

# RAJEEV GANDHI MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)  
NANDYAL



**(ESTD-1995)**

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## ABOUT RGM CET

*Rajeev Gandhi Memorial College of Engineering and Technology was founded in the year 1995. It is located in a 32.04 acre sprawling campus on NH-40 (old NH-18) at Nandyal, Kurnool (Dist), Andhra Pradesh.*

*It is the dedicated commitment and efforts of our Chairman, the man with vision "Vidyarathna" Dr. M. Santhiramudu, who started the institution with a motto "EDUCATION FOR PEACE". RGM CET is a road of elegant educational journey, yet path breaking in different dimensions.*

*Rajeev Gandhi Memorial College of Engineering & Technology (Autonomous) is Ranked in the band of 201-300 in Engineering category as per National Institutional Ranking Framework (NIRF) - 2024, Ministry of Human Resource Development (MHRD), Govt. of India.*

## *RGMCET Vision*

- *To develop this rural based engineering college into an institute of technical education with global standards.*
- *To become an institute of excellence which contributes to the needs of society.*
- *To inculcate value based education with noble goal of "Education for peace and progress".*

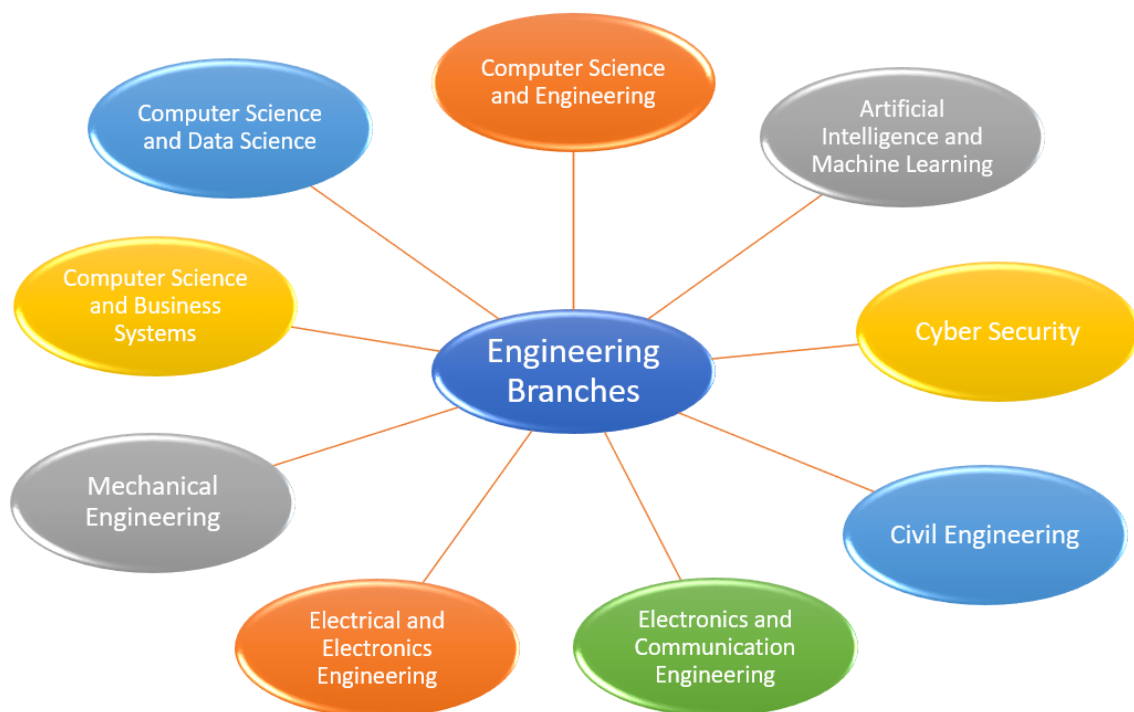
## *RGMCET Mission*

- *To build a world class undergraduate program with all required infrastructure that provides strong theoretical knowledge supplemented by the state of art skills.*
- *To establish postgraduate programs in basic and cutting edge technologies.*
- *To create conducive ambiance to induce and nurture research.*
- *To turn young graduates to success oriented entrepreneurs.*
- *To develop linkage with industries to have strong industry institute interaction.*
- *To offer demand driven courses to meet the needs of the industry and society.*
- *To inculcate human values and ethos into the education system for an all-round development of students.*

## *RGMCET Quality Policy*

- *To improve the teaching and learning.*
- *To evaluate the performance of students at regular intervals and take necessary steps for betterment.*
- *To establish and develop centers of excellence for research and consultancy.*
- *To prepare students to face the competition in the market globally and realize the responsibilities as true citizen to serve the nation and uplift the country's pride.*

## *Engineering Branches offered in RGMCET*



# *ABOUT COMPUTER SCIENCE AND ENGINEERING*

## *CSE Department Vision*

- *To empower students with cutting edge technologies in computer science and engineering.*
- *To train the students as entrepreneurs in computer science and engineering to address the needs of the society.*
- *To develop smart applications to disseminate information to rural people.*

## *CSE Department Mission*

- *To become the best computer science and engineering department in the region offering undergraduate, post graduate and research programs in collaboration with industry.*
- *To incubate, apply and spread innovative ideas by collaborating with relevant industries and R & D labs through focused research groups.*
- *To provide exposure to the students in the latest tools and technologies to develop smart applications for the society.*

## *Program Outcomes (PO's) - Engineering Graduates will be able to:*

- 1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.*
- 2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.*
- 3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.*
- 4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.*
- 5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.*
- 6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.*
- 7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.*

8. *Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.*
9. *Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.*
10. *Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.*
11. *Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.*
12. *Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.*

## *Program Specific Outcomes (PSO's)*

- 1. Students will have the ability to understand the principles and working of computer systems to assess the hardware and software aspects of computer systems.*
- 2. Students will have the ability to understand the structure and development methodologies of software system, that possess professional skills and knowledge of software design process.*
- 3. Students will have the ability to use knowledge in various domains to identify research gaps and hence to provide solution to new ideas and innovations.*

## *Program Educational Outcomes (PEO's):*

- 1. To Pursue a successful career in the field of Computer Science & Engineering or a related field utilizing his/her education and contribute to the profession as an excellent employee, or as an entrepreneur.*
- 2. To be aware of the developments in the field of Computer Science & Engineering; continuously enhance their knowledge informally or by pursuing graduate studies.*
- 3. To engage in research and inquiry leading to new innovations and products.*
- 4. To be able to work effectively in multidisciplinary and multicultural environments.*

*To be responsible members and leaders of their communities, understand the human, social and environmental context of their profession and contribute positively to the needs of individuals and society at large.*



## *Incipience:*

*A short note for readers, We want to thank all of those who supported us in Compass Magazine. We will always be gratified to the faculty who supported us through this journey.*

*The essential purpose of Compass Magazine is to inform, engage, inspire and entertain a diverse readership including faculty, staff, students and other friends of RGM CET.*

*Our magazine glides you through a series of queries you get during the phase of B.Tech. and we tried to possibly find answers and solutions for your queries and problems.*

*You will get to know the scope of Computer Science and Engineering in present society and what are the important guidelines you need to follow in order to embellish your success in stream of your choices. So we wish you a happy experience and good luck with your future*



## **Rajeev Gandhi Memorial College of Engg & Technology**

Offering B.Tech., & M.Tech., Courses: Accredited by NBA (UG Programs)

Approved by A.I.C.T.E., NEW DELHI – Affiliated to J.N.T.University, Anantapur,  
Accredited by NBA (6-Times), Accredited by NAAC with ‘A+’ Grade(Cycle-3), New Delhi,  
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NANDYAL – 518501. Kurnool Dist. A.P.

