind ARPANET, aimed to advance American technological capabilities. However, the internet was not designed as a weapon for the Cold War, as some myths suggest. Instead, it was a tool for collaboration and resource-sharing among researchers.

Early pioneers like J.C.R. Licklider and Robert Taylor envisioned computers as communication devices. In their 1968

paper, *The Computer as a Communication Device*, they predicted that machines would one day enable more effective communication than face-to-face interaction. This vision was revolutionary at a time when computers were seen primarily as number-crunching tools.



The ARPANET's development was also shaped by the countercultural ethos of its creators. Unlike typical military projects, it was characterized by openness and collaboration. Researchers published their progress in documents called Requests for Comments (RFCs), fostering a culture of transparency that remains central to the internet's evolution.

The Internet's Explosive Growth

The internet's growth has been nothing short of extraordinary. In 1994, there were only 623 websites; by the early 2000s, the web had become a global phenomenon. Companies like Amazon (1995), Google (1998), and Wikipedia (2001) emerged, reshaping commerce, information access, and knowledge-sharing. Social media platforms like Facebook and Twitter revolutionized communication, while innovations like Google Earth and file-sharing transformed industries. The internet's impact extends far beyond technology. It has reshaped politics, activism, media, and culture. From the Arab Spring to the #MeToo movement, the internet has empowered individuals to mobilize and advocate for change. It has also disrupted traditional industries, from publishing to retail, and created new opportunities for innovation and entrepreneurship.



A Global Consciousness:

Long before the internet became a reality, visionaries imagined a world where machines could connect and share knowledge. In 1945, Vannevar Bush envisioned the "memex," a device that stored and linked information, much like the modern web. Science fiction writers and technologists alike dreamed of a global network that would function like a collective brain. Yet, the internet's success was not inevitable. It was the result of decades of experimentation, collaboration, and serendipity. The ARPANET's creators could not have predicted how their work would evolve into a global phenomenon. Today, the internet is a testament to human ingenuity and the power of shared knowledge.

Conclusion

The internet's journey from a modest experiment in 1969 to a global force is a story of innovation, collaboration, and vision. What began as a solution to a technical problem has become an indispensable part of modern life, connecting billions of people and transforming every aspect of society. As we reflect on its origins, we are reminded of the internet's potential to inspire, empower, and unite humanity. The first message, "LO," may have been incomplete, but it heralded the dawn of a new era—one that continues to unfold in ways its creators could never have imagined.

JOURNEY FROM ENGINEER TO ACTOR

Karan Sainy
24155-C-003

Sushant Singh Rajput's journey before Bollywood:

Everyone's favourite and exceptional actor, the late Sushant Singh Rajput was an engineering student. Sushant's childhood was spent in a middle class family. Sushant Singh Rajput was born on January 21, 1986, in Maldiha, Purnea, Bihar. He was the youngest of five siblings and lost his mother at a young age. Sushant was a bright student and attended St. Karen's High School in Patna.



He later moved to Delhi and completed his education at Kulachi Hansraj Model School. He secured the seventh rank in the All India Engineering Entrance Examination (AIEEE) and got admission to the Delhi College of Engineering to pursue a Bachelor of Engineering degree in Mechanical Engineering..



As an engineering student, Sushant Singh Rajput achieved:

- Secured the 7th rank in the All India Engineering Entrance Examination (AIEEE) in 2003
- Got admission to the Delhi College of Engineering (now Delhi Technological University) to pursue a Bachelor of Engineering degree in Mechanical Engineering
- Was a bright and talented student, having won the National Olympiad in Physics
- Completed his secondary education with excellent grades, scoring 70.44% in his 12th standard exams

Sushant's entry into the film industry:

Sushant Singh Rajput dropped out of Delhi College of Engineering in his third year to pursue a career in acting. He joined Shiamak Davar's dance classes and later attended Barry John's acting classes. He began his career in television with the serial "KisDesh Mein HaiMeraaDil" and gained popularity with "PavitraRishhta". He then transitioned to films with "Kai Po Che!" in 2013, followed by successful movies like "ShuddhDesi Romance", "Detective ByomkeshBakshy!", "M.S. Dhoni: The Untold Story", and "Kedarnath". He

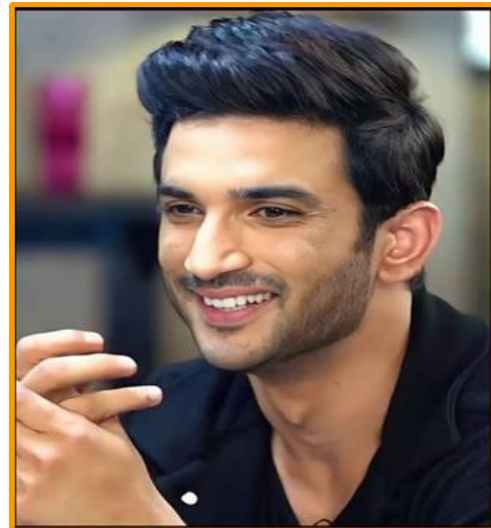
established himself as a talented and versatile actor in Bollywood.

As an actor, Sushant Singh Rajput achieved:

- Filmfare Award nomination for Best Male Debut for "Kai Po Che!" (2013)
- Screen Award for Best Male Debut for "Kai Po Che!" (2013)
- Nominated for Filmfare Award for Best Actor for "M.S. Dhoni: The Untold Story" (2016)
- Nominated for Filmfare Award for Best Actor (Critics) for "Kedarnath" (2018)
- Featured on Forbes India's Celebrity 100 list (2017 and 2018)

He won several other awards, including the Indian Television Academy Award, Zee Cine Award, and Stardust Award

- Starred in successful films like "ShuddhDesi Romance", "Detective ByomkeshBakshy!", "M.S. Dhoni: The Untold Story", "Raabta", "Kedarnath", and "Chhichhore"
- Worked with renowned directors like AbhishekKapoor, Dibakar Banerjee, and NiteshTiwari
- Played a wide range of characters, from a cricket player to a detective, and from a romantic lead to a complex, emotional character.



In a short yet noteworthy career, the late actor managed to win a huge fan following. He was also described as a kind, humble, and down-to-earth person by his colleagues and friends.

Sushant was a self-made star who enjoyed a challenge and took on roles that he felt he could fail in. He was known for his philosophical beliefs on success and the box office. He was known for his acting skills, hard work, and sense of humour.

Sushant Singh Rajput said a famous line in his life: ***"To be successful, you have to fall in love with your work"***.

However, sadly on June 14, 2022, the actor was found hanging and dead in his Mumbai apartment. But before his ultimate death, Sushant had said in a show that "I want to go into MahiBhai's (MS Dhoni) mind after his death and know how he thinks."

After his death, a handsome and talented actor like him has not yet appeared in Bollywood. Really, he was an amazing actor. He worked hard to make his dream come true, so today he was successful in achieving a big milestone.

Bear Grylls

K.Dushyanth Reddy

Pin.no:24155-EC-024

Introduction

Edward Michael Grylls, popularly known as Bear Grylls, was born on June 7, 1974, in the Isle of Wight, England. His sister gave him the nickname "Bear" when he was just a week old, and it has stuck ever since. Grylls is a renowned adventurer, survival expert, and television personality, best known for his daring exploits and survival skills showcased in shows like *Man vs. Wild*. His journey from a young martial arts enthusiast to a global icon of adventure is nothing short of inspiring.



As a Soldier

Bear Grylls' resilience and survival skills were honed during his time in the British Special Forces.



He served in the 21 SAS Regiment, where he underwent rigorous training in parachuting, demolition, unarmed combat, jungle warfare, and trauma medicine.

These skills not only prepared him for military operations but also laid the foundation for his future adventures. His time in the SAS was cut short, however, due to a life-altering parachuting accident in 1996. During a training exercise in Kenya, Grylls' parachute failed to open, causing him to fall 16,000 feet and land on his reserve chute. He survived but broke three vertebrae, an injury that required months of rehabilitation and continues to cause him pain to this day. Despite this setback, Grylls' determination to overcome adversity became a defining trait of his character.

Adventures and Achievements

Bear Grylls is celebrated for his extraordinary feats of endurance and survival. In 1998, at the age of 23, he became one of the youngest Britons to climb Mount Everest. He has also led the first unassisted crossing of the frozen North Atlantic Ocean and undertaken numerous other expeditions in some of the world's most hostile environments.



Grylls' motto, "Survival can be summed up in three words—never give up," reflects his unwavering spirit and resilience. His adventures have taken him to remote locations such as Mexico's Copper Canyon, Iceland, and Scotland's Cairngorm Mountains, where he has demonstrated survival techniques that have captivated audiences worldwide.

Man vs. Wild and Television Career

In 2006, Grylls rose to global fame with the premiere of *Man vs. Wild*, a survival show on the Discovery Channel. The series featured Grylls demonstrating how to survive in extreme environments, from deserts to jungles to icy tundras. The show's dramatic and often perilous scenarios made it a hit, but it also faced controversy. In one instance, Grylls was accused of misleading viewers by staying in a motel during filming, leading to an apology and a promise to clarify that some scenes were dramatized.



Despite this, *Man vs. Wild* solidified Grylls' reputation as a survival expert and adventurer. His contract with Discovery ended in 2012 due to a dispute, but he continued to appear in other shows, such as *Running Wild with Bear Grylls*, where he takes celebrities on survival adventures.

Personal Life and Faith

Bear Grylls is a devoted family man and a committed Christian. He married Shara Cannings Knight in 2000, and the couple has three sons.



Grylls has often spoken about the importance of his Christian faith, describing it as the “backbone” of his life. He believes that faith provides strength and guidance, especially in moments of adversity. Grylls' ability to balance his adventurous career with his family life and spiritual beliefs is a testament to his discipline and values.

Legacy and Impact

Bear Grylls' influence extends far beyond his television shows. He has inspired millions with his message of perseverance, courage, and resilience. His survival tips and adventures have not only entertained but also educated people on how to face challenges head-on. Grylls' ability to turn personal setbacks, such as his parachuting accident, into opportunities for growth and inspiration is a hallmark of his character.



Today, he continues to push boundaries, whether through his television projects, motivational speaking, or philanthropic efforts.

Conclusion

Bear Grylls' life is a testament to the power of determination and the human spirit. From his early days in the SAS to his record-breaking adventures and global television career, Grylls has consistently demonstrated an unyielding will to survive and thrive. His story reminds us that no matter the obstacles, we can overcome them with courage, faith, and a refusal to give up. As Grylls himself says, “Survival is not about being fearless. It's about making a decision, getting on and doing it, because you have to.”

CHHATRAPATI SHIVAJI MAHARAJ

V. MANOJ

24155-M-041



Introduction

Chhatrapati Shivaji Maharaj, born on February 19, 1630, in Shivneri Fort near Pune, Maharashtra, is celebrated as one of India's greatest warriors and visionary leaders. His life epitomizes courage, strategic brilliance, and a commitment to justice and progressive governance. As the founder of the Maratha Empire, Shivaji Maharaj's legacy continues to inspire generations, symbolizing the spirit of self-rule and resistance against oppression.

Early Life and Influences

Shivaji was born to Shahaji Bhonsle, a Maratha general, and Jijabai, a deeply religious and strong-willed mother. Jijabai's teachings played a pivotal role in shaping Shivaji's character, instilling in him a sense of pride, responsibility, and devotion to his land and people. From a young age, Shivaji exhibited exceptional leadership qualities and a keen

sense of justice. By the age of 16, he had gathered a loyal band of followers and embarked on his mission to establish a Maratha kingdom.

Rise to Power

Shivaji's journey as a leader began with the capture of the Torna Fort in 1645. Over the next few years, he strategically acquired numerous forts and territories, employing guerrilla warfare tactics that became his trademark. His ability to outmaneuver larger and more powerful adversaries earned him a reputation as a brilliant military strategist. Shivaji's vision extended beyond mere conquest; he aimed to establish a sovereign Maratha state free from Mughal domination.

Coronation and Establishment of the Maratha Empire

On June 6, 1674, Shivaji was crowned Chhatrapati at Raigad Fort, marking the formal establishment of the Maratha Empire. The coronation ceremony, conducted with grandeur, symbolized the Marathas' aspiration for autonomy and self-rule. As Chhatrapati, Shivaji implemented progressive administrative reforms, including a disciplined military structure, revenue reforms, and the promotion of trade. He also established a robust naval force, recognizing the importance of safeguarding India's coastlines.

Administration and Governance

Shivaji's administration was marked by efficiency, fairness, and inclusivity. He emphasized religious tolerance and ensured justice for all his subjects, regardless of their faith. His cabinet of eight ministers, known as

the Ashtapradhan, played a crucial role in governing the empire.



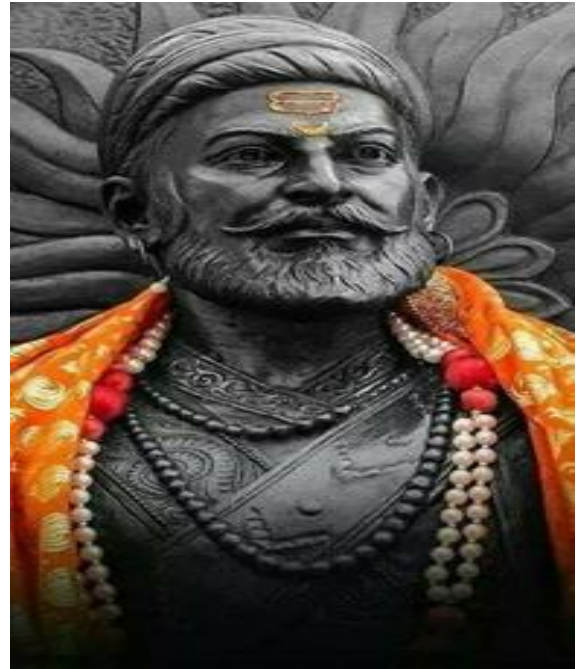
Shivaji's policies fostered economic growth, social harmony, and cultural development, laying the foundation for a prosperous and resilient Maratha state.

Conflict with the Mughals

Shivaji's reign was marked by constant conflict with the Mughal Empire and other neighboring states. His daring escape from Agra in 1666, after being imprisoned by Emperor Aurangzeb, showcased his ingenuity and determination. This event further solidified his reputation as a resilient and resourceful leader. Despite facing overwhelming odds, Shivaji continued to challenge Mughal authority and expand his territories.

Personal Life and Legacy

Shivaji married Saibai Chauhanika in 1640, but the absence of a male heir during her lifetime caused him distress. To ensure a smooth succession, he adopted Tanaji Malusare, who proved to be a worthy successor. Shivaji passed away on April 3, 1680, at Raigad Fort, leaving behind a legacy of courage, vision, and leadership. His successors carried forward his mission, ensuring the Maratha Empire's continued growth and influence.



Conclusion

Chhatrapati Shivaji Maharaj's life is a testament to his unwavering commitment to justice, self-rule, and the welfare of his people. His birth on February 19, 1630, and his coronation on June 6, 1674, mark pivotal moments in Indian history. Shivaji's legacy as a visionary leader and a symbol of resistance against oppression continues to inspire generations. His principles of governance, resilience, and inclusivity remain relevant, serving as a beacon for future leaders. Shivaji College, named in his honor, upholds these values, striving to mold individuals who embody the spirit of Chhatrapati Shivaji Maharaj. His life story reminds us that true leadership lies in courage, vision, and an unwavering commitment to the greater good.

CONNECTION BETWEEN THE HEARTS FROM HUMANS TO AQUATIC ANIMAL

M HASWANTH

24155-EC-028



Who Is Cristina Zenato?

Cristina Zenato is a world-renowned professional diver, shark conservationist, and underwater explorer. Born in Italy, she grew up with a deep love for nature and adventure, which eventually led her to the Bahamas. There, she trained as a scuba diver and later became a pioneer in shark conservation. With over 26 years of experience, she has dedicated her life to studying and protecting sharks, changing perceptions about these misunderstood creatures.

How She Found Her Calling

Zenato's journey into the world of sharks began when she moved to the Bahamas to pursue her diving career. She was mesmerized by the beauty of the ocean and the incredible presence of sharks. Initially, she joined a diving organization where she specialized in shark interactions. Over time, she developed a unique ability to communicate with these marine predators, building an extraordinary level of trust.

A Light Bulb Moment: The First Hook Removal

Her deep connection with sharks became evident when she noticed that many of them had fishing hooks embedded in their mouths. One particular shark changed her perspective forever. During a dive, she spotted a shark struggling with a hook lodged inside its mouth. With patience and care, she gently removed the hook while the shark remained still, as if understanding that she was there to help. This was a defining moment—one that showed her sharks were not just wild predators but sentient beings capable of trust and recognition.

The Ripple Effect: Sharks Seeking Help



After that initial act of kindness, something remarkable happened. More sharks started approaching her with hooks, seemingly seeking assistance. This pattern continued, reinforcing the idea that sharks were not only aware of her presence but also recognized her as someone who could relieve their pain. The bond she formed with these creatures defied common misconceptions, proving that they were far more intelligent and sensitive than people assumed.

The Importance of Sharks in Ocean Ecosystems
Sharks play an essential role in maintaining the balance of marine ecosystems. As apex predators, they regulate fish populations and prevent the overgrowth of certain species, which helps sustain coral reef health. Research published in *Marine Policy* highlights how

Overfishing and bycatch. Their absence disrupts ocean ecosystems, making conservation efforts like Zenato's more crucial than ever.

Changing Perceptions: From Fear to Respect
For decades, sharks have been depicted as dangerous killers, largely due to movies and sensationalized media. However, scientific studies confirm that shark attacks on humans are rare. In contrast, human activities pose a far greater threat to sharks. Zenato's work is instrumental in breaking these misconceptions. By showcasing their gentle nature and intelligence, she has influenced a new generation of conservationists and marine biologists.

Zenato's Legacy: Inspiring Global Conservation

Cristina Zenato's commitment to sharks extends beyond personal interaction. She actively works on marine conservation projects,

declining shark populations have led to imbalances in marine food chains, affecting biodiversity.

According to the International Union for Conservation of Nature (IUCN), over 100 million sharks are killed annually due to overfishing. Zenato's work focuses on educating divers, and pushes for policies that protect sharks worldwide. Her mission is to replace fear with knowledge, demonstrating that sharks are not enemies but vital guardians of the ocean.

Conclusion: A Call to Action

The story of Cristina Zenato and her sharks serves as a powerful reminder of the interconnectedness of all living beings. It challenges us to rethink our perceptions, respect marine life, and take steps toward ocean conservation. By supporting responsible fishing practices, advocating for marine protected areas, and reducing plastic waste, we can contribute to the survival of sharks and the overall health of our oceans.

The next time you hear about sharks, remember—they are not just creatures of the deep; they are vital to marine ecosystems and deserve our protection.

DAMS IN INDIA

S M MageshBabu

23155-C -003

DAMS:

A dam is a barrier designed to obstruct or regulate the flow of surface water or underground streams. By forming reservoirs, dams help in controlling flooding and supply water for irrigation, drinking, industrial use, aquaculture and navigation.



