# MATA SUNDRI COLLEGE FOR WOMEN

# UNIVERSITY OF DELHI

# TECHINSIGHT
## 2020-2021

cybernauts

# DEPARTMENT OF COMPUTER SCIENCE

# MATA SUNDRI JI

Mata Sundri Ji was the wife of Guru Gobind Singh Ji,the tenth guru of the Sikhs. Born on 23rd Dec 1667, she was married to the Guru in 1686. Hers was a remarkable personality that blended to a distinction, the diverse roles of a devoted wife, an ideal mother and a confidant and far-sighted guide of the community. After the death of Guru Gobind Singh Ji, the Sikh masses found themselves in a state of disarray because of State terror, in addition to other hardships. In this difficult situation, it was Mata Sundri Ji who served as their guide, raised their morale, and virtually breathed new life into them through her wisdom, erudition and spiritual power.

It was she who got the writings of Guru Gobind Singh collected and compiled as "Dasam Granth". She also persuaded devout Sikhs to prepare copies of holy hymns to be compiled in Adi Granth Sahib. Further, Mata Sundri Ji took care to ensure that the tradition of "langar" (free community kitchen) continued to flourish. Today, when moral values have declined, her lofty personality shines all the more by virtue of sheer contrast.

For about forty years Mataji stayed at the premises now occupied by Gurudwara Mata Sundri Ji. The institution of higher learning built adjacent to it is an apt tribute to her. Students from diverse religious backgrounds, faiths, castes and echelons of society have come together here and excelled in their chosen areas of interest, be it academics, sports, or extra- curricular activities. As per the values promulgated by Mataji, equal opportunities and facilities are provided to all. The college imbibes her ideologies and it is an index of our homage to her memory, that this institution has been named after her. We bow our heads as a mark of respect before the greatness of her soul.

# FROM PRINCIPAL'S DESK

DEAR YOUNG FRIENDS!

Heartiest greetings!!!

I extend my warm wishes to the Department of Computer Science for coming up with the first independent edition of their e-journal, 'TechInsight' 2020-2021. This journal gives an insight into the technological advancements as well as it showcases the creativity of our students. 'TechInsight' has given a platform to our students to express their thoughts freely and confidently.

I feel really proud to share with all of you that Computer Science department has taken these challenging times head on. With everyone being forced to adopt virtual methods of teaching & learning, Dept of Computer Science has been conducting workshops regarding G Suite tools, mentoring peer groups, organizing short-term courses and Faculty Development Programs to equip teaching/non teaching staff and students, with online e-teaching/learning processes.

Charting new horizons, faculty members and students of Dept of Computer Science have embarked upon another commendable endeavour. It is a creditable effort on the part of teachers to mentor our young students in honing their valuable writing skills, thus expressing their thoughts and opinion with such clarity.

I would like to thank all the qualified and proficient teachers of the department and sincere students who have worked hard to make it possible. This journal is a compilation of the academic and extracurricular achievements of the department. It is a stage to show the laurels brought by the students to the college. I applaud the editorial team for their hard work and dedication; they have invested in realizing this goal.

I wish my dear students success in all future accomplishments.

**(Prof.) Dr. Harpreet Kaur**
*PRINCIPAL*

It gives me immense pleasure to know that Department of Computer Science, Mata Sundri College for Women, is coming out independently with its first journal, 'TechInsight': 2020-2021. TechInsight, the very name expresses the purpose of this journal. The readers will be provided an insight into the technological advancements, which are changing the world at a super-fast pace.

Along with that, this journal is going to showcase the achievements and activities of the department and also prove to be a great platform for students to express their thoughts creatively.

It is a laudable initiative on the part of faculty members and students of department of Computer Science to come up with this journal. I heartily appreciate their efforts and congratulate the Editorial Board on this great step forward. Wishing them more power and success in their creative endeavours.

**Dr. Kiranjeet Sethi**
*Course Coordinator*
*Associate Professor*
*Department of English*

Computers are ubiquitous and widespread in all aspects of modern society. Present era is an excellent time to go into computing with unprecedented opportunities. Computing comprises of designing, development and production of hardware and software systems with immense scientific research, resulting in a computer system which works brilliantly. Computing technologies are enriching the lives of people in every corner of the world.

The voyage of companies towards becoming leaders in their respective industries is a recurrent and essential exercise in this competitive corporate world. This quest becomes fiercer in this technology industry because of its inherently dynamic nature. The way innovations in computing technologies are taking place, it has become a challenge for the IT fraternity to be aware and well-informed about all these developments. This IT symposium will contribute towards bridging this gap. TECHINSIGHT, the first independent Computer Science department publication will provide visualization on the latest technologies and commence a new thought process in the brains of prospective IT professionals.

I would like to express my gratitude to the authors and the talented editorial team for their invaluable contribution in compiling this year's TECHINSIGHT.

**Dr. Megha Gupta**
*Assistant Professor*

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★★★★★

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**1. Dr. Kiranjeet Sethi**
Teacher In-Charge

**2. Mrs. Vijaya Goel**
Teacher Coordinator

**3. Dr. Nidhi**
Assistant Professor

**4. Dr. Megha Gupta**
Assistant Professor

**5. Ms. Ashema Hasti**
Assistant Professor

**6. Ms. Priyanka Gupta**
Assistant Professor

**7. Ms. Varsha Bhardwaj**
Assistant Professor

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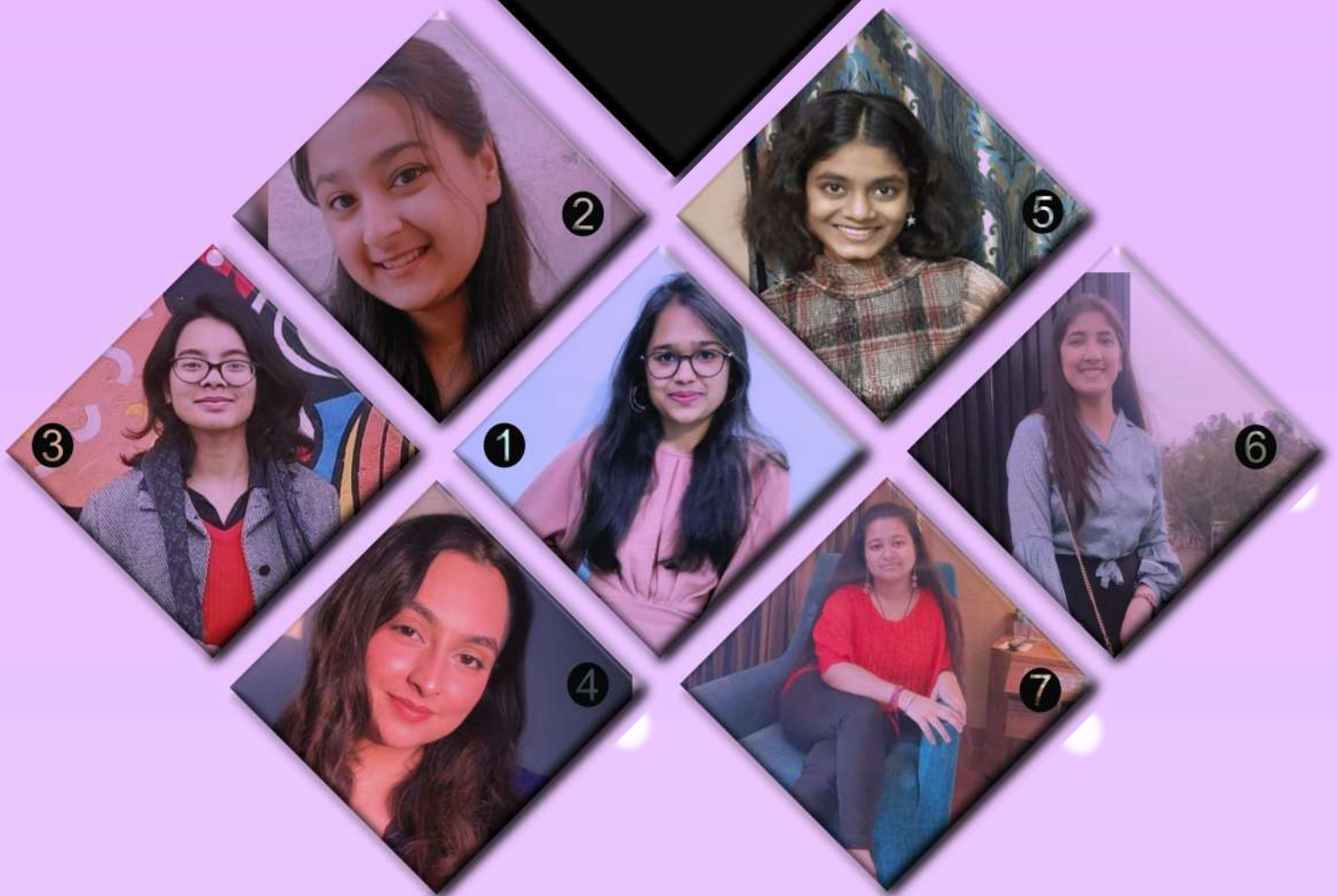
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EVENTS

2020-21

# *Enhancing Online Teaching-Learning using GSuite Tools:*

# *GOOGLE CLASSROOM and GOOGLE MEET*

# July 2020



The Department of Computer Science in collaboration with the Internal Quality Assurance Cell (IQAC), Mata Sundri College for Women organized a Hands-on practical session on July 15th -16th 2020. The organizing team was headed by Ms. Ashema Hasti and Dr. Manisha Mathur. The event commenced with a warm greeting by the Convener, followed by the welcome address and words of appreciation delivered by Prof. (Dr.) Harpreet Kaur (Principal MSCW). The cordial speakers of the session were Dr. Nikhil Kumar Rajput and Ms. Bhavya Ahuja Grover working as Assistant Professors in the Department of Computer Science, Ramanujan College. The session majorly focused on the need and role of Online Teaching and Learning Tools such as Google Classroom, Google Meet, Google docs, and Google Forms for conducting virtual classes. The session observed a massive response on both days, with participation from 152 faculties on first day and 163 faculties on the second day. The event turned out to be success by the massive and overwhelming responses flowed in through the feedback form.

# Creating and Managing
# Online Teaching Sessions Using GSuite Tools:
# GOOGLE CLASSROOM and GOOGLE MEET
## August 2020



The Department of Computer Science, Mata Sundri College for Women organized an inquisitive workshop on *"Creating and Managing Online Teaching Sessions Using GSuite TOOLS: GOOGLE CLASSROOM and GOOGLE MEET"* that spanned across three days (i.e.5th, 6th and 10th August, 2020) and saw an active participation of 153 faculty members. The event commenced with a warm welcome by Dr. Kiranjeet Sethi (Teacher-in-Charge, Department of Computer Science), then followed by greeting, appreciation and best wishes by Principal Ma'am. The cordial speakers of the session were Ms. Priyanka Gupta and Dr. Nidhi (Assistant Professors, Department of Computer Science). The workshop majorly focused on the various features of the GSuite tools (Google Classroom and Google Meet) for a smooth conduct of virtual classes. The webroom was managed by Ms. Ashema Hasti and Dr. Megha Gupta. The event concluded effectively and successfully with an overwhelming participation.