(ESTD – 1995)

### **PREFACE**

I deem it a great honor to be vested with the responsibility of playing the role of Program Director for the compass magazine of the academic year 2024-25. Compass document for brilliant and budding engineers, has the objective of triggering ripples in their thought process of bringing forth innovative ideas in modern and emerging fields of technology.

The heartening and overwhelming response, in the form of as many as **50** articles of super quality from all parts of the department, speaks volumes about the tremendous zeal and caliber of engineering students in the department. Profuse thanks to all these young boys and girls from the bottom of my heart. My hearty Congratulations to young authors of accepted articles. The articles are treasured in these magazine.

All the work connected with this magazine could not have been successfully executed but for the active advice and wonderful support of the esteemed chairman, respected principal, dear Managing Director, able and ever-agile administrative officer, beloved colleague's dear student friends and non-teaching staff. Here is my grateful acknowledgement of their priceless support with sincere thanks.

**Dr. K. SUBBA REDDY**

PROGRAM DIRECTOR & HOD

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## **FIRST DAY IN COLLEGE LIFE**

The first day of college is a big deal! It's exciting and a bit nerve-wracking all at once. You are stepping into a new chapter filled with opportunities and new experiences. You might be meeting new people, exploring the campus, and figuring out how everything works.

### **Do you have any specific plans or concerns about your first day?**

The first day of college is a whirlwind of new experiences and information. You will start with an orientation to understand the college layout, meet faculty, and learn about resources available to you. Following this, a campus tour will help you locate crucial spots like classrooms and labs. You will also have the chance to meet fellow students, which is a great opportunity to start building your network. Administrative tasks such as getting your student ID and setting up accounts are also on the agenda. Lastly, review your class schedule to familiarize yourself with timings and locations and explore extracurricular activities through club fairs to find interests beyond academics.



**Fig:** Enjoying college life with friends can make your experience even more memorable and fulfilling. Here are some ideas to help you make most of it:

Sharing your college experience with friends can make it more enjoyable and fulfilling. Start by exploring the campus together to find your favorite spots and get familiar with your surroundings. Attending campus events, such as social gatherings and cultural festivals, to create shared memories. Joining clubs or organizations that interest you and your friends can enhance your college life and introduce you to new people. Form study groups to collaborate on coursework and support each other academically. Plan outings like movie nights or hikes to balance academics with relaxation. Cooking or dining together can also strengthen your bonds and make for enjoyable shared experiences.



**Fig:** Attendance in college can play a crucial role in your academic success and overall college experience.

**Here are some tips and insights on managing your attendance effectively:**

Managing your attendance is crucial for academic success. Begin by understanding each course's attendance policies to avoid surprises. Prioritize attending classes regularly to stay engaged with the material. Actively participating in class will enrich your learning experience. Use a planner or digital calendar to track your schedule and deadlines, helping you stay organized. If you must miss a class, communicate with your professor in advance and inquire about make-up work. Utilize online resources or recorded lectures to catch up on missed content.

Maintaining your health and seeking help early if you face attendance challenges will also support your academic journey. Balancing your schedule to avoid overloading yourself will help ensure consistent attendance.



**Fig:** Ragging in college life and Becoming Friends with seniors:

College life is a rollercoaster, and ragging often kicks off the ride with a dose of humor. Building strong friendships with seniors can be a valuable part of your B.Tech college experience. Seek Advice and Guidance: Don't hesitate to ask seniors for advice on courses, projects, or even managing college life. Having seniors as friends can provide support and guidance.

G. Sai Harsha Vardhan Reddy,  
III-CSE  
S. M. Ibrahim Khalilulla,  
III-CSE

## *How We Failed in Women's Safety*

### **India's Hidden Rape Crisis:**

In India, approximately 77 rape cases are reported daily. Out of these, we only know about a maximum of 10 cases, the rest remain less visible. This issue is exacerbated by the silence of victims and the lack of support from their families. Victims often face immense pressure to forget what happened because there is little help or justice available. Parents should guide their children by teaching them to treat every woman with respect, as they would their own family members. They should also educate their daughters about the realities women face and encourage them to defend themselves. It's crucial for victims to report incidents to their parents and be cautious in all situations. Unfortunately, we live in a world where women are not always safe, even from other women.

### **Influence of Social Media:**

Every parent should closely monitor their children's use of social media until they reach a certain age. The influence of social media has a major impact on shaping young minds and can lead to harassment or exposure to inappropriate content. Children, especially, are vulnerable to being influenced in harmful ways by what they see online. This exposure can significantly affect their mindset, leading them down dangerous paths or normalizing criminal behavior. For instance, many children are exposed to adult content, becoming addicted to such material, which can have long-term negative effects.

As a society, we have also failed when we witness tragic events, like a girl being assaulted on a public street while bystanders merely record the incident instead of intervening. This reflects a deep moral crisis in our humanity, where the desire for social media attention outweighs the basic duty to protect others.

## Indian Government:

In India today, the government often fails to address rape cases and issues related to women's safety. While there are laws for women's safety, they are not always enforced well. When problems related to caste, culture or regional disputes arise, however, there is a swift response from both the government and society. This shows a major imbalance in how seriously women's issues are taken. Rape cases frequently receive no immediate action, and new incidents occur almost daily, highlighting the lack of effective response. Accused often avoid serious punishment and continue to receive state resources, while the facilities in jails can be more comfortable than what many people living below the poverty line experience. This disparity is unjust, as those in prison often have access to better living conditions than a significant portion of the population struggling to make ends meet. Unlike countries such as Saudi Arabia or Singapore, which enforce strict and immediate punishment for such crimes, why does India's approach to justice fail so drastically in protecting women and addressing these critical issues?



Moreover, the wealthy and influential frequently exploit the system, using bribes and their social connections to silence cases or delay investigations, allowing the guilty to walk free. Justice becomes a privilege for those with power, while the



common person struggles to be heard. This failure to protect the vulnerable has deep societal consequences.