Longest Dam in India

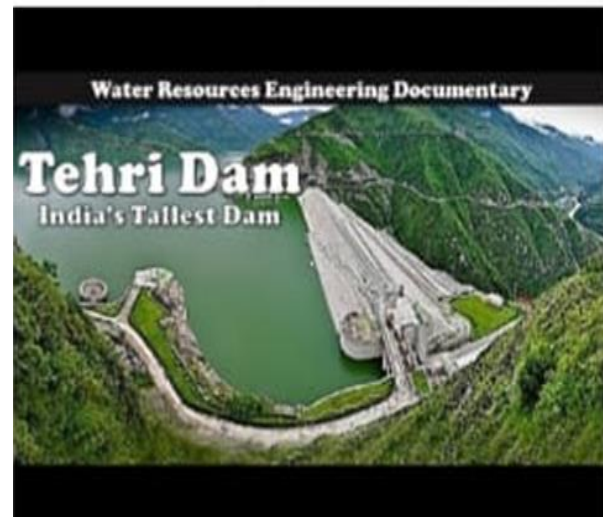
Longest dam in India is the **Hirakud dam** with a total length of 25.79km. It is also **the longest earthen dam in the world**. The Hirakud dam is built on the Mahanadi River in Sambalpur district in Odisha state. It was completed in 1953. The total reservoir capacity of this dam is 5896 Million cubic meters (Mm^3).

Highest dam in India

Highest dam in India is the Tehri dam with a height of 260m. It is also the 12th tallest dam in the world.



The Tehri dam is built on the Bhagirathi River in new Tehri, TehriGarhwal district in Uttarakhand state, India. The total capacity of this reservoir is 340 Million cubic meters (Mm^3).



Uses of Dams in India

Dams in India serve multiple purposes, including supplying water for domestic and urban use, supporting irrigation, and meeting the needs of various manufacturing industries. They also facilitate hydroelectric power generation, enable river navigation, support fishing and boating activities, and help regulate river flow to prevent floods.

DEEP SEEK

Yaswanth Kumar

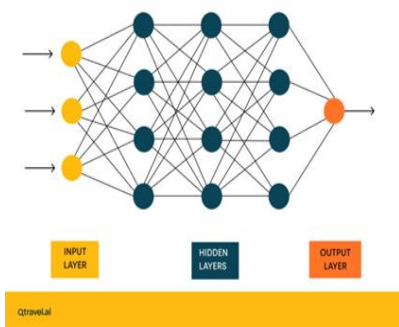
24155-EC-004

Exploring Deep Seek AI Innovations



Introduction to Deep Seek AI

Deep Seek AI is a cutting-edge artificial intelligence platform designed to revolutionize data analysis and decision-making across industries. By leveraging advanced machine learning and deep learning algorithms, it processes vast datasets efficiently, uncovering patterns and insights that traditional AI models cannot. Its significance lies in its ability to empower sectors like healthcare, finance, and technology with real-time, actionable intelligence, driving operational success and innovation.



Unique Features and Advantages

Deep Seek AI stands out due to its advanced algorithms, scalability, real-time

processing, and user-friendly interface. These features enable precise predictions, seamless integration into large-scale data environments, and accessibility for users of all technical expertise levels. Its ability to handle complex datasets and provide real-time insights makes it a game-changer in the AI landscape.



How Deep Seek AI Works

Deep Seek AI operates on a robust architecture comprising four key layers:

1. **Data Ingestion Layer:** Collects and preprocesses data from diverse sources.
2. **Processing Engine:** Utilizes machine learning and neural networks for parallel data processing.
3. **Modeling and Analytics Layer:** Applies advanced algorithms like regression analysis and natural language processing (NLP) to derive insights.
4. **Visualization Interface:** Offers interactive dashboards for easy interpretation of complex data.

The platform integrates seamlessly with existing systems through APIs, cloud compatibility, and robust security measures, ensuring data protection and scalability.



Applications of Deep Seek AI

Deep Seek AI is transforming industries with its versatile applications:

- **Healthcare:** Enhances patient care through predictive analytics and accelerates drug discovery by analyzing vast datasets.
- **Finance:** Improves fraud detection and optimizes algorithmic trading by analyzing transaction patterns and market trends.
- **Technology:** Powers smart assistants and data analytics platforms, improving user experiences and operational efficiency.

Challenges and Limitations

Despite its potential, Deep Seek AI faces challenges:

- **Ethical Concerns:** Bias in algorithms and lack of transparency in decision-making.
- **Data Privacy:** Compliance with regulations like GDPR and ensuring user consent.
- **Technical Hurdles:** Dependence on data quality and integration with legacy systems.

Experts emphasize the need for collaboration between developers, ethicists, and regulators to address these challenges responsibly.

The Importance of Transparency in Decision-Making



Future of Deep Seek AI

The future of Deep Seek AI is bright, with trends like increased automation, enhanced customization, and the rise of explainable AI (XAI) shaping its evolution. These advancements will foster interdisciplinary applications in agriculture, logistics, and education, while promoting ethical and responsible AI deployment.



Conclusion

Deep Seek AI represents a significant leap in artificial intelligence, offering unparalleled capabilities in data analysis and decision-making. Its applications across healthcare, finance, and technology demonstrate its transformative potential. While challenges like ethical concerns and technical limitations persist, the platform's future advancements promise to reshape the AI landscape, driving innovation and fostering collaboration across industries. Deep Seek AI is not just a tool but a catalyst for a smarter, more data-driven future.

Hydrogen Engine Technology

K VIJAY KUMAR

22155-M-005

Hydrogen engine technology is an innovative approach to clean energy, utilizing hydrogen as a fuel source for internal combustion engines (ICEs) or fuel cells. It offers a promising alternative to fossil fuels, with water vapor as the primary emission when using green hydrogen.

Types of Hydrogen Engines

1. Hydrogen Internal Combustion Engines (H₂-ICE)

- Similar to traditional ICEs but burns hydrogen instead of gasoline.
- Pros: Familiar technology, quick refueling.
- Cons: NO_x emissions at high temperatures, lower fuel efficiency than fuel cells.

2. Hydrogen Fuel Cell Electric Vehicles (FCEVs)

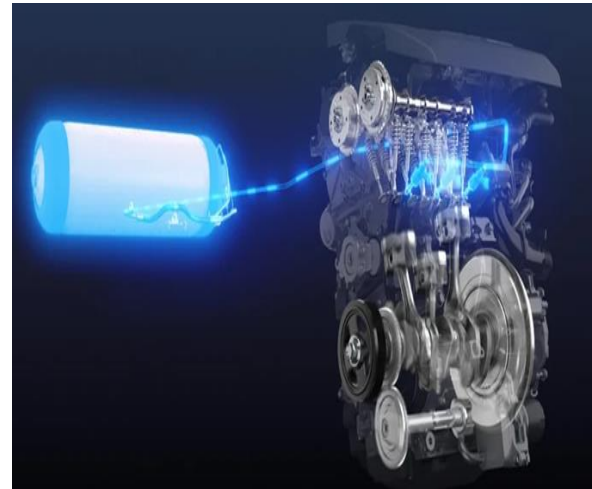
- Use hydrogen in fuel cells to generate electricity, powering electric motors.
- Pros: High efficiency, zero emissions.
- Cons: Expensive fuel cell materials, hydrogen infrastructure limitations.

3. A Leap Towards Sustainable Mobility

4. (a set of actions that aim to make transportation more efficient and environmentally friendly)

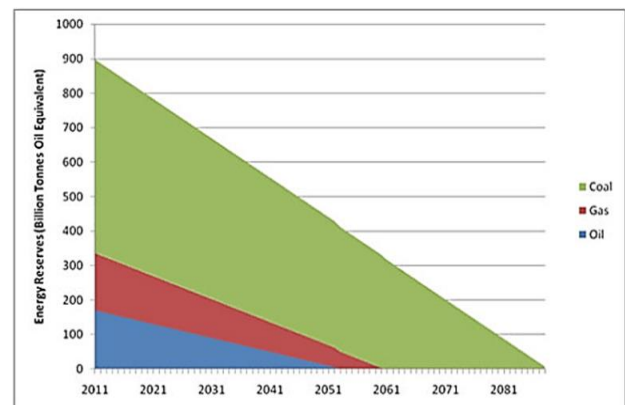
Fossil Fuels

Fossil fuels are non-renewable energy sources that come from the remains of plants and animals that died millions of years ago. They are made of carbon and are burned to produce electricity, heat, and transportation fuel.



Hydrogen Engine Technology

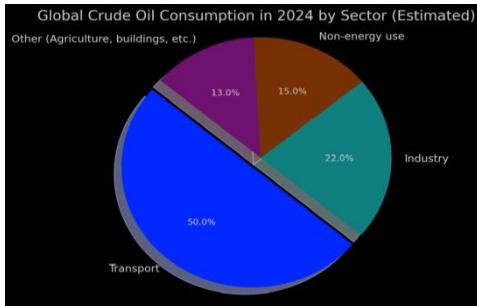
How many Fossil Fuels are left ???



Time to move to Alternate Fuels

Fuels which can be used in IC Engines

- Ø Petrol or Gasoline
- Ø Diesel
- Ø Natural Gas
- Ø Biofuels
- Ø Alcohol Fuels
- Ø Liquid Nitrogen and Ammonia
- Ø Hydrogen



Hydrogen Engine

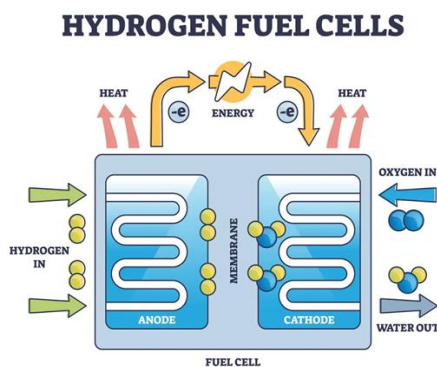
A technology that uses hydrogen as fuel to produce energy.

Hydrogen Engine Types.

There are Two main types:

- Hydrogen internal combustion engines.
- Hydrogen fuel cells.
- Produces water vapor as the only byproduct, making it eco-friendly.

Hydrogen Fuel Cell



Converts hydrogen into electricity through a chemical process. Typical fuel cells are made up of three segments: Anode, electrolyte, and cathode.

Two chemical reactions occur within a fuel cell, the results of which are based on the fuel that is used for the energy system. The electrolyte that is used in a fuel cell is highly dependent on the type of fuel cell it is. If hydrogen is used as a fuel, the anode acts as a catalyst that is capable of turning the fuel into electrons and ions. Next, the cathode converts the ions into the fuel cell's waste produce,

which is typically water vapor, while also using the electrons to generate an electric current.

Advantages of Hydrogen Engines

- ØZero harmful emissions – only water vapor as a byproduct.
- ØAbundant and renewable fuel source.
- ØQuick refueling time compared to electric vehicles.
- ØHigh energy efficiency and long driving range.

Applications

- ØTransportation: Cars, buses, and trains.
- ØIndustrial: Heavy machinery and forklifts.
- ØAviation: Hydrogen-powered planes.
- ØMaritime: Boats and ships.

Challenges

- ØHigh production costs of hydrogen fuel.
- ØLimited refueling infrastructure.
- ØStorage and transportation difficulties due to high volatility.
- ØNeed for public awareness and adoption.

Environmental Impact

ØHelps in reducing greenhouse gas emissions.

- ØMitigates reliance on fossil fuels.
- ØPromotes clean energy adoption globally.

Future Prospects

- ØAdvancements in hydrogen storage and fuel cell technology
- ØCollaboration between governments and industries for infrastructure development.
- ØCost reduction through innovation and mass production.
- ØGrowing role in achieving net-zero carbon goals.

KING OF CRICKET : MAHENDRA SINGH DHONI

K CHANDRA PRASAD

24155-M-013

Mahendra Singh Dhoni, popularly known as MS Dhoni, is one of the most celebrated cricketers in the history of Indian cricket. Born on July 7, 1981, in Ranchi, Jharkhand, Dhoni rose from humble beginnings to become a global icon. Known for his calm demeanor, exceptional leadership, and remarkable wicket-keeping skills, Dhoni is widely regarded as one of the greatest wicket-keeper batsmen of all time. He made his international debut in 2004 and retired from international cricket in 2019, leaving behind a legacy of success and inspiration.



Dhoni's career is studded with numerous achievements. As the captain of the Indian cricket team, he led the side to several historic victories, including the 2007 ICC T20 World Cup, the 2011 ICC Cricket World Cup, and the 2013 ICC Champions Trophy. Under his leadership, India became the first team to win all three ICC trophies. Dhoni's match-winning six in the 2011 World Cup final against Sri Lanka remains etched in the memories of cricket fans

worldwide. He is also the most successful Indian captain, with an impressive win record across all formats of the game.

Apart from his leadership, Dhoni is known for his exceptional wicket-keeping skills. He holds the record for the most stumpings in international cricket, a testament to his quick reflexes and sharp cricketing mind. His batting prowess, particularly in the lower order, earned him the reputation of being one of the best finishers in the game. Dhoni's ability to remain calm under pressure and guide his team to victory in tight situations earned him the nickname "Captain Cool."

Dhoni's contributions to cricket have been recognized with numerous awards, including the Padma Bhushan and Padma Shri, two of India's highest civilian honors. He has also been a key figure in the Indian Premier League (IPL), leading the Chennai Super Kings (CSK) to multiple titles and establishing the team as one of the most successful franchises in the league.



Family: The Pillars of Dhoni's Success

Dhoni's journey to the top was shaped by the support and influence of his family. His father, Pan Singh, initially did not support his cricketing aspirations, preferring that Dhoni

focus on a stable career. Pan Singh worked in a junior management position at a government enterprise and was delighted when Dhoni secured a job with Indian Railways. However, he eventually accepted his son's passion for cricket and became immensely proud of his achievements, especially when Dhoni led India to the 2011 World Cup victory.

Dhoni's mother, Devaki Devi, played a crucial role in his life. She was a constant source of encouragement and prayed for his success. In a touching tribute, Dhoni once wore his mother's name on his jersey during a bilateral match against New Zealand as part of a promotional cause.

Dhoni has an elder brother, Narendra Singh Dhoni, who is 10 years older than him. Narendra is a politician and had left the family before Dhoni became a cricketing star. Despite this, he remains connected to his family and has a significant following on social media. Dhoni's elder sister, Jayanti Gupta, has been a pillar of support throughout his career. An English teacher by profession, Jayanti played an integral role in Dhoni's journey to success.



Dhoni's personal life is equally inspiring. He married Sakshi Singh Rawat on July 4, 2010. Their love story, which began when Sakshi, then a hotel intern, asked Dhoni for identity proof without recognizing him, has become legendary. The couple welcomed their daughter, Ziva Dhoni, on February 6, 2015. Despite being away during Ziva's birth due to his commitment to the 2015 ICC Cricket World Cup, Dhoni's dedication to his profession and country exemplifies his sense of duty and responsibility.



Conclusion

MS Dhoni's journey from a small-town boy to a cricketing legend is a testament to his hard work, determination, and unwavering focus. His achievements on the field, coupled with his humility and leadership, have made him a role model for millions. Beyond cricket, Dhoni's close-knit family and their unwavering support have been instrumental in his success. As a cricketer, captain, and individual, MS Dhoni's legacy will continue to inspire generations to come.

Ethical Hacking

C.SasiKiran

23155-CM-009

Introduction:

With the digital revolution transforming industries, the need for cybersecurity cannot be overemphasized. As cyber threats grow, organizations and individuals are becoming more susceptible to malicious attacks. That is where ethical hacking comes in—a practice that has become an essential tool in protecting digital assets. Ethical hackers, sometimes called "white-hat hackers," utilize their expertise to discover and repair vulnerabilities in security systems before anyone else can use them for harmful purposes. This article examines the idea of ethical hacking, why it matters, and how it contributes to a safe online future.

What is Ethical Hacking?

Ethical hacking constitutes permitted efforts to breach computer systems, networks, or software programs to spot vulnerabilities in the security. As opposed to hackers with malicious motives, ethical hackers are allowed and act within high ethical and legal standards. The intent is to identify vulnerabilities and give advice for increasing security capabilities. Ethical hacking includes some methods, which range from penetration testing to assessing vulnerability and simulations of social engineering.

The Importance of Ethical Hacking:

Proactive Defense: Ethical hacking enables organizations to detect and repair weaknesses prior to their exploitation by cybercriminals. This method is considerably better than reacting after breaches happen. **Compliance and Trust:** Numerous sectors are governed by regulatory frameworks that demand

periodic security audits. Ethical hacking assists organizations in being compliant with these policies, building trust among stakeholders and clients. **Securing Sensitive Information:** Data is a currency in today's world, and ethical hacking has an important responsibility to secure sensitive information from attackers.

Keeping in Front of Attacks: Threats online are in a state of constant evolution. Ethical hackers assist organizations in keeping in front of new threats by mimicking real-world attacks.

The Ethical Hacker's Toolkit:

Ethical hackers use a range of tools and techniques to carry out their work. Some of the most widely used tools are:

Nmap: A network scanner that is used to scan for hosts and services on a network.

Metasploit: A penetration testing framework that assists in the identification and exploitation of vulnerabilities.

Wireshark: A network protocol analyzer that is used to capture and analyze network traffic.

Burp Suite: A web application security testing tool.

Social Engineering Toolkit (SET): Employed to mimic social engineering attacks.

Ethical Hacking in Practice:

Ethical hackers utilize a systematic approach to guarantee comprehensive and effective testing. This would generally involve:

Reconnaissance: Information gathering regarding the target network or system.

Scanning: Identifying open ports, services, and potential vulnerabilities.

Exploitation: Trying to exploit discovered vulnerabilities to determine their impact.

Post-Exploitation: Recording findings and making recommendations for remediation.

Reporting: Presenting a comprehensive report to stakeholders, detailing vulnerabilities and recommended fixes.

Challenges and Ethical Implications:

Though ethical hacking is a potent tool, it comes with challenges. Ethical hackers have to contend with intricate legal and ethical frameworks, making sure that their actions are always legitimate and within the law. They also have to be highly professional and ethical since their work is often based on access to confidential information.

The Future of Ethical Hacking:

As technology evolves, the need for ethical hackers is likely to expand. The increasing use of artificial intelligence, Internet of Things, and cloud computing brings new opportunities and challenges to cybersecurity professionals. Ethical hackers will be crucial in protecting these technologies and maintaining a secure digital space for everyone.

Conclusion:

Ethical hacking is not only a technical practice—it is a promise to defend the online world from danger. By locating and fixing weaknesses, ethical hackers are the watchful guardians of cybersecurity, building a safer and more secure tomorrow. As the online world continues to grow, the role of ethical hacking will grow even more important, and it is an imperative field for those who aspire to be cybersecurity experts.

MASS TRANSPORT SYSTEM IN INDIA

23155-C-401 K.Govinda Kumar,

23155-C-004- P Santhosh

India's primary mass transport system is the Metro network, comprising rapid transit systems in multiple cities nationwide. The Delhi Metro is the largest and most extensive, while other significant mass transit options include the Chennai MRTS and Hyderabad MMTS, both operated by Indian Railways. Additionally, the Kolkata Metro holds the distinction of being India's first rapid transit system.



The Delhi Metro features 10 color-coded lines, spanning 353.23 km with 257 stations, including underground, at-grade, and elevated stops. It operates on both broad-gauge and standard-gauge tracks and completes over 4,300 trips daily.

The Chennai Mass Rapid Transit System (Chennai MRTS) is a metropolitan rail network in Chennai, India, operated by Southern Railway under Indian Railways. Launched in 1995, it was India's first elevated railway line. Spanning 19.34 km (12.02 mi) from Chennai Beach to Velachery, it features 18 stations and is seamlessly integrated with the broader Chennai suburban railway network.