# *Managing Online Teaching Sessions Using GSuite Tools:*

# *GOOGLE CLASSROOM and GOOGLE MEET*

## August  2020



CYBERNAUTS organized a Peer Mentorship Program to provide Hands-on Training to the students on 12[th]September,2020(Saturday)-13[th](Sunday) September, 2020 over Google Meet. The session saw an active participation from 55 students. The session was conducted under the able guidance of Dr. Kiranjeet Sethi (Teacher in Charge), Mrs. Vijaya Goel (Teacher Coordinator) and Ms. Ashema Hasti (Faculty Coordinator, Peer Mentoring Programme). The cordial speakers of the session were Ms. Diya Garg and Ms. Mishika Rawat walking the students through Google Meet, and Ms. Akshita Sharma and Ms. Kanwalpreet Kaur Dhingra for Google Classroom. Student Coordinators present were Ms. Chakshita, Ms. Darshpreet, Ms. Shivani, Ms. Nishtha and Ms. Shreya. The speakers focused on the need and role of online teaching and learning tools for conducting online virtual classes. The session witnessed enthusiastic participation with many interesting questions raised by students which depicted their interests.

# FACULTY DEVELOPMENT PROGRAMME

## September 2020



The Computer Science Department also organized two weeks' online faculty development program on *ICT Based New Paradigms of E-Teachingand E-Learning : Digital Pedagogy* for the teachers of higher education in association with PMMMNMTT Teaching Learning Centre at Ramanujan College, University of Delhi from September 15, 2020 to September 30, 2020. The main objective of this faculty development program is to assist faculty members across the country to useICT, develop and manage online classes for their students. The participants were given hands-on sessions on various software and online tools, open source. They were trained in creation of digital material including videos, mind-maps and presentations. Online platforms used for smooth conduct of session were LMS learning and Zoom .

# Workshop for Students

## on

## GOOGLE CLASSROOM and GOOGLE MEET
### November 2020



A *Peer Mentorship Program* was organized by the department on Wednesday, November 18, 2020 over Google Meet to provide hands-on training on how to use the two most robust applications of Google- Classroom and Meet for the first year students of the department which was attended by 60 students. The session was conducted under the able guidance of Dr. Kiranjeet Sethi (Teacher In-Charge), Mrs. Vijaya Goel (Teacher Coordinator) and Ms. Ashema Hasti (Faculty Coordinator, Peer Mentoring Programme) by the second and third year students of the department. The keynote speakers were Ms. Diya Garg and Ms. Mishika Rawat for walking the students through Google Meet, and Ms. Akshita Sharma and Ms. Kanwalpreet Kaur Dhingra for Google Classroom. The session was concluded by vote of thanks presented by Ms. Chakshita Gupta and the well conduct of the session was appreciated by the department.

# Certificate Course On
# GRAPHICS DESIGNING & FRONT END WEB DEVELOPMENT
## January 2021



**DEPARTMENT OF COMPUTER SCIENCE &**
**INTERNAL QUALITY ASSURANCE CELL**
IN COLLABORATION WITH
**GIRLSCRIPT FOUNDATION**

Organize an Online **Short-Term Certificate Course** on

**Graphics Designing & Front-End Web Development**

Course Start Date: 2nd January 2021     Course Fees: Rs1800/-     Duration of Course: 30 Hours (Includes Project & Assessment)

Online Platform: Cisco Webex

A *30-hours online short term course* on *"Graphics Designing & Front-End Web Development"* was organised by the Computer Science department in collaboration with GirlScript Foundation from Jan 2, 2021 to Feb 4, 2021. 50 students from different colleges of Delhi enrolled for the same. The session was conducted under the able guidance of Prof. (Dr.) Harpreet Kaur (Principal), Dr. Lokesh Kumar Gupta( IQAC Coordinator), Dr. Kiranjeet Sethi (Teacher-in-Charge), Ms. Ashema Hasti (Teacher Coordinator), Ms. Jyoti Balodhi (Student Coordinator) and Ms.Darshpreet Kaur (Student Coordinator).The Guest Speakers from GirlScript Foundation were Ms. Anubha Maneshwar (Co-Founder, GirlScript Foundation), Mr. Dharm Narayan (Community Manager) and Ms. Tanya Batra, (Branding and Strategic Manager). In the inaugural ceremony, they briefed up about the course created by their team of experts to help participants understand and help them build their career. Mr. Saurabh Mali (Instructor for Graphics Designing) and Mr. Keshav Singh (Instructor for Front-End Web Development) were the instructors for the online course. They made students familiar with the basics of designing world and resolved their doubts as well with patience. Course included hands-on-session on the following tools: Graphics Designing + UI/UX using Adobe Photoshop & Adobe XD  and Front End Web Development: HTML, CSS, GIT, ReactJS. In the valedictory function , various projects made by students during the short term course were displayed.

# Skill Based Learning Session On RESEARCH- A GATEWAY TO CAREER
## February 2021
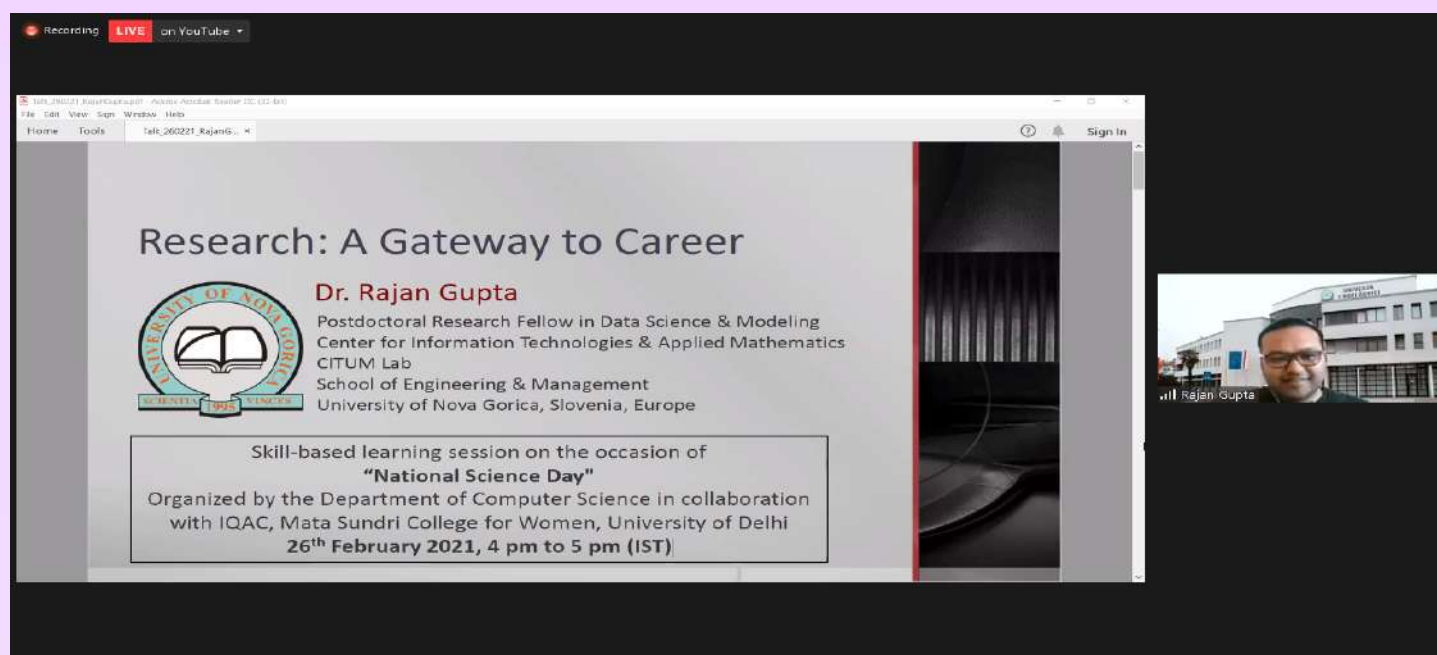


Cybernauts, the tech society of Department of Computer Science organised a *skill-based learning session* on the topic Research : A Gateway To Career to provide guidance on how to pursue research as a career on Friday, February 26, 2021 over Zoom which was attended by 70+ participants. The session was conducted under the able guidance of Prof (Dr) Harpreet Kaur (Principal), Dr. Lokesh Kumar Gupta (IQAC Coordinator), Dr. Kiranjeet Sethi (Teacher-in-Charge), Mrs. Vijaya Goel (Teacher Coordinator) and by Ms. Diya Garg (President, Cybernauts), Ms. Darshpreet Kaur (Vice-President, Cybernauts) and Team Cybernauts. The speaker for the session was Dr.Rajan Gupta who is a Research and Analytics Professional and has authored four books in the area of Public Information Systems and Data Science and currently employed as Postdoctoral Research Fellow in Data Science and Modeling at the Center for Information Technologies and Applied Mathematics, University of Nova Gorica, Slovenia, Europe. The session talked about the importance of researching skills and research as a career. The feedback provided by the participants marked the success of the session. Many interesting questions were raised by the participants which depicted their active participation in the session.

# *Open Book Guidelines And How To Ace It*

## March 2021
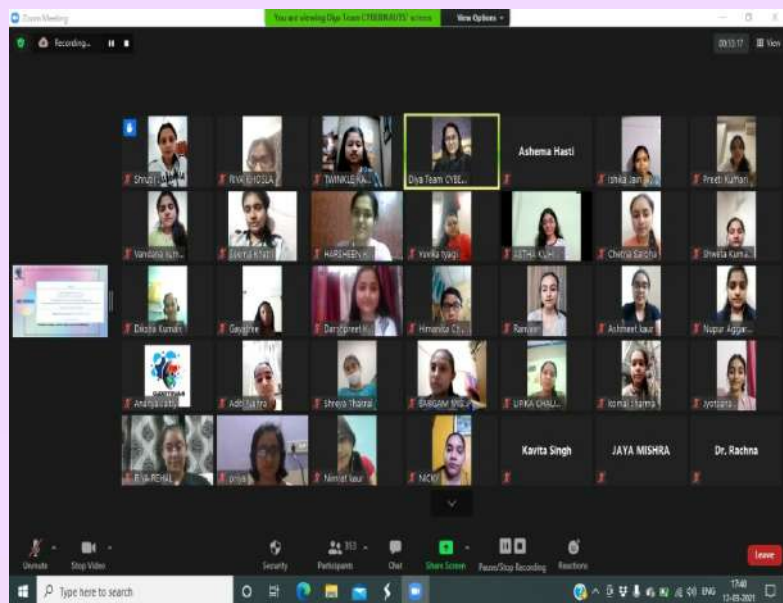


The tech society Cybernauts also organised a *Peer Mentorship Program* on Open Book Examination Guidelines and How to Ace It to make the students familiar with the entire process of online examination as well as the interface of the OBE website on Friday, March 12, 2021 over Zoom which was attended by 400+ participants. The session was conducted under the able guidance of Prof. (Dr.) Harpreet Kaur (Principal), Dr. Kiranjeet Sethi (Teacher-in-Charge), Mrs. Vijaya Goel (Teacher Coordinator), and Ms. Ashema Hasti (Faculty Coordinator, PMP) as well as Team Cybernauts. All the important points, links, and details regarding the open book examination were shared through a highly resourceful PowerPoint presentation. Overwhelming responses flowed through the feedback forms which marked the success of the session.

