

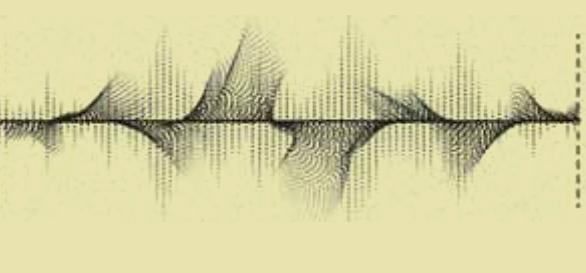
EDITION 14

# COZINE



## ANACHRONISM

A discrepancy between something and its proper time or historical context.



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DEEMED TO BE  
UNIVERSITY  
RAMRAO ADIK  
INSTITUTE OF TECHNOLOGY  
NAVI MUMBAI

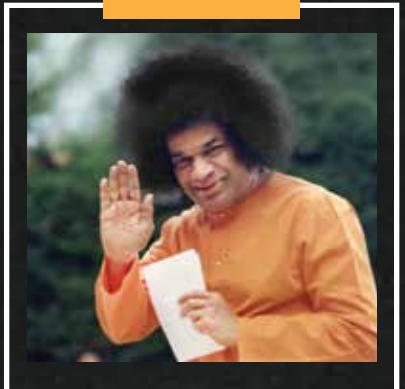
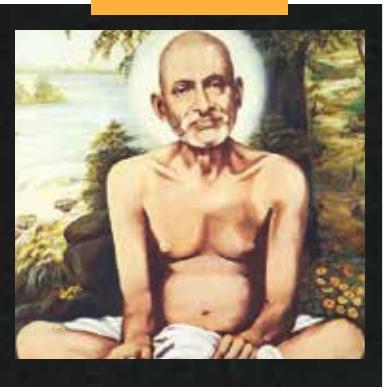
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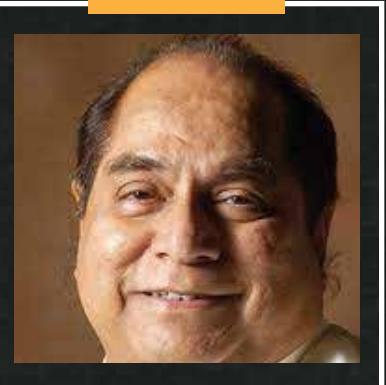
## ANACHRONISM

- COMMODORE 64 • Sony Playstation • Sony AIBO •
- Xerox company • And More •

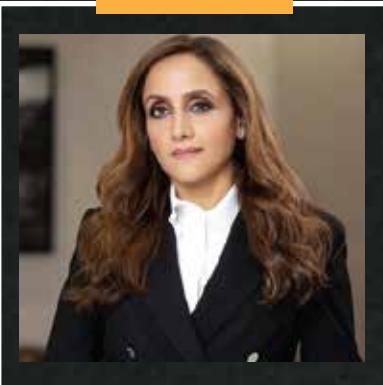
# OUR INSPIRATIONS



# GOOD WISHES



**Dr. D. Y. Patil**  
Founder President,  
RAES



**Mrs. Shivani V. Patil**  
Managing Trustee



**Dr. Vijay D. Patil**  
Beloved President

Formed in 1965, the Computer Society of India has been instrumental in guiding the Indian IT industry on the right path since its formative years. Today, the CSI has 70 chapters all over India, 418 student branches and more than 90000 members including India's most famous IT industry leaders, brilliant scientists and dedicated academicians.

#### **CSI Faculty Member Benefits:**

CSI individual members have full access to CSI knowledge portal with unique login id and a password. CSI provides an excellent opportunity for virtual networking with other members using blogs, communities and forums. Members get an opportunity to offer workshops/trainings on profit sharing basis in collaboration with CSI and also get opportunity to deliver guest lectures in educational institutes associated to CSI across India.

#### **CSI Student Member Benefits:**

CSI student members get access to CSI knowledge portal with unique login id and a password. CSI student members enjoy discounts in participation fees for participation in competitions in all CSI student chapters. CSI also provides opportunities for students for different industry approved certification programmes. CSI also provides opportunities to interact with different industry professionals who can guide in chalking out a proper career.

**SBC: Dr. Leena R. Ragha**

**Faculty Co-ordinator: Prof. Tushar Ghorpade**

# Best Wishes



**Dr. Vijay D. Patil**  
President,  
Dr. D Y Patil University

I am happy to see RAIT students participating in activities outside of their regular curriculum. This magazine is a project of the CSI-RAIT technical committee to keep students informed about the latest technological developments around the world. This new version of COZINE includes a lot of new ideas for reaching out to students and is a great read. Team COZINE has done an excellent job, and I congratulate them on their dedication. In all of their future endeavours, I wish CSI-RAIT the best of luck



**Mrs. Shivani V. Patil**  
Managing Trustee,  
Dr. D. Y. Patil University

Going through the most recent issue of Cozine, CSI's magazine, gives me a lot of pleasure. It is educational, and the articles have been thoroughly researched. I applaud the team on their efforts and wish them further success in the future



**Dr. Mukesh D. Patil**  
Principal,  
Ramrao Adik Institute  
of Technology

RAIT aspires to produce engineers that are both technically and ethically sound, as well as socially aware. It provides a wide array of opportunities that help students develop into thought and action leaders who are practical and creative thinkers. CSI-RAIT is a technology-driven society that fosters technology and leadership capabilities among its members in order to address society's rapidly changing needs. COZINE, an annual technical magazine, aims to achieve these objectives. I applaud the Cozine team for releasing the 12th issue in keeping with RAIT's vision and objectives. COZINE, you've done a fantastic job! Enjoy your reading and learn something new!



**Dr. Leena R. Ragha**  
Student Branch Coordinator  
Computer Engineering,  
Ramrao Adik Institute  
of Technology

This year brought in many new challenges and was highly unpredictable. Even though the students missed out on most of their nurturing time, they did the most with what they had, ensuring involvement from everyone. This is indeed commendable. The spirit to learn and adapt is highly demonstrated by CSI-RAIT through their participation in almost every activity including technical hands-on workshops, expert sessions and article writing. The Decrypt, Technophilia and Cozine platforms are used effectively to express their thoughts. The zeal and confidence in students is upheld through their dedication to achieving the best in an adverse environment.

# President's Note

As I pen down these final words, I am filled with a mix of emotions – pride in our accomplishments, gratitude for your unwavering support, and a touch of nostalgia as my tenure as President comes to an end. What was my favourite memory of the year? Um, now that I think about it, maybe it was meeting you.

Looking back on the time I've spent in CSI (1348 days to be precise), I am humbled by the dedication and commitment displayed by each member of this esteemed committee. Together, we have weathered storms, celebrated triumphs, and embarked on a collective mission to elevate this committee to the realm of excellence but mostly importantly we had fun.

To the students/members, you are the soul of our college, the driving force behind everything we do. Your boundless enthusiasm, curiosity, and insatiable desire to learn new things have inspired me beyond measure. It has been an absolute privilege to witness your growth during my time here.

To the Junior committee heads and the General Organising Team Members, your support and encouragement have empowered me, and the memories of our joint accomplishments will forever hold a special place in my heart. Thank you all for being an extraordinary team, mentors, and friends. I firmly believe that together, we have created a lasting impact that will be felt for years to come. All the credit goes to each one of you!

To the faculty and staff, thank you for your dedication and unwavering commitment to empowering us. Your passion for teaching and learning has been the cornerstone of our committee's success, and your impact on the lives of our students is immeasurable.

As I bid farewell to this chapter of my life, I want to extend my sincere best wishes to the next core team. May they find the same level of camaraderie and support that I have been fortunate to experience during my tenure.

It has been an honour and a privilege to serve as your President, and I will forever cherish the memories and friendships forged during my time here. I leave with a heart full of gratitude and a deep sense of fulfilment.

Thank you all once again.

Signing off,  
You know the name.  
President, CSI-RAIT



# Editor's Note

This academic year would be the first complete year of functioning after the somber days of the pandemic. As we resume routine, so does the true glory of this magazine- the Cozine, presented by CSI-RAIT.

"Change is the only constant."

As our world progresses rampant, we are often dazed by its fast-paced disposition. As humans, we need frequent reminders of what has been and how this change comes to be. It may be our inherent urge to revel in the nostalgia of our daily happenings that shapes the awe about our past; nevertheless, it is crucial to reflect on how our technology now is a result of the developments in the years before.

The late 1900s witnessed a remarkable surge in groundbreaking innovations and ideas, from the genesis of gaming consoles to pioneering medical inventions, while completely revolutionizing the world as we knew it. As we stand on the cusp of the future, we look back at the marvels that opened up new realms of possibilities. Hence the theme- ANACHRONISM: Timeless Blends.

This 14th edition of Cozine delves into the monuments of technology such as the Xerox Machine, Sony Playstation and more. Cozine v14 is going to be an exciting read as it will act as a time capsule for your tech-savvy brains.

Working with my team for Cozine has been an experience nothing short of fun and learning. I was lucky enough to work with my talented editors- Aditya Anurag, Riya Patil and Sangeet More. To my designers- Akansh Jatav, Drishti Singha and Shreys Dhekane- it amazes me to see your skills at work in real-time. I also want to thank my fellow CSI core members and mentors for our juniors- Shaheen Ali, the Chief Design Officer, Piyul Patel, the Treasurer and Vedant Pimple, our beloved CSI President for being patient and working with us to bring this magazine to life.

None of this would be possible without our Principal, Dr. M. D. Patil Sir. Thank you so much for everything. Similarly, Leena Madam, Vidhate Sir, Tushar Sir and Anupama Madam- we cannot thank you enough for guiding us throughout.

I want to extend my gratitude towards the writers of this magazine. And to the readers, we hope you enjoy this as much as we did while making it.

CSI-RAIT dedicates Cozine to the one reading right now. We hope to stir curiosity within you and push you to unearth the answers you seek for.

Ovee Jawdekar,  
Editor in Chief.