The Hyderabad Multi-Modal Transport System (MMTS) is a suburban rail network serving Hyderabad, India, and its surrounding areas. Operated by South Central Railway, it is a joint venture between the Government of Telangana (formerly Andhra Pradesh) and Indian Railways. Covering 90 kilometers (56 miles), MMTS connects key locations, including Hyderabad, Secunderabad, Falaknuma, Lingampally, Medchal, and Umdanagar, with 133 daily services.



The Kolkata Metro is a rapid transit system serving Kolkata and its metropolitan region in West Bengal, India. Launched in 1984, it holds the distinction of being India's first operational metro system. Currently, it ranks as the country's second busiest and fifth longest

rapid transit network. The system spans 59.38 km with one fully operational line and three partially operational lines. The network comprises underground, at-grade, and elevated stations, utilizing both broad-gauge and standard-gauge tracks.



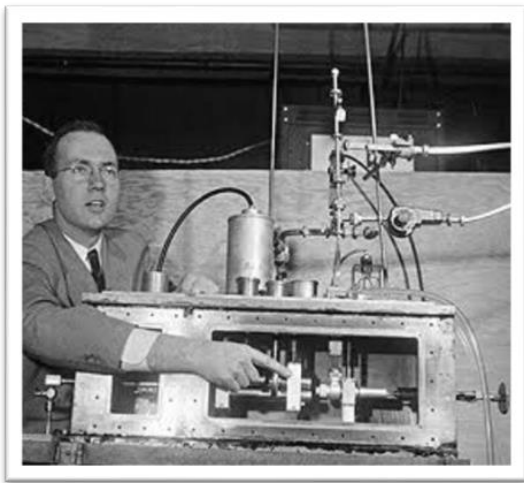
MICROMACHINING

M.R. SIVA

23155-M-008

INVENTOR

Micromachining has evolved over time with contributions from many scientists and engineers. Early micromachining in the 1940s, Soviet scientists B.R. and N.I. Lazarenko used EDM to remove stock from a machine.



CHARLES HARD TOWNES

In 1968, Kura Fuji and Masuzawa demonstrated micro-EDM by drilling a small hole in a carbide plate. In 1985, Masuzawa et al. invented wire electro discharge grinding (WEDG). Micromachining in the 1990s. Micromachining techniques developed in the 1990s to meet the demand for smaller, more intricate parts in the medical and semiconductor industries. Photo Solutions developed micromachining techniques using diamond tools and 6k RPM spindle speeds. Micromachining today High-precision CNC systems can produce miniature parts with complex geometries. Rotary transfer milling machines can manufacture components with complex geometries without much manual intervention. Related scientists Richard Feynman is known for his talk "There's Plenty of Room at the

Bottom" in 1959. Gordon Moore is another scientist who predicted the emerging technology of smaller electromechanical systems.

INTRODUCTION

Micromachining is a manufacturing process that creates micro-scale components with precision. It involves removing material from a workpiece on a micrometer scale. How it's used Micromachining is used to create microcomponents for medical devices, electronics, and aerospace. It's also used to create microactuators, microsensors, and microfluidic devices. Micromachining is used to enhance the quality of additively manufactured metallic components.

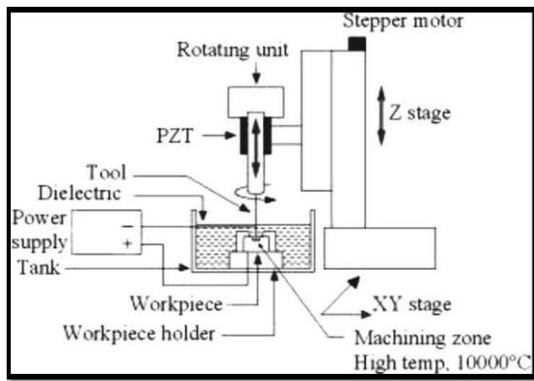
How it's done: Micromachining techniques include micro milling, micro drilling, micro grinding, and electrochemical micromachining. Other techniques include photolithography, etching, LIGA, and mechanical micromachining. Why it's important Micromachining enables the miniaturization of devices. It's important for the advancement of micro/nano electromechanical systems (MEMS/NEMS). It's crucial in industries like aerospace, medical devices, and electronics. Resources Introduction to Micromachining by V. K. Jain, Narosa Publishing House Micro-Cutting: Fundamentals and Applications by Cheng, Huo, Wiley Publication Precision Manufacturing by David Dornfeld and Dae-Eun Lee, Springer US

WORKING PRINCIPLE

LINE DIAGRAM OF MICROMACHINING

Micromachining works by precisely removing material from a work piece using

specialized tools and techniques to create miniature features with dimensions in the micrometer range, essentially "miniaturizing" traditional machining processes like milling, turning, and drilling, achieving high accuracy through controlled material removal on a very small scale, typically utilizing advanced CNC machines to manipulate the tools with extreme precision; this allows for the fabrication of intricate micro-components used in fields like medical devices, electronics, and optics.



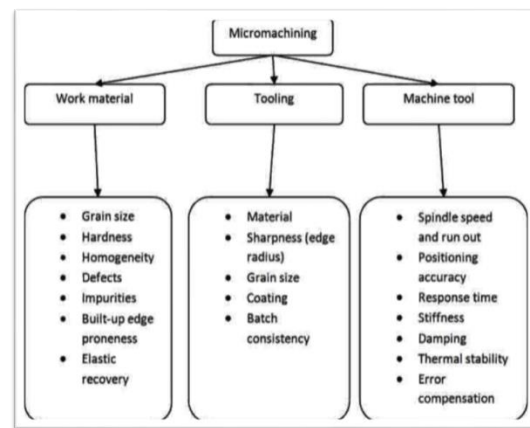
Key aspects of micromachining: Small cutting tools: Micromachining employs specially designed cutting tools with extremely small cutting edges, allowing for precise material removal in minute quantities. High precision control:

CNC machines are crucial for precise positioning and movement of the cutting tool, ensuring accurate feature placement and tight tolerances. Minimal chip thickness: Due to the small size of the cutting tool, only a very thin layer of material is removed as a chip, leading to high surface quality.

Material selection: The choice of workpiece material is critical, as some materials are more suitable for micromachining than others due to their machinability and mechanical properties. Common micromachining techniques: Micro-milling: Using a tiny milling cutter to remove material from the work piece surface, creating intricate micro-features.

Micro-turning: Rotating a work piece while using a small cutting tool to machine cylindrical micro-components. Micro-drilling: Drilling tiny holes with very small diameter drills. Electro Discharge Machining (EDM): Utilizing electrical sparks to remove material, particularly useful for complex geometries and hard-to-machine materials. Laser micro machining: Using a focused laser beam to precisely ablate material, enabling intricate surface patterning.

TYPES OF MICROMACHINING



ADVANTAGES

Precision, versatility, and efficiency. It's used in many industries, such as aerospace, medical, and electronics.

DIS ADVANTAGES

- High costs
- Complex operations and tool failure.

CONCLUSION

Micromachining is a vital manufacturing process that enables the creation of small, precise parts. It's used in many industries, including aerospace, medical, and electronics.

BIKES

24155-EC-038

P.Thulasi

□ MT Bike □

Yamaha MT-15 is a motorcycle manufactured by Yamaha since 2018. It is based on the Yamaha YZF-R15, with 155cc water-cooled single-cylinder engine equipped with the mainframe and variable valve timing mechanism (VVA), the inverted front fork, etc.[1] The exterior parts are specially designed, but the shape of the front mask is based on the Yamaha MT-09 from the 2017 model.



- MT-15

Manufacturer

Yamaha Motor Company

Production

2018-present

Class

Naked

Engine

155 cc (9.46 cu in) liquid-cooled 4-stroke 4-valve SOHC single-cylinder

Bore / stroke

58.0 mm × 58.7 mm (2.3 in × 2.3 in)

Compression ratio

11.6:1

Power

18.4 PS (13.5 kW) @ 10,000 r/min

Torque

14.1 N·m (10.4 lbf·ft) @ 7,500 r/min

Transmission

Constant mesh, 6-speed / Return

Frame type

twin-spar (Deltabox)

Suspension

Front: Inverted telescopic fork

Rear: Aluminum swingarm with monoshock

Tires

Front: 110/70-17; Rear: 140/70-17

Rake, trail

89 mm (3.5 in)

Wheelbase

1,335 mm (52.6 in)

Dimensions

L: 1,965 mm (77.4 in)

W: 800 mm (31 in)

H: 1

Yamaha MT 15 is a commuter bike available in 2 variants in India. Its lowest version starts from a price of 1,40,740 (ex-showroom) and the top version from a price of 1,41,735 (ex-showroom). Yamaha MT 15 generates 18.2 bhp of power and 13.9 nm of torque from its 155cc engine. Single cylinder engine of MT 15 has a 6 speed manual gearbox. With both rear and front disk brakes, the top variant of Yamaha MT 15

also has an anti-locking braking system. This 138 kg bike is available in 3 colours.

The MT-15 is a naked street bike from Yamaha that is based on the company's MT series. The MT-15 shares most of its underpinnings with its fully-faired sibling, the YZF R15 V3.0. It features a transformer-style front fairing with an LED projector headlamp, sculpted tank with tank extensions, a wide handlebar and a petite tail section.

For 2020, Yamaha is offering a new white paint scheme which comes with orange wheels alongside the metallic black and dark matte blue colours. The motorcycle also gets a BS6-compliant version of the 155cc, single-cylinder engine that produces 18.2bhp of power at 10,000rpm, 0.2bhp lesser than the 2020 YZF-R15 V3 which also uses the same motor. Furthermore, it also gets a side-stand engine inhibitor. Besides this, the MT-15 remains the same and comes equipped with telescopic forks up front and a monoshock at the rear mounted on to a box-type swing arm. For braking, the motorcycle employs disc brakes at both ends but with only single-channel ABS for the front. In terms of competition, the Yamaha Mt-15 goes up against the KTM 125 Duke in India.

□ R15 Bike □



The Yamaha YZF-R15 is a single-cylinder sport bike made by Yamaha Motor Company in 2008. In September 2011, the second iteration, called v2.0, was released in India, and in April 2014 it

was released in Indonesia. In January 2017, the bike's third iteration, v3.0, was launched in Indonesia.

Yamaha YZF-R15

Manufacturer: Yamaha Motor Company

Also called: Yamaha R15

Parent company: Yamaha Corporation

Production: 2008–present

Class: Sport bike

Engine

149.8 cc (9.14 cu in) liquid-cooled 4-stroke 4-valve SOHC single-cylinder (2008–2017)

155.7 cc (9.50 cu in) liquid-cooled 4-stroke 4-valve SOHC single-cylinder with Variable Valve **Actuation (2017–present)**

Bore / stroke

57.0 mm × 58.7 mm (2.2 in × 2.3 in) (2008–2017)

58.0 mm × 58.7 mm (2.3 in × 2.3 in) (2017–present)

Compression ratio

10.4:1 (2008–2017)

11.6:1 (2017–present)

Transmission: 6-speed constant mesh

Frame type: Steel twin-spar (Deltabox)

Suspension

Front: Conventional telescopic fork (2008–2017; India, 2008–present); Inverted

YZF RIS V3

Yamaha YZF R15 V3 is a sports bike available in 3 variants in India. Its lowest version starts from a price of ₹1,48,759 (ex-showroom) and the top version from a price of ₹1,50,360 tax-

showroom. Yamaha YZF R15 V3 generates 18.3 hhp of power and 14.1 mm of torque from its 155cc engine. Single cylinder engine of YZF R15 V3 has a speed manual gearbox. With both reve and thou disk brakes, the top variant of Yamaha YZF R15 V3 also has an anti-locking making system. This 142 kg bike is available in 3 colours.

The YZF-R15 changed the 150cc segment in the Indian market the way the CBZ did when it was launched. It was an everyday motorcycle that could genuinely be used as a track day tool. The second version of the R15 traded practicality for more focused performance, but the advent of the KTM RC200 meant that a far better performance was available for the sport bike enthusiasts at a similar price. The R15 Version 3.0 reduces that gap significantly with technology. On the list is now a BS6 engine with a few more ces, but featuring variable valve timing which takes the maximum power

output to nearly 18.3bhp with a peak torque output of 14.1Nm. It also gets all-LED lamps and an all-digital LCD instrument cluster that displays a wealth of information, including when the Variable Valve Actuation switches to the different camshaft profile

The pillion seat seems to be positioned a little lower, at least visually. The rear side panels have a Ducati Panigale-style gap which looks attractive when viewed from behind. Grab handles for the pillion have also been cleverly integrated, which was given a miss in the Version 2.0. The motorcycle features disc brakes at both ends and is now equipped with dual-channel ABS as standard equipment. Meanwhile, with the US version, the motorcycle now features a radial tyre as standard for the rear, side-stand engine cut-off and dual-tone horns. The R15 Version 3.0 BS6 is available in their coline shades of Racing Blue. Thunder Grey, and Dark night.

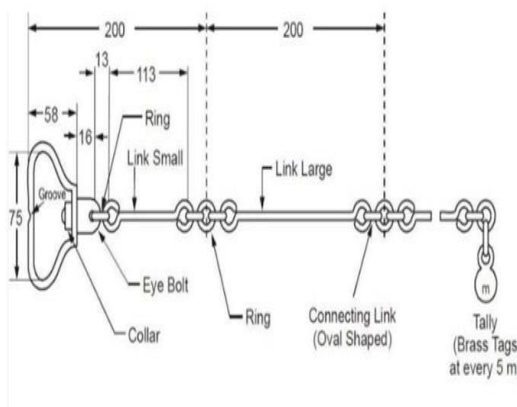
INSTRUMENTS USED IN SURVEYING

N. Arun Kumar

24155-C-006

Chain:

A chain survey is a method of land surveying where the distances between points on the ground are measured using a chain (or tape) to establish a network of straight lines, and then details of features on the land are located relative to these lines by measuring offsets at right angles to them; essentially, it involves measuring the lengths of a series of straight lines and then fixing the positions of other points by referencing them to these lines using perpendicular offsets.



Key components of a chain survey:

Chain/Tape:

The primary measuring tool, typically a metallic tape marked in specific units (like meters or feet), with different types including Engineer's chain (100 feet long), Gunter's Chain (66 feet long), and Revenue Chain (33 feet long) depending on the required precision and application.

Ranging Rods:

Long, straight poles used to align points along the survey line, ensuring the chain is stretched straight.

Arrows:

Small metal pins used to mark the end of each chain length during measurement.

Offsets:

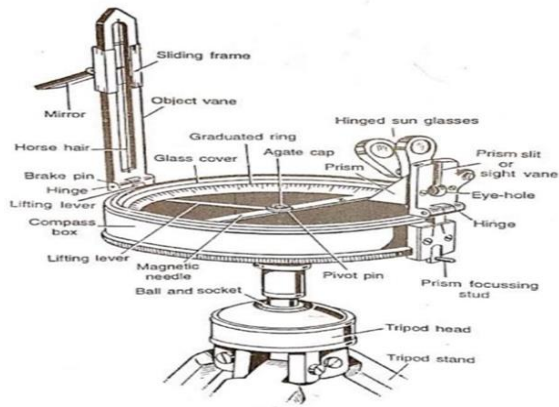
Perpendicular measurements taken from the main survey line to locate features like corners of buildings, trees, or boundaries.

Tie Lines:

Additional lines measured between survey stations to provide checks on accuracy and to establish a network of triangles for triangulation.

Prismatic Compass:

A prismatic compass survey involves using a specialized surveying instrument called a "prismatic compass" to measure the magnetic bearings of lines between different points on a survey area, essentially determining the direction of each line relative to the magnetic north by simultaneously sighting the target and reading the bearing on the graduated circle through a prism; key components include a cylindrical metal box, a magnetic needle, a graduated circle, a prism, an object vane, and an eye vane, allowing for precise and convenient bearing measurements while sighting the target directly.



Key Parts of a Prismatic Compass:

Cylinder-shaped Metal Box: The main body of the compass, housing all the internal components and providing protection.

Pivot: A central point on which the magnetic needle freely swings, allowing it to align with the magnetic north.

Magnetic Needle: The heart of the compass, a magnetized needle that always points towards the magnetic north, indicating the direction of the magnetic meridian.

Graduated Circle: A circular scale marked with degree markings (usually 0 to 360 degrees) used to read the bearing of a line.

Prism: A key component that allows for simultaneous sighting and reading of the bearing; it reflects the graduated circle markings to the observer's eye.

Object Vane:

A thin wire or hair on the compass body used to align the sight with the target point.

Eye Vane:

A small hole or slit through which the observer looks to sight the target and read the bearing through the prism.

Glass Cover:

A protective glass plate covering the compass face to shield it from dust and debris.

Dumpy level:

A dumpy level survey is a surveying technique used to determine the relative elevation of different points on a terrain by utilizing a dumpy level instrument, which essentially measures vertical distances between points by establishing a horizontal line of sight through its telescope; key components of a dumpy level include the telescope, leveling screws, bubble tube, tribrach, vertical spindle, and tripod, each playing a vital role in the surveying process.

Parts of a Dumpy Level:

Telescope: The primary optical component, used to sight the leveling staff and establish the line of sight; it includes an eyepiece for viewing the staff readings and a focus adjustment mechanism to focus on different distances.

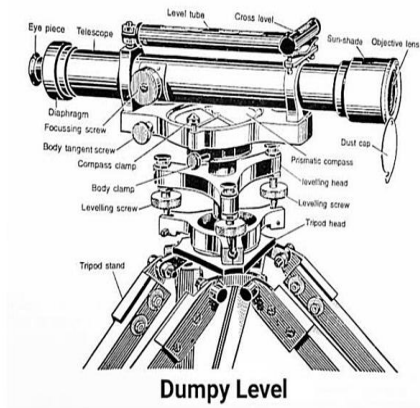
Leveling Screws: Three screws located on the base of the instrument, used to precisely level the dumpy level by adjusting the instrument's position relative to the tripod head.

Bubble Tube: A small vial filled with liquid and a bubble, used to indicate when the instrument is perfectly level in the horizontal plane.

Tribrach: A circular plate with three leveling screws, attaching the dumpy level to the tripod head, allowing for coarse leveling adjustments.

Vertical Spindle: A rotating component that allows the telescope to be directed towards different points while maintaining the level.

Tripod: A stand with adjustable legs used to support the dumpy level and provide stability during measurements.



Dumpy Level

Theodolite:

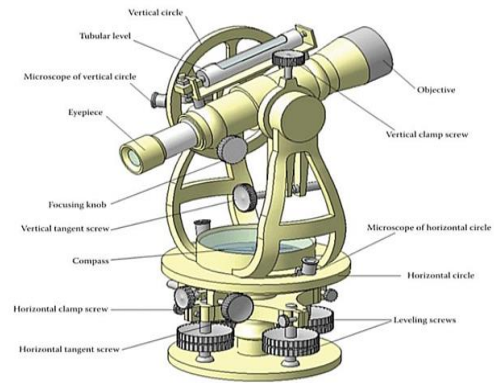
A theodolite survey is a method of measuring horizontal and vertical angles using a theodolite, a surveying instrument. Theodolites are used in civil engineering, land surveying, building construction, and other applications.

Parts of a theodolite

Telescope: A movable telescope that can rotate horizontally and vertically. It has crosshairs to help align the telescope with the target.

Horizontal and vertical circles: Scales that measure the angle of the telescope.

Leveling screws: Adjust the theodolite for leveling.



Tripod: A stable stand that supports the theodolite.

Plumb bob: A weighted tool that hangs from a string to help align the theodolite over a survey point.