# Annual Departmental Fest
# REBOOT'21
## April 2021
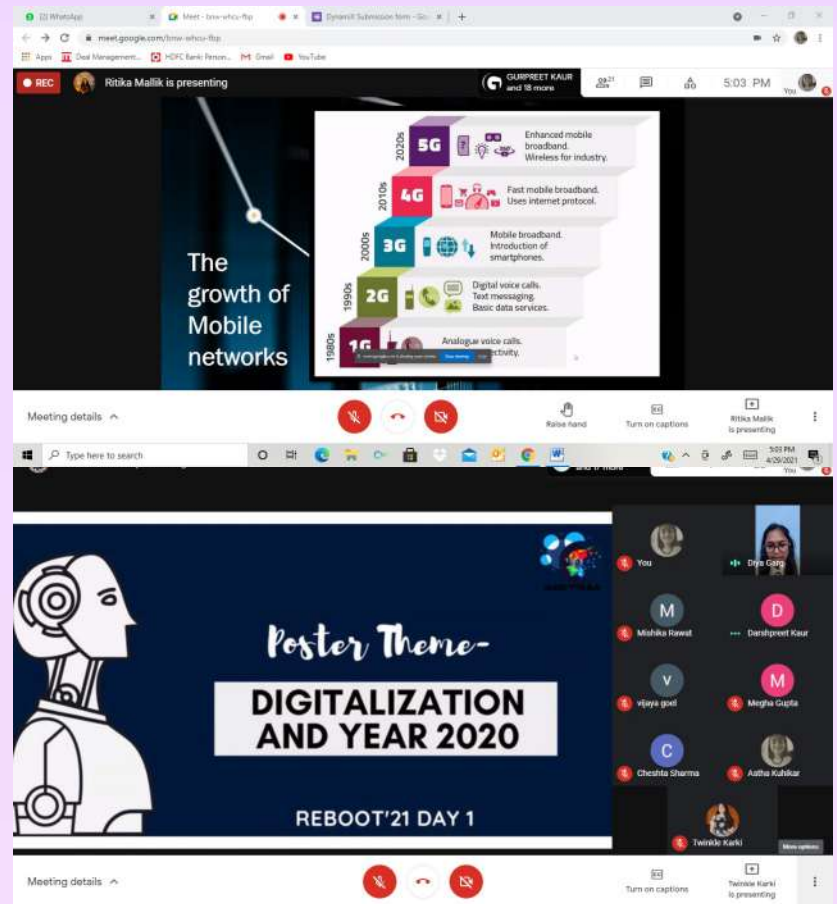


"Creativity is inventing, experimenting, growing, taking risks, breaking rules, making mistakes, and having fun", by Mary Lou Cook. The quarantine period has brought about a lot of uncertainty to our lives but has also helped us to be inquisitive towards exploring, learning, enlightening and gaining interest in numerous things. So CYBERNAUTS, the Tech Society of Mata Sundri College for Women has organized a two day online fest on 28th and 29th April, 2021 on Google Meet platform . It was an amalgam of various technical and fun events like Kreatív : Digital Poster making competition , Buzzer Kings : Quiz on BTS , Harry Potter and Death Note , Dynamix : Presentation making competition and Algorhythm : Coding competition. The fest received an overwhelming response and turned out to be a successful 2-day event.

# *Departmental Farewell*

# SAYONARA'21

# June 2021
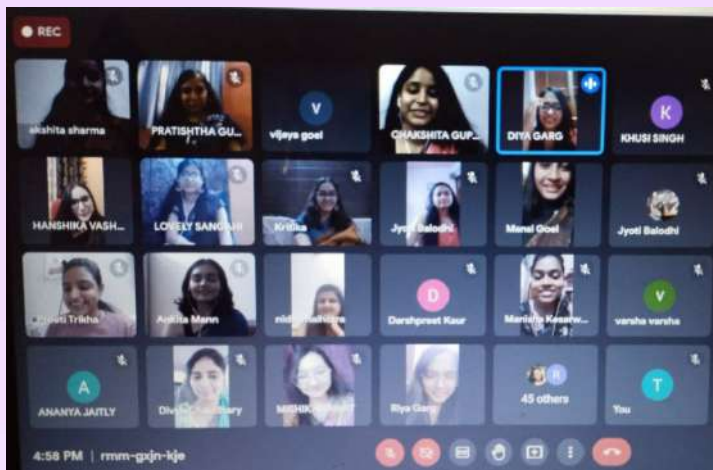






Farewell ceremony aka SAYONARA 2021 for the Computer Science batch of 2018-2021 was organised on 25 June'21 on google meet. The ceremony began with blessings of TIC- Mrs. Kiranjeet Sethi followed by shower of blessings of all other faculty members. Many fun games were organised to engage the seniors. Many students showcased their different- different talents. Titles that best suits were given to seniors . Also as a surprise a lovely video was created that made them nostalgic and left them in awe at the same time. Holding back our tears we bid farewell to our 2nd loveliest batch.

# ARTICLES
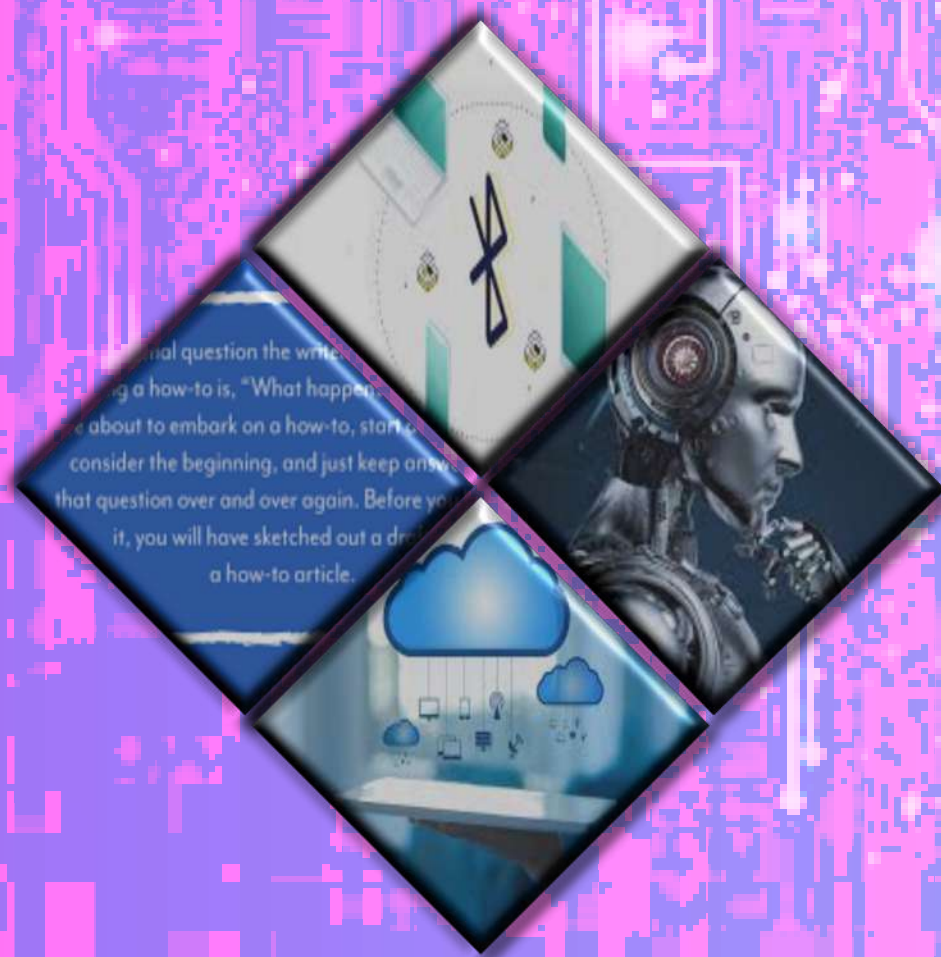
# "Discovering technology through words"

# WIRELESS TECHNOLOGY IN INTELLIGENT TRANSPORTATION SYTSEMS

### -Dr. Nidhi (Assistant Professor)

The transportation system is of paramount concern among policymakers, researchers, and automobile manufacturers today. Increasing traffic congestions, injuries, and deaths in road accidents have made it one of the world's largest "public health" and "injury prevention" problems. According to WHO and World Bank's Global Road Safety report of 2020, the worldwide mortality rate each year is approximately 1.35 million people and a further 50 million injuries out of road traffic crashes. India ranked highest in road fatalities across the globe. It has 1% of the world's vehicles but accounts for 11% of mortalities in road accidents. The toll of road deaths in India drastically increases to 53 road crashes every hour; killing 1 person every 4 minutes. Road accidents will further lead to the 8th primary cause of death by 2030 if no action has been taken into consideration. Thus, the attention towards road safety has been internationally recognized in the 2030 Sustainable Development agenda. The aim of this agenda reflects the 50% reduction in road traffic accidents and also to provide access to safe, affordable, accessible, and sustainable transport for all which will have a massive impact on health and the environment globally.

Therefore, the idea of the so-called *"Intelligent Transportation System"* (ITS) came into the picture to promote road safety, traffic management and mitigate the effects of congestions, accidents, and crashes. ITS introduce wireless Technology to vehicles to enable various users to be better informed and make driving safer, efficient, and more coordinated for the smarter use of transport networks. With the advancement of wireless technology and the Internet of Things (IoT) in which billions of complex devices like electronics, gateways, actuators, sensors, and platform hubs can connect and interact with
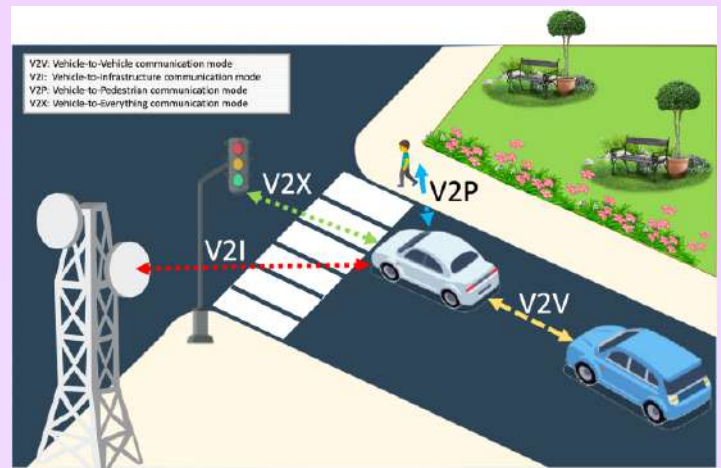


each other over a wireless network. Such connected vehicles over IoT are called CV2X (cellular vehicle to everything) connects vehicles and smart transportation system. Connected devices (or cars) share data and operate without any human intervention. Hence, a vehicular communication network called Vehicular Ad-hoc Network (VANET) an application of IoT emerged to enable a communication web among vehicles and roadside infrastructures.