**Conclusion:**

In ancient Indian times, rulers were expected to protect everyone, especially women. Texts like the Manusmriti said that kings had a duty to keep people safe and honor their dignity. Stories from the Mahabharata show how divine intervention, like Lord Krishna's protection of Draupadi, ensured justice and safety. Today, however, the government often fails to provide the same level of protection. While there are laws for women's safety, they are not always enforced well, and powerful people sometimes manipulate the system to avoid punishment. This shows a big gap between the strong protection of the past and the current struggles to keep women safe.

S. Athif,  
III-CSE  
R. Sumanth,  
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## *Unlocking the Mystical Code: How 11:11 Guides the Power of Manifestation*

As a college student, I always dream about landing on a perfect job, or maybe even finding clarity about what I truly need in my life. But what if there was a way to transform these dreams into reality? There is. Enter the world of manifestation - a powerful practice that combines positive thinking, visualization, and intentional actions to bring out the outcomes one envisions.

### **What Does 11:11 Mean in Manifestation?**

The 11:11 sign is often referred to as a symbol of synchronicity, spiritual awakening, and alignment with the universe. It's believed that seeing 11:11 frequently is a reminder from the universe that you are on the right path and that your thoughts are manifesting your reality. Many believe that when you see 11:11, it's the perfect time to focus on what you want to manifest, as this time holds heightened energy for transformation. 11:11 is seen as a moment of cosmic alignment. When people notice this time repeatedly, it's considered a signal that they are aligned with their higher self and the universe. 11:11 is often seen as a wake-up call or spiritual nudge, prompting people to pay attention to their thoughts and intentions.

Have you ever caught yourself glancing at the clock only to see its 11:11? You're not alone. This recurring number has been linked to a phenomenon known as synchronicity—a concept where unrelated events seem meaningfully connected. In the realm of manifestation, 11:11 serves as a powerful reminder from the universe. When you see these numbers, it's a sign that you're on the right path and your thoughts have the power to shape your reality. It's a cosmic nudge to pause, reflect on your intentions, and refocus your energy on what you want to attract.

## **How to Use the 11:11 Sign in Your Manifestation Practice?**

Whenever you see 11:11, stop what you're doing and take a moment to pause and refocus. Are your thoughts aligned with what you want to manifest? Use the 11:11 moment as an opportunity to set a clear intention. Whether it's for success in your studies, better relationships, or personal growth, take that moment to focus on what you truly want. Close your eyes and visualize your goal as if it's already achieved. Picture the emotions, sensations, and satisfaction that come with it.

Along with visualization, consider what actionable steps you can take to bring your goal closer to reality. The 11:11 moment can be a time to plan small actions that align with your intentions. Use affirmations to reinforce your intention. Repeat a positive statement related to your goal to strengthen your focus and commitment. Use this moment to review your progress towards your goals. Reflect on what's working and what needs adjustment, and use this insight to refine your approach. Take a few moments to connect with your inner self or higher consciousness. Ask for guidance or insight on your journey, which can help align your efforts more effectively.

One key to manifestation is gratitude. Use the 11:11 moment to thank the universe for what you already have and for the things you are manifesting. The more you align your thoughts and actions with your desires, the more likely you are to manifest them.

### **The Science behind Manifestation and 11:11**

When people regularly see 11:11 and associate it with their goals, they subconsciously start taking actions toward achieving them. While 11:11 may seem mystical, there's also a psychological component at play. When we assign meaning to seeing the numbers, we're more likely to take notice and reflect on our thoughts and actions. This is known as confirmation bias. The more we focus on our goals,

especially at moments like 11:11, the more motivated we are to take steps that bring those goals to life. It's manifestation in action, driven by both belief and behavior.

Manifestation taps into the principles of positive psychology, where focusing on positive outcomes not only boosts motivation but also fosters resilience and perseverance. By maintaining a positive focus, individuals can cultivate a mindset that is more open to opportunities and better equipped to overcome challenges. This approach encourages a proactive attitude and strengthens the psychological resources necessary for achieving long-term goals.

### **Conclusion: Embracing Manifestation and the 11:11 Sign**

Whether you're a believer in cosmic signs or simply curious about the power of positive thinking, there's no denying that 11:11 has captured the imagination of many. Next time you see these numbers, take a moment to reflect, reset, and realign with your goals. After all, the key to manifesting your dreams is not just in noticing the signs but in how you act on them.

G. Sree Vinaya,  
III-CSE

## **EDGE COMPUTING**

Edge computing is a distributed computing framework that brings enterprise applications closer to data sources such as IoT devices or local edge servers. This proximity to data at its source can deliver strong business benefits, including faster insights, improved response times and better bandwidth availability.

The explosive growth and increasing computing power of IoT devices has resulted in unprecedented volumes of data. And data volumes continue to grow as 5G networks increase the number of connected mobile devices. Edge computing has evolved to meet modern demands like streaming videos, virtual reality, and gaming. Edge-enabled devices can perform advanced computing tasks, making edge computing a necessity for low latency and privacy. iPhone's Face ID. This feature uses edge computing to process data locally, keeping sensitive information like biometric data .

A glance around at any devices used will find that they are smart, quick, and robust, such as Google Home, Smart Home, smart home appliances, drones, Amazon Dash buttons, and many more. A research group estimated that the drastic growth of these smart devices may reach around 75.44 billion by 2025.

The main characteristics of edge computing are proximity, decentralized, real-time, processing, analysis, and decision-making, autonomy. The future of edge computing holds significant promise across various industries, such as Manufacturing, Healthcare, Retail, Transportation and Logistics, Smart Cities, Telecommunications, home automations.

N. Harshini Reddy,  
III-CSE

## **FLOP**

Ever wondered, an actor with great acting skills gives most of the flops though his films had great cinematography and best storyline, sometimes they are considered as a flop. This makes the actor lose some of his fans and self-esteem.

The same film which had 're-released' after years, is now considered as a 'cult-classic' by today's generation. The people who once criticized the actor and his film are now praising the same actor after these many years.

Now, consider yourself in the place of that actor.. Though you are talented and capable in a specific thing/skill, it all goes into vain if you don't have people who can't identify and praise your worth and hardwork even if you succeeded in that skill by giving your whole heart.

Once if you re-start your decision and hardwork , the same people who criticized you follow your footsteps.. Don't let other's opinion ruin your confidence and make you feel insecure. If you think you are worthy, don't care about public opinion.

### **Conclusion:**

Here, the term 'FLOP' doesn't mean a loser. It refers to insecure, patience, time and influence of the people.