Leveling staff: A graduated rod that measures height differences and vertical angles.

Compass: An instrument that helps orient the theodolite to true north.

SURVEYING

C. Vamsi.

24155-C-002

Surveying: An Overview

Surveying is the art and science of determining the relative positions of points on, above, or below the Earth's surface. It involves measuring distances, angles, and elevations to create maps, establish boundaries, and support construction and engineering projects. Surveying is a fundamental aspect of civil engineering, utilizing instruments like theodolites, tacheometers, and chains to achieve precise measurements.

Purpose of Surveying

Surveying serves several critical purposes:

1. **Mapping:** Preparing detailed maps of countries, states, or regions for administrative and developmental purposes.
2. **Military Maps:** Creating maps for strategic and defense planning.
3. **Topographical Surveys:** Documenting natural and artificial features like rivers, hills, roads, and buildings.
4. **Archaeological Surveys:** Mapping historical sites and artifacts for preservation and study.

Plain Surveying Vs Geodetic Surveying

No.	Plain Surveying	Geodetic Surveying
1	The earth surface is considered as plain Surface.	The earth surface is considered as Curved Surface.
2	The Curvature of the earth is ignored	The curvature of earth is taken into account.
3	Line joining any two stations is considered to be straight	The line joining any two stations is considered as spherical.
4	The triangle formed by any three points is considered as plain	The Triangle formed by any three points is considered as spherical.
5	The angles of triangle are considered as plain angles.	The angles of the triangle are considered as spherical angles.
6	Carried out for a small area < 250 km ²	Carried out for a small area > 250 km ²

Classification of Surveying

Surveying is broadly classified into two categories:

1. **Plane Surveying:** In this method, the Earth's surface is considered a flat plane, and the curvature is neglected. It is suitable for small areas (less than 195 sq. km) where the difference between the arc and chord is negligible. Plane surveying is commonly used for local projects like land surveys and construction layouts.
2. **Geodetic Surveying:** This method accounts for the Earth's curvature and uses spherical trigonometry for calculations. It is used for large-scale surveys covering vast areas and requires high precision. Geodetic surveys establish control points for reference in other surveys.

Classification Based on Nature of Field

1. **Land Surveying:** Deals with natural and artificial features on land. It includes:
 - **Topographical Surveys:** Mapping physical features like hills, rivers, and forests.
 - **Cadastral Surveys:** Defining property boundaries for legal purposes.
 - **City Surveys:** Planning urban infrastructure like roads, water supply, and buildings.
2. **Marine Surveying:** Focuses on water bodies for navigation, harbor construction, and determining sea levels. It involves measuring water

depth, shoreline topography, and tidal fluctuations.

3. **Astronomical Surveying:** Uses observations of celestial bodies to determine absolute locations and directions on Earth.

Classification Based on Object

1. **Geological Surveying:** Studies Earth's structure and resources.
2. **Mine Surveying:** Maps mines and underground tunnels.
3. **Archaeological Surveying:** Documents historical sites and artifacts.
4. **Military Surveying:** Creates maps for defense and strategic purposes.

Classification Based on Instruments Used

1. **Chain Surveying:** Uses chains to measure distances.
2. **Compass Surveying:** Employs a compass to measure angles.
3. **Plane Table Surveying:** Uses a plane table for mapping.
4. **Theodolite Surveying:** Utilizes a theodolite for precise angle measurements.
5. **Tacheometric Surveying:** Measures distances and elevations using a tacheometer.
6. **Photographic Surveying:** Uses photographs for mapping and measurements.

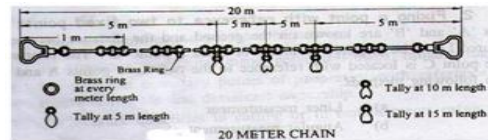
Classification Based on Methods

1. **Triangulation Surveying:** Divides the area into triangles for measurement.
2. **Traverse Surveying:** Measures a series of connected lines.

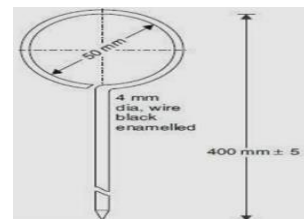
Instruments Used in Chain Surveying

Chain surveying is the simplest form of surveying and uses the following instruments:

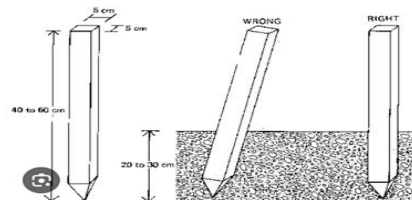
1. **Chain:** Measures horizontal distances. Chains are made of steel links and come in lengths of 20m or 30m.



2. **Arrows:** Mark the end of each chain length.



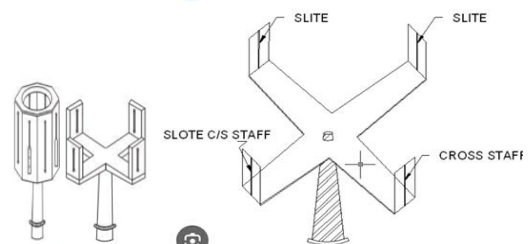
3. **Pegs:** Wooden stakes used to mark survey points.



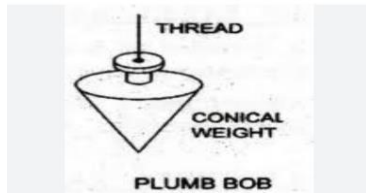
4. **Ranging Rods:** Help in aligning survey lines.



5. **Offset Rods:** Measure perpendicular distances from the main survey line.



6. **Plumb Bob:** Ensures vertical alignment of instruments.



7. **Cross Staff:** Sets out right angles to the chain line.

Principle of Chain Surveying Chain surveying divides the area into a network of connected triangles, as triangles are the simplest shapes to plot. The arrangement of triangles depends on the terrain and obstacles. The method is suitable for small, flat areas with minimal obstructions.

Advantages of Chain Surveying

- Simple and easy to understand.
- Requires minimal equipment and manpower.
- No complex calculations are involved.
- Cost-effective for small areas.

Disadvantages of Chain Surveying

- Unsuitable for steep slopes, undulating terrain, or waterlogged areas.
- Time-consuming for large areas.
- Prone to errors due to manual measurements.
- Complicated in areas with many details or obstructions.

Conclusion

Surveying is a vital discipline in civil engineering, enabling the accurate measurement and mapping of land and water bodies. Chain surveying, though simple, is limited in scope and accuracy. Modern surveying methods, such as geodetic and theodolite surveying, offer greater precision and are essential for large-scale projects. Understanding the principles and tools of surveying is crucial for effective planning and execution of engineering and construction projects.



Fig:an image made using generative artificial intelligence

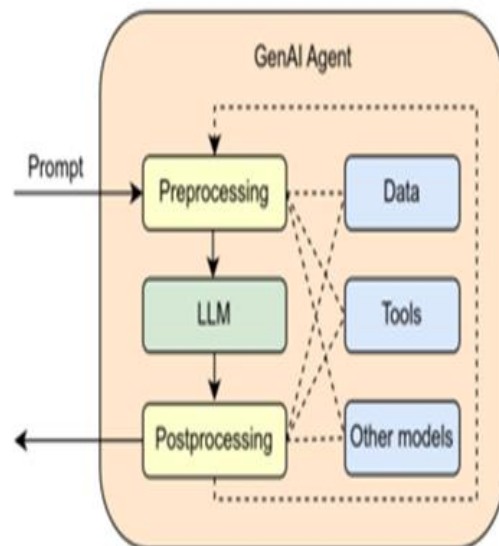
Generative artificial intelligence (generative AI, GenAI, or GAI) is a subset of Artificial Intelligence that uses generative models to produce text, images, videos, or other forms of data. These models learn the underlying patterns and structures of their training data and use them to produce new data based on the input, which often comes in the form of natural language prompts.

Generative AI has uses across a wide range of industries, including software development, healthcare, finance, entertainment, customer service, sales and marketing, art, writing, fashion, and product design. However, concerns have been raised about the potential misuse of generative AI such as cybercrime, the use of fake news or deep fakes to deceive or manipulate people, and the mass replacement of human jobs. Intellectual property law concerns also exist around generative models that are trained on and emulate copyrighted works of art. Generative AI models are used to power Chatbot products such as ChatGPT, programming tools such as GitHub Copilot, text-to-image products

such as Midjourney, and text-to-video product such as Runway Gen-2. Generative AI features have been integrated into a variety of existing commercially available products such as Microsoft Office (Microsoft Copilot), Google Photos, and the Adobe Suite (Adobe Firefly). Many generative AI models are also available as open-source software, including Stable Diffusion and the LLaMA language model.

Architecture of a generative AI agent

Smaller generative AI models with up to a few billion parameters can run on smartphones, embedded devices, and personal computers.



For example, LLaMA-7B (a version with 7 billion parameters) can run on a Raspberry Pi 4 and one version of Stable Diffusion can run on an iPhone 11. Larger models with tens of billions of parameters can run on laptop or desktop computers. To achieve an acceptable speed, models of this size may require accelerators such as the GPU chips produced by NVIDIA and AMD or the Neural Engine included in

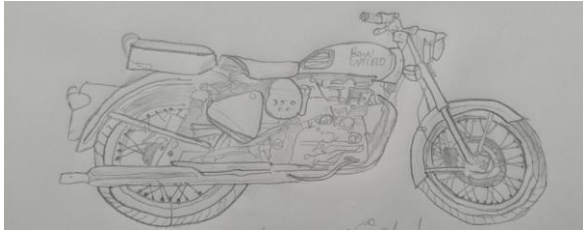
Apple silicon products. For example, the 65 billion parameter version of LLaMA can be configured to run on a desktop PC. The advantages of running generative AI locally include protection of privacy and intellectual property, and avoidance of rate limiting and censorship. The subreddit /LocalLLaMA in particular focuses on using consumer-grade gaming graphics cards through such techniques as compression. That forum is one of only two sources Andrej Karpathy trusts for language model benchmarks. YannLeCun has advocated open-source models for their value to vertical applications and for improving AI safety. Language models with hundreds of billions of parameters, such as GPT-4 or PaLM, typically run on datacenter computers equipped with arrays of GPUs (such as NVIDIA's H100) or AI accelerator chips (such as Google's TPU). These very large models are typically accessed as cloud services over the Internet. In 2022, the

United States New Export Controls on Advanced Computing and Semiconductors to China imposed restrictions on exports to China of GPU and AI accelerator chips used for generative AI. Chips such as the NVIDIA A800 and the Biren Technology BR104 were developed to meet the requirements of the sanctions. There is free software on the market capable of recognizing text generated by generative artificial intelligence (such as GPTZero), as well as images, audio or video coming from it. Potential mitigation strategies for detecting generative AI content include digital watermarking, content authentication, information retrieval, and machine learning classifier models. Despite claims of accuracy, both free and paid AI text detectors have frequently produced false positives, mistakenly accusing students of submitting AI-generated work.

Royal Enfield

A. CharanTej

24155-M-001



THE BEGINNING

The Enfield Cycle Company made motorcycles, bicycles, lawnmowers and stationary engines under the name Royal Enfield out of its works based at Redditch, Worcestershire. The legacy of weapons manufacture is reflected in the logo comprising the cannon, and the motto “Made like a gun”. Use of the brand name Royal Enfield was licensed by the Crown in 1890.

THE EARLY YEARS

In 1909 Royal Enfield surprised the motorcycling world by introducing a small Motorcycle with a 2 ¼ HP V twin Motosacoche engine of Swiss origin. In 1911 the next model was powered by a 2 ¾ HP engine and boasted of the well known Enfield 2-speed gear. In 1912 came the JAP 6 HP 770 CC V twin with a sidecar combination. It was this motorcycle which made Enfield a household name. 1914 saw the 3 HP motorcycles this time with Enfield’s own engine which now had the standardised Enfield paint scheme of black enamelled parts and green tank with gold trim.

THE INDIA CONNECTION

Royal Enfield motorcycles have been sold in India since 1949. In 1955, the Indian government started looking for a suitable motorcycle for its police forces and the army for patrolling duties on the country’s border. The Bullet 350 was chosen as the most suitable bike

for the job. The Indian government ordered 800 of these 350 cc motorcycles, an enormous order for that time. Thus In 1955, the Redditch Company partnered with Madras Motors in India to form what was called ‘Enfield India’ to assemble these 350 cc Bullet motorcycles under licence in erstwhile Madras (now called Chennai). As per their agreement Madras Motors owned the majority (over 50%) of shares in the company. In 1957 tooling equipment was also sold to Enfield India so that they could manufacture components and start full-fledged production.



The Enfield Bullet dominated the Indian highways and with each passing year its popularity kept rising.

1964

The iconic Continental GT café racer is launched to great acclaim when a team of photojournalists ride it from John ‘o Groats to Lands End in under 24 hours, by way of 7 laps at the Silverstone circuit. The GT features a racing petrol tank, clip-on handlebars, rear sets, a humped race seat, rev counter and a swept-back exhaust.

1977

Royal Enfield India begins exporting the 350cc Bullet to the UK and Europe. Sales grow rapidly as the bikes develop a following amongst classic British motorcycle enthusiasts.

2013

Royal Enfield commences manufacturing at its second facility at Oragadam, Tamil Nadu. With increased capacity, the state-of-art factory will be the nucleus of the company's global ambitions in the future.

2008

The 500cc UCE engine was launched in India. The retro-styled Classic version achieved cult status immediately and sales grew rapidly.

THE HINDU WARRIOR: MAHARANA PRATAP

N. Sarath Kumar
24155-M-017



MaharanaPratap (1540 - 1597) was a Rajput king of Mewar in Rajasthan, India. He was a symbol of Rajput valor and is known for his resistance against the Mughal emperor Akbar.

●**Early life:**

Born on May 9, 1540 in Kumbhalgarh fort
Eldest son of Udai Singh II and JaiwantaBai
Married to AjabdePunwar of Bijolia

●**Reign:**

Became king of Mewar in 1572 at the age of 32
Ruled until his death in 1597
Succeeded by his son Amar Singh-1

●**Known for:** Leading the Rajput resistance against the Mughal emperor Akbar, The Battle of Haldighati (1576), The Battle of Dewair (1582), and Reconquering Mewar.

●**Legacy:**

A hero in Rajasthan for his bravery, sacrifice, and independent spirit

A historical site and memorial in Udaipur honors his valor

A topic in the Medieval History section of the IAS mains exam

● **Death:**

Died on January 19, 1597 from injuries sustained during a hunting accident.

Introduction

In the world of social media, Instagram stands out as one of the most popular and widely used platforms. Its focus on sharing images, videos, and stories has transformed how people connect and communicate online. However, Instagram didn't come out of nowhere — it was the brainchild of visionary developers and entrepreneurs who saw the potential for a platform dedicated to visual storytelling. In this article, we'll explore the software behind Instagram and the story of its creator, Kevin Systrom, and how his idea became a global phenome

The Creation of Instagram

Instagram was co-founded in 2010 by Kevin Systrom and Mike Krieger, two Stanford graduates with a shared interest in technology and entrepreneurship. Initially, the app was launched under the name "Burbn," inspired by Systrom's love of bourbon and his desire to create an app centered around location check-ins and photo sharing. However, it was soon apparent that users were more drawn to the photo-sharing feature, prompting Systrom and Krieger to pivot their focus and streamline the app into what would eventually become Instagram.

The name "Instagram" comes from a combination of "instant" and "telegram," reflecting the app's mission to deliver photos instantly to users around the world. The app's design and functionality were simple yet innovative — users could take photos, apply filters, and share them with their followers, all in a few taps



Instagram logo

Instagram's success can be attributed to its intuitive design and compelling features that kept users engaged. Some key aspects of the platform include:

1. **Filters**: Instagram's photo filters were revolutionary. They allowed users to enhance their photos with ease, creating a distinct aesthetic that set Instagram apart from other social media apps. This feature became one of Instagram's signature tools.
2. **Stories**: In 2016, Instagram introduced "Stories," a feature where users can share photos and videos that disappear after 24 hours. This concept was inspired by Snapchat, but Instagram's version quickly gained popularity, offering users a more temporary and casual way to share content.
3. **Explore Page**: The Explore tab allows users to discover content based on their interests and engagement patterns. This feature helped Instagram attract a broader audience, allowing users to find new creators and trends.
4. **Shopping**: Instagram also introduced a shopping feature, allowing businesses to sell products directly through the app. This turned the platform into a social commerce hub and empowered influencers and brands to market their products.

5. ****Reels****: In response to TikTok's rise in popularity, Instagram launched Reels, a feature that allows users to create and share short-form videos with music, effects, and editing tools

The Creator: Kevin Systrom



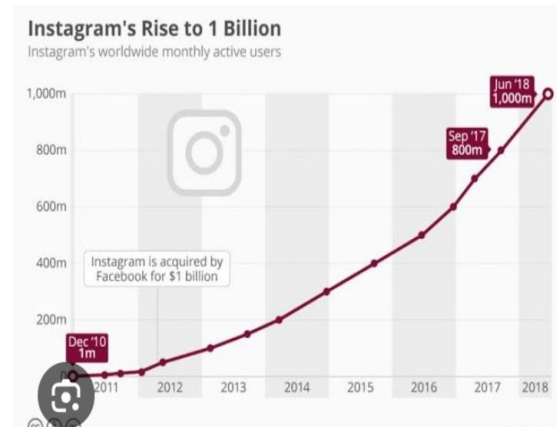
Kevin Systrom, one of Instagram's co-founders, had a vision for creating a platform that was both aesthetically pleasing and user-friendly. Born on December 30, 1983, in Holliston, Massachusetts, Systrom attended Stanford University, where he studied management science and engineering. It was during his time at Stanford that he met Mike Krieger, with whom he would later co-found Instagram.

Before founding Instagram, Systrom worked at Google and Odeo (which later became Twitter), gaining valuable experience in technology and startup culture. His background in both engineering and business helped shape Instagram's user-centric design and its rapid growth trajectory.

After the launch of Instagram, Systrom and Krieger's startup quickly gained traction, attracting millions of users. The platform's rapid success caught the attention of Facebook, which acquired Instagram in 2012 for approximately \$1 billion in cash and stock. Despite the acquisition, Systrom and Krieger remained

involved with Instagram, continuing to innovate and grow the platform.

- Instagram's Rise to Dominance



Under Facebook's ownership, Instagram continued to thrive. With Facebook's massive user base and resources, Instagram was able to scale quickly. The platform introduced new features, including video sharing, live streaming, and the aforementioned Stories and Reels. These updates ensured that Instagram stayed relevant in the competitive social media space.

By 2018, Instagram had over 1 billion monthly active users, solidifying its position as one of the most important platforms in the social media landscape. Its influence extended beyond casual users, with influencers, businesses, and celebrities using the platform to promote products, services, and lifestyles.

The Exit of Systrom and Krieger

In 2018, Kevin Systrom and Mike Krieger announced that they were stepping down from their roles at Instagram. This decision came as a surprise to many, as Instagram was still thriving under their leadership. While the reasons behind their departure were not fully disclosed, it is believed that both co-founders sought to pursue new ventures and explore new opportunities outside of Facebook's shadow.

Since their departure, Instagram has continued to grow and evolve under the leadership of Facebook (now Meta) executives. However, the influence of Systrom and Krieger's vision can still be seen in the app's design, functionality, and the role it plays in shaping digital communication.