VANET a special class of Mobile Ad-hoc networks facilitates fast transmission of data using Dedicated Short Range Communication (DSRC- short to medium range wireless communication (approx. 1000m)) protocol uses 75 MHz of bandwidth in the 5.9 GHz (5.85-5.925 GHz) band.

VANETs and CV2X networks are categorized into various communication i.e. In-Vehicle, *Vehicle-to-vehicle (V2V)*, *Vehicle-to-road side infrastructure (V2I)*, *Vehicle-to-broadband cloud (V2B)*, and *Vehicle to Pedestrians (V2P)*: communication.

Such vehicular communication permits the 'fully connected', 'information–rich', 'quick', and 'cost-efficient distribution of data for the benefit of passenger's safety, comfort, and urban awareness and also decreases the negative environmental impacts.

# ADA LOVELACE- THE FIRST WOMAN PROGRAMMER IN THE WORLD

-Vidhi Sharma(1st year)

English mathematician Ada Lovelace, the daughter of poet Lord Byron, has been called "the first computer programmer" for writing an algorithm for a computing machine in the mid-1800s. From an early age she was doing so well because of her mother. Her mother wanted Ada to concentrate specifically on mathematics and science because she was worried about the insanity that ran in Ada's father's family and wanted her daughter to stay away from her father's interests, such as poetry. Her mother was very strict with her. In fact she seemed to have been something of a tyrant, demanding that the young girl work very hard and punish her with periods of isolation whenever she thought she had not worked hard enough. Lady Byron's desire was that her daughter would become a highly disciplined, serious person – the opposite of her father.

## ADA LOVELACE AS COMPUTER SCIENTIST:

I know it may seem odd to call someone born in 1815 a computer scientist, but that is what Ada Lovelace became. Her life changed forever on June 5, 1833, when aged 17 she met Charles Babbage. This was not something many girls of Ada's age could ever do, but as an aristocrat sheenjoyed better opportunities than most of her age. Babbage was Lucasian Professor of Mathematics at the University of Cambridge. He knew that Ada was knowledgeable about scale version of the calculating machine he was working on called the difference engine. Babbage was fed up with people making mistakes in lengthy calculations, and his idea was to build an infallible steam-driven or hand-cranked calculating machine. Ada was completely captivated by the concept, but there was little she could do to help Babbage with his work. However, she sent a message to Babbage requesting copies of the machine's blueprints because she was determined to understand how it worked.
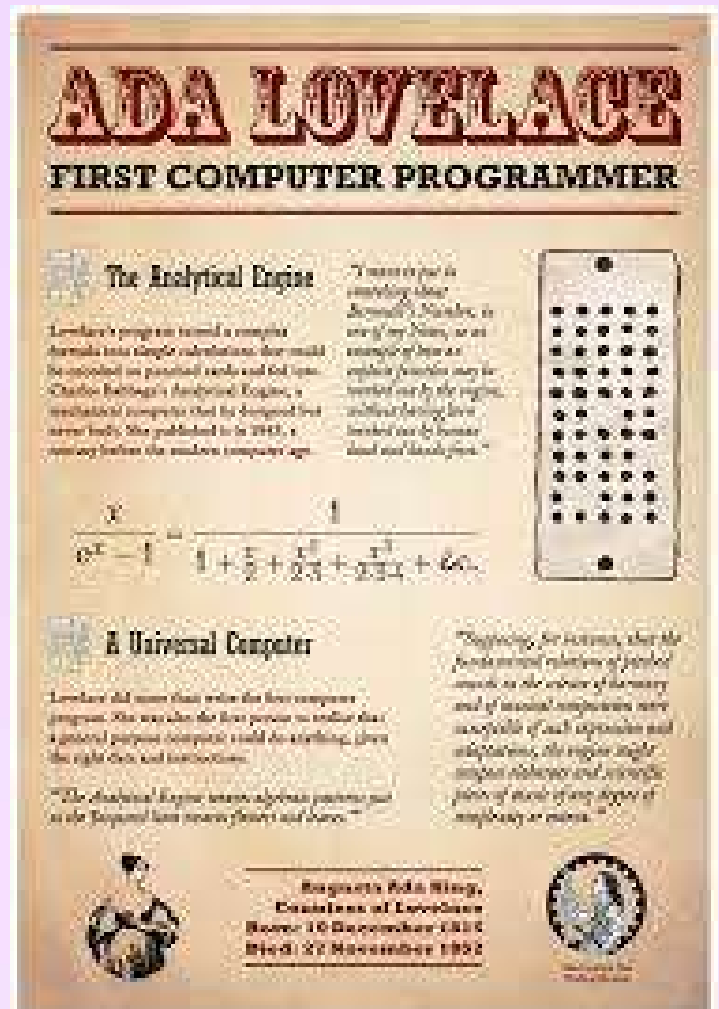


## ADA IN HER YOUNG AGE:

Ada continued her independent pursuit of mathematical knowledge. She became friends with one of the finest female mathematicians

of her time, Mary Somerville, who discussed modern mathematics with her, set her higher-level mathematics problems and talked in detail about Charles Babbage's machine. In 1835, at the age of 19, Ada married William King, the Earl of Lovelace but kept Babbage's "difference engine" in mind. In 1841, she began working on mathematics again, and was given advanced work by Professor Augustus De Morgan of University College, London. She also continued to learn advanced mathematics through correspondence with Mary Somerville.

ADA AND ANALYTICAL ENGINE:

In 1842 Ada Lovelace heard of a paper called Sketch of Charles Babbage's Analytical Engine, by an engineer, Luigi Federico Menabrea. The paper was written in French. Menabrea had listened to lectures by Babbage and written them up. By this time, Babbage had moved on from the difference engine to a much higher level computer concept, the analytical engine. The analytical engine was capable of much more sophisticated calculations than the original difference engine. Indeed, the analytical engine concept was completely groundbreaking, and a work of incredible genius on Babbage's part: it was the world's first programmable computer. In modern terms, the analytical engine would be described as Turing-complete. It featured an arithmetic logic portion, control flow by loops and conditional branching and separate memory – all of this was built using mechanical parts and powered by hand-cranking or steam. Ada Lovelace got hold of Menabrea's work and translated it into English. Babbage read her translation and asked her why she had not written such a paper herself because she was capable of doing it. Ada Lovelace responded by adding notes to her translation of Menabrea's work. Her notes were three times more extensive than the original work. When her English translation of Sketch of Charles Babbage's Analytical Engine was published, most of the work published was actually her own. She added algebraic workings to the notes for how an analytical engine could perform calculations.
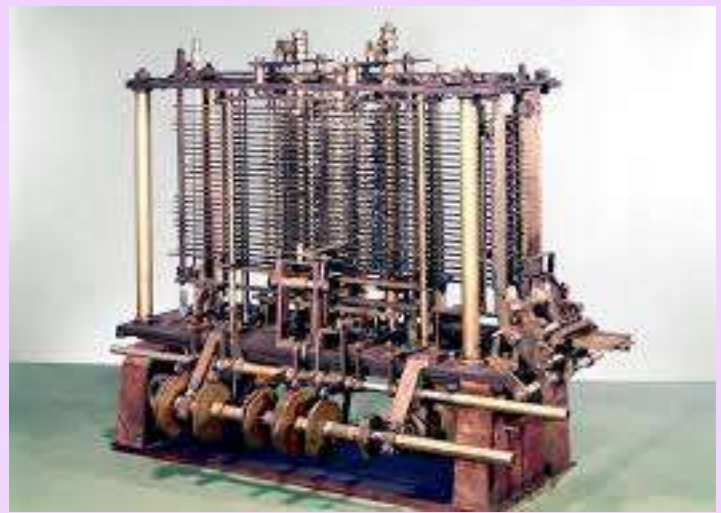
Babbage himself took on one of the trickiest calculations – Bernoulli Numbers – and sent it to Ada to include in her work, but she detected and corrected what Babbage himself described as 'a grave error.'

In her paper, she included the world's first published computer program, or algorithm – this was the Bernoulli number algorithm – and hence, she is often cited as the world's first computer programmer. It would be fair to say that Babbage contributed much of this section – precisely how much is the subject of academic debate. Ada Lovelace broke new ground in computing, identifying an entirely new concept. She realized that an analytical engine could go beyond numbers. This was the first ever perception of a modern computer – not just a calculator – but a machine that could contribute to other areas of human endeavor, for example, composing music. Ada Lovelace had grasped that anything that could be

# ASIMO
# THE HUMANOID ROBOT
## -Rishika Goyal(1st year)

*"Tech is alive till a human has that exLerimental will."*

With the ever increasing demand of technology, humans want the machine to be much more powerful than themselves. With the similar thought 'HONDA' came up with a humanoid robot named 'ASIMO' (Advanced Step in Innovative Mobility) in 2000. It is the world's smartest humanoid robot. This name is actually derived from the japanese words 'ASI' which means 'leg' and 'MO' which means 'mobility'. It is 4ft 3 inches tall and weighs 54 kgs. There is a reason behind this much height, that is, according to a research, an average height of a robot should be between 120 cm-176 cm which makes it responsive in operating door knobs and light switches. Earlier it was made with a nickel metal hydride battery and later on it was replaced with a lithium ion battery which increased its work life.

Whenever we read about robots our mind suddenly turns towards how it moves, what are its gestures, its responsiveness? Gestures, movements, sounds, faces, postures, its surroundings all are very well identified by ASIMO. It interprets voice commands and gestures which enable it to respond to handshakes & waving. It also answers by nodding or providing verbal answers in different languages. It can also recognize different faces and can address them by name. As we take the help of google maps to reach somewhere, similarly, ASIMO has a preloaded map which helps it to navigate through the floor markings. It is equipped with infrared, laser and ultrasonic sensors for its proper functioning. ASIMO made its first public appearance in 2002 by ringing the bell in NSE (New York Stock exchange) and it also visited many schools, colleges and museums to grab the attention of students towards technology and it also participated in red carpet events of London for computer animated films.
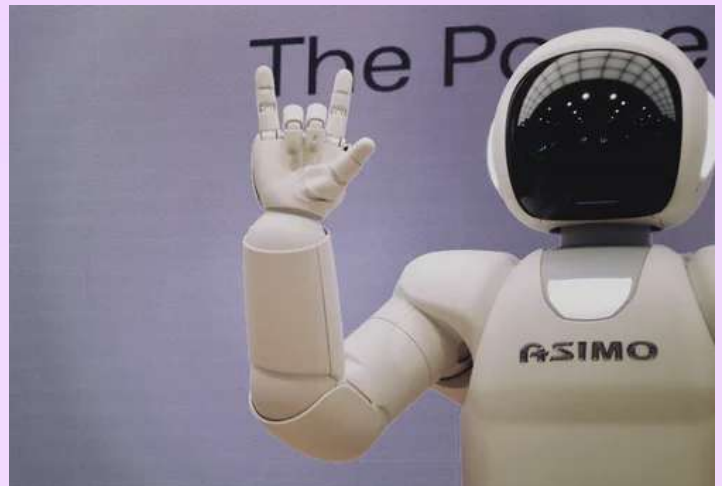


It also appeared as a guest in British Quiz Show where it served water to the host and danced with a famous comedian. It was also an inspiration for the film Robot & Frank which was released in 2012 in which the actor was portrayed as a robot and costumed as ASIMO. It served as a center of attraction at various places. ASIMO is one of the biggest projects of HONDA. Robotics is a multi million dollar industry and as it is growing so fast and with so much innovation, that day is not so far when India will be beating the super tech giants like Japan and China.