# FACES BEHIND THE MAGAZINE



Prof.  
Mr. Tushar Ghorpade  
Guide



Prof.  
Mrs. Anupama Shenoy  
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Writer

# ANACHRONISM

Technology has evolved exponentially over the years, shaping the way we live, work and interact. The late 1900s witnessed a remarkable surge in groundbreaking innovations and ideas, from the genesis of gaming consoles to pioneering medical inventions, while completely revolutionizing the world as we know it. As we stand on the cusp of the future, we look back at the marvels that opened up new realms of possibilities. Presenting our theme for Cozine '23-

ANACHRONISM:  
Timeless Blends



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Mimeograph, also called stencil duplicator, duplicating machine that uses a stencil consisting of a coated fibre sheet through which ink is pressed. Employing a typewriter with the ribbon shifted out of the way so that the keys do not strike it, the information to be duplicated is typed on the stencil.

## A history of photocopying and mimeography

# XEROX

# XEROX

# XEROX

# XEROX

Imagine that you are given the task of photocopying commonly called taking a Xerox of the document. You can just go to a shop and ask for copies of the document, the guy will put the document in the Xerox machine and in minutes you will get warm copies, so simple, you don't have to do anything at all. But here's the twist, you aren't allowed to use a photocopier or Xerox machine for your task, now things have become interesting, you have many options to complete your task. You can use carbon paper or a mimeograph, But here's the twist- you aren't allowed to use a photocopier or Xerox machine for your task. Now, things have become interesting. You have many options to complete your task. You can use carbon paper or a mimeograph. But let me give you a spoiler- none of these methods are easy to use. If the methods were easy then people would still use carbon paper or a mimeograph. Let's see how inconvenient these methods were and how the invention of photocopying proved to be so beneficial in today's time.

The Mimeograph, commonly known as a stencil duplicator, is a machine that replicates information by pressing ink through a coated fibre stencil. In 1876, Thomas Edison filed the first US patent for autographic printing, using a duplicating press and an electric pen to make stencils. Later, Albert Blake Dick modified the stencils and collaborated with Edison, resulting in the 1887 release of the model "0" flatbed duplicator. Despite its popularity, the mimeograph had limitations, such as poor legibility on white paper, the inability to print multicolor copies in a single run, and the necessity to change the drum for each colour. Carbon paper, though still used occasionally, has limitations.

Stationary  
2  
3  
4  
5

It consists of paper coated with carbon black and wax, transferring marks from an original to a second sheet. However, it only allows a few copies at a time, and copies may fade, lack confidentiality, or appear untidy. In ancient times, writing each paper individually was tedious and time consuming. Now, the option primarily used for making multiple copies at a time with each copy being even, photocopying. The process of producing copies of original documents and drawings by exposing the originals to chemicals, light, heat, or electrostatic energy and recording the resulting images on a sensitized surface is called photocopying. Xerography, from Greek words meaning "dry writing," requires no liquid or special copy paper. The original is placed near a metal drum plated with a positively charged photoconductive substance, usually selenium. Light is then either passed through or reflected from the original onto the drum, which loses its positive charge in those areas that are exposed to light. Negatively charged dry ink is then sprayed against the drum and sticks to the charged areas, creating a reverse image on the drum. A positively charged sheet of ordinary paper is fed past the drum, and the inked images are transferred to the paper and fixed by heat to create a permanent positive copy.



This was all technical information about photocopying, but it's also important to know why the need for this technology arises. The development of photocopying was spurred in the year 1937 when a man named Chester Carlson created a brand-new process known as "electrophotography". After he invented electrophotography, which was later deemed, xerography, he invented the very first photocopier. It was known as the "10-22-38 Astoria" and his new photocopier certainly changed the way that the world did business the need for a method of copying documents was faster and more convenient. Harold commercialized its technology by introducing the Xerox 914 office copier in 1959. Xerox 914 copier is still one of the most successful products of all time. The company then changed its name to Xerox Corporation in 1961 which led to the creation of the verb 'Xeroxing'. Photocopiers can make hundreds of copies at a fast rate and each copy would be evenly copied. Much effort isn't required, one simply needs to put the paper to be copied into the machine and the rest is done automatically. Photocopier has made the job of making multiple copies very easy, especially for college students and corporate office workers. Imagine having to use a mimeograph or carbon paper to make tens of copies of a single document. The invention of the photocopier truly affected the world in positive ways.

-Parth Patil  
FE CE

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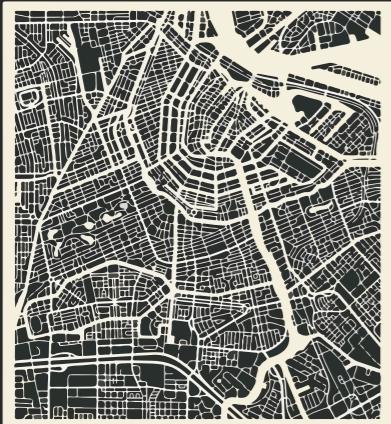
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# Global Positioning System

1

2

3



In the nostalgic landscape of the 80s and 90s, where cutting-edge technologies were rapidly reshaping the world, one invention stood out as a true game-changer: the Global Positioning System, popularly known as GPS. As a breakthrough in navigation technology, GPS revolutionized the way people found their way around, transforming a world of paper maps and compasses into a realm of satellite-guided precision. This article delves into the history, functionality, and impact of GPS during the Retro Tech era.

The genesis of GPS can be traced back to the early 1970s when the United States Department of Defense sought a reliable and accurate navigation system to support military operations. By 1983, the GPS constellation, consisting of a network of satellites orbiting the Earth, became fully operational. Initially, GPS was primarily used for military purposes, but its potential for civilian applications soon became evident.

GPS operates on a constellation of 24 to 32 satellites that transmit continuous signals to receivers on the ground. These signals contain precise time information and the satellite's position. A GPS receiver picks up signals from multiple satellites, and by analyzing the time it takes for the signals to reach the receiver, it calculates the distance from each satellite. With information from at least four satellites, the receiver can accurately determine its latitude, longitude, and altitude. This data enables the GPS receiver to provide real-time positioning and navigation information to users.

The widespread availability of GPS in the 80s and 90s revolutionized navigation. It provided an unprecedented level of accuracy and reliability, empowering users to determine their exact location with remarkable precision. The days of stopping to ask for directions or fumbling with cumbersome paper maps were over, as GPS devices offered turn-by-turn navigation and easy-to-read digital maps. This newfound convenience made road trips, hiking expeditions, and even daily commutes significantly more efficient and stress-free.

The far-reaching impact of GPS extended well beyond personal navigation. Industries such as logistics, transportation, and surveying experienced a profound transformation. Fleet management became more efficient, as companies could track and optimize routes in real-time, leading to fuel and time savings.



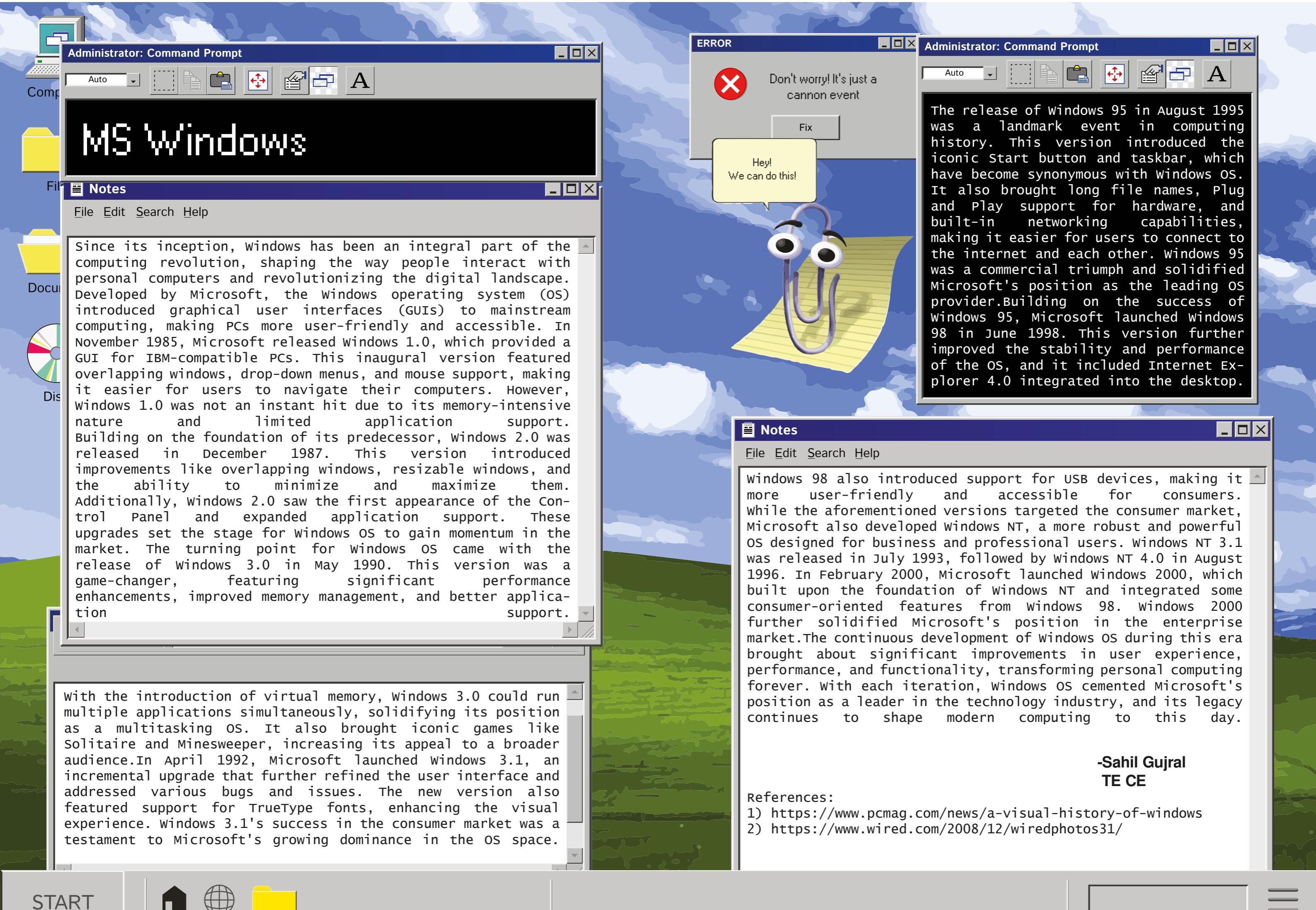
The surveying industry benefited immensely from GPS, replacing traditional methods and drastically increasing surveying accuracy. In the early days of GPS, the receivers were large and expensive, limiting their accessibility to only the military and certain industries. However, as technology advanced, GPS receivers became more compact, affordable, and integrated into various devices. By the late 90s, car manufacturers started incorporating GPS navigation systems into high-end vehicles, marking a significant milestone in the technology's mass adoption.