- Conclusion

Instagram's journey from a small photo-sharing app to a global social media giant is a testament to the vision and hard work of its creators, Kevin Systrom and Mike Krieger. Their ability to identify a gap in the market for a visual-centric platform, combined with their technical skills and understanding of user behavior,

propelled Instagram to the forefront of social media innovation.

Today, Instagram continues to evolve with new features and technologies, but its core mission remains the same: to help people connect through the power of visual content. Whether it's sharing a moment with friends, discovering new trends, or building a business, Instagram has become an essential part of the modern digital landscape.

The story of Instagram is one of entrepreneurial spirit, creativity, and vision — a reminder of how a simple idea, backed by the right team and execution, can change the world.

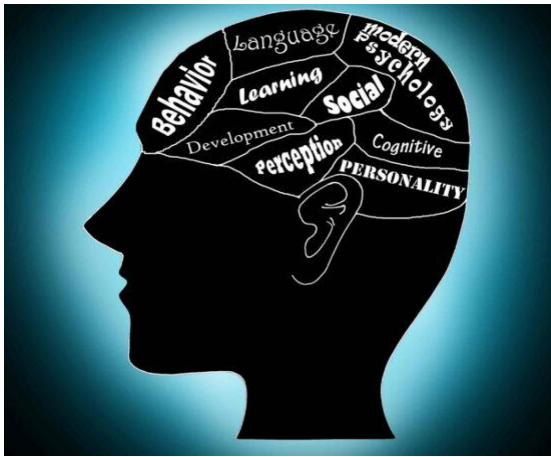
PSYCHOLOGY

PIN:24155-EC-031

NAME:N NANDA KISHORE

Psychology is the scientific study of the mind and behavior, a field that aims to understand how individuals think, feel, and act. It explores the complexities of human experiences, from simple reflexes to deep emotional responses, and investigates how we interact with the world around us. Over the years, psychology has evolved into a multifaceted discipline, integrating various theories and approaches to explain human behavior.

The Roots of Psychology: From Philosophy to Science:



Psychology's origins can be traced back to ancient civilizations, where philosophers pondered the nature of the human mind and soul. Early thinkers like Socrates, Plato, and Aristotle explored concepts of consciousness, perception, and memory, laying the groundwork for the field. However, psychology didn't truly become a scientific discipline until the late 19th century.

In 1879, German psychologist Wilhelm Wundt established the first experimental psychology laboratory in Leipzig, Germany, marking the beginning of psychology as an empirical science. Wundt's work, focused on

understanding sensory experiences and the structure of consciousness, paved the way for future advancements in the field.

WILHELM WUNDT



Major Schools of Thought in Psychology:

Over the years, several schools of thought have emerged within psychology, each contributing its unique perspective on human behavior and mental processes. Some of the most prominent include:

Structuralism:

Structuralism, pioneered by Wundt and his student Edward Titchener, aimed to break down the human mind into its basic components. Structuralists used introspection (the examination of one's own thoughts and feelings) to study sensory experiences and mental structures. While introspection was later criticized for its subjectivity, structuralism laid the foundation for experimental psychology.

Functionalism:

Influenced by Charles Darwin's theory of evolution, functionalism, led by William James, focused on understanding the purpose of mental processes and behaviors. Functionalists were interested in how consciousness helped

individuals adapt to their environment and survive. This approach shifted the focus from static mental structures to the dynamic role of the mind in real-world situations.

Psychoanalysis:

Sigmund Freud's psychoanalytic theory introduced the idea that unconscious forces shape human behavior. Freud believed that early childhood experiences, repressed desires, and unconscious thoughts heavily influence our actions. While many of Freud's theories have been criticized and revised, his work was instrumental in popularizing the importance of the unconscious mind.

Behaviorism:

In the early 20th century, behaviorism emerged as a dominant school of thought, led by figures like John Watson, B.F. Skinner, and Ivan Pavlov. Behaviorism rejected the study of consciousness and instead focused on observable behaviors. Behaviorists believed that all behaviors are learned through interaction with the environment, and they conducted extensive research on conditioning (the process of learning through stimuli and responses).

Humanism:

In contrast to the deterministic views of psychoanalysis and behaviorism, humanistic psychology, championed by Carl Rogers and Abraham Maslow, emphasized human potential, self-actualization, and personal growth. Humanists believed that people are inherently good and have the capacity for positive change. Their work introduced concepts like self-esteem, the importance of free will, and the pursuit of fulfillment.

Cognitive Psychology:

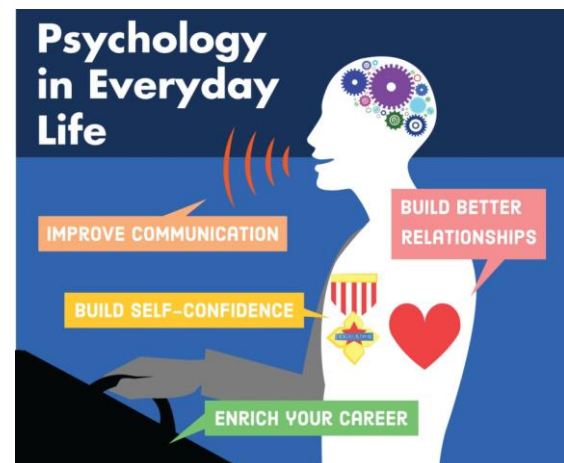
Cognitive psychology emerged in the 1950s as a response to behaviorism's neglect of mental processes. Cognitive psychologists, such as Jean Piaget, Noam Chomsky, and Ulric Neisser,

focused on understanding how the mind processes information. This approach looks at perception, memory, problem-solving, decision-making, and language, contributing significantly to the development of modern psychology and cognitive neuroscience.

The Application of Psychology in Everyday Life:

Psychology is not just an academic discipline; its principles have practical applications in everyday life. From helping individuals overcome mental health challenges to improving workplace environments, psychology has a profound impact on society.

Mental Health Treatment: Clinical psychology is vital for treating psychological disorders, using therapies like cognitive-behavioral therapy (CBT), psychodynamic therapy, and mindfulness-based interventions.



These approaches help individuals understand their thoughts, emotions, and behaviors, leading to improved mental health.

Education: Educational psychologists play a key role in developing teaching strategies that cater to diverse learning needs. By understanding how people learn, psychologists help create environments that enhance students' academic performance and personal development.

Business and Marketing: In the business world, psychology informs human resources practices, leadership training, and consumer behavior

analysis. Understanding how people make decisions helps marketers and companies design more effective advertising strategies.

Relationships and Social Interaction: Social psychology helps us understand group behavior, influence, and communication. This knowledge is vital for improving interpersonal relationships, reducing conflict, and promoting cooperation in communities and workplace.

Conclusion:

Psychology is a fascinating and ever-evolving field that seeks to understand the complexities of human behavior. It bridges the gap between

science and human experience, offering insights that can improve mental health, education, social interaction, and overall well-being. Whether in the therapist's office, the classroom, or the workplace, the application of psychological principles continues to shape the world around us, making psychology an essential part of both personal and societal development.

QUANTUM COMPUTER

G. MANIDEEP, PIN NO :-24155-CM-034

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What is quantum computer

A quantum computer is a computer that uses quantum mechanics to perform calculations. Quantum computers use quantum bits, or qubits, to store and process information.

How a quantum computer works :

Quantum computers work by leveraging the principles of quantum mechanics to perform computations in ways that are fundamentally different from classical computers. Here's a simplified explanation of how they work:

Based on: qubits , quantum entanglement, quantum gates and circuits , quantum interference , measurement , algorithms , superposition

According to physics : quantum computers are entirely based on the principles of quantum physics. They use **superposition**, **entanglement**, and **quantum interference** to perform computations that are impossible or impractical for classical computers. While quantum computing is still in its early stages, it represents a revolutionary approach to computation rooted in the laws of quantum mechanics.

A quantum computer leverages the principles of quantum mechanics, such as superposition and entanglement, to perform complex computations far more efficiently than classical computers. Unlike classical bits, which are either 0 or 1, quantum bits (qubits) can exist in multiple states simultaneously, enabling parallel processing. This makes quantum computers exceptionally powerful for tasks like cryptography, optimization, and simulating quantum systems. However, they are still in early stages, facing challenges like error correction and scalability. Once fully realized, they could revolutionize fields like medicine, ai, and materials science.

Advantages of quantum computers:

1. **Speed:** quantum computers can solve complex problems (e.g., factorization, optimization) exponentially faster than classical computers.
2. **Parallelism:** qubits in superposition allow simultaneous processing of multiple states, enabling efficient parallel computation.
3. **Innovation:** potential breakthroughs in cryptography, drug discovery, ai, and material science.

Disadvantages of quantum computers:

1. **fragility:** qubits are highly sensitive to environmental interference, leading to errors and requiring advanced error correction.
2. **scalability:** building and maintaining large-scale quantum systems is technologically challenging.
3. **cost:** development and operation are extremely expensive, limiting accessibility.

4. Limited usefulness: not all problems benefit from quantum computing; classical computers remain better for many tasks.

Conclusion:

Quantum computing holds immense potential to revolutionize fields like cryptography, medicine, and ai by solving problems beyond classical

computers' reach. However, challenges like qubit stability and scalability remain. As global efforts and investments grow, collaboration across disciplines will be key to unlocking this technology's future. While still in its early stages, quantum computing promises to reshape our world, urging us to stay informed and prepared for its transformative impact.

QUANTUM COMPUTING

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Pin no:22155-CM-031

The Future of Quantum Computing

Quantum computing is an emerging field that promises to revolutionize industries by solving complex problems far beyond the capabilities of classical computers. Unlike traditional computing, which relies on binary bits, quantum computers use quantum bits (qubits) that leverage the principles of superposition and entanglement to perform computations at unprecedented speeds.

1. How Quantum Computing Works



Quantum computers operate on the principles of quantum mechanics, allowing them to process vast amounts of data simultaneously. Superposition enables qubits to exist in multiple states at once, while entanglement ensures that qubits remain correlated even when separated by great distances, leading to significantly enhanced computational power.

2. Key Players in Quantum Computing

Major technology companies and research institutions are investing heavily in quantum computing. Companies such as Google, IBM, Microsoft, and startups like Rigetti Computing and IonQ are making advancements in developing more stable and scalable quantum systems. These organizations are racing to achieve quantum supremacy—the point where quantum computers outperform classical computers in specific tasks.

3. Applications of Quantum Computing

Quantum computing has the potential to revolutionize various fields, including:

- **Cryptography:** Quantum computers could break traditional encryption methods, necessitating the development of quantum-resistant cryptography.
- **Drug Discovery:** Quantum simulations can model molecular interactions, accelerating the discovery of new drugs and materials.
- **Financial Modeling:** Quantum algorithms can optimize trading strategies, risk assessments, and complex financial models.
- **Artificial Intelligence:** Machine learning models may be significantly enhanced by quantum computing's ability to process large datasets efficiently.
- **Climate Modeling:** Quantum simulations can improve predictions in climate science, leading to better solutions for environmental challenges.

4. Challenges in Quantum Computing

Despite its potential, quantum computing faces several obstacles, including:

- **Qubit Stability:** Quantum systems are highly sensitive to external disturbances, making error correction a major challenge.
- **Scalability:** Building a large-scale quantum computer with a sufficient number of stable qubits remains a significant hurdle.
- **Cost:** The development and maintenance of quantum hardware require substantial investment in specialized infrastructure and research.



5. The Future of Quantum Computing

As research progresses, quantum computing is expected to transition from theoretical potential to practical applications. Advances in quantum hardware, error correction, and algorithm development will determine the speed of adoption across industries. Collaboration between academia, industry, and governments will play a crucial role in harnessing the power of quantum computing for the benefit of society.

Conclusion

Quantum computing represents one of the most exciting frontiers in modern technology. While challenges remain, its potential to disrupt industries and solve previously intractable problems makes it a critical area of innovation. As developments continue, the next decade could witness groundbreaking achievements that redefine the limits of computation.

Quantum Computing: The Future of High-Speed Computing

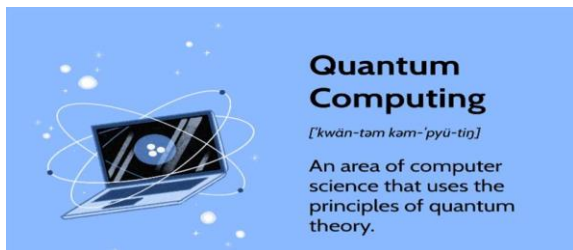
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22155-CM-034

Introduction

Quantum computing is an emerging field that leverages the principles of quantum mechanics to perform calculations at unprecedented speeds. Unlike classical computers, which use bits (0s and 1s) to process information, quantum computers use quantum bits or **qubits**, which can exist in multiple states simultaneously. This fundamental difference allows quantum computers to solve complex problems much faster than traditional computing systems.

What is Quantum Computing?



Quantum computing is based on **quantum mechanics**, a branch of physics that describes the behavior of particles at the smallest scales. Traditional computers rely on **binary bits**, which can be either 0 or 1. However, **qubits** take advantage of two key principles of quantum mechanics:

1. **Superposition** – A qubit can exist as both 0 and 1 at the same time, allowing quantum computers to process multiple calculations simultaneously.
2. **Entanglement** – When two qubits become entangled, the state of one qubit is instantly correlated with the state of another, regardless of distance. This enables faster communication and computational efficiency.

How Does Quantum Computing Work?

In classical computing, calculations follow a linear sequence of steps. In contrast, quantum computing can process vast amounts of data in parallel due to superposition and entanglement. Quantum algorithms, such as **Shor's algorithm** (for factoring large numbers) and **Grover's algorithm** (for searching unsorted databases), demonstrate how quantum computing can outperform classical methods in specific tasks.

Applications of Quantum Computing

Quantum computing has the potential to revolutionize various industries, including:

Cryptography: Quantum computers can break traditional encryption methods, leading to the development of quantum cryptography, which enhances data security.

Artificial Intelligence & Machine Learning: Quantum-enhanced AI can process large datasets more efficiently, improving pattern recognition and decision-making.

Drug Discovery & Healthcare: Simulating molecular structures at a quantum level can accelerate drug discovery and personalized medicine.

Financial Modeling: Banks and investment firms can use quantum computing for risk assessment, fraud detection, and financial forecasting.

Climate & Weather Forecasting: Quantum computers can analyze complex climate models to predict weather patterns more accurately.

****Optimization Problems****: Industries such as logistics, supply chain management, and transportation can benefit from optimized route planning and resource allocation.

Challenges in Quantum Computing

Despite its potential, quantum computing faces several challenges:

****Hardware Limitations****: Building stable qubits is extremely difficult due to their sensitivity to external factors such as temperature and electromagnetic radiation.

****Decoherence & Error Rates****: Qubits lose their quantum state over time, leading to errors in calculations.

****Scalability****: Current quantum computers are in early development stages and require significant advancements to become commercially viable.

****Cost****: Quantum computing systems require ultra-low temperatures and complex infrastructure, making them expensive to develop and maintain.

Companies Leading the Quantum Revolution

Several tech giants and research institutions are actively working on quantum computing advancements:

****Google Quantum AI****: Achieved quantum supremacy in 2019, solving a problem that classical computers would take thousands of years to complete.

****Microsoft Quantum****: Developing topological qubits to improve stability and reduce error rates.

Future of Quantum Computing

The future of quantum computing is promising, with ongoing research focused on improving qubit stability, reducing error rates, and increasing computational power. In the coming decades, quantum computers could revolutionize industries, solve unsolvable problems, and unlock new technological possibilities.

Conclusion

Quantum computing is a groundbreaking advancement that has the potential to transform the world of computing. While it is still in its infancy, continued research and innovation will drive its growth, opening up new opportunities across various fields. As quantum technology evolves, it will redefine problem-solving, security, and computational efficiency, shaping the future of technology in ways we have yet to imagine.

Natural Language Processing (NLP)

L.NAGARAJU.

22155-CM-034

Natural Language Processing (NLP): Transforming Human-Machine Interaction

Introduction:

Natural Language Processing (NLP) is a branch of artificial intelligence (AI) that enables computers to understand, interpret, and generate human language. It bridges the gap between human communication and machine understanding, making interactions with technology more natural and efficient. From voice assistants to automated translation, NLP is widely used in various fields, improving productivity and accessibility.



How NLP Works:

NLP involves a combination of linguistics, machine learning, and deep learning techniques to process language. Some key processes in NLP include:

Tokenization – Splitting text into words or sentences.

Lemmatization & Stemming – Reducing words to their base forms (e.g., “running” → “run”).

Part-of-Speech (POS) Tagging – Identifying grammatical components like nouns, verbs, and adjectives.

Named Entity Recognition (NER) – Detecting names, dates, locations, and other key entities.

Sentiment Analysis – Determining the emotions or opinions expressed in text.

Speech Recognition – Converting spoken language into written text.



Applications of NLP:

NLP is used in many real-world applications, enhancing various industries:

1. Virtual Assistants & Chatbots

AI-powered assistants like Siri, Alexa, and Google Assistant use NLP to recognize voice commands and respond naturally. Chatbots handle customer support and automate responses.

2. Machine Translation

Tools like Google Translate help break language barriers by translating text accurately.

3. Sentiment Analysis

Businesses use NLP to analyze customer feedback, social media posts, and reviews to understand user sentiments and improve their services.

4. Healthcare & Medical NLP

NLP helps doctors analyze medical records, assist in diagnosis, and automate documentation.

5. Search Engines & Recommendation Systems

Google and other search engines use NLP to understand search intent, while platforms like Netflix and YouTube recommend content based on user preferences.

Challenges in NLP:

Despite its advancements, NLP faces several challenges:

Language Ambiguity – Words with multiple meanings create confusion (e.g., “bat” as an animal or a sports tool).

Understanding Context & Sarcasm – AI struggles with sarcasm, humor, and figurative language.

Data Bias – Models may inherit biases present in training data, leading to ethical concerns.

Future of NLP

Advancements in deep learning models like GPT (Generative Pre-trained Transformer) and BERT have improved NLP significantly.

Future improvements will focus on:

Better contextual understanding

More accurate multilingual processing

Reducing biases in AI models

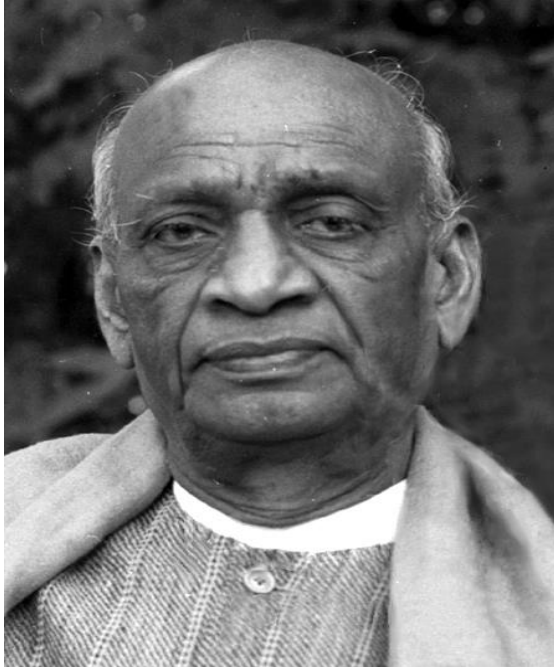
Conclusion:

Natural Language Processing is transforming how humans interact with technology. With applications in healthcare, business, education, and more, NLP is shaping the future of AI-driven automation and human-machine collaboration. As AI continues to evolve, NLP will play an even greater role in making technology smarter and more intuitive.