As we all are going through the unprecedented times, if we could have these kinds of robots to assist our doctors, install them at vaccination centres as we can equip them with such an algorithm in which they can only work from a certain distance from humans, then we could have less community spread. Think about more solutions so that we can balance human life and economy simultaneously.

" Deep dive in thoughts and let the problems be sought ."

# NEURALINK FROM NEURON TO COMPUTER

-Ridhi Jain(1st year)
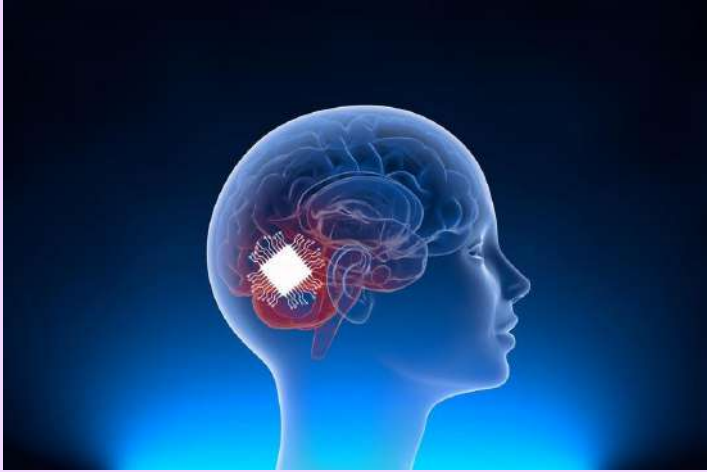
Neuralink, a breakthrough technology towards "superhuman cognition", the first neural implant that will let you control a computer or mobile device anywhere you go. Essentially Elon Musk's Neuralink technology, to be clear, looks awesome. The Link is a starting point for a new kind of "whole brain interface".

It is a device that will be surgically implanted into your brain using a robot and with it, you'll be able to communicate with machines and even control them. Neuralink has so many exciting possibilities like it might help in alleviating human sufferings by firstly understanding the neurological diseases and secondly to treat them. Also it might help in first understanding the functionality of brain and possibly will instruct us on the engineering side of how to build smarter artificial intelligence systems. Another future possibility of neuralink is augmentations of body (regaining the ability to move) also through tech might possible to give colours to eyes. Also neuralink can make possible to create an immersive gaming experience and virtual world. Of course, Neuralink is not limited to that, it can also be utilised to do many more exciting possibilities.

But Neuralink- brain machine interfaces to connect humans and computers- is probably won't be a great idea. It may fundamentally alter how we conceive of what it means to be human and how we communicate and interact with our fellow humans (and non-humans). It might even represent the next step in human evolution. There's also the issue of security. If we've learned one thing from this era of "smart" everything, it's that "smart" means exploitable. Whether it's your fridge, your TV, your car, or your insulin pump, once you connect something to something else you've just opened up a means for it to be compromised.

We can only begin to imagine what forms hacking would take when you have a direct line into the minds of others. However, to borrow a few words of genius Tim Urban, NeuraLink is a "wizard hat for your brain".

# TECHNOLOGY OF CHAIN-BLOCKCHAIN
## -Nida Khan(3rd year)



𝒰nder the table corruption is not a new concept a lot of black money is transacted. Definitely this transaction gets stored in some database. But we don't rely on such database the reasons behind the same are firstly, database is not accessible i.e. it is not centralized, secondly the data can be modified any time by the admin of the database and lastly it is easier to modify. So we look for a systems which are decentralized and modifying the system are near to impossible also, these systems are more reliable and trustworthy. Such systems or database are referred as Block Chain.

In early 1990's when research started block chain was then first introduced. It was created by the unknown persons behind the online cash currency bitcoin, under the pseudonym of Satoshi Nakamoto.

Block chain can be referred as block of chain. In block chain each block is associated with 3 major components:

1.  Data (relevant information)

2.  Hash (unique code associated by that block)

3.  Previous hash (every block holds hash of previous block) this component forms the chain-like format.

The first block formed which does not hold the previous block is called Genesis block.

Block chain is secured basically due to two major reasons: the former reason states that block history can be tracked easily and the latter one says that each block is uniquely defined and so modification is rare. There are various layers of security which are implemented in the block chain. This quality of block chain made it popular in various domains. On counting down, the major pros associated with block chain technology are: Real-time tracking, security, transparency, no single point failure, unaltered copied only, no third party involvement, trusted transaction and reduced cost.
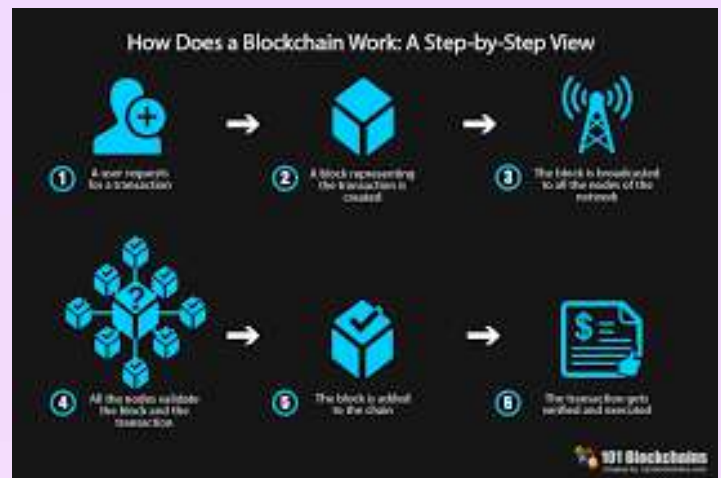


The most blooming domain is crypto currency. In crypto currency, bitcoin has eliminated middle men namely banks in transaction of currency. Consider the transactions of currency between India and the USA in earlier times. We used to send money in rupees, then it got changed to dollars via the bank. In this entire process, the bank used to charge some fee for the same. Nowadays, we can directly send bitcoin for transactions and also, the fee charged is minimal as compared to banks. Bitcoin gets exchanged to bitcoin in a similar way gold transfers asset to asset which means that no conversion of currency is required in the flow.

Another domain where the block chain is turning out beneficial is in real estate. In real estate, the domain work of a notary is done by block chain. Actually block is simply maintaining records of all the buying, selling which gets into the database. This makes it easier to keep the history of particular real estate.

Block chain is also useful in the domain of healthcare. In the health care management system, the record of patients gets stored in the block chain. So, doctors are able to access the relevant information and the patient's data remains secure this way.
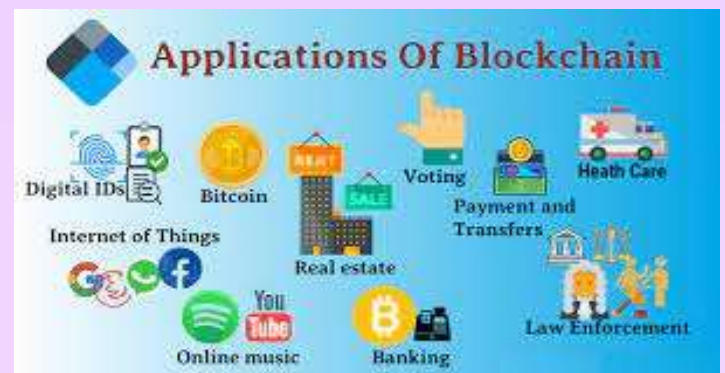


Block chain can be used in projects, start-ups, business, etc. Either we can implement a block chain from scratch using any language or there are already several block chains that can be used with the help of codes. In the block chain, there is a smart contract. They are similar to real contracts but we access it digitally. Smart contracts can also be referred to as code that defines the way of transaction. Simply, add this code to the block chain and whatever data gets transferred with the help of this algorithm, it keeps on updating.

One of the most popular black chains is ethereum which can be used with the help of social contract. For this, solidity is a language which is pre-requisite in order to implement the same.

# CRYPTO CURRENCY
## -Mansi Dhiman(1st year)

The term crypto currency stands for an encrypted digital currency that can be transmitted and validated through a specific process generally referred to as mining. Here is a brief overview of the main properties of crypto currency and essential facts we should know about it. In order to have a clear understanding of how this kind of currency actually works, there is a need to differentiate a few terms discussed below.

First, there is a need to define public ledgers. It needs to be noted that all confirmed transactions with the use of crypto currency are kept in public ledgers. The identity of the user generally remains confidential and the public ledger makes sure that the relevant balance of the user is calculated correctly. The new transactions are usually monitored in order to make sure that the user of the digital wallet spends only the coins he/she owns.

The second term that needs to be deciphered is a transaction. It generally refers to the transition of money between two e-wallets. The transactions are all kept in public ledgers and wait to be confirmed. The process of transaction confirmation usually takes several minutes. There is one more term that is used in regard to crypto currency – mining. To put it simply, mining stands for the procedure of approving the transaction and transferring them to the public ledger. The mining procedure adds value to crypto currency and is generally referred to as a proof-of-work system.

Typically, there are various factors (apart from the essential ones described above) that make this financial system different from that of the past. The first factor is adaptive scaling, which makes it possible for crypto currencies to work properly on different scales. One of such systems is Bitcoin.

Bitcoin is one of the types of crypto currency that is specially designed to permit a single transaction to be mined in around 10 minutes. Crypto currency is cryptographic, which means that it uses a special encryption that allows controlling the generation of coins and confirming the transaction. One more distinction of crypto currency from traditional one is the fact that conventional financial systems use physical objects, while crypto currency is completely electronic. In fact, it does not require any physical objects, as digital money can be stored in special wallets and then transmitted electronically to other individuals' wallets through financial transactions. This is the first and foremost distinction between crypto currency and other financial systems.

One more characteristic of crypto currency is the use of the proof-of-work system. When using such systems, a special puzzle is exploited to restrict the usage of crypto currency mining. It is also worth mentioning that for any currency to be effective, it needs to have some value. In the traditional system, gold was represented by the US dollar. Gold is a rare resource and requires much effort in obtaining and refining. Therefore, the rarity of this resource is exactly what gives gold some value. Consequently, this is what gives value to the US dollar.