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*“If RE-RELEASE of FLOP films are becoming a hit, why can't we just RE-START? “*

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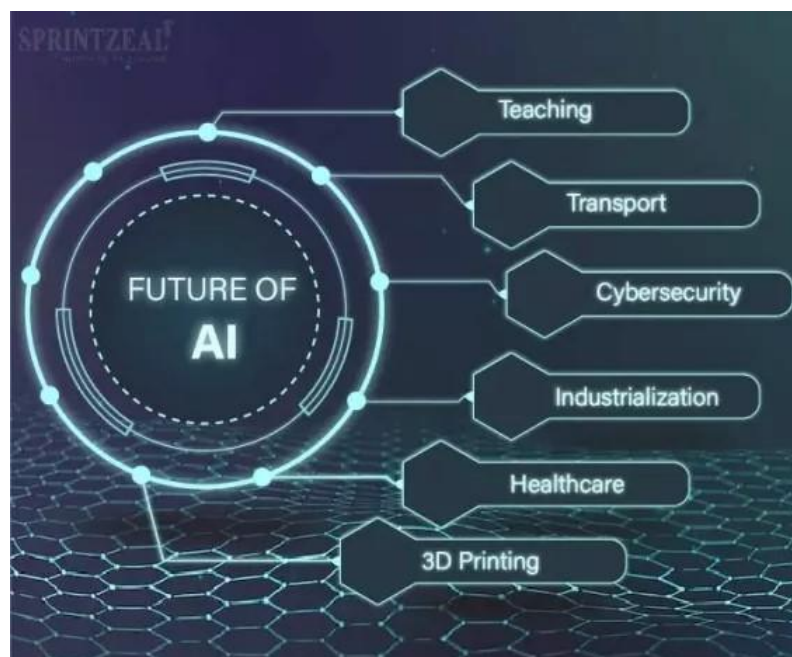
M. Kalpana,  
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## *Future Artificial Intelligence*

### **Introduction:**

Artificial Intelligence is a method of making a computer, a computer-controlled robot, or a software think intelligently like the human mind. AI is accomplished by studying the patterns of the human brain and by analyzing the cognitive process. The outcome of these studies develops intelligent software and systems.

AI will be unfathomably more powerful than humans in ways that will transform our world.



### **Types of AI:**

There are four types of AI. They are:

1. Reactive
2. Limited memory
3. Theory of mind
4. Self-aware

AI will revolutionize transportation on a broader scale, encompassing autonomous buses, trucks, and even flying vehicles. AI enhances decision-making by leveraging vast data to identify patterns and trends often invisible to humans.

### **Main goal of AI:**

One of the central aims of AI is to develop systems that can analyse large datasets, identify patterns, and make data-driven decisions. This ability to solve problems and make decisions efficiently is invaluable across various industries, from healthcare and finance to transportation and manufacturing.

### **Advantages of AI:**

1. Healthcare
2. Data analysis
3. Innovation

### **Disadvantages of AI:**

1. Skill loss in humans
2. Environmental issues
3. Encouraging human laziness

AI is neither inherently good nor bad. It is a tool that can be used for both beneficial and harmful purposes, depending on how it is developed and used.

### **Conclusion:**

Researchers generally agree that intelligence involves abilities to learn and adapt to changing environment. Understanding the various types of agents in artificial intelligence provides valuable insight into how AI systems perceive, reason, and act within their environments. The integration of AI in robotics has had a significant impact on various industries, revolutionizing processes, improving efficiency, and enhancing safety.

N. K. Keerthana,  
III-CSE



# *iOS TECHNOLOGY*

## **Introduction:**

**iOS:** A Deep Dive into Apple's Mobile Operating System. iOS, short for iPhone OS, is Apple's mobile operating system that powers its range of devices, including the iPhone, iPad, and iPod Touch. Known for its user-friendly interface, intuitive design, and robust ecosystem, iOS has become one of the most popular mobile platforms globally.

## **Key Technologies and Features:**

1. **Swift:** The primary programming language used for iOS app development. It's known for its modern syntax, performance, and safety features.
2. **UIKit:** A framework that provides the building blocks for creating user interfaces in iOS apps. It includes components like views, controls, and layout systems.
3. **Foundation:** A framework that provides fundamental objects and services for iOS apps, such as strings, numbers, dates, and file handling.
4. **CoreOS:** The underlying layer of the iOS operating system that provides essential system services like memory management, networking, and file systems.
5. **App Store:** Apple's digital marketplace for iOS apps, games, and other content. It offers a curated selection of apps and ensures their quality and security.
6. **Siri:** Apple's intelligent personal assistant that can perform tasks like setting reminders, sending messages, and controlling smart home devices.
7. **Face ID and Touch ID:** Biometric authentication technologies that allow users to unlock their devices and authenticate purchases using facial recognition or fingerprint scanning.

8. **ARKit and Reality Kit:** Frameworks that enable developers to create augmented reality (AR) and virtual reality (VR) experiences on iOS devices.
9. **Health Kit:** A framework that provides a centralized platform for health and fitness data, allowing apps to share and integrate data.

### **iOS Development:**

iOS app development involves using the Xcode integrated development environment (IDE) and the Swift programming language. Xcode provides a comprehensive set of tools for designing, coding, testing, and debugging iOS apps.

### **Key aspects of iOS development:**

1. **User Interface Design:** Creating intuitive and visually appealing user interfaces using UIKit and other frameworks.
2. **App Logic:** Writing code that implements the app's functionality and interacts with the user interface.
3. **Testing:** Ensuring app quality through unit testing, UI testing, and performance testing.
4. **Deployment:** Publishing apps to the App Store for distribution.

### **iOS Ecosystem:**

The iOS ecosystem includes a wide range of devices, apps, and services that work seamlessly together. This ecosystem provides a rich and integrated experience for users.

### **Key components of the iOS ecosystem:**

1. **Apple Devices:** iPhones, iPads, and iPod Touch.
2. **Apple Services:** App Store, Apple Music, Apple TV+, iCloud, and more.
3. **Third-Party Apps:** A vast library of apps available through the App Store.

4. **Accessories:** Apple-certified accessories like headphones, chargers, and cases

**Conclusion:**

In conclusion, iOS continues to be a dominant force in the mobile operating system market. Its combination of user-friendly interface, robust app ecosystem, strong security, and innovative features has made it a popular choice for millions of users worldwide.

V. Chaitanya Kumar Reddy,  
III-CSE

## *Technologies Making Waves in the E-commerce Sector*

E-commerce was already emerging as the future of retail in the late 2010s. Now, it is taking over the market faster. And the three technologies are transforming the sector:

1. Chatbots
2. Mobile Platforms
3. Augmented and Virtual Reality

E-commerce was a driving force in the world economy long before the pandemic struck. Consumers even began avoiding retail stores in favour of mobile delivery apps. As major retailers and e-commerce giants like Amazon double down on the technologies that have sustained their revenue streams throughout the pandemic, the cost and convenience of the digital economy is likely to draw more consumers—not fewer.