SARDAR VALLABHBHAI PATEL

M V RAGHU

24155-M -030



Sardar Vallabhbhai Patel (31st October, 1875 – 15th December, 1950)

Vallabhbhai Jhaverbhai Patel was born in Nadiad, Gujarat on 31 October, 1875. He was popularly known as Sardar Patel. He was a senior leader of the Indian National Congress who played a leading role in the country's struggle for independence. He acted as Home Minister during the political integration of India and the Indo-Pakistani War of 1947. He also served as the first Deputy Prime Minister of India. He was a successful lawyer. He subsequently organized peasants from Kheda, Borsad, and Bardoli in Gujarat in non-violent civil disobedience against the British Raj. Under the chairmanship of Sardar Patel, "Fundamental Rights and Economic Policy" resolution was passed by the Congress in 1931.

Patel was intensely loyal to Gandhi and organized relief efforts for refugees fleeing to

Punjab and Delhi from Pakistan and worked to restore peace. He led the task of forging a united India, successfully integrating into the newly independent nation those British colonial provinces that had been 'allocated' to India. It was Patel who persuaded almost every princely state to accede to India. His commitment to national integration in the newly independent country was total and uncompromising, earning him the sobriquet "Iron Man of India". He is also remembered as the "Patron saint of India's civil servants" for having established the modern all-India services system.

After suffering a massive heart attack (his second), Patel died on 15 December, 1950, at Birla House in Bombay. Patel is best remembered as the "Unifier of India". The Statue of Unity, the world's tallest statue, was dedicated to him on 31 October, 2018, which is approximately 182 m (597 ft) in height.

Relations With Gandhi And Nehru :

Patel was intensely loyal to Gandhi, and both he and Nehru looked to him to arbitrate disputes. However, Nehru and Patel sparred over national issues.[88] When Nehru asserted control over Kashmir policy, Patel objected to Nehru's sidelining his home ministry's officials. Nehru was offended by Patel's decision-making regarding the states' integration, having consulted neither him nor the Cabinet. Patel asked Gandhi to relieve him of his obligation to serve, believing that an open political battle would hurt India. After much personal deliberation and contrary to Patel's prediction, Gandhi on 30 January 1948 told Patel not to leave the government. A free India, according to Gandhi, needed both Patel and Nehru. Patel was the last man to privately

talk with Gandhi, who was assassinated just minutes after Patel's departure. At Gandhi's wake, Nehru and Patel embraced each other and addressed the nation together. Patel gave solace to many associates and friends and immediately moved to forestall any possible violence. Within two months of Gandhi's death, Patel suffered a major heart attack; the timely action of his daughter, his secretary, and a nurse saved Patel's life. Speaking later, Patel attributed the attack to the grief bottled up due to Gandhi's death.

Criticism arose from the media and other politicians that Patel's home ministry had failed to protect Gandhi. Emotionally exhausted, Patel tendered a letter of resignation, offering to leave the government. Patel's secretary persuaded him to withhold the letter, seeing it as fodder for Patel's political enemies and political conflict in India. However, Nehru sent Patel a letter dismissing any question of personal differences or desire for Patel's ouster. He reminded Patel of their 30-year partnership in the independence struggle and asserted that after Gandhi's death, it was especially wrong for them to quarrel. Nehru, Rajagopalachari, and other Congressmen publicly defended Patel. Moved, Patel publicly endorsed Nehru's leadership and refuted any suggestion of discord, and dispelled any notion that he sought to be prime minister.

Nehru gave Patel a free hand in integrating the princely states into India. Though the two committed themselves to joint leadership and non-interference in Congress party affairs, they sometimes would criticise each other in matters of policy, clashing on the issues of Hyderabad's integration and UN mediation in Kashmir. Nehru declined Patel's counsel on sending assistance to Tibet after its 1950 invasion by the People's Republic of China and on ejecting the Portuguese from Goa by military force.

When Nehru pressured Rajendra Prasad to decline a nomination to become the first President of India in 1950 in favour of

Rajagopalachari, he angered the party, which felt Nehru was attempting to impose his will. Nehru sought Patel's help in winning the party over, but Patel declined, and Prasad was duly elected. Nehru opposed the 1950 Congress presidential candidate Purushottam Das Tandon, a conservative Hindu leader, endorsing Jivatram Kripalani instead and threatening to resign if Tandon was elected. Patel rejected Nehru's views and endorsed Tandon in Gujarat, where Kripalani received not one vote despite hailing from that state himself. Patel believed Nehru had to understand that his will was not law with the Congress, but he personally discouraged Nehru from resigning after the latter felt that the party had no confidence in him.

Fight for independence:



In September 1917, Patel delivered a speech in Borsad, encouraging Indians nationwide to sign Gandhi's petition demanding Swaraj – self-rule – from Britain. A month later, he met Gandhi for the first time at the Gujarat Political Conference in Godhra. On Gandhi's Encouragement, Patel became the secretary of the Gujarat Sabha, a public body that would become the Gujarati arm of the Indian National Congress. Patel now energetically fought against veth – the forced servitude of Indians to Europeans – and organised relief efforts in the wake of plague and famine in Kheda.[22] The Kheda peasants' plea for exemption from taxation had been turned down by British

authorities. Gandhi endorsed waging a struggle there, but could not lead it himself due to his activities in Champaran. When Gandhi asked for a Gujarati activist to devote himself completely to the assignment, Patel volunteered, much to Gandhi's delight.[23] Though his decision was made on the spot, Patel later said that his desire and commitment came after intense personal contemplation, as he realized he would have to abandon his career and material ambition

Awards AndHonours:

Bharat Ratna (1991, posthumous)

In popular media:

- 1947: Patel was featured on the cover of *Time* magazine.
- 1976: KantilalRathod directed a documentary on SardarVallabhbhai Patel.
- 1982: In Richard Attenborough's *Gandhi* (1982), actor Saeed Jaffrey portrayed Patel.
- 1989: In a satirical novel *The Great Indian Novel* by ShashiTharoor, the character of VidurHastinapuri is simultaneously based on Patel as well as the epic *Mahabharata* character Vidura.
- 1993: The biographical film *Sardar* was produced and directed by Ketan Mehta and featured noted Indian actor PareshRawal as Patel; it focused on Patel's leadership in the years leading up to independence, the partition of India, India's political integration and Patel's relationship with Gandhi and Nehru. The film was screened retrospectively on 12 August 2016 at the *Independence Day Film Festival* jointly presented by the Indian Directorate of Film Festivals

and Ministry of Defense, commemorating the 70th Indian Independence Day.

- 2000: ArunSadekar plays Patel in *Hey Ram* – a film made by Kamal Haasan

Death

Patel's health declined rapidly through the summer of 1949. He later began coughing blood, whereupon Maniben began limiting his meetings and working hours and arranged for a personalised medical staff to begin attending to Patel. The then Chief Minister of West Bengal, Dr. Bidhan Chandra Roy heard Patel make jokes about his impending end, and in a private meeting Patel admitted to his ministerial colleague N. V. Gadgil that he was not going to live much longer. Patel's health worsened after 2 November, when he began losing consciousness frequently and was confined to his bed. He was flown to Bombay on 12 December on advice from Dr Roy, to recuperate as his condition was deemed critical.[114] Nehru, Rajagopalachari, Rajendra Prasad, and Menon all came to see him off at the airport in Delhi. Patel was extremely weak and had to be carried onto the aircraft in a chair. In Bombay, large crowds gathered at Santacruz Airport to greet him. To spare him from this stress, the aircraft landed at Juhu Aerodrome, where Chief Minister B. G. Kher and Morarji Desai were present to receive him with a car belonging to the Governor of Bombay that took Vallabhbhai to Birla House.

After suffering a massive heart attack (his second), Patel died on 15 December

1950 at Birla House in Bombay.[117] In an unprecedented and unrepeated gesture, on the day after his death more than 1,500 officers of India's civil and police services congregated to mourn at Patel's residence in Delhi and pledged "complete loyalty and unremitting zeal" in India's service.[118] Numerous governments and world leaders sent messages of condolence upon Patel's death, including Trygve Lie, the Secretary-General of the United Nations, President Sukarno of Indonesia, Prime Minister Liaquat Ali Khan of Pakistan and Prime Minister Clement Attlee of the United Kingdom.



In homage to Patel, Prime Minister Jawaharlal Nehru declared a week of national mourning.[120] Patel's cremation was planned at Girgaum Chowpatty, but this was changed to Sonapur (now Marine Lines) when his daughter conveyed that it was his wish to be cremated like a common man in the same place as his wife and brother were earlier cremated. His cremation in Sonapur in Bombay was attended by a crowd of one million including Prime Minister Jawaharlal Nehru, Rajagopalachari and President Rajendra Prasad.

Snowflake Data Breach: A Wake-Up Call for Cloud Security

K. Pavan Kumar Reddy
22155-CM-038



In a shocking revelation that has sent ripples through the tech industry, Snowflake, a leading cloud-based data warehousing company, recently fell victim to a significant data breach. The incident, which came to light in early 2023, has raised serious concerns about the security of cloud-based platforms and the vulnerabilities that even the most sophisticated systems can face.

The Breach: What Happened

The breach was first detected when unusual activity was noticed in Snowflake's internal systems. Upon further investigation, it was discovered that unauthorized actors had gained access to sensitive customer data. The attackers exploited vulnerability in Snowflake's authentication protocols, allowing them to bypass security measures and exfiltrate data.



While the exact scope of the breach is still under investigation, preliminary reports suggest that the compromised data includes customer information, proprietary business data, and potentially even financial records. Snowflake has confirmed that the breach affected a "limited number of customers," but the implications are far-reaching, given the company's extensive client base, which includes some of the world's largest corporations.

The Response: Swift but Scrutinized

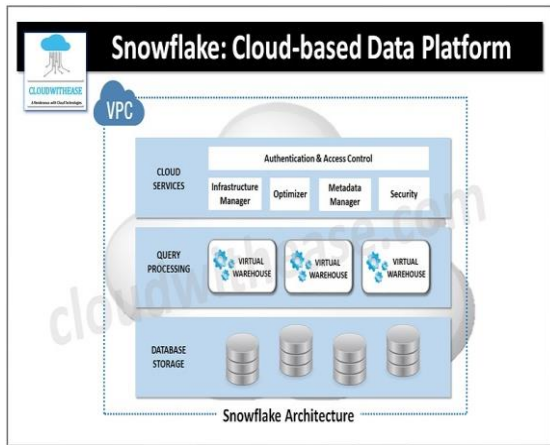


Snowflake acted swiftly in response to the breach, immediately notifying affected customers and launching a comprehensive internal investigation. The company also engaged third-party cybersecurity experts to assess the damage and reinforce its security infrastructure. In a public statement, Snowflake's CEO emphasized the company's commitment to transparency and assured customers that steps were being taken to prevent future incidents.

However, the breach has not been without its critics. Industry experts have pointed out that Snowflake's rapid growth and increasing

reliance on cloud-based solutions may have outpaced its ability to implement robust security measures. The incident has sparked a broader debate about the trade-offs between scalability and security in the cloud computing era.

The Implications: A Broader Conversation on Cloud Security



The Snowflake data breach serves as a stark reminder of the challenges associated with securing cloud-based platforms. As businesses increasingly migrate their operations to the cloud, the potential attack surface for cybercriminals expands. This incident underscores the need for continuous vigilance, regular security audits, and the adoption of advanced threat detection technologies.

Moreover, the breach highlights the importance of a shared responsibility model in cloud security. While cloud service providers like

Snowflake are responsible for securing their infrastructure, customers must also take proactive steps to protect their data. This includes implementing strong authentication mechanisms, encrypting sensitive information, and regularly monitoring for suspicious activity.

Lessons Learned: Moving Forward

In the aftermath of the breach, Snowflake has pledged to enhance its security protocols and invest in cutting-edge technologies to safeguard customer data. The company has also committed to fostering a culture of security awareness, both within its organization and among its customers.

For businesses that rely on cloud-based solutions, the Snowflake breach is a wake-up call. It underscores the importance of due diligence when selecting a cloud provider and the need for a comprehensive security strategy that addresses both internal and external threats. As the digital landscape continues to evolve, the lessons learned from this incident will be crucial in shaping the future of cloud security.

In conclusion, while the Snowflake data breach is undoubtedly a setback, it also presents an opportunity for the industry to reflect, learn, and innovate. By prioritizing security and collaboration, businesses can build a more resilient digital ecosystem that is better equipped to withstand the challenges of an increasingly interconnected world.

TECHNOLOGY AND GADGETS

Pin no:-24155-EC-036

Name:-P.Chaitanyakumar

INTRODUCTION:-



Thomas Edison created the world's first industrial research laboratory and is known as the father of technology. Technologies refers to the process by which companies and organizations implement innovative solutions to enhance their efficiency and competitiveness.

The fast development of technology over the past few decades has made its way into every aspect of our life. Technology has improved many facets of our life, from communication to commerce. However, significant privacy and security problems have emerged due to the broad adoption of technology. It is a comprehensive overview of the role, impact, and evolution of technology in our lives and society.

FUTURE TECHNOLOGY:-

Technology today is evolving at a rapid pace, enabling faster change and progress, causing an acceleration of the rate of change. However, it is not only technology trends and emerging technologies that are evolving, a lot more has changed, making IT professionals

realize that their role will not stay the same in the contactless world tomorrow. Technology has always been a key lever in a company's arsenal, but new consumer behaviors and macro trends mandate tech-driven innovation as part of any development strategy.

It provides smarter ways to work and makes life more convenient through gadgets, faster communication, and efficient transportation. Technology has boosted productivity in personal lives and businesses, bringing revolutionary changes across various fields. Check below the essay on technology for students. Looking to understand metaverse, blockchain, AI, quantum technologies, climate tech, or other new and disruptive tech? If you're considering the impact of new and emerging tech on your business strategy.

Every day there are new ideas and advancements in technology as the world becomes more involved in discovering and utilizing the potential of natural resources. Technology has improved human lives significantly by providing convenience and efficiency. Technology has boosted productivity in personal lives and businesses, bringing revolutionary changes across various fields.

Technology is the exploration of scientific knowledge to develop tools and techniques to transform the world by improving efficiency in almost everything we do. With every new technological invention.

CONCLUSION:-

Technology plays an important role in employment by creating jobs, enhancing productivity and facilitating remote work

opportunities. It is a powerful tool that has reshaped society.

GADGETS



INTRODUCTION:-

A GADGET is an electronic device that carries out a specific function. The function that it performs is impressive enough to be useful for our daily living and also it lessens the burden of accomplishing tasks. The first electronic device ever invented is the relay, a remote switch controlled by electricity that was invented in 1835 by Joseph Henry, an American scientist, although it is also claimed that the English inventor Edward Davy "certainly invented the electric relay" in his electric telegraph c.

Szabó (2009) traces the use of gadgets to a 1954 paper in graph theory by W. T. Tutte, in which Tutte provided gadgets for reducing the problem of finding a subgraph with given degree constraints to a perfect matching problem. However, the "gadget" terminology has a later origin, and does not appear in Tutte's paper.

IMPACT OF GADGETS IN OUR LIFE:-

In this fast-moving world, gadgets and electronic devices play an essential role; with the help of science and technology, anything is possible in this world. Therefore without having consciousness, we come across various gadgets in daily life. Electronic gadgets are of various types in the world of devices. In that way, they

make the life of people more accessible and more innovative.

Due to the advanced technologies, we can use gadgets of different kinds. We all depend on devices from the morning alarm clock to night, night lamps. No field is operating only with humans as overall man is dependent on them, as without them we cannot do anything. Some of the gadgets we cannot even imagine without them are Laptops, smartphones, microwaves, smartwatches, etc. A total of fifteen informants were selected among children, caretakers, parents, and teachers via face-to-face interviews. The findings show that the children accept the use of gadgets due to their usefulness and easiness.

Children's continuous usage of gadgets has many adverse effects, such as attention deficits, loss of focus, difficulty in learning, anxiety, etc. Thus, we need to understand that technology and gadgets make our lives easier. Therefore, we should not become addicted to them. Electronic gadgets are of various types in the world of devices. In that way, they make the life of people more accessible and more innovative.

CONCLUSION:-

Thus, Gadgets make our lives easier. Continuous use of gadgets can lead to social isolation, addiction, and sleep deprivation. Studies have shown that excessive screen time can lead to feelings of anxiety, depression, and stress.

The Role of Microprocessors in AI: How NVIDIA Overtook Intel in AI Processing

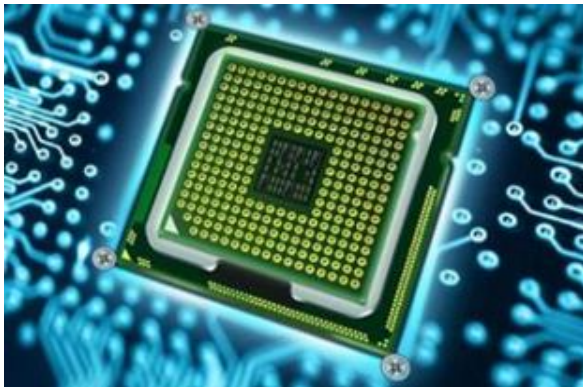
K L Lohith.

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Introduction

Microprocessors are the foundation of modern computing, responsible for executing instructions and processing data. With the rise of Artificial Intelligence (AI), microprocessors have evolved to handle complex computations at unprecedented speeds. While Intel dominated the microprocessor industry for decades, NVIDIA has emerged as the leader in AI processing. This article explores the fundamentals of microprocessors, their integration into AI, and why NVIDIA has surpassed Intel in AI performance.

1. What is a Microprocessor?



A **microprocessor** is a **single-chip CPU** that processes instructions, performs calculations, and executes tasks.

It integrates key components such as:

- **Arithmetic Logic Unit (ALU):** Performs mathematical and logical operations.
- **Control Unit:** Directs operations and manages data flow.

- **Registers & Cache:** Store data for quick access and enhance speed.

1.1 Evolution of Microprocessors

Microprocessors have evolved significantly since Intel introduced the **Intel 4004** in 1971. Here's a timeline of major developments:

Year	Development
1971	Intel 4004 – First commercial microprocessor (4-bit).
1980s	Intel 8086 & 80286 – Birth of x86 architecture.
1990s	Pentium Processors – Increased processing power for PCs.
2000s	Multi-core CPUs – Intel and AMD introduced dual/quad-core chips.
2010s	GPUs for AI – NVIDIA leveraged GPUs for deep learning.
2020s	AI-Specific Processors – NVIDIA and Google develop AI-optimized chips.

2. How Microprocessors Are Integrated into AI

AI applications, such as deep learning and machine learning, require immense computational power. Traditional **Central Processing Units (CPUs)** struggle with AI workloads due to their **sequential processing nature**. Instead, AI relies on **parallel computing**, which is where **Graphics Processing Units (GPUs)** excel.

2.1 Why AI Needs High-Performance Processors

AI models involve: □ **Training on massive datasets** (e.g., image recognition). □ **Running billions of matrix operations** (e.g., neural networks). □ **Real-time inference and predictions** (e.g., self-driving cars).

These tasks require microprocessors that can handle multiple operations **simultaneously**. While traditional CPUs execute instructions one by one, **GPUs process thousands of operations in parallel**.

3. Why AI Prefers NVIDIA Over Intel

3.1 Intel's Dominance in CPUs

Intel ruled the computing world for decades with powerful CPUs like the **Core i-series** and **Xeon processors**. These chips were ideal for general-purpose computing but lacked the parallel computing power necessary for AI workloads.