As for the crypto currency, it uses quite the same terms in relation to value. Coins here are generated by so-called miners. The work of these individuals is what gives value to the digital coins and at the same time, the rarity and demand for coins are what causes the fluctuations in their value. However, there is one more way to validate digital money. The value can be generated when the transactions are placed in public ledgers, which is also an important aspect of crypto currency. With that said, crypto currency continues to develop and remains a promising financial system with many prospects for the future.

# 5G NETWORK AND DIGITAL INDIA
## -Riya Rohilla & Akshita Jain(1st year)



As we all know, scientists are inventing more and more technology, hence the coming generations are developing their personalities digitally in terms of how they think. Similarly, there is one more network and that is 5G. Verizon built its own 5G Ultra Wideband technology. The 5G network will provide data transfer rates faster than a blink of an eye, greater opportunities for connectivity.

Of course, this will be very helpful to the coming generations as everything is online in this pandemic now. Everything has its own pros and cons. So, there are advantages of 5G as well as disadvantages.

Advantages like: Today, there are 14.2 billion connected "things" in use, and that number is expected to grow to more than 55 billion by 2025. This data transfer rate will even allow more technology to connect. This network is very useful in the new era of connection for business.

But why are people spreading rumors related to 5G that it's contribution is higher to Covid-19? Is it true? Let's find out.

These 5G networks have very high frequency which means it produces electromagnetic radiation. A small study in 2017 showed that mobile phones use frequencies of 1.8 to 2.2 GHz. These frequencies cause tissue heating, according to WHO. And these radiations are found to be harmful especially for older people. As older people have less skin thickness, hence, emf are absorbed easily which causes tissue heating. Brain cancer can also be caused by electromagnetic radiation from mobile phones according to a 2017 research review.

There is no scientific basis that these networks are contributing to covid as we all know, this pandemic is caused by respiratory problems not by wireless connections. Many people are facing problems in online mode. According to me, there is a lack of personality development in this situation. The coming generations will not be interacting with new people in a live mode and they are limited to their comfort zone. But we all can do many things to recharge ourselves by spending time with our family, teachers etc. hence , we all must support every single person in this situation.



In 2015, the Government of India launched a massive campaign named "Digital India". This was done to make the government services accessible in various parts of the country. The main aim was to improve access to technology to the people of the country. Digital India was launched on 1 July 2015, by the current Prime Minister of India Narendra Modi.

The campaign drastically boosted the use of electronic services and products. The project is run by a Government entity called Bharat Broadband Network Limited (BBNL). Digital India has a profound impact on people from every aspect of society. The campaign has had a positive impact on the life of the individual as a whole and has contributed to the progress of the society as a whole. There are hundreds of programs under Digital India.

One of the plans is aimed at creating 28,000 BPO jobs throughout the country and set up a "Common Service Center" in every gram panchayat. This will also enable the government to generate thousands of IT jobs since Digital India will require individuals to help establish the platform as well as introduce a new wave of the young population to the digital revolution. Till now, Digital India has connected more than 250,000 villages throughout the country. Every village covered, now has access to high-speed internet provided by a government-owned telecom called the BBNL.

The Indian Government also undertook 11 technological initiatives including boosting the volume of digital payments by encouraging several payment platforms such as PhonePe. It also encouraged the RuPay platform, an Indian company competing with the likes of MasterCard and Visa. The Prime Minister said that if people start using RuPay, it will directly benefit the country. Since the infrastructure was not present at the moment, IT companies started hiring more people in order to develop one. The campaign also led to an enormous decrease in the amount of black money people had.

Since everything will be done digitally, many people came under the tax radar and as a result, a significant portion of the black money in the market was traceable. This led to a sudden increase in the revenue collected by the government in the following year. People from all over India can now directly engage with a large number of government agencies from the comfort of their homes. For example, in the past, people used to travel for hours on end just to get to a hospital to realize that their doctor wasn't available.
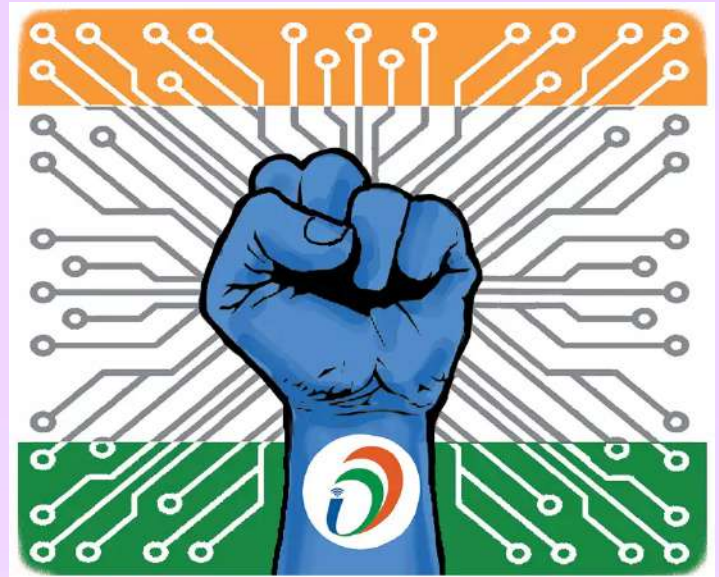


The rural part of India, which constitutes a majority of the population suddenly found themselves interconnected, directly benefiting millions of lives. Farmers can now intercommunicate and get help from the experts on a range of variety of subjects. Digital India is a work in progress in the truest sense. Though the project has surely made an impact on the common people of India, much of the work done is either inadequate or unsatisfactory at some level or the other. However, the number of internet users in India has increased to a whopping 500 million users in the year 2017.

Suddenly, the country has the highest rate of newly added monthly users, contributing almost 10 million people every day. Surely, the government initiative has done much work in laying out the groundwork to a technologically advanced country, but the lack of awareness, literacy and infrastructure is getting in the way. The government hoped to cover more people under the umbrella of the scheme, but some parts of India are still unable to use the technology due to various reasons such as lack of resources or understanding. The government is actively pushing the project and announced in the 2019 Union Budget that they will be working towards a $5 trillion digital economy in the near future. The project can be considered to be successful in general terms but still remains a failure in the broader sense. Of course, campaigns like these take years if not decades and Digital India is still in its early stages.

# TECHNOLOGY VS HUMANITY
## -Vanshita Arora(1st year)
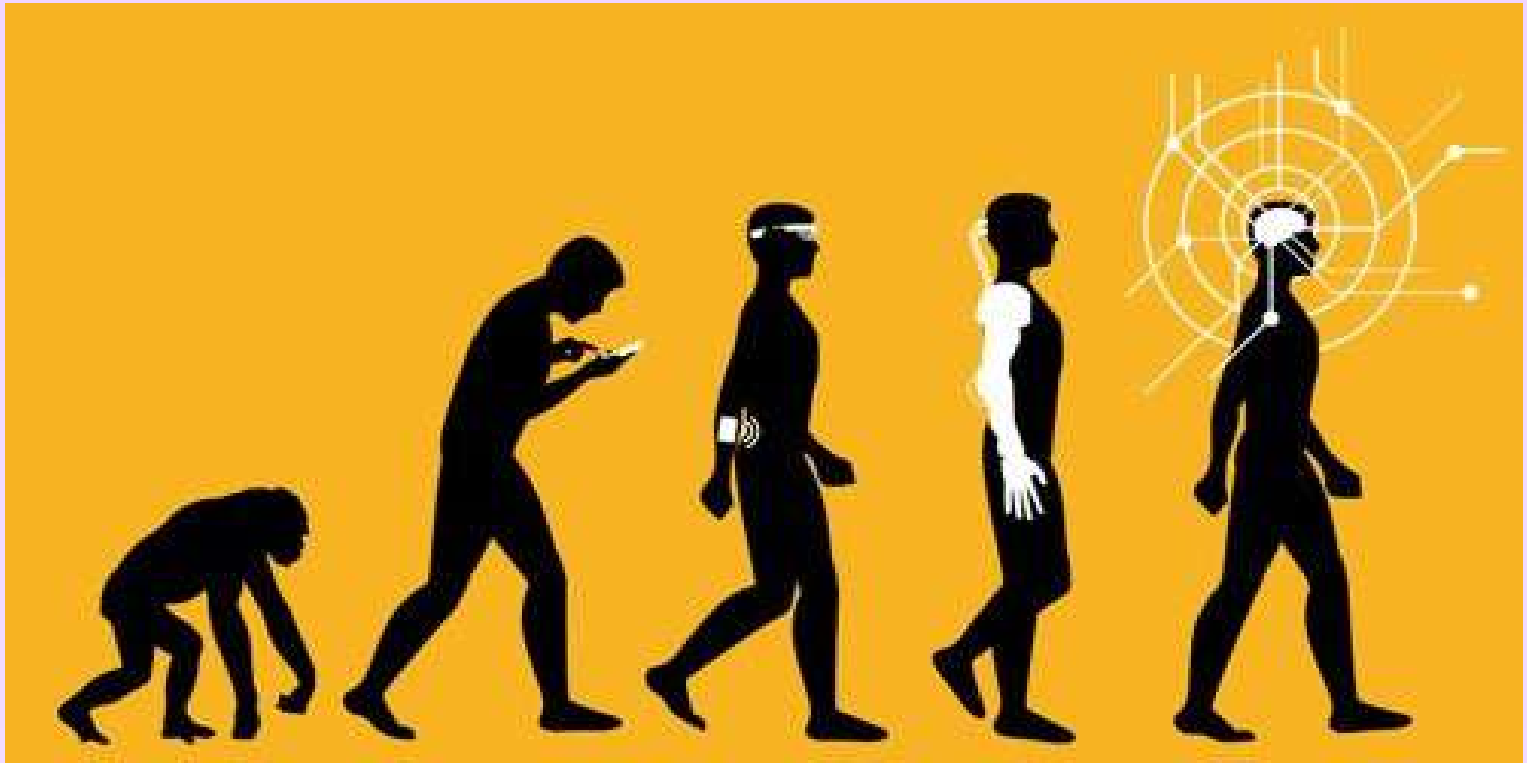


Welcome to the Human Era!

Most of us believe we're living in an era of technology. Artificial intelligence, robotics, block chains, and IOT are all here. They're a given in our lives. But machines and technology are just tools whizzing through automated, repetitive, and standardized tasks. Though these amazing technological capabilities have become the norm, they are ushering in a new era where it is humans that make the key difference in enterprises, society, and the economy.

We're moving from the Technology Era to the Human Era.

We generally don't pay attention on how does technology works and if we look at that we can clearly make out that it is human responsible for this.

A robot works but only of instructions given to them. Technological tools are just playable material for human which might get out of fashion after another new invention!!!

Few years back 'can technology(machines) replace humans' was hotly debated topic, giving an opinion to that is very needed, technology can never replace humans, they might work as humans but can't replace them because it's all about mind. As mentioned above it's just a playable material which works when we want.

These skills cannot be "outsourced" or "botsourced" to machines. These human skills are needed to bridge the gap between technology and people, and to utilize machines in the best way to serve customers, coworkers, suppliers, and stakeholders.