But what technologies are most likely to deliver the greatest value? From today's vantage point, it seems like three key advancements are leading the e-commerce charge. Here they are:

### **1. Chatbots:**

Chatbots provide a conversational aspect to e-commerce, allowing customers to find what they want quickly and easily at low cost to the retailer. As chatbot technology becomes more refined and better able to ingest and interpret both spoken and written language, we can expect them to augment the entire sales process, streamline customer service, collect data for marketing and trend prediction purposes and even generate sales leads.

This helps guide their decision-making, resolve any doubts or conflicts they are having, confirm shipping and perform a host of other duties that would otherwise require multiple customer service reps.

### **2. Mobile Platforms.**

Rakesh Jain, CEO of MobiCommerce says that the popularity of mobile is too great to ignore. As consumers turn to apps to generate income for themselves, their phones and other mobile devices become the centre of their financial worlds.

Already, mobile accounts for nearly three-quarters of all e-commerce transactions and emerging 5G networks are expected to dramatically improve the function of mobile apps to make browsing and purchasing easier and more engaging.

### **3. Augmented/Virtual Reality.**

Part of the new and vibrant shopping experience e-commerce facilitates will reside within augmented and virtual reality environments. The underpinning of the metaverse, in fact, is a fully immersive ecosystem where users can play, socialize and shop as if it was the real world.

Augmented Reality (AR) and Virtual Reality (VR) allow customers to see themselves in new clothes or behind the wheel of a new car, says technology journalist Jessica Wynne.

#### **Conclusion:**

Even with these technologies in hand, e-commerce will remain highly competitive. New tech solutions put a lot of power into e-tailers hands to attract customers and close sales; but they also provide more flexibility for consumers to shop around, compare prices and track down that perfect item. In the digital economy, all markets are global. This provides access to more buyers—but introduces more rivals as well.

B. Harshitha Reddy,  
III-CSE

# **HEALTH AND FITNESS**

## **Introduction**

Health is a state of complete physical, mental and social well-being and not merely absence of disease and Fitness refers to the ability of your body systems to work together efficiently to allow you to be health and perform activities of daily living.

Health can, generally, be measured on major three parameters: Physical, Psychological and nutritional.

**Physical health:** Physical health means the physical appearance of a person.

**Nutritional health:** Nutritional health means the presence of essential nutrients in the body to fight diseases with immunity.

**Psychological health:** Psychological health means the ability in a person to maintain patience, calm and composure in all circumstances of life.

Health professional consider cancer, diabetes and several other mental and physical health issues such as depression, lethargic attitude, etc to deficiencies in fitness and well-being of a person. Unhealthy and unfit lifestyle of a person also results in premature death. Obesity and lack of physical fitness in young generation sets the serious health problems.

Walking, running, cycling, playing, swimming, gardening, skipping, weight-lifting and yoga are some of the important activities which help us maintain fit and healthy lifestyle. A person who is fit both physically and mentally is strong enough to face the ups and down of life, and is not affected by drastic changes in the circumstances.

One should also spend time outdoors in the sun, inhaling fresh air and taking part in healthy activities. Staying active makes you stay energetic.

Out of the several components that affect one's health, following are the seven key physical components to ensure the overall good health, fitness and mental well-being:

1. Cardiovascular/ Aerobic Conditioning
2. Strength Training and Muscular Development
3. Stretching -Muscles, Ligaments and Tendons
4. Core Stability -Both physical and mental
5. Nutrition and Supplementation -Balanced Diet
6. Mental Rest and Relaxation – Balanced lifestyle

## 7. Sleep -Regular sleep

Eating healthy and nutrients rich food, exercising, taking sufficient sleep, avoiding intake of harmful substances are just few simple ways to stay healthy and fit. These are directly related to our mental, physical and emotional health.

Fitness and mental well-being are essential parts of a healthy life. The benefits of an active and healthy lifestyle are undeniable by all means.

Whether you decide to increase your activity levels slightly or develop and participate in a thorough fitness plan, it will pay you off in the long run. Exercise is good for your health of various organs of your body and makes you feel stronger.

Nutrition and fitness are essential for a healthy living. Not only we look and feel good, but by eating the right nutritional food and doing the right amount of exercises, we could also lower chances of getting some pretty serious life -threatening diseases.

Things to be done for maintaining balanced healthy and fit lifestyle:

1. Keeping body hydrated -Drink ample water
2. Washing hands before and after meals Maintain sanitation
3. Regular exercise
4. Intake of nutrients
5. Regular, sound sleep

### **Conclusion:**

Sound health not only means keeping a health body but it also includes a healthy mental condition. Our health depends upon several factors such as food, pollution, regular sleeping habits, fresh air, water, sunlight, and healthy mental condition. Morning walks and physical exercises are very helpful for ensuring the fitness of our mind and body.

Ramanaboina Anitha,  
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# *Fog Computing:* *The Future of Distributed Data Processing*

*“Fog Computing: Unleashing the Power of the Cloud Right at Your Doorstep”*

Fog computing, also known as fog networking or fogging, is revolutionizing the tech landscape by bringing the power of cloud computing to the very edge of your network. This innovative approach boosts efficiency, slashes latency, and supercharges data processing. Dive into the fascinating world of fog computing as we unravel how this game-changing technology transforms data management and drives the future of connectivity.

## **Let us try to understand what is fog computing?**

Fog Computing, a term coined by Cisco, extends cloud capabilities to the edge of an enterprise network. Also known as Edge Computing or Fogging, it brings computing, storage, and networking services closer to end devices, reducing latency and boosting efficiency by bridging the gap between local devices and centralized data centers. This innovation enables faster, more responsive data processing right where it's needed.

## **Now it's time to know the history**

Fog computing, coined by Cisco in 2014, brings cloud power closer to where data is created, reducing delays and cutting bandwidth use. It's perfect for real-time tech like IoT and smart cities. A year later, IBM introduced Edge Computing, focusing on processing at the device level. Both aim to solve the challenges of traditional cloud computing in our connected world.

There are four main types of fog computing

- **Device-level Fog Computing:** Uses low-power devices like sensors and routers to collect and send data to the cloud for analysis.
- **Edge-level Fog Computing:** Utilizes network-connected servers to process data locally before uploading it to the cloud.



- Gateway-level Fog Computing: Connects the edge to the cloud, controlling traffic and sending only relevant data.
- Cloud-level Fog Computing: Uses cloud-based servers to process data before delivering it to end users.

### **Key Components of Fog Computing**

- Edge devices: Edge devices are the network devices nearest to the data source. Edge devices consist of sensors, and gateway routers.
- Data Processing: Data processing occurs locally on edge devices rather than being routed to a central location for processing. The end effect is greater performance and lower.
- Data Storage: in Data storage. Instead of transferring data to a central place, edge devices can keep information locally. This increases security and privacy while lowering latency.
- Connectivity: For fog computing to work, edge devices must be connected to the rest of the network at high speeds. This can be done using wired or wireless methods.