3.2 NVIDIA's Rise with GPUs

NVIDIA, initially a **gaming graphics company**, changed the industry by developing **CUDA (Compute Unified Device Architecture)** in 2006. CUDA allowed developers to use **GPUs for general-purpose computing**, unlocking AI potential.

3.3 Technical Comparison: NVIDIA vs. Intel in AI

Feature	NVIDIA (GPUs)	Intel (CPUs)
Processing Type	Parallel Processing	Sequential Processing
Cores	Thousands of CUDA/Tensor Cores	8-64 CPU Cores
AI Performance	Optimized for deep learning	General-purpose computing
Power Efficiency	High efficiency for AI workloads	Higher power consumption for AI
Software Support	CUDA, TensorRT, AI SDKs	Limited AI-optimized libraries

4. How NVIDIA Beats Intel in AI Performance



4.1 Example 1: AI Model Training (Deep Learning)

Training AI models requires **matrix multiplications and tensor computations**. NVIDIA's **Tensor Cores** (available in A100, H100, RTX 4090) accelerate this process.

□ Case Study: GPT-4 Training

- **NVIDIA A100 GPUs** powered OpenAI's **GPT-4** training.

- **Intel Xeon CPUs** were only used for minor tasks like data preprocessing.
- **Result:** GPUs completed training in weeks, while CPUs would have taken months.

4.2 Example 2: Self-Driving Cars (Tesla & NVIDIA Partnership)

Tesla's **Autopilot AI** relies on **NVIDIA DRIVE chips** to process real-time data from cameras, LiDAR, and radar sensors.

□ Comparison with Intel:

- Tesla previously used **Intel Mobileye**, but later switched to **NVIDIA AI GPUs** for faster real-time decision-making.
- NVIDIA's GPUs process sensor data **6X faster** than Intel's CPUs.

4.3 Example 3: AI-Powered Supercomputers

Most AI supercomputers use **NVIDIA GPUs** instead of Intel CPUs.

□ Example: NVIDIA-powered AI Supercomputer (Selene)

- Built for deep learning research.
- Uses **NVIDIA A100 GPUs** with 275 PetaFLOPS computing power.
- 10X faster than CPU-based supercomputers.

5. Why Intel Struggles in AI Against NVIDIA

Despite being a tech giant, Intel **failed to adapt** quickly to AI trends. Here's why NVIDIA took the lead:

5.1 Intel's Late Entry into AI-Specific Chips

- **Intel focused too much on CPUs**, underestimating AI's need for parallel computing.

- **NVIDIA invested early in AI GPUs (CUDA, Tensor Cores).**
- **Intel only introduced AI-optimized chips (Intel Gaudi, Habana AI) after 2020.**

5.2 Software & Developer Ecosystem

- NVIDIA's **CUDA ecosystem** is the industry standard for AI development.
- Intel lacks a strong AI software ecosystem.

5.3 AI Performance & Cost

- **NVIDIA GPUs are 10X faster than Intel CPUs in AI model training.**
- Companies like Google, Tesla, and OpenAI prefer NVIDIA due to performance gains.

6. The Future: Can Intel Catch Up?

Intel is now investing in AI with: □ **Intel Gaudi 2 & Gaudi 3 AI Accelerators** (competing with NVIDIA H100). □ **AI-optimized Xeon Processors** (for enterprise AI). □ **R&D in AI chip design** to compete with NVIDIA and Google's TPUs.

However, NVIDIA maintains its lead in **AI hardware and software integration**, making it the preferred choice for AI-driven industries.

7. Conclusion

Microprocessors have transformed AI computing, with **NVIDIA GPUs becoming the industry standard** due to their parallel processing power. While **Intel dominated the traditional CPU market**, NVIDIA's early investment in **AI-specific GPU architectures** allowed it to surpass Intel in AI performance. As AI continues to evolve, NVIDIA remains the preferred choice for deep learning, supercomputing, and autonomous systems.

Sea buckthorn (HippophaeRhamnoides): The King of Super fruits

A. Balu

22155-CM-005

Introduction

Sea buckthorn (HippophaeRhamnoides) is a deciduous shrub found across Europe and Asia, particularly in cold and arid regions. Known for its bright orange berries, this plant has been used for centuries in traditional medicine due to its high nutritional content and therapeutic properties. Today, Sea buckthorn is widely recognized for its benefits in skincare, cardiovascular health, and overall wellness.

This article explores the history, key characteristics, uses, and health benefits of Sea buckthorn.



Health Benefits of Sea buckthorn

Seabuckthorn's rich nutrient profile contributes to a wide range of health benefits:

Rich in Antioxidants

Contains flavonoids, carotenoids, and polyphenols that help fight oxidative stress.

Protects against chronic diseases such as cancer and diabetes.

Supports Heart Health

Omega 3, 6, 9, and rare 7 fatty acids help reduce cholesterol levels.

Strengthens blood vessels and improves circulation.

Enhances Skin Health

Promotes collagen production, keeping skin firm and youthful.

Aids in repairing damaged skin and reducing scars.

Improves Digestive Health

Contains fiber that aids digestion and supports gut health.

Used to treat gastritis and ulcers.

Strengthens the Immune System

High vitamin C content (up to 10 times more than oranges) boosts immunity.

Helps the body fight infections and recover from illness faster.

Promotes Liver Function

Detoxifies the liver and protects against fatty liver disease.

Supports overall metabolic health etc...

Seabuckthorn's broad range of benefits makes it an excellent natural remedy for overall wellness

History of Sea buckthorn

Sea buckthorn has a long history dating back thousands of years. Its use has been recorded in various ancient cultures:

Ancient Greece (4th Century BCE): Greek scholars, including Theophrastus and Dioscorides, documented Sea buckthorn's medicinal properties. It was often given to horses to improve their stamina and coat shine, leading to its Greek name Hippophae, meaning "shiny horse."

Traditional Chinese & Tibetan Medicine: Used for over 1,000 years in these medicinal systems, Sea buckthorn was considered a remedy for digestive issues, inflammation, and wound healing.

Mongolian Empire (13th Century): Legend has it that Genghis Khan's army used Sea buckthorn berries and oil to enhance strength and endurance during conquests.

DRDO - Dr Brahma Singh (21st Century): Soviet scientists studied Sea buckthorn for its potential in improving soldiers' resilience and astronauts' health, leading to its use in space programs.



Key Characteristics of Sea buckthorn

Sea buckthorn is a resilient plant that thrives in harsh environments. Some key features include:

Scientific Name : Hippophaerhamnoides

Family : Elaeagnaceae

Native Regions : Europe, Central Asia, the Himalayas, and Siberia

Appearance : A thorny shrub with silver-green leaves and bright orange berries

Growth Conditions : Prefers sandy soil, drought-resistant, and can survive extreme cold

Nutritional Profile : Rich in vitamins C, A, E, K, omega fatty acids, flavonoids, and antioxidants

Uses of Sea buckthorn

Sea buckthorn is highly versatile and is used in multiple industries:

Medicinal & Health Applications

Boosts Immunity: High vitamin C content enhances immune function.

Wound Healing: Traditional medicine used Sea buckthorn oil to heal burns, cuts, and ulcers.

Cardiovascular Support: Helps regulate blood pressure and cholesterol levels.

Anti-Inflammatory: Reduces symptoms of arthritis and other inflammatory diseases.

Skincare & Cosmetics

Moisturizing Agent: Found in creams, lotions, and serums for hydration.

Anti-Aging Properties: Rich in antioxidants, helping reduce wrinkles and sun damage.

Treatment for Skin Conditions: Used for eczema, psoriasis, and acne.

Food & Beverages



Juices & Teas: Sea buckthorn juice is popular for its tangy taste and health benefits.

Nutritional Supplements: Available as capsules and powders.

Cooking Oil: Sea buckthorn oil is used in some gourmet dishes for its unique flavor.

Environmental & Agricultural Uses

Soil Erosion Control: The plant's deep roots prevent soil degradation in arid regions.

Animal Feed: Used to improve livestock health, particularly for horses and poultry.

Conclusion

Sea buckthorn is a powerhouse of nutrition and medicinal benefits, making it a valuable natural remedy for overall health and wellness. With its rich history and wide-ranging applications, it continues to be a sought-after ingredient in medicine, skincare, and nutrition. With growing scientific research supporting its benefits, Sea buckthorn remains one of nature's most powerful plants for health and longevity. Whether consumed as a supplement, oil, or juice, it is a must-have for anyone seeking a natural way to enhance their well-being.

The Twilight Zone: The Line That Separates Day and Night

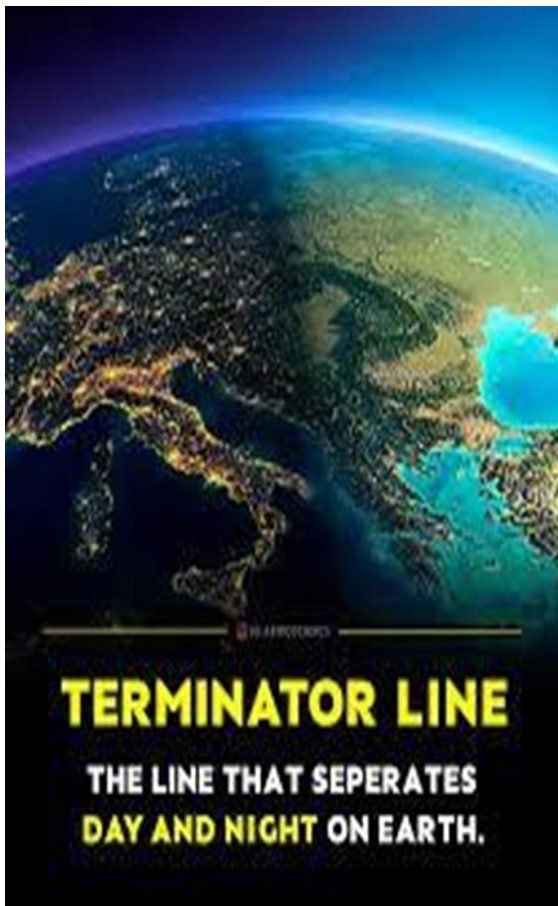
D. Dhanush

22155-CM-013

Introduction

The twilight zone, also known as the terminator, is the boundary between day and night on a celestial body, such as Earth, the Moon, or other planets. This transition region experiences neither full daylight nor complete darkness, creating a unique and often stunning visual phenomenon.

The twilight zone plays a critical role in astronomy, meteorology, ecology, and even space exploration. It affects everything from weather patterns to the daily rhythms of plants and animals. This article explores the science behind the twilight zone, its significance, and how it influences life on Earth and beyond.



The Science Behind the Twilight Zone

What Is the Twilight Zone?

The twilight zone, or the terminator, is the dividing line that separates the illuminated and darkened portions of a celestial body. On Earth, it constantly moves as the planet rotates, creating a transition from day to night and vice versa.

This zone can be observed in two main situations:

Sunrise Terminator – The line where night transitions into daylight.
Sunset Terminator – The line where daylight fades into night.

Types of Twilight

Twilight is divided into three phases based on how far the Sun is below the horizon: Civil Twilight (0° to -6° below the horizon)

The sky is still bright enough for most activities without artificial light. Common during sunrise and sunset when colors appear most vivid.
Nautical Twilight (-6° to -12° below the horizon)

The horizon is still visible at sea, used historically for navigation. The stars start becoming visible in the sky.

Astronomical Twilight (-12° to -18° below the horizon)

The sky is dark enough for astronomers to observe faint celestial objects. Marks the transition into complete night.

Each phase has different effects on visibility, temperature, and atmospheric conditions.

The Twilight Zone's Effects on Earth

Impact on Climate and Weather

The twilight zone influences global weather patterns by creating temperature variations between the sunlit and dark regions of Earth. Some effects include:

Wind Currents: The transition from warm to cool temperatures generates wind systems, such as land and sea breezes.

Cloud Formations: The cooling effect of the twilight zone helps form clouds and mist.

Atmospheric Refraction: Light bending through the atmosphere during twilight causes optical illusions like the "green flash" at sunset.

The Twilight Zone in Ecology

The transition from day to night plays a crucial role in ecosystems

Animal Behavior: Many species rely on twilight for hunting, migration, and communication. Nocturnal animals (bats, owls) become active.

Diurnal animals (birds, insects) prepare for rest.

Marine Life: The deep-sea twilight zone (mesopelagic zone) supports unique species adapted to low light conditions.

Human Activities: Agriculture, fishing, and urban planning are influenced by twilight hours.



The Twilight Zone Beyond Earth

The Terminator on Other Planets

Other planets experience their own twilight zones based on rotation speed and atmospheric composition:

The Moon

Since the Moon has no atmosphere, its twilight zone is a stark line between extreme temperatures.

Lunar astronauts experience rapid transitions from sunlight to darkness. Mars

Thin atmosphere causes longer, more colorful twilights.

Blue sunsets are observed due to dust scattering light differently.

Gas Giants (Jupiter, Saturn, etc.)

Their twilight zones blend into thick cloud layers, making smooth transitions. Storms and jet streams interact with the terminator, affecting their climates.

Importance for Space Exploration

Satellite Operations: Many satellites use the twilight zone for efficient solar power collection.

Habitability Studies: The concept of the twilight zone is used to study exoplanets with potential habitable conditions.

Astronomical Observations: Twilight conditions affect how telescopes capture deep-space objects.

The Beauty and Cultural Significance of the Twilight Zone

Twilight in Art, Literature, and Mythology

Throughout history, twilight has been a symbol of transition, mystery, and duality.

In Mythology

Many cultures associate twilight with gods and supernatural events (e.g., Norse Ragnarok, Greek Hesperides).

In Literature and Film

Writers and filmmakers use twilight settings to create suspense and beauty.

Example: The Twilight Zone TV series used twilight as a metaphor for entering the unknown. In Photography and Visual Arts

Photographers capture "golden hour" (warm light at sunrise/sunset) and "blue hour" (cool twilight tones).

The Emotional and Psychological Effects of Twilight

Mood and Relaxation: The soft lighting of twilight is calming and often used in therapy.

Spiritual and Philosophical Meaning: Many religions use twilight for prayer, meditation, and reflection.

Connection with Nature: Twilight encourages outdoor activities like stargazing, hiking, and evening walks.

Conclusion

The twilight zone, or terminator, is more than just a boundary between light and darkness. It is a scientific phenomenon, an ecological driver, a celestial marker, and a source of inspiration for culture and art.

As technology advances and our understanding of the universe grows, the twilight zone will continue to be a crucial subject of scientific study and human fascination.

The Evolution and Impact of Web Technology

K.Nithin

22155-CM-063

Introduction

The internet has become an essential part of our daily lives, revolutionizing communication, business, and entertainment. At the core of this digital transformation is *web technology*, which has evolved from simple static web pages to complex, AI-driven applications. Understanding the history, key technologies, and future trends of web development helps us appreciate its significance in shaping the modern world.



1. History of Web Technology:

a. The Birth of the Web – Web 1.0 (1990s: The Static Era):

The concept of the World Wide Web (WWW) was introduced by Sir Tim Berners-Lee in 1989 while working at CERN. He developed:

HTML (HyperText Markup Language) – The backbone of web pages.

HTTP (HyperText Transfer Protocol) – The protocol for communication between web browsers and servers.

URL (Uniform Resource Locator) – The address system for locating web pages.

In 1991, the first-ever website was launched (info.cern.ch), marking the beginning of

Key Features of Web 1.0:

- Static, text-based pages with minimal interactivity.
- No user-generated content.
- Websites primarily served as digital brochures for businesses.
- Example: Early company websites, government portals, and news archives.



b. The Rise of Interactivity – Web 2.0 (2000s: The Social Era)

By the early 2000s, advancements in web technologies enabled the transition to Web 2.0, introducing dynamic, interactive, and user-generated content.

Key Technologies that Enabled Web 2.0:

- JavaScript & AJAX (Asynchronous JavaScript and XML): Allowed dynamic content updates without refreshing pages.
- CSS (Cascading Style Sheets): Enhanced design and layout flexibility.
- PHP, Python, and Ruby: * Server-side scripting languages for interactive web applications.

Key Features of Web 2.0:

- Social media platforms (Facebook, Twitter, YouTube).
- Collaborative content creation (Wikipedia, blogs, forums).
- E-commerce growth (Amazon, eBay).
- Mobile web experience with responsive design.

Web 2.0 democratized the internet, enabling users to share, collaborate, and interact, giving rise to the era of social networking and online communities.

c. The Age of Intelligence – Web 3.0 (Present & Future: The AI & Decentralized Era)*

We are now entering Web 3.0, a phase focused on AI-driven experiences, blockchain security, and decentralization.

Key Technologies Powering Web 3.0:

- Artificial Intelligence (AI) & Machine Learning (ML): Enables personalized experiences and automation.
- *Blockchain & Decentralized Networks: Provides security and data transparency.
- *Semantic Web: Helps computers understand human-like queries.

- *5G & Edge Computing: Enhances speed and efficiency.

Key Features of Web 3.0:

- Decentralized applications (DApps): No single entity controls them (e.g., Ethereum-based apps).
- AI-driven chatbots and voice search: Assist users in real-time.
- Enhanced security and privacy: Users have more control over their data.
- Virtual & Augmented Reality (VR/AR): Creates immersive web experiences.

Web 3.0 is shaping a future where the internet is smarter, more secure, and user-centric, driving innovation across industries.

2. Core Technologies in Web Development:

a. Frontend Technologies (User Interface & Experience)

Frontend development focuses on how users interact with websites.

Key Technologies:

- HTML5: Defines website structure.
- CSS3: Enhances styling and animation.
- JavaScript (JS): Adds interactivity and real-time updates.
- Frameworks & Libraries:
 - React.js (Meta) – Component-based UI development.
 - Angular.js (Google) – Scalable web apps.
 - Vue.js – Lightweight and flexible framework.

b. Backend Technologies (Server-Side & Database Management):

The backend is responsible for data processing, authentication, and overall functionality.

Key Technologies:

- Programming Languages:
 - Node.js (JavaScript-based runtime)
 - Python (Django, Flask) – AI and automation-focused.
 - PHP (Laravel) – Traditional web development.
 - Java (Spring Boot) – Enterprise applications.



Databases:

- Relational: MySQL, PostgreSQL.
- NoSQL: MongoDB, Firebase.
- APIs & Web Services: RESTful APIs, GraphQL.

c. Web Security Technologies:

With cyber threats rising, security is crucial.

Key Security Technologies:

- SSL/TLS Encryption: Protects data transfers.
- OAuth& JWT Authentication: Secures user logins.
- Firewalls & DDoS Protection: Prevents cyberattacks.

3. Future Trends in Web Technology

a. Progressive Web Apps (PWAs):

- Work offline and load faster than regular websites.
- Provide a mobile-app-like experience without installation.

b. AI & Chatbots in Web Applications:

- AI-driven assistants personalize user experience.
- Examples: ChatGPT, Google Assistant, Siri.

c. Voice Search Optimization:

- Websites are adapting to voice commands and conversational AI.
- Example: Google's voice search, Alexa integration.

d. Blockchain & Decentralization:

- Improves security, transparency, and user privacy.
- Decentralized applications (DApps) eliminate intermediaries.

e. The Metaverse & Web Integration :

- 3D virtual environments will be integrated into web experiences.
- Example: Meta (Facebook) is developing a metaverse for social and business interactions.