In the realm of retro tech, the Global Positioning System (GPS) holds a special place as a groundbreaking invention that shaped the way people navigated the world. From its humble beginnings as a military project to its ubiquitous presence in everyday life, GPS truly revolutionized the concept of location-based services. The 80s and 90s witnessed the widespread adoption of GPS, and its impact continues to be felt in the present day, permeating numerous aspects of modern life. As we cherish the technologies of the past, GPS stands as a testament to the power of innovation and its enduring legacy in shaping the world we live in today.

-Shashank Ballaya  
TE CE

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# PLAY STATION

In the mesmerizing realm of gaming, there exists a legendary figure known as the Sony PlayStation. Since its grand entrance in 1994, this mighty gaming console has rewritten the rules, captivating the hearts and minds of millions across the globe. Join us on an exhilarating journey as we explore the background, evolution, and profound impact of the Sony PlayStation, the heroic champion of gaming enthusiasts worldwide.

Picture this: It was a momentous day on December 3, 1994, when the Sony PlayStation stepped onto the scene, armed with dreams of superior graphics, immersive gameplay, and an extraordinary library of games. Born from the visionary minds at Sony Computer Entertainment, this iconic console, embarked on a mission to conquer the gaming universe. The PlayStation burst onto the stage with a daring gray design and an emblem that would become synonymous with gaming greatness. Breaking free from the shackles of cartridge-based systems, this bold newcomer flaunted a 32-bit RISC processor, 2 MB of RAM, and a CD-ROM drive that signaled a new era of gaming possibilities. Launch titles like "Ridge Racer" and "Tekken" showcased the console's power, leaving gamers in awe and paving the way for its future triumphs.

Prepare for a paradigm shift! In the year 2000, the PlayStation 2 (PS2) swept onto the scene, wielding the power of DVD playback and the ability to play previous PlayStation games. This game-changing console featured a mighty.

Emotion Engine processor and Graphics Synthesizer, transporting players to breathtaking new worlds. With blockbusters like "Grand Theft Auto: San Andreas" and "God of War," the PS2 soared to the pinnacle of gaming greatness, selling a record-breaking 155 million units. The PlayStation 3 (PS3) stormed into the gaming arena, armed with cutting-edge hardware. Its powerful Cell Broadband Engine processor and Blu-ray drive heralded the arrival of high-definition gaming and an era of visual splendor. Games like "Uncharted 2: Among Thieves" and "The Last of Us" pushed boundaries, whisking players away on epic adventures.



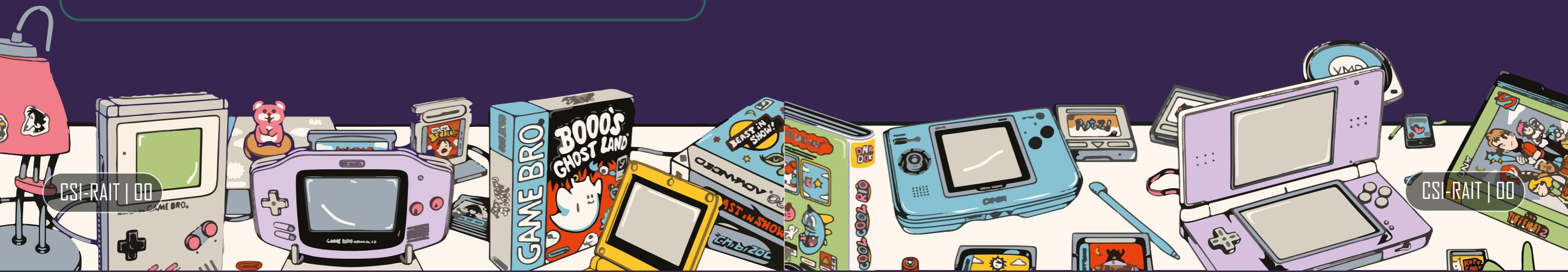
The PS3 also brought the world of online gaming to life with the introduction of the PlayStation Network (PSN), forever changing how gamers connect and compete. Behold the arrival of the PlayStation 4 (PS4), a majestic beast ready to conquer hearts and minds. Equipped with an x86-based architecture, 8 GB of unified memory, and a lightning-fast AMD Jaguar processor, the PS4 offered mind-blowing visuals and seamless gameplay. The realm of gaming reached new heights as players swung through the streets in "Marvel's Spider-Man" and embarked on epic quests in "Horizon Zero Dawn." The PS4 became a hub of gaming magic and a catalyst for the rise of community-driven multiplayer experiences. In 2020, a new hero emerged—the PlayStation 5 (PS5). The PS5 unleashed visual wonders in games like "Demon's Souls" and "Ratchet & Clank: Rift Apart," leaving players in awe of its next-gen capabilities.

The impact of the Sony PlayStation on the gaming universe cannot be overstated. It shattered conventions, revolutionized gameplay, and united a vibrant community of gamers. With its extensive library of exclusive titles, the PlayStation brand became a symbol of excellence, igniting imaginations and forging unforgettable memories. Sony's unwavering dedication to innovation has ensured the PlayStation's place in gaming history as an icon of technological marvel and a champion of gaming enthusiasts everywhere. As the PlayStation saga continues to unfold, gamers worldwide eagerly await the next chapter in this thrilling and ever-evolving adventure.

-Aryan Ghate  
FE CE

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# The Social Network

The history of social networking is a fascinating journey that spans several decades, witnessing the rise and fall of various platforms, shaping the way we interact and communicate in the digital age. From the early days of Bulletin Board Systems (BBS) and Internet Relay Chat (IRC) to the emergence of iconic platforms like Facebook and Twitter, and the advent of contemporary networks like TikTok and Discord, the landscape of social networking has continuously evolved to cater to our ever-changing needs for connection and expression.

In the 1980s, the seeds of social networking were planted with the introduction of Bulletin Board Systems. BBS allowed users to connect via dial-up modems, sharing messages and files with local communities. While limited in scope, BBS provided the first taste of online interaction. The 1990s marked a significant step forward with the introduction of Internet Relay Chat (IRC) and Usenet. IRC enabled real-time text communication across the internet, complete with various chatrooms for users to discuss specific topics. Usenet, on the other hand, offered global discussion forums where users could post and read messages in newsgroups, laying the groundwork for future online forums. In 1997, the world saw the launch of SixDegrees.com, often recognized as the first true social networking site. SixDegrees allowed users to create profiles and connect with friends, inspiring later platforms to focus on the concept of online friendships and networks. The early 2000s witnessed the rise of Friendster and MySpace.



Friendster gained popularity as one of the first social networking platforms that emphasized connecting friends and facilitating social interactions online. In 2004, a transformative platform called Facebook was introduced initially for Harvard University students, rapidly expanding to other colleges and eventually the general public.

The late 2000s saw the rise of platforms like Tumblr and 4chan. Tumblr blended traditional blogging with social networking features, allowing users to share various forms of media and follow each other's content. In contrast, 4chan was an anonymous imageboard that gained notoriety for its subcultures and diverse discussions, shaping internet culture. The 2010s witnessed an explosion of social networking platforms, each catering to specific niches. Instagram, founded in 2010, took the world by storm with its focus on photo and video sharing.

Meanwhile, WhatsApp, although launched in 2009, gained widespread popularity during this decade, providing free messaging and calling services to connect people worldwide. Today, social networking continues to thrive, with newer platforms shaping the digital landscape. TikTok, introduced in 2016, emerged as a global sensation, enabling users to create and share short-form videos, often set to music. Discord, initially designed for gamers, has evolved into a versatile platform across various interests, attracting users from diverse backgrounds. The history of social networking reflects the remarkable journey of digital interaction, from humble beginnings to the present-day global connectivity. Starting with Bulletin Board Systems and IRC in the 1980s and 1990s, the advent of Facebook in the mid-2000s, and the rapid proliferation of platforms like Instagram, Snapchat, and WhatsApp in the 2010s, social networking has continuously evolved to cater to our need for connection and expression. As we move forward, new platforms and features will undoubtedly emerge, reshaping the landscape and redefining the way we interact in the digital realm.

-Akansh Jatav  
SE CSBS

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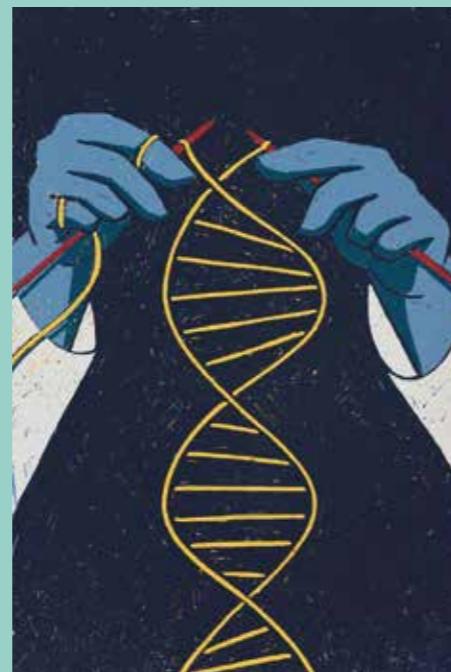
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# GENOME SEQUENCING

The entire collection of genetic material found in the human body is referred to as the human genome. It provides all the instructions required for our species to develop, function, and reproduce. The human genome, which is made up of over 3 billion base pairs of DNA, is a complex blueprint that determines each person's individuality and affects a variety of features, susceptibilities, and predispositions.

The science of genetics and medicine has been completely transformed as a result of the remarkable scientific achievement known as human genome sequencing. Scientists have learned a great deal about the fundamental genetic elements underlying human existence by deciphering the human genome. New opportunities for personalized medicine, illness diagnosis, treatment, and prevention have been created by this ground breaking technology. It has the potential to revolutionize healthcare by directing doctors to offer personalized treatments based on a person's genetic profile, improving medical outcomes and patient wellbeing. The voyage of human genome sequencing started in the 1980s, when scientists all around the world were fascinated by the enticement of mapping the entire human genome. The Human Genome Project (HGP), which brought together scientists from several nations to work together on this challenging undertaking, was formally inaugurated in 1984. The HGP sought to unravel the complete human genome and make this priceless knowledge available to the scientific community without charge.