# ONLINE VS OFFLINE STUDENTS
### -Shreya Gupta(1st year)



Online studies that came into view due to the pandemic caused by corona virus is one of the hotly debated topic . Some says online studies are not upto the mark in comparison offline studies but talking in general there is no as such comparison between both. The attentive one will for sure understand the topics explained by the teacher and if the person is not attentive or serious he/she will not understand that for sure. With online learning, students and teachers benefit from a more casual, flexible approach. Being unrestricted in regard to location and times , means every learner can benefit from the courses.

But as everything comes with a disadvantage online learning too have some. One of main disadvantage of online learning is that everybody cannot afford smart phones or laptop and if one anyhow does that , they face difficulty in recharging that again and again since it costs not too low and that too every month. There are more small difficulties one faces during online learning.

So far we discussed about online learning not let's talk about the very common mode of learning, which is offline mode of studing. It is an easier way to make sure that learners are attentive or not. Since facial expression express a lot and offline learning follows that as everyone talks face to face without any hindrance it is definitely a better option for that matter.

Offline learning provides an environment of studying which is most necessary part. Students and teachers get to know about each other and starts working as per , talking in brief a teacher get to know abut each student and work on her teaching method depending on how students understand , and students get to know their teacher and starts working more hard to make them happy of sometime annoy(for the matter of laughter).

All in all both the modes are good enough in their way as in this pandemic we have no choice except studying online.

# NEW TECHNOLOGY TRENDS IN 2021- ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

-Ananya Jaitly(1st year)

Technology is evolving rapidly these days. It is going to increase at an exponential rate in the coming years. Since the outbreak of the Covid-19 pandemic, a lot of things have changed and IT professionals have realized that their role will not stay the same in the contactless world tomorrow. The IT industry faced many challenges in 2020 and the need to bring some revolutionary changes increased. In order to remain in the mainstream, we have to keep an eye on the future to know about upcoming jobs and industries and not only that, we have to learn certain skills to secure a safe job tomorrow.

These days, Artificial Intelligence (AI) and Machine Learning (ML) is a hot topic in the tech industry. Artificial intelligence refers to the simulation of human intelligence in machines by which they are programmed to think and act like humans. We can see the use of AI everywhere, from gaming stations to maintaining complex information at work. Computer Engineers and Scientists are trying to impart intelligent behavior in the machines making them think and respond to real-time situations. It helps machines to mimic human behavior like interpretation, decision-making ability, etc. AI algorithms are embedded in the machine which helps it to interact with its surroundings.

Some people believe that AI could exceed the capacity of humans to learn or reason out any subject. The scope of AI in India is tremendous. It is being used across various industrial sectors like agriculture, automobile, education and transport.

AI has a subset called Machine Learning (ML). It is the science of designing algorithms in a way by which machines could learn from past mistakes. Machine learning uses complex algorithms which iterate over large data sets facilitating machines to respond to every kind of situation even if they have not been explicitly programmed for them. It could be used for detection of credit card frauds and enabling self-driving cars. Researchers interested in AI wanted to see if computers could learn from some given data and previous algorithms. In this way, computers could adapt to new situations without any human intervention.

Have you ever noticed that when you search for a product on Google and it shows up on your Amazon or Facebook feed? Or when you watch a thrilling movie on Netflix, you get more such movies automatically recommended to you? Ever wondered how this happens? This is exactly what Machine Learning is about. It learns about the users through their interests and search history and brings the things of



Artificial Intelligence

Machine Learning

their interest to the front. This is done to make the application more user friendly.

AI & ML are beneficial in many ways. Machines are created in a way to understand and interpret the situation and act accordingly. This increases speed and accuracy and decreases time taken to operate on commands and chances of error. It helps to analyze data and explore undiscovered places and species. Not only that, AI can be used in hospitals and the finance industry to make good decisions about the utilization of resources.

In order to understand this concept clearly, we should also focus on the cons of this industry. Starting from the initial setup, the implementation cost of AI is higher than setting up other industries. Furthermore, AI is not built for creative tasks as the machines cannot imagine things like humans. A human brain has a high emotional quotient and is sensitive towards the change in its environment.

Now a question arises, will AI replace humans? There is no doubt that these machines are highly programmed and can perform more

efficiently than humans but it can't match human intelligence. They are rational but lack emotions and moral values. They don't have the ability to bond with others like humans. So, this thought seems distant. How can we forget that the brain which is developing AI is also a human brain after all!

During this pandemic, people have relied more on technology for better communication. It has proved useful in tracking the spread of virus, contact tracing and providing better analytics for cure. It has been useful in providing information about the diseases, verified leads for emergency and vaccination details.

The future of Artificial Intelligence is quite bright. Automated machines, vehicles and household articles can create a huge impact in our lives. Many AI-startups are expected to rise in number in the coming years. The advancement in technology acts as a fuel to the subsets of AI such as deep learning and machine learning. It depends on us whether we have to use this technology for the greater good or bring its evil side on.
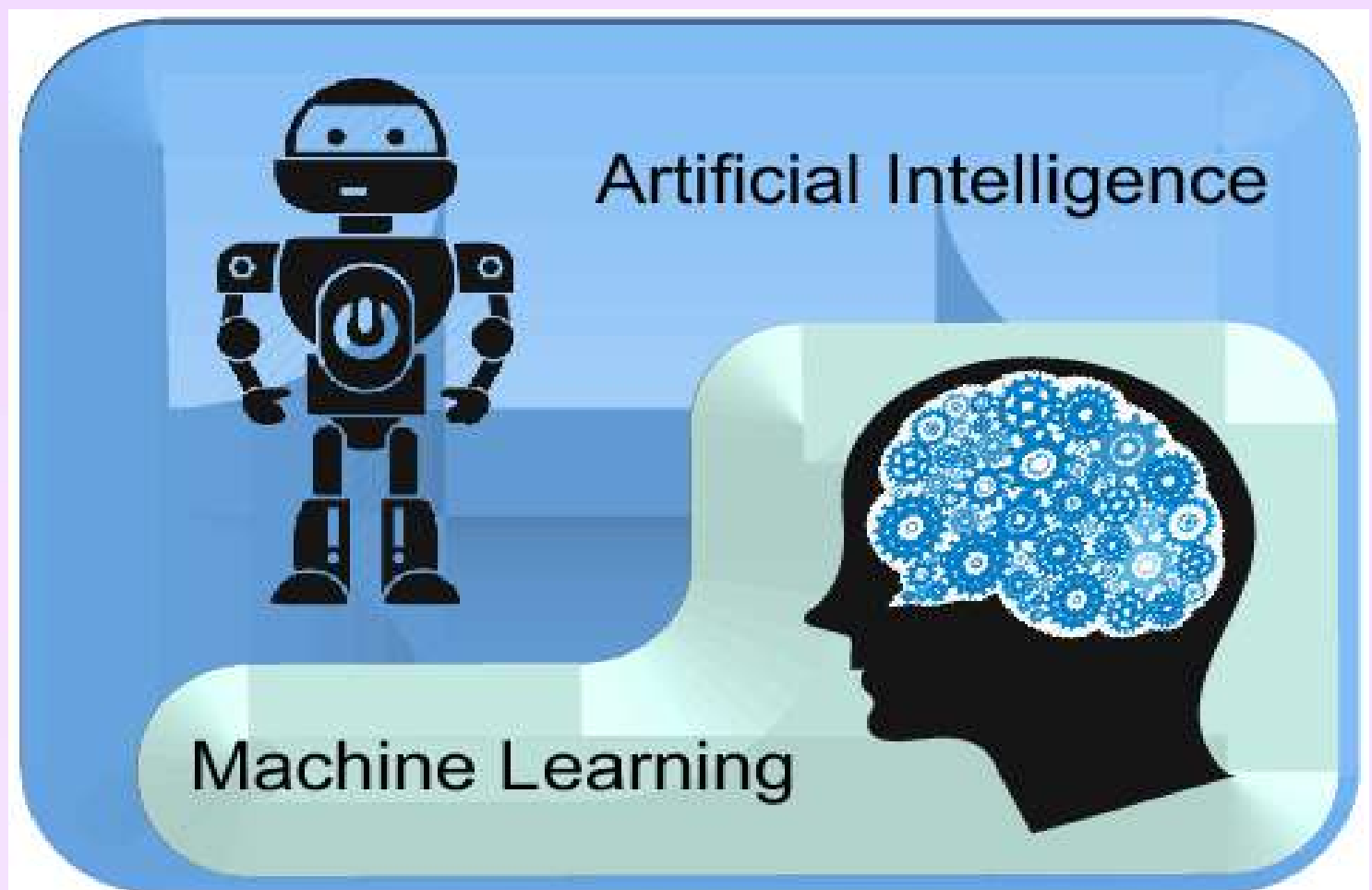
# ROBOTICS
## -Himanika(1st year)
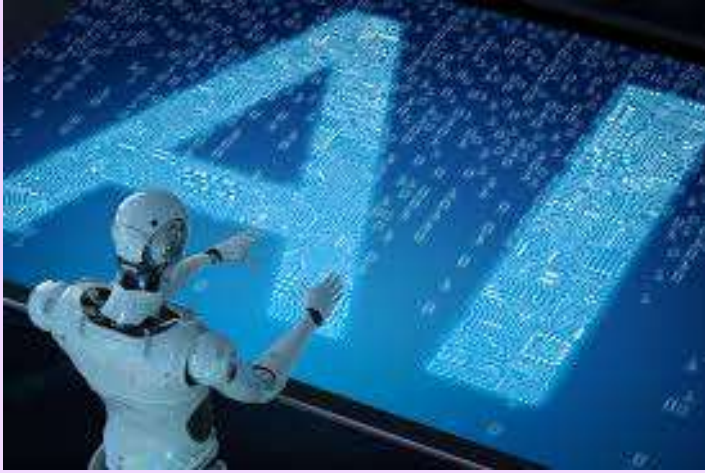


Advanced mechanics is the convergence of science, designing and innovation that produces machines, called robots, that substitute for (or repeat) human activities. Mainstream society has consistently been intrigued with robots. R2-D2. Optimus Prime. Divider E. These over-overstated, humanoid ideas of robots as a rule appear to be an exaggeration of the genuine thing…or would they say they are more ground breaking than we understand? Robots are acquiring scholarly and mechanical abilities that don't put the chance of a R2-D2-like machine far off later on.

## WHAT IS A ROBOT?

A robot is the result of the advanced mechanics field, where programmable machines are fabricated that can help people or copy human activities. Robots were initially worked to deal with dreary errands (like structure vehicles on a mechanical production system), however have since extended well past their underlying uses to perform undertakings like battling fires, cleaning homes and helping with extraordinarily many-sided medical procedures. Every robot has a varying degree of independence, going from human-controlled bots that complete errands that a human has full control over to completely self-governing bots that perform assignments with no outside impacts.

As innovation advances, so too does the extent of what is viewed as mechanical technology. In 2005, 90% of everything robots could be discovered amassing vehicles in auto plants. These robots comprise predominantly of mechanical arms entrusted with welding or screwing on specific pieces of a vehicle. Today, we're seeing an advanced and extended meaning of mechanical technology that incorporates the turn of events, creation and utilization of bots that investigate Earth's harshest conditions, robots that help law-implementation and even robots that aid pretty much every feature of medical services.