### **When Should You Use Fog Computing?**

Fog computing is ideal in scenarios where real-time data processing is essential, and immediate actions or insights are required. It excels in reducing latency, especially in applications like Internet of Things (IoT) devices, autonomous vehicles, industrial automation, and smart cities. In environments where bandwidth is limited, fog computing helps by processing data closer to the source, reducing the load on cloud infrastructure. It's perfect for handling large volumes of data generated by sensors, cameras, and other edge devices, making it crucial in situations where speed, efficiency, and responsiveness are non-negotiable.

### **Advantages and Disadvantages of Fog Computing**

#### **Advantages:**

- This approach reduces the amount of data sent to the cloud, conserving network bandwidth.

- By shortening the distance data must travel, it leads to faster response times.
- It enhances overall system security by keeping data close to the source.
- Improved privacy is achieved as industries can analyze their data locally, without sending sensitive information to the cloud.

### **Disadvantages:**

- Congestion between the host and fog nodes can lead to network congestion, especially with heavy data flow.
- Higher power consumption can result from adding another layer between the host and the cloud.
- Coordinating and scheduling tasks among the host, fog nodes, and the cloud can be complex and challenging.
- Data management becomes more cumbersome due to encryption and decryption, which can complicate data handling and potentially expose sensitive information.

### **Applications of Fog Computing**

- It can be used to monitor and analyze the patients' condition. In case of emergency, doctors can be alerted.
- It can be used for real-time rail monitoring as for high-speed trains we want as little latency as possible.
- It can be used for gas and oils pipeline optimization. It generates a huge amount of data and it is inefficient to store all data into the cloud for analysis.

*"In an era where real-time data processing and efficiency are crucial, fog computing emerges as a transformative technology, bridging the gap between cloud and edge computing to empower faster, smarter, and more resilient digital ecosystems."*

S. Uma Suma Sree,  
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## ***THE POWER OF HARDWORK***

Once, there were two engineers, Rohan and Rahul. Both were equally talented, but their approaches differed. Rohan relied on his natural ability and worked just enough to get by. Rahul, on the other hand, put in extra effort, spending long hours studying and practicing.

One day, they both applied for a prestigious project. Rohan was confident in his abilities, while Rahul was nervous but prepared. The selection process was rigorous, but Rahul's hard work paid off. He was selected for the project, while Rohan was not.

Rohan was shocked and asked Rahul about his success. Rahul replied, it's not about being the most talented, but about being the most dedicated.

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*"Hard work beats talent when talent doesn't work hard."*

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Rohan realized his mistake and started putting in extra effort. He eventually caught up with Rahul and even surpassed him in some areas.

**Moral:** Hard work and dedication can take you further than natural talent alone. It's the effort you put in that makes the difference.

### **Key Takeaways:**

- Hard work and dedication are essential for success.
- Talent alone is not enough; it needs to be complemented with effort.
- With persistence and hard work, anyone can achieve their goals.

This story illustrates the power of hard work and encourages students to develop a strong work ethic to achieve their full potential.

A. Suchandana,  
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# **UNRAVELING QUANTUM COMPUTING**

## **Introduction:**

Quantum Computing represents a paradigm shift in how we approach computation and problem solving. While classical computers process information using bits-binary units of data that can be either 0 or 1 quantum computers utilize quantum bits or qubits, which can exist in multiple states simultaneously. This fundamental difference opens up new possibilities for solving complex problems that are beyond the reach of today's classical computers.

## **What is Quantum Computing?**

At the heart of Quantum computing is the qubit, the basic unit of quantum information. Unlike classical bits, qubits can represent both 0 and 1 at the same time this property known as superposition. This allows quantum computers to process a vast number of possibilities simultaneously.

**Entanglement:** It is another crucial concept, if phenomenon where qubits become interconnected in such a way that the state of 1 qubit can instantaneously influence the state of another, no matter the distance between them. This interconnectedness enables quantum computers to solve certain types of problems much more efficiently than classical computers.

Quantum computing realises on quantum gates and circuits and analogous to classical logic gates but capable of operating on qubits. Quantum gates manipulate qubits to perform computation and quantum circuits consist of a series of these gates to achieve complex operations.

## **Current State of Quantum Computing:**

Today, Several leading companies and institutions are at the forefront of quantum computing research. IBM, Google, and Microsoft among others, are developing various types of quantum hardware, including superconducting qubits and trapped ions. Each approach has its advantages and challenges.

## **Applications and Potential:**

Quantum computing holds promise across several fields

**Cryptography:** Quantum Computers could potentially break traditional encryption methods by efficiently factoring large numbers.

**Drug Discovery:** Quantum Computers could revolutionize drug discovery by simulating complex molecular structures and interactions more accurately and efficiently than classical computers .It helps in development of new treatments.

**Optimization Problems:** Quantum Computing offers solutions to complex optimization Problems found in logistics, finance, and operations. These problems, which are computationally intensive for classical computers, can be approached more efficiently with Quantum algorithms.

**Artificial Intelligence:** Quantum Computing has the potential to enhance machine learning and algorithms by handling large data sets and performing complex computations more rapidly.

**Traffic Flow Optimization and Autonomous Vehicles:** Quantum computers can optimize traffic flow and routing, reducing congestion and improving safety.

**Aerospace Engineering and Optimization:** Quantum computers can optimize complex systems, leading to more efficient aircraft and spacecraft designs.

### Challenges and Limitations:

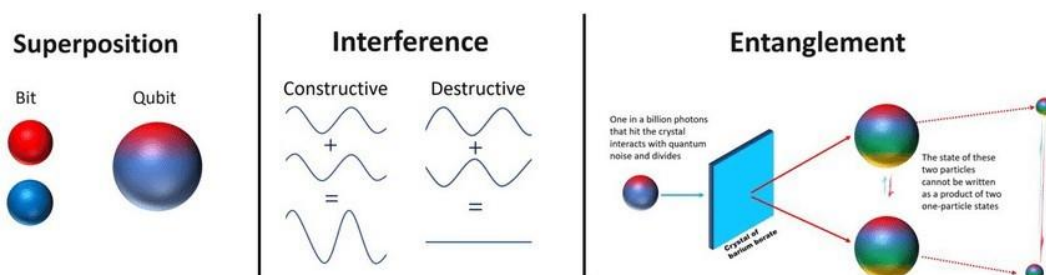
**Technical Challenges:** Building and maintaining Quantum hardware involves overcoming significant technical hurdles such as achieving and maintaining the required operations conditions and managing qubits interactions.

**Cost and Accessibility:** The high cost of quantum computing infrastructure and the specialized knowledge required to operate and developed Quantum systems, limit accessibility to those technologies.