The sequencing process was accelerated during the following two decades by technological and scientific developments. Although early sequencing procedures were expensive and time-consuming, they set the stage for later, quicker systems that were also more effective. By the late 1990s, the HGP had made great strides, successfully locating and mapping the genes linked to a number of genetic illnesses. A significant accomplishment in the annals of science was the completion of the first draft of the human genome in 1999. Today, human genome sequencing is more widely available, less expensive, and quicker than ever before. A person's whole genetic code may now be deciphered in a matter of days thanks to whole-genome sequencing. This has aided in the understanding of the history of human evolution and other ground-breaking discoveries. Scientists have discovered migration patterns, genetic adaptations, and the common ancestry of distinct ethnic groupings by comparing the genomes of various human populations.



Genome sequencing has profoundly revealed our origins and connections, illuminating the complex web of human history. As we look to the future, Human Genome Sequencing holds the key to understanding potential mutations within the human species. By studying genetic variations and mutations, scientists can predict and mitigate the risk of certain diseases. Early detection of genetic anomalies can enable preventive measures and personalized interventions, minimizing the impact of harmful mutations on individuals and populations alike. Additionally, this knowledge can guide advancements in gene editing technologies, raising ethical considerations and conversations about the responsible use of such powerful tools.

In conclusion, Human Genome Sequencing stands as one of the most remarkable achievements in scientific history. From its humble beginnings to its current state, this revolutionary technology has transformed our understanding of genetics, medicine, and human evolution. As we continue to explore the human genome, the knowledge gleaned from this research will undoubtedly shape the future of healthcare, genetics, and our understanding of what it means to be human. However, with these extraordinary capabilities come great responsibilities to use this information ethically and responsibly, ensuring a better and healthier future for generations to come.

-Sangeet More  
TE CE

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# SONY AIBO



In today's technology, where progress seems to be measured in leaps and bounds, the concept of anachronism may seem out of place. However, even in this fast-paced world, anachronisms can emerge as powerful tools that blend the timeless with the contemporary. Anachronism in technology extends beyond mere design or aesthetics. Technological revivals involve reintroducing older technologies or features into modern contexts. Vinyl experienced a resurgence in popularity despite the rise of digital music formats. Technology is not immune to the allure of anachronistic design and aesthetics. Contemporary devices often incorporate vintage or retro-inspired elements that harken back to earlier eras. Retro-styled cameras, typewriters with modern functionalities, or smartphones with vintage casings all exemplify the integration of anachronism into technology. By blending past and present, these devices create a sense of nostalgia, evoke emotions, and offer a unique user experience that combines the best of both worlds.

Sony Aibo is an advanced robotic pet dog developed by Sony Corporation. Aibo combines robotics and artificial intelligence to create a lifelike and interactive companion. The first generation of Aibo was introduced in 1999, and it quickly gained popularity for its realistic movements, expressive features, and ability to learn and interact with its owners. The latest version of Aibo, as of my knowledge cutoff in September 2021, is the Aibo ERS-1000. It features a sleek design and advanced technology to simulate the behavior of a real dog. Aibo is equipped with numerous sensors, including cameras, microphones, touch sensors, and motion sensors, allowing it to perceive its surroundings and interact with its environment. Aibo uses AI algorithms to analyze data from its sensors and learns from its interactions with its owner. It can recognize faces, learn tricks, respond to voice commands, and develop its personality over time.



Aibo is also capable of connecting to the internet, allowing it to access a wide range of features and services. The Aibo ERS-1000 comes with a companion mobile app that enables owners to customize their Aibo's behavior, track its activities, and even remotely control it. The app also provides a platform for Aibo owners to connect and share experiences with other Aibo users. The early AIBO models had a more basic level of autonomy and were primarily marketed as entertainment devices. While AIBO remains primarily a high-end consumer product, it showcases the potential of robotic companionship and the integration of AI into everyday life.

While technology often propels us towards the future, anachronism offers a unique lens through which we can appreciate the past while embracing the present. Through anachronistic design, user interfaces, revivals, and adaptations, technology blends the timeless with the contemporary, revealing unexpected connections and stimulating innovation. By bridging eras, anachronism in technology invites us to reflect on the enduring qualities of human creativity and the interplay between nostalgia and progress. In this ever-evolving digital landscape, anachronistic blends serve as reminders that the march of time does not necessarily render the past irrelevant, but rather enriches our technological journey by integrating the timeless with the cutting-edge.

-Padmashri Panda  
SE CE



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THROUGH THE PIXEL PORTAL:

# THE HISTORY OF DIGITAL CAMERAS

In this age of astonishing technological progress, the advancements in the field of digital cameras have been nothing short of remarkable. From the humble beginnings of photography, where capturing an image required intricate chemical processes and large equipment, we now find ourselves immersed in an era where such compact and sleek gadgets, not bigger than a palm, can easily freeze moments in time, transforming even the most ordinary man into a sort of time traveler. It is a testament to human ingenuity that we have transitioned from the laborious process of developing film to instantaneously previewing and sharing our visual stories on screens. Cameras have become our portals, enabling us to glimpse into the past, the present, and even into realms of imagination, memories and emotions frozen in time with the simple click of a button—a modern-day magic that bridges worlds in a way akin to the mythical portals of folklore. But how did we reach this stage of technological marvel?



Let's rewind back to the very beginning. In the early 1960s, Eugene F. Lally, an engineer at the Jet Propulsion Laboratory (JPL) of NASA, had the idea of using sensors to capture images electronically rather than relying on traditional film. Lally's idea was to use a sensor known as a "mosaic" to convert light into electrical signals, allowing for the capture and storage of images in a digital format. Lally envisioned this technology being used for various purposes, including space exploration and scientific imaging. However, it wasn't until the later development of the Charge-Coupled Device (CCD) sensor by Willard Boyle and George E. Smith at Bell Labs in 1969 that the necessary technology for practical implementation of Lally's idea started to emerge. The CCD sensor became a crucial breakthrough, eventually leading to the creation of the first functional digital camera by Steve Sasson at Eastman Kodak in 1975, marking a significant milestone in the history of digital imaging. In the late 1970s and 1980s, various research institutions and companies began exploring the possibilities of digital photography and advancing image sensor technology. In 1981, Sony released the first commercial electronic still camera, the Sony Mavica. It utilized a CCD sensor to capture analog video images onto a 2-inch floppy disk.

While not a true digital camera in the modern sense, the Sony Mavica played a significant role in popularizing electronic imaging. From there onwards, digital imaging technology continued to improve, with advancements in sensor resolution, color reproduction, and image processing algorithms. But back then, early digital cameras were still quite expensive. It wasn't until the mid-1990s that digital cameras started becoming more consumer-friendly and accessible. In 1994, Apple released the QuickTake 100, one of the first consumer digital cameras.

It was a compact, point-and-shoot camera with a resolution of 640x480 pixels and could store up to eight images. In 1997, Fujifilm MX-700 incorporated the SmartMedia memory card, providing users with a more efficient and reliable way to store their images. Meanwhile, Nikon's Coolpix 900 (1998) impressed users with its 3x optical zoom lens, allowing them to get closer to their subjects while maintaining image quality. Additionally, Sony's Cyber-shot DSC-F55 (1999) introduced a 2.1-megapixel CCD sensor and a 3x optical zoom lens, further raising the bar for digital camera capabilities.

The 1990s had a significant influence on the advancement of digital cameras, like a blank canvas waiting to be colored with an ever-expanding palette of possibilities and innovations capturing the essence of moments. The decade marked a period of dynamic growth and experimentation, where pioneering companies like Sony, Canon, Nikon, and Kodak raced to unlock the potential of digital imaging technology. With every press of the shutter, the digital camera has in essence replicated a time-traveling portal etching our stories and experiences on this canvas of history as it expands its horizons, ready to be cherished and revisited for generations to come.

-Riya Patil  
TE CE

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## PHOTOGRAPHY FOR THE COMPUTER GENERATION.

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# The Dot Com Bubble

The internet is a fascinating and wonderfully bizarre realm that never fails to bewilder one's mind, especially in its early stages. Dot Com Bubble is one such phase of the Internet, which is astounding and frightening at the same time. In this article, we will explore the Dot Com Bubble and its impact on the Internet and technology. We'll take a look at the factors that contributed to the bubble, the consequences of its burst, and the lessons we can learn from it. We will see how this event was a turning point in the history of the internet and technology, and how it continues to shape our digital landscape today. So join us as we delve into the fascinating story of the Dot Com Bubble.

All of this began when the internet and cyber brands became the buzz. Due to low-interest rates in the late 90s, a huge number of internet start-ups started to pop up all over the market, with most of them not even having the essential qualities to be an entrepreneur but were now able to sell their ideas to investors due to the dot-com concept. The Dot Com Bubble was a period of unprecedented growth and investment in online dot-com companies from the late 1990s and early 2000s. This spiraling success of technology stocks was fueled by the uncontrolled optimistic belief that the internet would transform the economy and that any company with a website could become a success. This resulted in rapid growth and investment in internet-based companies, with many investors putting their money into companies that had no history of success or even good work, in very less time.

The Dot Com Bubble was characterized by sky-high stock prices, inflated valuations, and the belief that the internet was a new and the only way of revolutionizing the business world.



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However, with time and growing market, the burden on the market only grew, and optimism and hysteria couldn't carry such companies for a long time, resulting in the loss of billions of dollars and many internet companies going bankrupt, notably, Boo.com, World.Com, Northpoint Communications, and many more such companies. When investors realized that many of the companies they had invested in were not making any money, they began to sell their shares, causing a downward spiral in the stock prices of many internet-based companies. This led to many bankruptcies, and many of the internet-based companies that had once been the darlings of Wall Street disappeared almost overnight, with almost around the total collapse of 740% from its peak, of the stock market index, by late 2002. Almost all of the smaller companies crashed and even the bigger, notable, companies like Amazon, or Cisco lost large portions of their market capitalization. Despite the losses corresponding to the Dot Com Bubble, studying it and learning from it can help develop an in-depth knowledge of the business sector and entrepreneurship fundamentals, which can be the key to long-term success.

Investors became more cautious and looked for enterprises with sound business strategies and a clear path to profitability during this phase, which contributed to the development of a more realistic approach to investing. As businesses sought out fresh strategies to compete in the post-Dot Com Bubble world, it also sparked the creation of new technologies and innovations, resulting in the enormous and prosperous businesses like Google, Meta, eBay, and many others. The lessons learned from this episode continue to shape the technology industry today, reminding us of the perils of irrational exuberance and the necessity of prudence in investment decisions, and the dangers of having resources, but not vision.