Conclusion:

Web technology has evolved from static HTML pages to intelligent, AI-powered decentralized applications. Each phase—Web 1.0, Web 2.0, and Web 3.0—has shaped how we interact online. With emerging technologies like AI, blockchain, and the metaverse, the future of web

technology promises a more immersive, secure, and interconnected digital world.

As businesses and developers adapt to these innovations, web technology will continue to transform industries and redefine human interaction in the digital age.



Wright brothers

A. Poojitha

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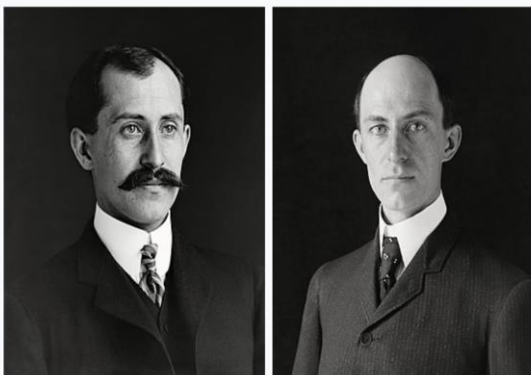
Creating the First Heavier-Than-Air Powered Aircraft

The desire to fly is both ancient and universal. For centuries, humans took to the sky—by balloons, kites, and gliders. The Wrights took flight to the next level with the first successful heavier-than-air powered aircraft. At the center of the story of the first heavier-than-air powered flight are two talented, yet modest, Midwestern bicycle shop owners who created a world-changing technology: the Wright brothers.

Who Were the Wright Brothers?

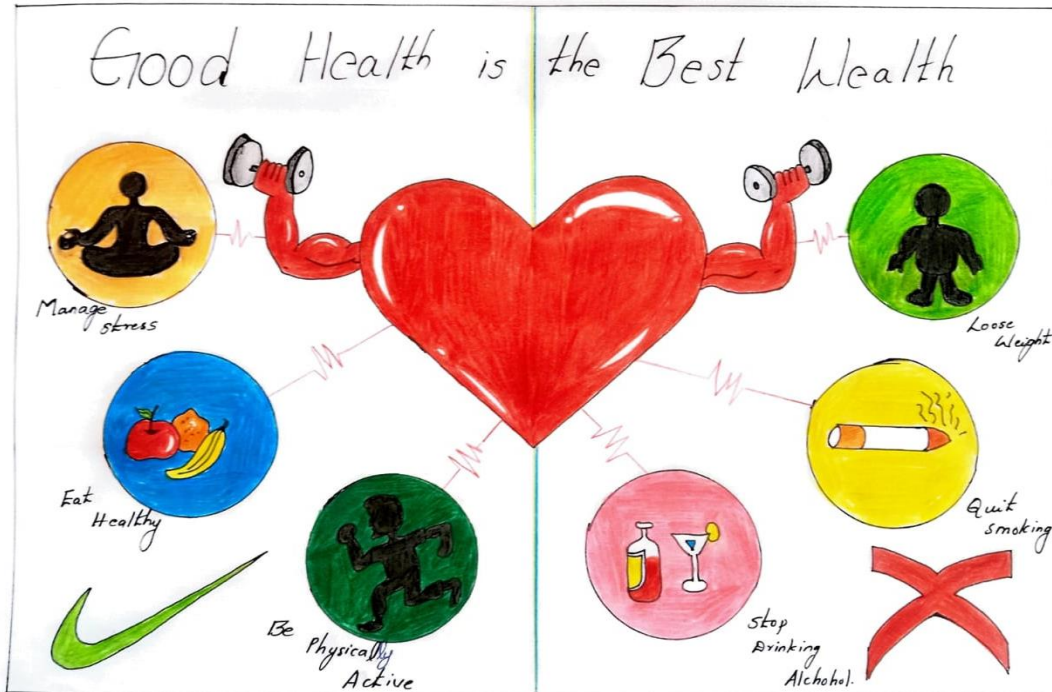
Orville and Wilbur Wright are typically portrayed as clever bicycle mechanics who somehow invented the airplane. They are referred to as if they were a single persona: “the Wright brothers”—one mind, one personality. However, Wilbur and Orville were, of course, in actuality two distinct individuals who brought unique talents and perspectives to their collaborations.

Wrights' unique combination of engineering knowledge and skill, creative abilities, and personality traits were evident in the business pursuits they took on in the years before they began their groundbreaking aeronautical research.



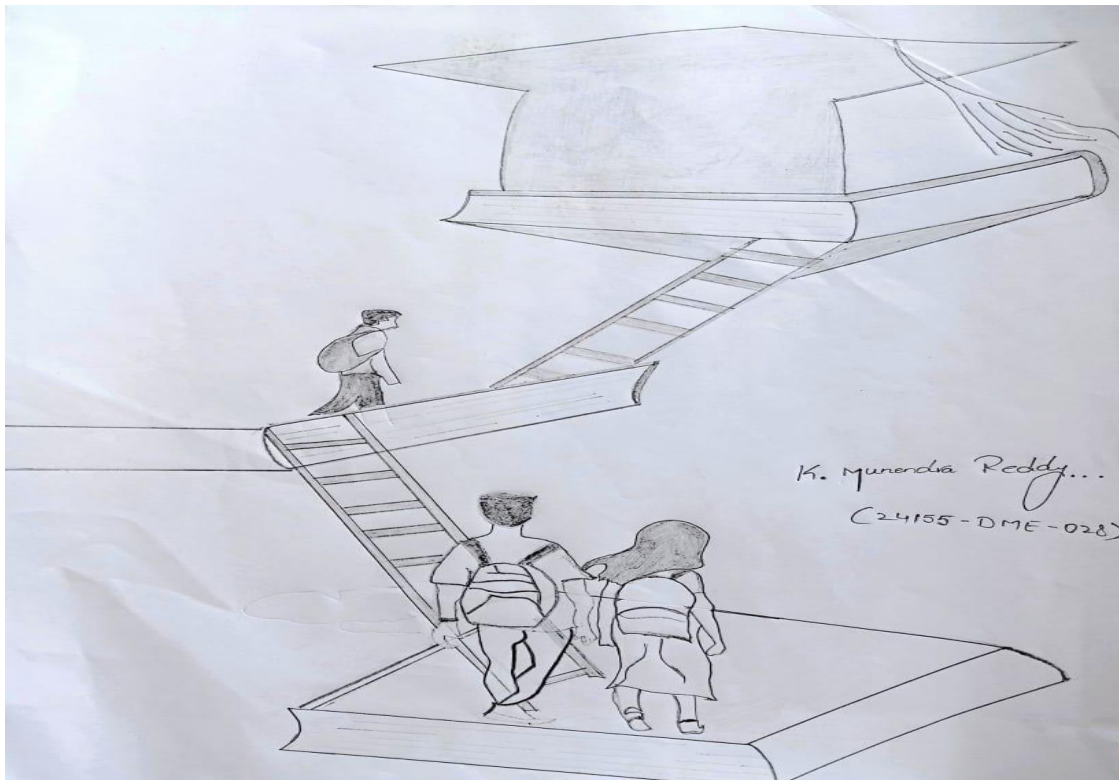
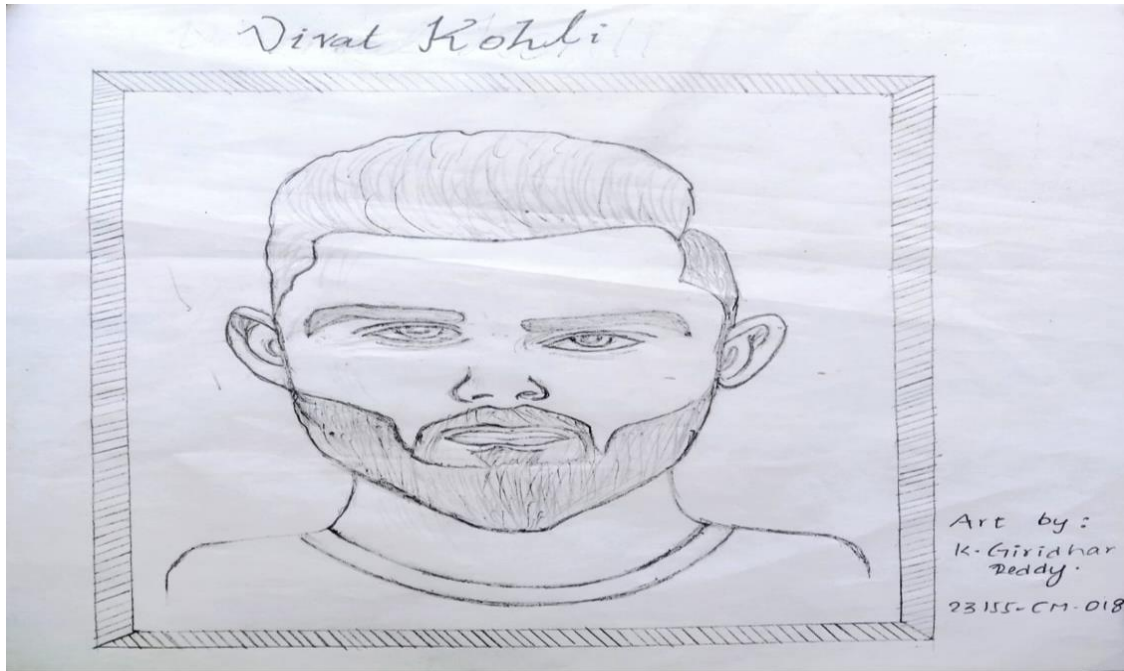
Orville (left) and Wilbur Wright in 1905

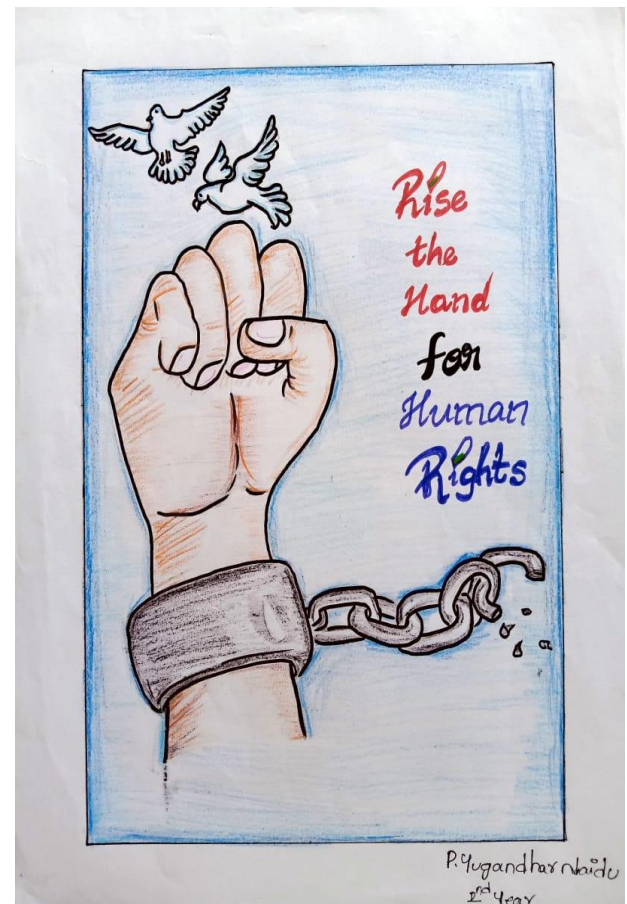
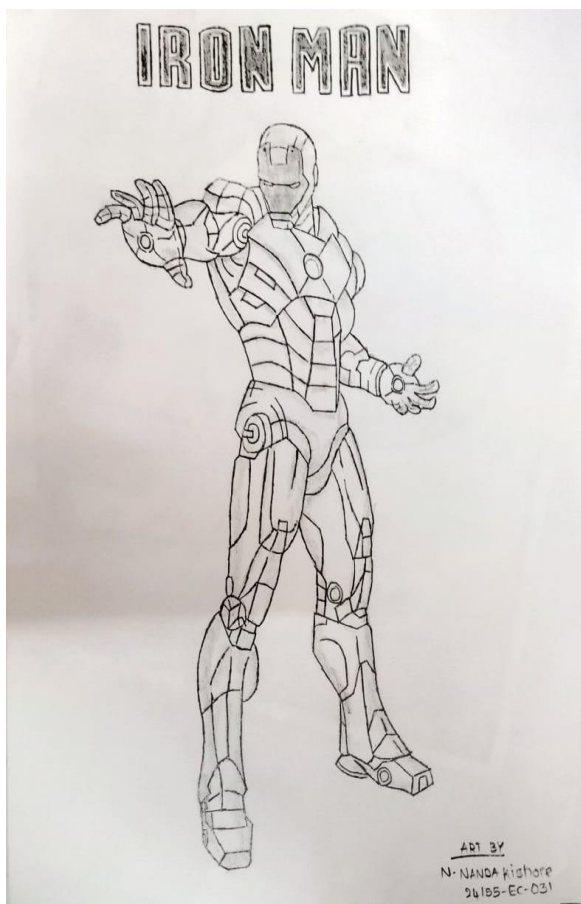
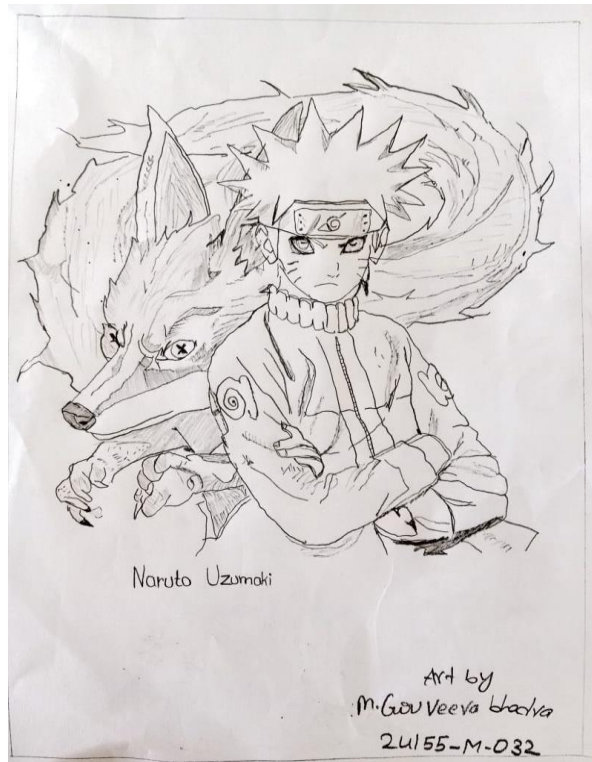
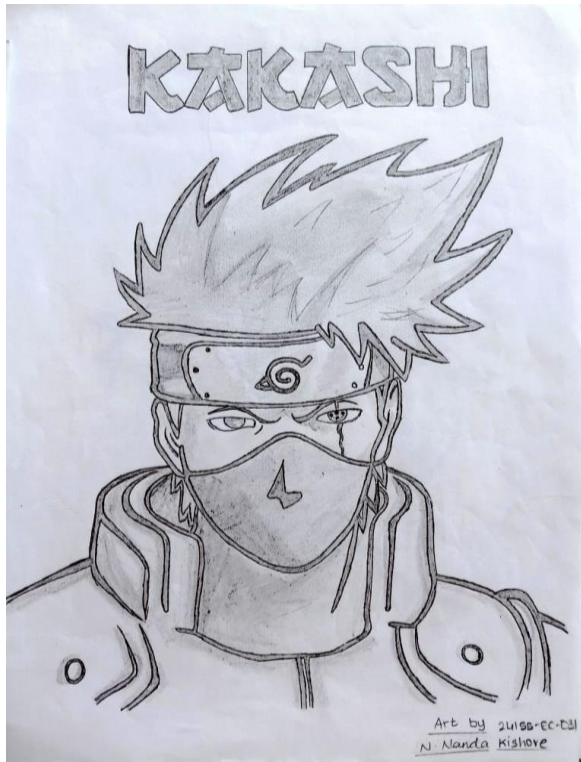
The success of the 1903 Wright Flyer is perhaps one of the most iconic stories from American history. But how did Orville and Wilbur Wright end up as pioneering aeronautical engineers? Even before they got interested in flight, the



Art by - J. Rudra Prathap, 22155-CM-050









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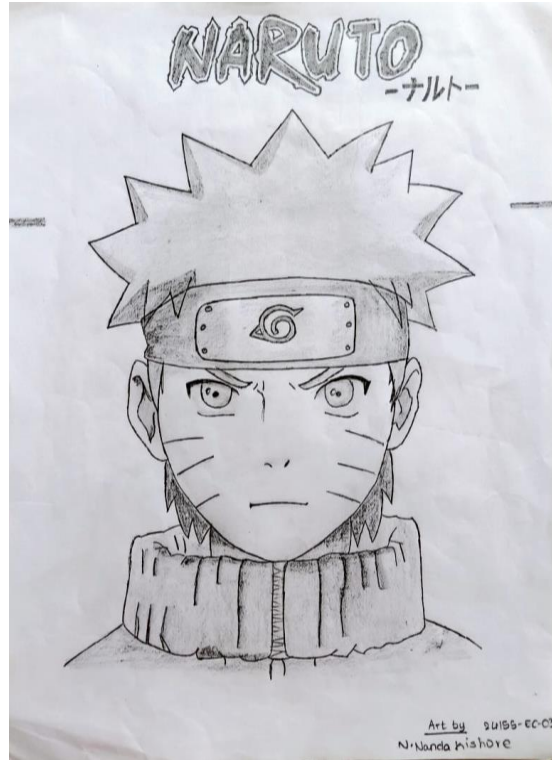
Health benefits of dance

Improve Flexibility

Reduce Stress

Help your Heart

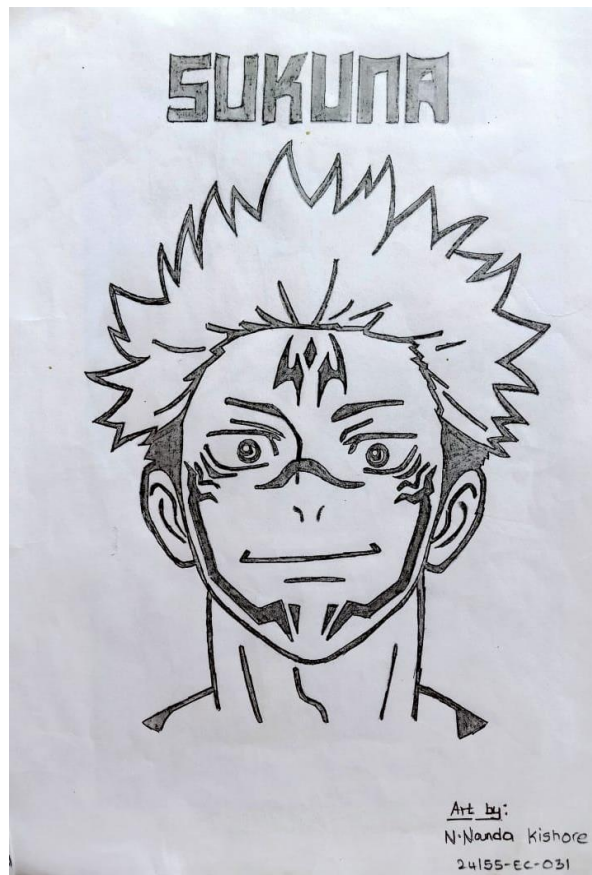
DANCE



NARUTO

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N.Nanda kishore



SUKUNA

Art by:
N.Nanda kishore
24155-EC-031



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