**Data Storage & Management:** Managing and storing quantum data efficiently is an ongoing challenge. The quantum state information is fragile and difficult to store long term without degradation.

**Environment Sensitivity:** Quantum systems are affected by their surroundings such as temperature fluctuations and electromagnetic interface. keeping the system isolated from these environmental factors adds to the complexity and cost.

**Noise Sensitivity:** Quantum Computers are highly sensitive to noise and external disturbances, which can disrupt their operations.



## **Future of Quantum Computing:**

Future of Quantum Computing will be excited because it is faster and more efficient solutions for problems we can face today .It works differently from traditional computers by using principles of quantum physics , which could make it incredibly powerful for specific tasks .Although its promising ,there's still a lot of research needed to make it practical and widely available.

## **Conclusion:**

In conclusion Quantum Computing stands at the Frontier of technological innovation. It's ability to handle complex calculations and process vast amounts of data could bring transmittive changes to many fields .However ,overcoming technical hurdles and making quantum computing accessible to broader range of applications will be crucial for realizing it's full potential .As a research and development continue ,The future of quantum computing looks promising and full of possibilities.

D. Bharathi,

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## *Gig Economy*

### **What is a gig economy?**

- It is a labor market that relies heavily on temporary and part-time positions filled by independent contractors and freelancers rather than full-time permanent employees.
- Gig workers gain flexibility and independence but little or no job security.
- Gig economy in India: According to the NITI Aayog estimates, nearly 23 million workers will be engaged in the gig economy by 2029.

### **Types of Gig workers**

Gig workers refer to workers outside of the traditional employer-employee relationship. There are two groups of gig workers.

<b>Platform Workers</b>	<b>Non- platform Workers</b>
When gig workers use online algorithmic matching platforms or apps to connect with customers they are called platform workers.	Those who work outside of these platforms are non-platform workers, including construction workers and non-technology based temporary workers.

### **Issues faced by gig workers**

- Since the gig economy falls outside the scope of traditional ,full-time employment, gig workers usually lack basic employment rights such as
  - Minimum wages
  - Overtime pay
  - Medical leave
  - A statutorily bound resolution of employer-employee disputes.
- Gig workers display characteristics of both employees and

Independent contractors-y as a result fall outside the ambit of statutory benefits under-

- The minimum wages act 1948, EPF act 1952 and the Payment of bonus Act 196(for employees).
- The contract labor (Regulation and Abolition) act 1970 (for contract laborers)

### **What is the proposed law for gig workers?**

The code on social security 2020, which has proposed social security schemes for gig workers and platform workers on matters relating to-

- Life and disability cover
- Accident insurance
- Health and maternity benefits
- Old age protection
- However, the code is yet to come into force.

### **Other efforts:**

A MOU has been signed between the MOL&E and the NLSIU (Bangalore) for assistance in framing a new scheme for the gig and platform workers as well as workers in the unorganized vector.

### **Concerns:**

- Out of the four new labor codes proposed, gig work finds reference only in the code on social security.
- Hence they cannot create legally recognized unions and access a national minimum wage that applies to all forms of employment.
- They also remain from accessing the specialized redressal mechanism against their employers.
- Gig workers are excluded from category of ‘unorganized workers’ or ‘wage workers’.
- They also do not have the right to collective bargaining- a fundamental principle of modern labor law.
- All the above leads to the violation of their fundamental rights under Articles 14 and 21 and comes within the meaning of forced labor under Article 23.



**Best practices:**

- The Rajasthan Platform-Based gig workers (Registration and welfare) Act 2023: Rajasthan has become the first state in the country to pass a law for the welfare of lakhs of gig workers earning their livelihood through online platforms (Ola, Swiggy, etc.).
- Germany's temporary Employment Act provides for equal pay and equal treatment of gig workers.
- Singapore has also proposed legislative changes to extend work injury insurance and pension coverage to such workers.

**Conclusion:**

A specific scheme for such workers, as recommended by the Standing committee on Labor, Textiles, and skill Development may resolve the Above Concerns.

A. Siva Kumar,

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## **CULTURE OF INDIA**

Indian culture is the heritage of social norms and technologies that originated in or are associated with the ethno-linguistically diverse India, pertaining to the Indian subcontinent until 1947 and the Republic of India post-1947. The term also applies beyond India to countries and cultures whose histories are strongly connected to India by immigration, colonization, or influence, particularly in South Asia and Southeast Asia. India's languages, religions, dance, music, architecture, food, and customs differ from place to place within the country.

Indian culture, often labelled as a combination of several cultures, has been influenced by a history that is several millennia old, beginning with the Indus Valley Civilization and other early cultural areas.

Many elements of Indian culture, such as Indian religions, mathematics, philosophy, cuisine, languages, dance, music, and movies have had a profound impact across the Indosphere, Greater India, and the world. The British Raj further influenced Indian culture, such as through the widespread introduction of the English language, which resulted in a local English dialect and influences on the Indian languages.

### **Religious Culture:**

Indian-origin religious, Jainism, Buddhism, and Sikhism are all based on the concepts of dharma and Karma. Ahimsa, the philosophy of nonviolence, is an important aspect of native Indian faiths whose most well-known proponent was Sri Mahatma Gandhi, who used civil disobedience to unite India during the Indian independence moment – this philosophy further inspired Jr. Martin Luther King and James Bevel during the American Civil rights movements. Foreign-origin religion, including Abrahamic religious, such as Judaism, Christianity and Islam, are also present in India, as well as Zoro and Bahai faith both escaping persecution by Islam have also found shelter in India over the centuries.

India is one of the most religiously and ethnically diverse nations in the world, with some of the most deeply religious societies and cultures. Religion plays a central and definitive role in the lives of many of its people. Although India is a secular Hindu majority country, it has a large Muslim Population. Except for Jammu and Kashmir, Punjab, Meghalaya, Nagaland, Mizoram and Lakshadweep, Hindus form the predominant population in all 28 states and 8 union territories. Muslims are present throughout India, with large populations in Uttar Pradesh, Bihar, Maharashtra, Kerala, Telangana, Andhra Pradesh, West Bengal and Assam; while only Jammu and Kashmir and Lakshadweep have majority Muslim populations. Christians are other significant minorities of India.

According to the 2011 census, 79.8% of the Population of India practice Hinduism. Islam (14.2%), Christianity (2.3%), Sikhism (1.7%), Buddhism (0.7%) and Jainism (0.4%) are the other major religions followed by the people of India. Many tribal religions, such as Sarnidm, are found in India, though these have been affected by major religions such as Hinduism, Buddhism, Islam and Christianity. Jainism, Zoroainistim, Judaism, and the Baha I faith are also influential but their numbers are smaller, Atheism and agnostics also have visible influence in India, along with a self-ascribed tolerance to other faiths.