-Ashutosh Singh  
FE CE



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# <Programming Languages>

The world of programming language forms the backbone of modern technology. From the early days of computing to the advanced technologies of today, programming languages have played a pivotal role in shaping our digital landscape. Their evolution may be traced back to the early days of computers, but the relevance of programming languages achieved its pinnacle in the late 1900s. This article dives into the intriguing journey of programming languages, emphasising major breakthroughs that lay the groundwork for today's digital world.

A succession of programming language advancements in the mid-twentieth century transformed software development. Programming was done in the early days of computers using low-level and laborious machine languages and assembly code. However, in the latter half of the century, there was a trend towards high-level programming languages, which made coding more accessible and efficient. Fortran (short for Formula Translation), which was developed in the late 1950s, was the first widely used high-level programming language, allowing scientists and engineers to express code in a more human-readable fashion. This achievement established the groundwork for following advances in programming languages. Fortran still remains popular in scientific and engineering fields, because of its long-standing ecosystem and a large base of existing code, making it easier for scientists and engineers to maintain and reuse their legacy Fortran programs.

The later part of the century was a substantial moment in programming language history. Several languages were developed during this time period, each contributing to certain aspects of software development and expanding the capabilities of programmers. One such was ALGOL (short for Algorithmic Language) which served as the basis for many modern languages like Pascal, C++, Java whose syntax was inspired and is widely considered as the most influential programming language.

C, was developed at Bell Labs by Dennis Ritchie in 1972. It is considered to be one of the most significant languages that influence many future programming languages. It is widely used because of its efficiency, portability and despite many high-level languages existing before, C is the first truly considered high-level programming language because of its closeness to human language rather than machine code.

C became extremely popular. It served as the basis for several successor languages, including C++, Objective-C, and others, and it is still extensively used today.

In the 1990s, several significant programming languages emerged. Haskell, created in 1990, focused on mathematical computation and introduced innovative features like type classes, type inference, and lazy evaluation. Python, also born in 1990, gained fame for its readability and concise code, becoming a favourite among data scientists. Visual Basic, developed by Microsoft in 1991, simplified coding through a user-friendly graphical interface. R, created in 1993, became a go-to language for statisticians and data analysts. JavaScript, developed in a mere 10 days in 1995, became a core technology for enhancing web browser interactions. These programming languages played a crucial role in shaping the modern programming landscape.

The transformative journey of programming languages has shaped today's technology-driven world. Advancements from laborious machine languages to high-level coding made programming accessible. Fortran laid the groundwork, while ALGOL influenced Pascal, C++, and Java. C became vital, serving as the basis for successors. In the 1990s, Haskell, Python, Java, R, PHP, Ruby, and JavaScript had significant impacts. In the 2000s, C# combined C++ power with Visual Basic simplicity, and Scala and Go brought innovations. Swift replaced C, C++, and Objective-C. Better programming languages enabled groundbreaking innovations like artificial intelligence, cloud computing, big data processing, mobile app development, and gaming, fueling continuous growth, and expanding technologies' horizons.

-Vedant Sawant  
SE CE

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```
int BestBiggestBaddest(vector<int>& prices) {  
    int mini = prices[0];  
    int maxpro = 0;  
    for(auto x: prices){  
        int cost = x - mini;  
        maxpro = max(maxpro, cost);  
        mini = min(mini, x);  
        cout<<"i have no enemies" << endl;  
    }return maxpro  
}
```

# The ultimate guide to COMMODORE 64

Commodore 64 was one of the most iconic home computers of the 80s and featured top-of-the-line hardware for its time. Its sound and graphics chips were unparalleled, setting it apart from all other computers of its time. Although it was less popular in the 90s, the Commodore 64 still remains extremely relevant today. Thanks to emulators and other modern software and hardware options, you can still use one today and enjoy classic games on it. The Commodore 64 was an iconic computer that changed the landscape of the computing industry. This powerful machine featured impressive hardware and software capabilities that made it stand out from its competitors.

It boasted a powerful 8-bit MOS Technology 6510 microprocessor, up to 64 kilobytes of RAM, and custom chips for high-quality sound and graphics, making it the perfect platform for gamers, musicians, and artists. What really made the Commodore 64 special was the vast library of software available to users. From popular games like "Pitfall," "Maniac Mansion" and "The Bard's Tale" to productivity programs like "Wordcraft" and "Mavis Beacon Teaches Typing", the C64 had something for everyone. In addition, the machine's impressive sound and graphics capabilities enabled it to produce some of the most memorable game music of the era, with classics like the theme from "The Last Ninja" and the opening tune from "Monty on the Run" still revered by retro gaming fans today. Overall, the Commodore 64 was a true powerhouse of a machine, combining impressive hardware with a vast library of software and incredible sound and graphics capabilities. The C64 supported multicolor sprites enabling it to create amazing visuals.

It has been listed in the Guinness Book of World Records as one of the best-selling single computer models of all time. It's no surprise that the machine still maintains a loyal following even today, with enthusiasts working tirelessly to preserve and achieve its legacy for future generations to enjoy. The Commodore 64 was not just any computer - it was a revolution. Its ground-breaking hardware and software capabilities, along with its impressive sound and graphics, made it a game-changer in the computing industry. But how did other legendary computers from that time stack up against the Commodore 64? First up: Apple II.

While its hardware was definitely impressive, it simply couldn't compete with the Commodore 64 when it came to memory storage, sound and graphics. C64 easily became the go-to option for those in the programming world. Next, we have the Atari 800XL. While its graphics and sound capabilities were slightly more advanced than the Commodore 64's, it still couldn't compete with the massive range of software options that the Commodore 64 had.

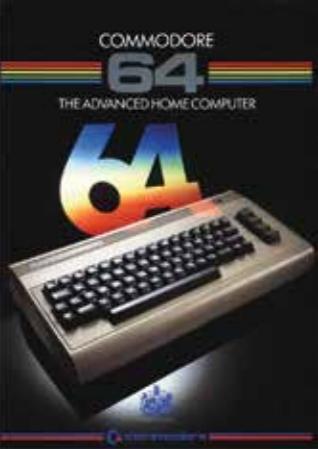
Additionally, the Commodore 64 was more affordable, making it the clear winner for most people. In conclusion, while other computers certainly had their individual strengths, the Commodore 64 was a true standout due to its range of capabilities, accessibility, and affordability. Emulation options abound for those who don't have access to a physical Commodore 64. Numerous software emulators are available, many of which are free to download and use. One of the most popular emulators is VICE, which is compatible with a variety of platforms, including Windows, macOS, and Linux. For those fortunate enough to own a physical Commodore 64, it is still possible to find and use modern hardware and software. Commodore enthusiasts are fond of modern peripherals, such as power supplies and SD card interfaces. Furthermore, the homebrew software scene is thriving, with new games and programs being developed and released all the time.

The Commodore 64 continues to hold a special place in the hearts of those who grew up with it. Its loyal community keeps its memory alive through online forums, preservation efforts, and retro gaming events, showcasing its enduring influence on the gaming and home computing industry. In today's rapidly advancing technological world, the Commodore 64 serves as a nostalgic reminder of a simpler time when all we needed was a joystick and a few floppy disks. With its optimistic and thoughtful legacy, the Commodore 64 will continue to inspire future generations to embrace the ambitious spirit of innovation.

-Himanshi Sharma  
FE CE

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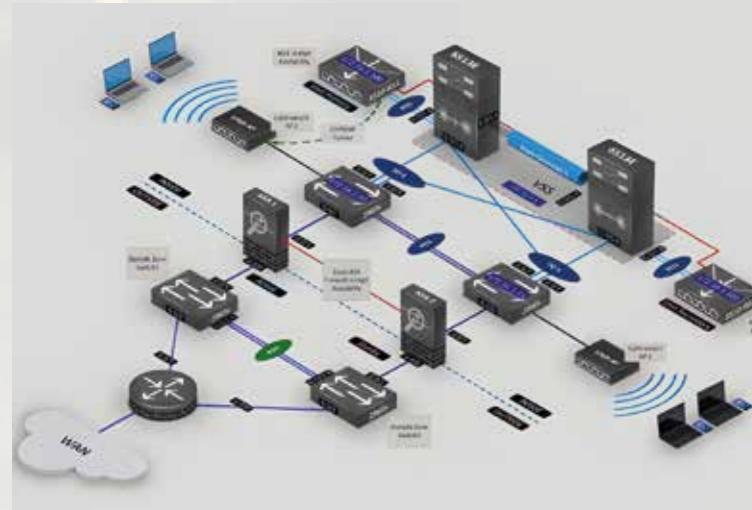
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# COMPUTER NETWORKS

Computer Networking, arguably, one of the most intrinsic concepts of information technology has been pivotal in shaping the sphere of digital interconnections that we see today. Networking, in essence, involves the deployment of a set of computers, specific hardware and servers to allow data transmission and exchange amongst the devices connected in that network. Be it via e-mail, online messaging, or telephonic calls, networking has allowed millions if not billions around the globe to have a channel of communication via digital means.

Networking has its roots embedded deep within the modern science era with early attempts dating back to the 1950s when military-specific radar systems based on modems were created by the U.S. This technology allowed them to transmit data at a seemingly high rate. In due course of time, multiple milestones were reached in the networking field such as the development of multiple time-sharing systems and early prototypes of Local Area Networks. In 1973, the principles of Ethernet were drafted which laid down the foundation for something revolutionary.



The 1980s saw unprecedented growth in the demand for a functional computer networking system. This led to various breakthroughs in inventing newer systems while also upgrading legacy systems. The popularity of PCs saw an increased surge in demand for the client/server LAN framework. The standardization of Ethernet brought about an evolutionary change in the landscape of computer networking. Ethernet allowed for an inexpensive method to connect computers over a network within a limited geographical area. This also brought about the development of fiber optic cables which could cover wide networks and reduce traffic. Due to the higher distances, another connection setup was brought into action - Wide Area Network. Multiple public and private organizations started switching over to WAN for their geographically dispersed branches.

Integrated Services Digital Network (ISDN) and SONET were some of the technologies which could provide high data transfer rates over telephone lines.

CERN, a research organization was the early pioneer for the TCP/IP model. They developed the Hyper Text Transfer Protocol (HTTP) which formed the basis of the World Wide Web. In the late 80s, the development of the Internet was a point of major interest amongst researchers. Domain Name System was one of the most influential developments during the Internet revolution. DNS adoption grew as the number of hosts and websites increased. Cisco Systems was one of the first firms to build and manufacture routers for Internet Protocol (IP) internetworks, a company that is now worth billions of dollars and is a pillar of the Internet. Cisco's initial customer for its routers, which were originally known as gateways, was Hewlett-Packard.

Analog cellular communications were implemented as early as in 1981 in Europe but it wasn't until the 1990s that the wireless communication field truly took off. The IEEE 802.11 standard, introduced in 1997, laid the groundwork for wireless local area networks, or Wi-Fi. This technology does away with the necessity for physical wiring, allowing users to connect to the Internet and business networks without being tied to a specific place. Wi-Fi revolutionized mobility by changing how individuals access information and stay connected.

As we move forward, it is imperative to acknowledge the innovations of the past as we continue to build solid foundations for that future. Networking continues to evolve as technology advances, with advancements in wireless networking, cloud computing, and the Internet of Things (IoT) altering how people connect with technology and each other. In essence, computer networking is the foundation that supports today's interconnected world.

-Aditya Anurag  
TE CE

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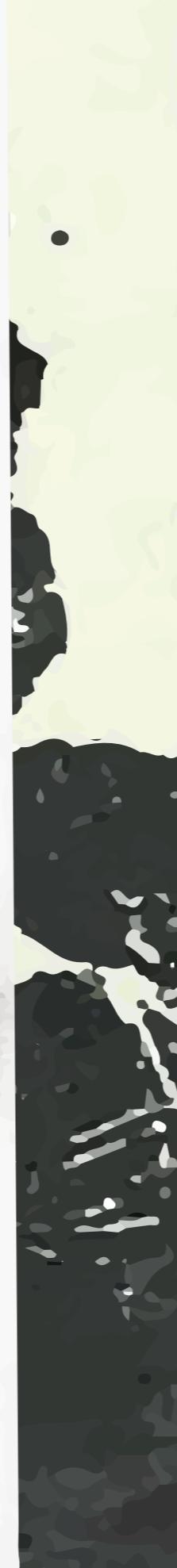
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# DNA fingerprinting

Imagine a gripping scene straight out of a crime thriller: a dimly lit alley, investigators meticulously collecting evidence, and a single strand of hair clinging to a discarded object. In the realm of forensic science, this seemingly insignificant hair holds the key to solving a heinous crime. This is where the marvels of DNA fingerprinting come into play, transforming the seemingly impossible into reality. The advent of DNA fingerprinting has propelled forensic science to unprecedented heights, revolutionising the identification of individuals, resolving complex paternity disputes, and aiding in biodiversity conservation efforts. Through the examination of highly polymorphic DNA regions, such as short tandem repeats (STRs) or microsatellites, DNA fingerprinting has enabled the establishment of unique genetic profiles for each individual, akin to a molecular signature.

To begin, high-quality DNA samples obtained from biological materials like blood, saliva, hair, or tissue serve as the foundation of the process. DNA extraction kits aid in the purification and concentration of DNA from the collected samples, ensuring the isolation of intact and uncontaminated genetic material. The subsequent step involves PCR amplification, where specific STR regions are targeted using DNA markers known as primers. Capillary electrophoresis systems are then employed to separate and analyse the amplified DNA fragments based on size and charge, creating a unique DNA profile for each individual. Data interpretation and comparison against reference DNA databases are accomplished through sophisticated bioinformatics tools and forensic laboratories, staffed with skilled analysts and equipped with state-of-the-art technology.

Recent advancements in DNA fingerprinting have witnessed the integration of next-generation sequencing (NGS) platforms, such as Illumina and Ion Torrent systems. NGS enables high-throughput and parallel sequencing of multiple DNA markers, significantly enhancing the power of discrimination and the depth of genetic information. Additionally, mass spectrometry-based platforms, exemplified by the Matrix-Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) method, offer increased throughput and cost-effectiveness for fragment analysis.



Single-molecule sequencing instruments, like Oxford Nanopore's MinION and PacBio's Sequel, have also revolutionised DNA fingerprinting, enabling direct long-read sequencing without PCR amplification, thereby reducing bias and simplifying workflows.

In 2021, a research study conducted by scientists from the Birbal Sahni Institute of Palaeosciences (BSIP) in India made headlines with their DNA analysis of ancient human remains found in the Indian subcontinent. The study focused