### **Cuisine:**

1. Indian food is as diverse as India. Indian cuisines use numerous ingredients, deploy a wide range of food preparation styles, cooking techniques, and culinary presentations. From salads to sauces, from vegetarian to meat, from spices to sensuous, from bread to desserts, Indian cuisine is invariably complex. Harold McGee, a favourite of many Michelin-starred chefs, writes "for sheer inventiveness with the milk itself as the primary ingredient, no country on earth can match India."
2. India is always inspirational. There is so much to learn from India because each and every state is a country by itself and each has its own cuisine. There are lots of things to learn about the different cuisines – it just amazes me. I keep my mind open and like to explore different places and pick up different influences as I go along. I don't actually think that there is a single state in India that I haven't visited.

Sweets are also very popular among Indians, particularly in west Bengali where both Bengali Hindus and Bengali Muslims distribute sweets to mark joyous occasions. There is specifically evidence for early influences from East and Southeast Asian-derived cultural areas, primarily via Austroasiatic (Mon Khmer) groups during the Neolithic periods, on certain cultural and political elements of Ancient Indians, and which may have arrived together with the spread of rice cultivation from Mainland southeast Asia A significant number of ethnic minorities in central, eastern and northeastern India are Austroasiatic language speakers, most notably the Munda and Khasic.

### **Clothing:**

Traditional clothing in India greatly varies across different parts of the country and is influenced by local culture, geography, climate, and rural/urban settings. Popular styles of dress include draped garments such as Sari and mekhela sador for women and Doti or Lungi or panche (in Kannada) for men. Stitched clothes are also popular such as Chudidar or salwar-kameez for women, with dupatta (long scarf)

thrown over shoulder completing the outfit. The salwar is often loose fitting, while churidar is a tighter cut. The dastar, a headgear worn by Sikhs is common in Punjab.

Indian women perfect their sense of charm and fashion with makeup and ornaments. Bindi, Mehendi, earrings, Bangles and other jewel are common. On special occasions, such as marriage ceremonies and festivals, women may wear cheerful colours with various ornaments made with gold, silver or other regional stones and gems. Bindi is often an essential part of a Hindu woman's make up. Worn on their forehead, some consider the bindi as an auspicious mark. Traditionally, the red bindi was worn only by married Hindu women, and coloured bindi was worn by single women, but now all colours and glitter have become a part of women's fashion.

### **Sculpture:**

The first sculpture in India date back to the Indus Valley civilisation, where stone and bronze figures have been discovered. Later, as Hinduism, Buddhism, and Jainism developed further, India produced some extremely intricate Bronzes as well as temple carvings. Some huge shrines, such as the one at Ellora were not constructed by using blocks but carved out of solid rock Sculptures produced in the northwest, in stucco, schist, or clay, display a very strong blend of Indian and Classical Hellenistic or possibly even Greco-Roman influence.

### **Conclusion:**

India is a land of immense cultural diversity, shaped by thousands of years of history, religion, and traditions. Its culture is a rich tapestry that encompasses a wide range of languages, religions, cuisines, arts, and festivals. The various regions of India offer distinct cultural identities, yet they coexist in harmony, reflecting the nation's ethos of unity in diversity. The vibrancy of Indian culture is evident in its dance forms, music, architecture, and crafts, which have influenced and been influenced by many civilizations.

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# **STRUGGLE OF SINGLE PARENTING**

## **Introduction:**

Parenting is the central role of family, which is the basic unit of society. Thus, a society is characterized by the quality of parenting achieved at the family level. Single parent families are thus vilified on the notion that they are deficient. The concept of single parenthood highlighted is that of single motherhood. Growing up under the care of a single parent has its influence on the personality of an individual.

Children who grow up in a household with only one biological parent are worse off on average than children who grow up in a household with both of their biological parents. Single parent households face numerous challenges which are relative to the situation faced by families headed by both.

Children of single parent can be just as liberal with emotional, social and behavioral skills as those who two parents. People believe that the only way for children to gain full emotional and behavioral skills is to be raised by both a mother and a father.

## **What is Single Parenting?**

Single Parenting is when a person raises a child or children without a spouse or live-in partner to help with parenting responsibilities. A single parent can be unmarried, divorced or legally separated. The child can be biological adopted, fostered or a stepchild.

Some reasons parent might become a single parent include:

- Death of a parent
- Divorce
- Separation
- Domestic violence
- Single-person adoption
- Rape
- Childbirth by a single person
- Abandonment

Even though single parents may face challenges, they can still create a healthy and strong relationship with their child, the child may face problems like psychological disorders, social difficulties and development consequences.

## How Society views?

Single parents therefore face problems from all corners, ranging from schools, government positions and society at large. Caring for their children is also a challenge as they have to ensure that children grow just as the others who have both parents.

One of the most difficult problems facing single parents is how to integrate into the society with their families. Most societies only recognize married couples as able to raise children in an effective way. Furthermore, children find themselves isolated when in learning institutions as others embrace both parents.

It is important to state that single parenthood is a difficult task, as the needs of children are shouldered by one individual. Single parent occurrence are never out of both parent's wish, but unexpectedly, or out of situations that are quite difficult to understand.

Society views single parent either in positive way or negative way that is depends on person's thought. Someone never understand the pain that is struggled by single parent and never feel the children pain how badly they miss their co-parent. Society don't know what the reason behind their parent separation and always find mistake whatever the work their parent done.

### **Difficulty of being a single parent:**

- Single parent bears the weight of financial responsibility alone and with raising education and healthcare costs.
- The emotional burden can be overwhelming without a partner to share the responsibilities and provide emotional support.
- India's traditional joint family system often avoids single parent and leaving them with limited support.
- Single parent always constantly balances their job and parenting duties which is very difficult to many human beings.
- A single mother may pressure from their family to remarry which impacts their child future.

Single parent is a journey that can be both heart-wrenching and uplifting. The challenges faced by single parent whether they may be mother, or father are difficult and varied. Most of the single parents are woman i.e., mother, A mother can never accept to leave her children. She sacrifices herself for making her children bright. A

mother is the only one who motivates her children, is the one who works as like as a father, is the one who takes care her children's responsibilities

Single parents with young children are more likely to be discriminated against in the workplace, and single parents who rent privately are more likely to face discrimination than those who own their home or have social housing. One of the biggest challenges of being a single parent is financial instability. Raising a child is expensive, from paying for childcare to buying food and clothing. Done it alone makes the cost seem sometimes difficult.

**Conclusion:**

Experience of single-parent children can be both positive and negative. Strengths such as an increased sense of responsibilities, decision-making, and resilience can be considered while dealing with the unique challenges faced by them. Single parent is not a punishment, as a child who have single parent will feel more or double love, affection, care, responsibilities from one person. Sometimes it is the best ever feeling that we received by our mother.

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