on the genetic analysis of skeletal remains from the Harappan civilization, one of the oldest known urban civilizations in the world, which flourished in the Indus Valley around 4,000 years ago. Using DNA fingerprinting techniques, the researchers successfully extracted and analysed DNA from the skeletal remains found at various Harappan sites. The study revealed that the Harappan individuals had a diverse genetic ancestry, with genetic links to ancient Iranians, West Asians, and South Asians. This finding suggested that the Harappan civilization was a result of a complex mix of different ancient populations, highlighting the interconnectedness and migration patterns of ancient peoples in the Indian subcontinent.

DNA fingerprinting stands as a testament to the power of scientific advancements in unravelling genetic identities and transforming various aspects of human society. As we continue to refine and expand DNA fingerprinting applications, we venture closer to a world where justice, relationships, and the preservation of our natural heritage thrive on the foundation of precision genetics. Lastly, vigilance in safeguarding individual privacy and ensuring responsible use of this technology is crucial to maintain public trust and uphold ethical standards in the application of this technology.

-Anuj Khanvilkar  
TE CE

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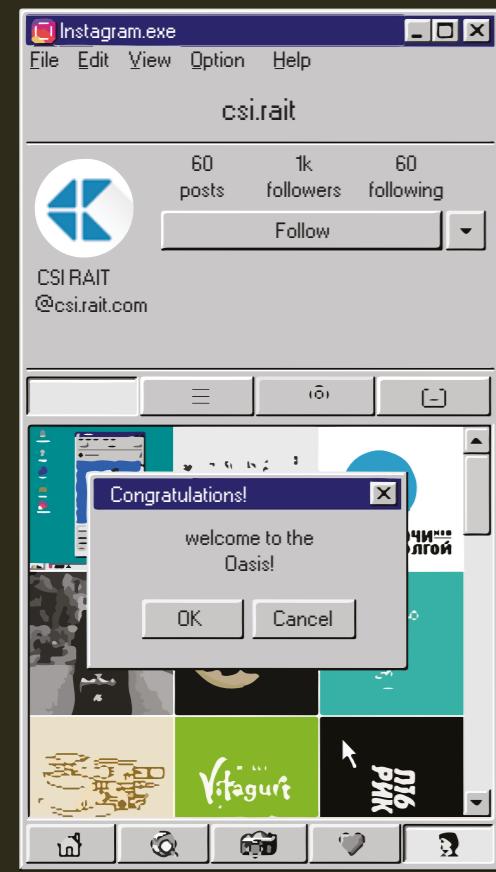
A Glimpse into the Past:

# The Evolution of GUIs

The late 1900s witnessed a computing revolution driven by the advent of Graphical User Interfaces (GUIs). From their experimental origins to widespread adoption, GUIs have transformed how we interact with computers, making them more user-friendly and accessible. This article delves into the evolution of GUIs during this era, exploring their impact and the challenges they posed to user acceptance.

## What sparked the GUI revolution, and how did users respond to this paradigm?

The journey of GUIs began with Xerox's Alto workstation in the early 1970s, offering a visual "Desktop" paradigm with windows, icons, menus, and pointers (WIMP). However, it wasn't until the release of Apple's Macintosh in 1984 and Windows 3.0 in 1990 that GUIs gained widespread popularity. The initial response to these graphical paradigms was met with a mix of curiosity, resistance, and fascination.



## How did GUIs transform computing accessibility and user experiences?

The transition from command-line interfaces to GUIs simplified user interactions, reducing the need for memorizing complex commands. Graphical applications replaced text-based systems, making computers more approachable to a broader audience. Graphical User Interfaces (GUIs) played a pivotal role in democratizing computing and fueling the explosion of the PC industry. Before GUIs, computers primarily relied on text-based interfaces that required users to memorize complex commands, limiting accessibility to those with specialized knowledge. With the introduction of GUIs, computing became more user-friendly and approachable. The visual "Desktop" paradigm with icons, menus, and windows enabled even non-technical users to navigate systems effortlessly through simple pointing and clicking.

This transformation removed the barriers to entry, empowering a broader audience to embrace computers and technology. As GUIs became widespread, the demand for personal computers soared, leading to a surge in the PC industry and forever changing the way we interact with digital devices.

## GUIs: Adaptation to the mobile world and beyond.

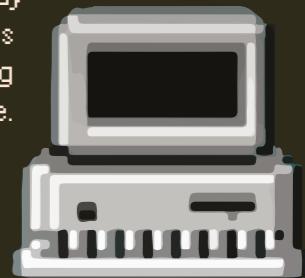
With the rise of mobile computing, smartphones, and tablets, GUIs encountered new challenges in design and adaptability. Touch-based interactions and diverse form factors required GUIs to evolve for the modern era. Mobile GUIs focused on gestures and touch interactions, optimizing for smaller screens while maintaining usability. GUIs became



Seamless integration between devices and cloud-based services became crucial, leading to unified experiences across platforms.

Additionally, GUIs adapted to low-power devices, prioritizing efficiency and cloud-based application support. Beyond mobile, GUIs extended into smart devices, wearables, and AR/VR experiences, shaping the future of human-computer interactions. The evolution of GUIs in the late 1900s marked a significant turning point in computing history. From experimental beginnings to becoming an indispensable part of our lives, GUIs have shaped the way we interact with technology. Despite initial resistance to change, GUIs enabled the digital world to become accessible to all, empowering users with an unprecedented level of ease and convenience.

As we look to the future, the continued evolution of GUIs will undoubtedly play a pivotal role in transforming the way we interact with technology, leaving us with the question: What new innovations will GUIs bring, and how will they redefine the computing experience once again?



Making it large!



-Kaustubh Utturwar  
BE CE

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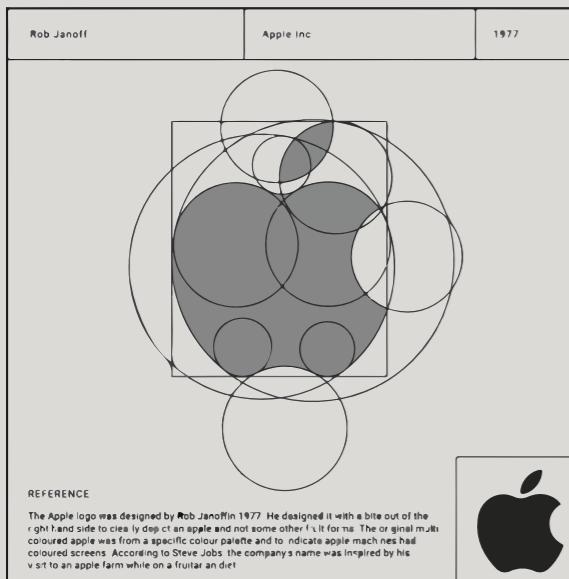
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- 2) "Web 101: A History of the GUI": <https://www.wired.com/1997/12/web-101-a-history-of-the-gui/>
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# Apple Inc.

## Pioneering the 80's and Beyond

A digital revolution was emerging in the early 1980s, and a young computer firm named Apple was at the forefront of innovation. Apple, founded in 1976 by Steve Jobs, Steve Wozniak, and Ronald Wayne, was primarily focused on creating personal computers. Their venture into software creation, however, laid the groundwork for Apple's spectacular climb to become one of the world's most significant technological corporations. As Apple's early personal computers, such as the Apple I and Apple II, gained popularity, the company recognised the need for a software ecosystem to go along with its hardware offerings.

Apple debuted the Lisa computer in 1983, making it one of the first commercial computers to include a graphical user interface (GUI) and a mouse. The Lisa's graphical user interface was a historic turning point in personal computing history, laying the framework for future developments. Apple introduced the Macintosh, a ground-breaking personal computer that popularised the graphical user interface for the general public, in 1984.



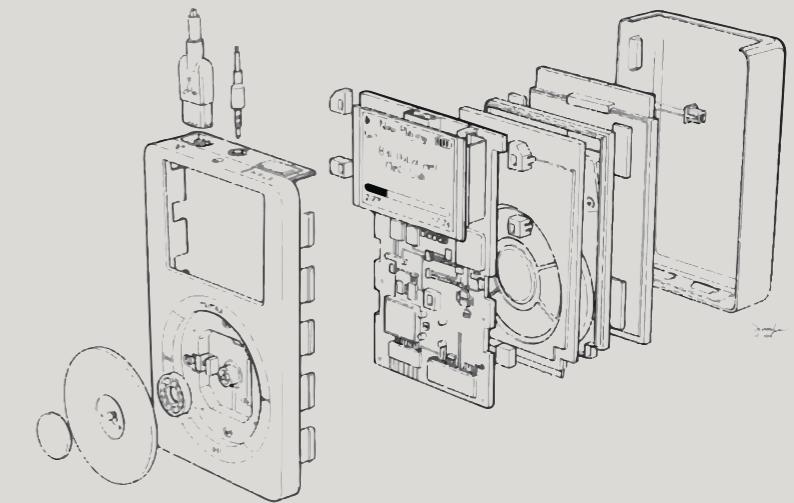
The Macintosh revolutionised computing by making computers more accessible and intuitive. It included a variety of software programmes, notably the classic MacPaint and MacWrite, which demonstrated the graphical interface's capabilities. With the success of Macintosh, Apple decided to create its own software business, dubbed "Apple Software Company." The group concentrated only on developing and enhancing software for Apple's products, cementing the company's commitment to hardware and software integration.

### Apple Does it again.



Introducing  
the Macintosh 512K

Apple Software Company continues to invent and produce ground-breaking software products throughout the 1980s. "HyperCard," an early programming tool and multimedia authoring system that allowed users to build interactive presentations and projects using a stack of virtual index cards, was among the most prominent. HyperCard was decades ahead of its time, laying the groundwork for current multimedia applications.



Another key software breakthrough was the ongoing growth of the Macintosh System Software, which provided critical upgrades and changes that shaped the Mac experience into what it is today. Furthermore, AppleWorks, released in 1984, was an integrated office suite that combined word processing, spreadsheet, and database functions and was extensively used by Macintosh users in the 1980s and early 1990s.

In the present day, Apple continues to innovate and change the technology sector. The M1 chip is one of its most recent innovative inventions. The M1, which was announced in 2020, is Apple's first custom-designed system-on-a-chip (SoC) for Mac computers. It combines the CPU, GPU, RAM, and other components on a single chip for unmatched performance and energy efficiency. The M1 processor represents a dramatic change in Apple's computational architecture, providing a considerable increase in speed and power while preserving exceptional battery life. Users enjoy a smooth computing experience with excellent speed and compatibility across numerous software programs as Apple moves its whole Mac portfolio to M1 CPUs.

In conclusion, the start of Apple Software Company in the 1980s laid the foundation for Apple's dominance in the tech industry. The company's commitment to developing user-friendly software and its groundbreaking innovations revolutionized personal computing. As Apple continues to push the boundaries of technology, the recent introduction of the M1 chip exemplifies its dedication to delivering cutting-edge products that redefine the way we interact with technology.

**-Shreyas Dhekane  
SE CSBS**

#### References:

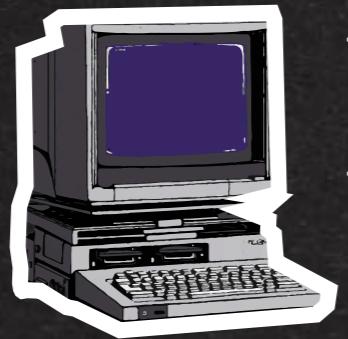
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# TECHNICAL TEAM

**Kaustubh Utturwar**  
<>Chief Technical Officer</>

**Aditya Bhise**  
<>Technical Head </>

**Ganesh Singh**  
<>Technical Head </>



**Asad Parkar**  
<>Technical Co-Head </>

**Zaid Parkar**  
<>Technical Co-Head </>

The CSI RAIT Technical Team is a dedicated group that has made significant contributions to the technical community. Their passion for open-source software and commitment to knowledge-sharing is evident through numerous empowering workshops. They have also hosted skill-enhancing sessions, fostering technical growth for attendees.



**GAME DEVELOPMENT USING UNITY:** The Unity Game Development Workshop immersed attendees in the world of game creation using Unity software. The program covered essential Unity features, including 2D/3D game development, physics, and animations. Participants also learned to integrate Visual Studio Code for efficient coding and collaboration.



**PowerBI Workshop:** The CSI RAIT and ExcelR-hosted PowerBI Workshop, which concentrated on the capabilities of Microsoft capabilities BI, was a very educational event. Participants learned about the features of the program and investigated its many services. The focus of the session was report creation, giving participants the tools they needed to use Power BI's user-friendly interface to produce informative and persuasive reports.



**FLUTTER WORKSHOP:** The Flutter App Dev Workshop enabled participants to explore app development using Flutter, covering Dart programming, Flutter widgets, screen navigation, and frontend development. The workshop introduced Dart fundamentals, diverse Flutter widgets, and screen navigation techniques. Additionally, participants honed their front-end skills, including styling and responsive design principles.

# RESEARCH TEAM

**Darshan Rao**  
<>Research Head </>



**Anuj Khanvilkar**  
<>Research Co-Head </>

**Aditya Shetty**  
<>Research Co-Head </>

**Nipun Kumar**  
**Shreyas Dekhane**

**Aditya Borreddi**  
**Omkar Sarmalkar**

**Sean Antony**  
**Aditya Raj**

- TCI-Net: A Deep Learning Approach for Tropical Cyclone Intensity Prediction.
- Deep Learning Model based on Convolutional Neural Network for Automatic Intrusion Detection System.
- TruceNet: A CNN-Based Model for Accurate Classification of DeepFake Images
- Road Lane and Driver Drowsiness Detection System.
- Sign to Speech Converter.
- Genetic disorder prediction

Of these, Deep Learning Model based on Convolutional Neural Network for Automatic Intrusion Detection System, TruceNet: A CNN-Based Model for Accurate Classification of DeepFake Images are selected for IEEE Xplore and TCI-Net: A Deep Learning Approach for Tropical Cyclone Intensity Prediction, Road Lane and Driver Drowsiness Detection System are submitted for acceptance in IEEE conferences.

Several research wing members participated in various Research Conferences, Hackathons, and Project competitions including CIIIA, Anveshan research convention and GeeksforGeeks.

Research Wing worked along with the Technical team to manage and conduct several technical events including Flutter, Game and Web Development.

# WORKSHOPS

# TECHMATE



## Designaré:

"Designaré" marked the inaugural design workshop organized by the newly formed team. The participants eagerly embraced the field of graphic design, making it a resounding success. They learned the fundamentals of Adobe Illustrator throughout the session, and they were also made aware of Canva's ease of use for rapid and effective design development.



## Game Development Workshop

The game development workshop that was held in October gave budding game developers a great chance to practice using the Unity program and visual studio code to lay a solid basis in game development theory. The event inspired participants to keep digging further into the broad and exciting realm of game creation.



## Flutter Workshop

Participants in the Flutter Development Workshop set out on a trip to discover the foundations of app development with Flutter. It was an interesting and instructive session. During the class, participants learned the fundamentals of Dart programming, mastered Flutter widgets, understood the ideas behind screen navigation, and improved their front-end development skills.



## PowerBi Workshop

The PowerBI Workshop, organized by CSI RAIT in collaboration with ExcelR, provided a comprehensive overview of Microsoft Power BI. Attendees explored Power BI services, data analysis, visualization, and report generation. Practical sessions empowered participants with valuable skills for data-driven decision-making and effective data presentation.

As CSI RAIT moved beyond the moon to a faraway galaxy, we were able to bring an unbelievable experience to all who were able to attend Techmate 2023 - Galactic Space Tech.

It was an overwhelming turnout this year for Techmate Edition 23, where a mix of students and management attended. In this year's theme, space technology was taken to a whole new level across different galaxies. All those who attended the tech fest this year seemed to enjoy the out-of-this-world experience the theme brought and it was evident from their faces that they had a great time.

Our respected Principal Dr. Mukesh Patil inaugurated the Techmate 2022-23. The welcoming words he gave to the students and the words of encouragement he spoke gave the fest a splendid start.

There were a good amount of events that were held this time which included fun flagship events such as Cric-o-lumina, Takesh's Castle and Blazing Football. Space Station 5 was one of the most attended events as who doesn't like gaming? Escape Room-Area 51 and Stonks were a big hit as people really enjoyed playing it. Squid Game was still one of the most engaging events of the year. The best part about challenges is how much fun they can be.

Events that also help students to gain knowledge and also prepare academically were also held such as Clash of Codes allowed people to challenge their coding skills. Participants were able to test their web development and interface abilities at events like Cosmic UI and web development. The participants were given a better understanding of the placement and mock interview processes thanks to Step-up. The tech events were designed to be just as thrilling as the entertaining activities.

The organizers and volunteers of CSI RAIT received appreciation for their enthusiasm and relentless dedication at the successful completion of Techmate 22-23. In line with tradition, the top volunteers, teams, and junior committee members were facilitated and congratulated.

As it is stated that with every ending there is a new beginning, we make the commitment to return to the next techfest with even more passion and joy.



**CSI****CORE  
2022 23****Vedant Pimple**  
**President**

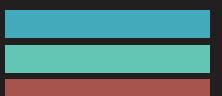
His potent blend of idealism, intelligence, and charismatic charm embodies true leadership, inspiring us all to reach greater heights with their vision and brilliance.

A10

**Ninad Patil**  
**Vice President**

With, his tranquil demeanor and helpfulness positively impact all, while his undeniable charm fosters effective connections.

B6



## Rewind 90 TO THE NINTIES

**Avi Sharma**  
**General Secretary**

He balances responsibility, humor, and charm, adding invaluable light-heartedness to the team.

**Pigul Patel**  
**Treasurer**

A blend of creativity and resolute seriousness. His innovative financial management brings growth & stability.



VHS

**Jai Gangan**  
**Chief Event Organizer**

Their unparalleled talent for seamless and unforgettable experiences shines. He brings a meticulous planning and creative flair.

**Kaustubh Uttarwar**  
**Chief Technical Officer**

They elevate the committee's tech pursuits with expertise, foresight, and innovation, driving success in the dynamic digital landscape.

**CSI****JOINT 22  
CORE 23****Arshsehaj dutta**  
**Joint Secretary**

He efficiently manages and coordinates diverse responsibilities, ensuring smooth functioning and effective communication within the committee.

**Prabhuti Patil**  
**HR And Marketing**

She expertly balances talent acquisition, fostering a cohesive and thriving workforce while driving the committee's growth through strategic marketing campaigns.

B6

**Omprakash Parikh**  
**Head Of External Operations**

He orchestrates seamless collaborations and partnerships, elevating the committee's reach and impact through effective external relations and strategic initiatives.

**Darshan Rao**  
**Research Head**

The Research Head is a visionary leader, guiding and overseeing groundbreaking research initiatives with expertise and determination, driving innovation within the committee.

**Ovee Jawdekar**  
**Editor In Chief**

With boundless creativity, she adds a captivating flair to whatever she writes. Her unwavering dedication ensures the highest standards of quality in her work.

**Shaheen Ali**  
**Chief Design Officer**

As the Chief Design Officer, they lead with a visionary approach, shaping innovative and aesthetically striking designs that leave a lasting impact.

**Back to the  
Future**

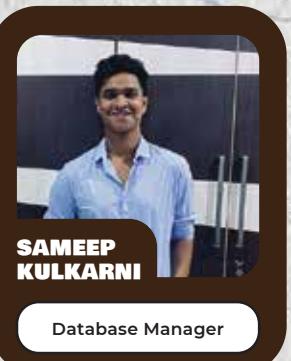
B12

**Yulita Dandekar**  
**Database Administrator**

She is a warm and approachable person who maintains all the committee's records in the backend.



# JUNIOR COMMITTEE



# THE TEAM TALKS

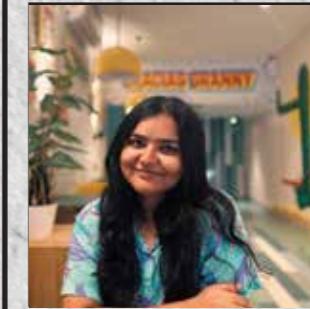


**Aditya Anurag**  
Editor

Barriers on our journey are not roadblocks, but opportunities to test our resolve, refine our path, and prove the strength of our determination. Being a part of Cozine 23' wasn't easy at all, but the grit and perseverance displayed by our team was remarkably astounding. I am proud of the work we've done and would love to see our efforts come to fruition.



We encountered thrilling difficulties that put our creativity and problem-solving abilities to the test as members of the design team for the 2022-2023 Cozine. Together, we sought the ideal balance between new designs and the magazine's identity while expressing the heart of the year's themes. Despite being under extreme time pressure, we gave all we had—from the colour schemes to the selection of the imagery—our all. All the difficulties were justified when we saw the finished result come to life.



**Drishti Sinha**  
Designer



**Riya Patil**  
Editor

As the Co-Editor-in-Chief of the committee, my role allowed me to infuse creativity into our projects while maintaining succinctness. By fostering an environment that encouraged innovative thinking, we were able to generate fresh and engaging content. Through this experience, I learned the art of effective communication, driving our committee's success while leaving a lasting impression on our readers.



Being a member of the design team for "Cozine"'s 2022-2023 issue was an exciting and rewarding experience. We worked together with other designers, authors, and editors to produce a visual masterpiece that perfectly encapsulated the year's tales and ideas. Every choice, including the typeface, colors, and layout, was made with enthusiasm and commitment. I was proud to see the results of our labour on the pages. The difficulties we encountered deepened our team's connection, encouraging respect and togetherness.

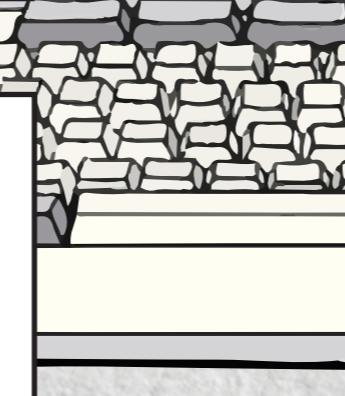


**Shreyas Dhekane**  
Designer

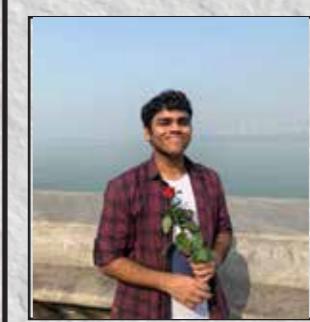


**Sangeet More**  
Editor

I extend my heartfelt appreciation to our exceptional team for their unwavering dedication and creative brilliance that made this Cozine possible. Your hard work, commitment, and collaboration have transformed ideas into captivating stories. Together, we've crafted something beautiful that inspires and delights our readers.



It was amazing to be a member of the "Cozine" design team for 2022-2023. We were given the opportunity to be creative, and our team's backing enabled us to explore novel concepts without inhibition. A wonderful magazine with appealing aesthetics and interesting content was produced as a consequence of the teamwork and shared enthusiasm, which included motivational brainstorming sessions and late-night design marathons. As a designer, I was quite pleased with this project since it demonstrated the value of collaboration and creative synthesis.



**Akansh Jatav**  
Designer

# TECHMATE

OFFICIAL TECHFEST OF RAIT



GALACTIC  
SPACE TECH

# WORKSHOPS

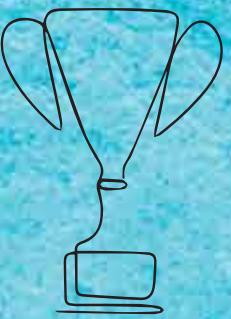
Game Development Workshop

Designare

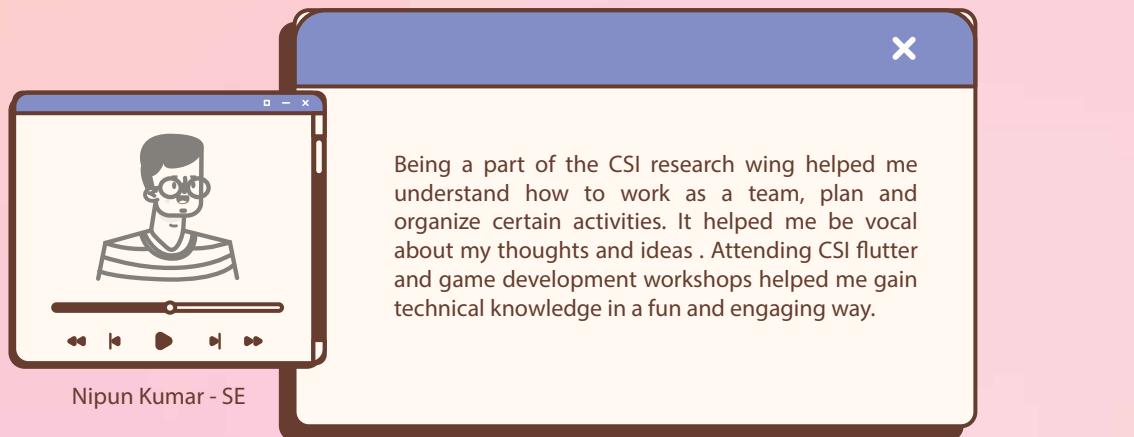
Flutter Workshop

PowerBI Workshop

IMAGINE  
BELIEVE  
ACHIEVE



# Why join CSI?



Nipun Kumar - SE

Being a part of the CSI research wing helped me understand how to work as a team, plan and organize certain activities. It helped me be vocal about my thoughts and ideas . Attending CSI flutter and game development workshops helped me gain technical knowledge in a fun and engaging way.



Niharika Ahuja - FE

I joined CSI on the very first day of my college . It was the first committee I joined as a FE . When I joined CSI, I never thought that soon it will become part of my life . Joining CSI helped me to excel my skills not only in technical domain but also in non technical domains CSI is not only a committee but a family and I m very happy that I made this decision in my college life .



Kevin Lalai - FE

I embarked on my journey to CSI quite late. As a natural fear I didn't know if it would be accepting but to my astonishment it met the most kind and passionate people here. In the past few months as a member CSI has taught me about networking opportunities, leadership skills and to excel in any realm of human endeavor , it makes you harder ,stronger and mentally prepared for any contingency in life. Truly a scintillating experience.

## SPECIAL THANKS:

Dr. Mrs. Leena Ragh  
Dr. Amarsinh Vidhate  
Prof. Mrs. Anupama Shenoy  
Prof. Mr. Tushar Ghorpade



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