While the general universe of mechanical technology is extending, a robot has some steady attributes:

Robots all comprise of a type of mechanical development. The mechanical part of a robot assists it with finishing assignments in the climate for which it's planned. For instance, the Mars 2020 Rover's wheels are exclusively mechanized and made of titanium tubing that assist it with grasping the cruel territory of the red planet.

Robots need electrical parts that control and force the apparatus. Basically, an electric flow (a battery, for instance) is expected to control a vast greater part of robots.

Robots contain probably some degree of PC programming. Without a bunch of code instructing it, a robot would simply be another piece of basic apparatus. Embeddings a program into a robot enables it to realize when and how to complete an assignment.

We truly will undoubtedly see the guarantee of the advanced mechanics industry sooner, as opposed to later, as man-made reasoning and programming additionally keep on advancing to get more intelligent, adaptable and energy effective robots.

Despite the fact that moderately youthful, the mechanical technology industry is loaded up with an outstanding guarantee of progress that sci-fi could once just dream about. From the most profound profundities of our seas to a great many miles in space, robots will be discovered performing errands that people couldn't fantasy about accomplishing alone.

1. *Pre-Programmed Robots*
Pre-customized robots work in a controlled climate where they do basic, dull assignments. An illustration of a pre-customized robot would be a mechanical arm on an auto sequential construction system. The arm serves one capacity — to weld an entryway on, to embed a specific part into the motor, and so forth — and its responsibility is to play out that task longer, quicker and more proficiently than a human.

2. *Humanoid Robots*
Humanoid robots will be robots that resemble or potentially impersonate human conduct. These robots as a rule perform human-like exercises (like running, bouncing and conveying objects), and are in some cases intended to seem as though us, in any event, having human appearances and articulations. Two of the most noticeable instances of humanoid robots are Hanson Robotics' Sophia and Boston Dynamics' Atlas.

3. *Autonomous Robots*
Self-governing robots work autonomously of human administrators. These robots are normally intended to do assignments in open conditions that don't need human management. They are very extraordinary in light of the fact that they use sensors to see their general surroundings, and afterward utilize dynamic constructions (normally a PC) to make the ideal next stride dependent on their information and mission. An illustration of an independent robot would be the Roomba vacuum cleaner, which utilizes sensors to meander uninhibitedly all through a home.

4. *Teleoperated Robots*
Teleoperated robots are semi-self-ruling bots that utilization a remote organization to empower human control from a protected distance. These robots typically work in outrageous topographical conditions, climate, conditions, and so forth instances of

teleoperated robots are the human-controlled submarines used to fix submerged line spills during the BP oil slick or robots used to identify landmines on a war zone.

5. *Augmenting Robots*

Enlarging robots either upgrade current human capacities or supplant the abilities a human may have lost. The field of advanced mechanics for human increase is a field where sci-fi could become reality very soon, with bots that can rethink the meaning of humankind by making people quicker and more grounded. A few instances of current increasing robots are automated prosthetic appendages or exoskeletons used to lift strong loads.

### *USES OF ROBOTICS*

1. Assisting battle with foresting fires
2. Working close by people in assembling plants (known as co-bots)
3. Robots that offer friendship to older people
4. Careful partners
5. Last-mile bundle and food request conveyance
6. Self-ruling family robots that complete errands like vacuuming and taking care of the lawn
7. Helping with discovering things and conveying them all through stockrooms
8. Utilized during search-and-salvage missions after catastrophic events
9. Landmine indicators in disaster areas
10. Assembling
11. Travel
12. Medical Care

# CLOUD COMPUTING
## -Priya Kumari(1st year)



*Cloud computing is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software.*

There are various types of clouds, each of which is different from the other. *Public clouds* provide their services on servers and storage on the Internet. These are operated by third-party companies, who handle and control all the hardware, software, and the general infrastructure. Clients access services through accounts that can be accessed by just about anyone.

*Private clouds* are reserved for specific clientele, usually one business or organization. The firm's data service center may host the cloud computing service. Many private cloud computing services are provided on a private network.

*Hybrid clouds* are, as the name implies, a combination of both public and private services. This type of model allows the user more flexibility and helps optimize the user's infrastructure and security.

However note that newer forms of cloud computing services include the community cloud, the big data cloud, and the multicloud.

Cloud computing is named as such because the information being accessed is found remotely in the cloud or a virtual space. Companies that provide cloud services enable users to store files and applications on remote servers and then access all the data via the Internet. This means the user is not required to be in a specific place to gain access to it, allowing the user to work remotely.

Cloud computing takes all the heavy lifting involved in crunching and processing data away from the device you carry around or sit and work at. It also moves all of that work to huge computer clusters far away in cyberspace. The Internet becomes the cloud, and voilà— your data, work, and applications are available from any device with which you can connect to the Internet, anywhere in the world.

## TYPES OF CLOUD COMPUTING

Cloud computing is not a single piece of technology like a microchip or a cellphone.

1. *Software-as-a-service (SaaS)* involves the licensure of a software application to customers. Licenses are typically provided through a pay-as-you-go model or on-demand. This type of system can be found in Microsoft Office's 365.
2. *Infrastructure-as-a-service (IaaS)* involves a method for delivering everything from operating systems to servers and storage through IP-based connectivity as part of an on-demand service. Clients can avoid the need to purchase software or servers, and instead procure these resources in an out-sourced, on-demand service. Popular examples of the IaaS system include IBM Cloud and Microsoft Azure.
3. *Platform-as-a-service (PaaS)* is considered the most complex of the three layers of cloud-based computing. PaaS shares some similarities with SaaS, the primary difference being that instead of delivering

software online, it is actually a platform for creating software that is delivered via the Internet. This model includes platforms like Salesforce.com and Heroku.

## ADVANTAGES OF CLOUD COMPUTING

As we all know that Cloud computing is trending technology. Almost every company switched their services on the cloud to rise the company growth. Here, we are going to discuss some important advantages of Cloud Computing-

### 1. *Back-up and restore data*
Once the data is stored in the cloud, it is easier to get back-up and restore that data using the cloud.

### 2. *Improved collaboration*
Cloud applications improve collaboration by allowing groups of people to quickly and easily share information in the cloud via shared storage.

### 3. *Excellent accessibility*
Cloud allows us to quickly and easily access store information anywhere, anytime in the whole world, using an internet connection. An internet cloud infrastructure increases organization productivity and efficiency by ensuring that our data is always accessible.

### 4. *Low maintenance cost and Mobility*
It reduces both hardware and software maintenance costs for organizations and allows us to easily access all cloud data via mobile.

### 5. *IServices in the pay-per-use model*
It offers Application Programming Interfaces (APIs) to the users for access services on the cloud and pays the charges as per the usage of service.

### 6. *Unlimited storage capacity*
Cloud offers us a huge amount of storing capacity for storing our important data such as documents, images, audio, video, etc. in one place.

## DISADVANTAGES OF CLOUD COMPUTING

A list of the disadvantage of cloud computing is given below -

### 1. *Internet Connectivity*
As you know, in cloud computing, every data (image, audio, video, etc.) is stored on the cloud, and we access these data through the cloud by using the internet connection. If you do not have good internet connectivity, you cannot access these data. However, we have no any other way to access data from the cloud.

### 2. *Vendor lock-in*
Vendor lock-in is the biggest disadvantage of cloud computing. Organizations may face problems when transferring their services from one vendor to another. As different vendors provide different platforms, that can cause difficulty moving from one cloud to another.

### 3. *Limited Control*
As we know, cloud infrastructure is completely owned, managed, and monitored by the service provider, so the cloud users have less control over the function and execution of services within a cloud infrastructure.

### 4. *Security*
Although cloud service providers implement the best security standards to store important information. But, before adopting cloud technology, you should be aware that you will be sending all your organization's sensitive information to a third party, i.e., a cloud computing service provider. While sending the data on the cloud, there may be a chance that your organization's information is hacked by hackers.

# CYBER SECURITY
## -Satya Kumari(1st year)

The internet has made the world smaller in many ways but it has also opened us up to influences that have never before been so varied and so challenging. As fast as security grew, the hacking world grew faster. There are two ways of looking at the issue of cyber security. One is that the companies that provide cloud computing do that and only that so these companies will be extremely well secured with the latest in cutting edge encryption technology.

Its being protected by internet-connected systems, including hardware, software and data, from cyber attacks. In a computing context, security comprises cyber security and physical security both are used by enterprises to safe against unauthorized access to data centre and other computerized systems. The security, which is designed to maintain the confidentiality, integrity and availability of data, is a subset of cyber security.

### WHY DO WE NEED CYBER SECURITY ?

The range of operations of cyber security involves protecting information and systems from major cyber threats. These threats take many forms. As a result, keeping pace with cyber security strategy and operations can be a challenge, particularly in government and enterprise networks where, in their most innovative form, cyber threats often take aim at secret, political and military assets of a nation, or its people.

Some of the common threats are :

1. *Cyber terrorism:* It is the innovative use of information technology by terrorist groups to further their political agenda. It took the form of attacks on networks, computer systems and telecommunication infrastructures.

2. *Cyber warfare:* It involves nation-states using information technology to go through something another nation's networks to cause damage. In the U.S. and many other people live in a society, cyber warfare has been acknowledged as the fifth domain of warfare. Cyber warfare attacks are primarily executed by hackers who are well-trained in use of benefit the quality of details computer networks, and operate under the favourable and support of nation-states. Rather than closing a target's key networks, a cyberwarfare attack may forced to put into a situation into networks to compromise valuable data, degrade communications, impair such infrastructural services as transportation and medical services, or interrupt commerce.

3. *Cyber spionage:* It is the practice of using information technology to obtain secret information without permission from its owners or holders. It is the most often used to gain strategic, economic, military advantage, and is conducted using cracking techniques and malware.

### WHAT CYBER SECURITY CAN PREVENT?

The use of cyber security can help prevent cyber-attacks, data breaches and identity theft and can aid inrisk management. When an organization has a strong sense of network security and an effective incident response plan, it is better able to prevent and serious of these attacks. For example, end user protection defends information and guards against loss or theft while also scanning computers for malicious code.

## TYPES OF CYBER SECURITY THREATS

The use of keeping up with new technologies, security trends and threat intelligence is a challenging their task. However, it should be in order to protect information and other assets from cyber threats, which take many forms.

1. Ransom ware is a type of malware that involves an attacker locking the victim's computer system files typically through encryption and demanding a payment to decrypt and unlock them.

2. Malware is any file or program used to harm a computer user, such as worms, computer viruses, Trojan horses and spyware.

3. Social engineering is an attack that relies on human interaction to trick users into breaking security procedures in order to gain sensitive information that is typically protected.

4. Phishing is a form of fraud where fraudulent emails are sent that resemble emails from reputable sources; however, the intention of these emails is to steal sensitive data, such as credit card or login information.

## CONSEQUENCES OF CYBER ATTACK

Cyber-attacks will cause more damage financially and reputational even to the most withstand organisation. The organisation which suffers cyber-attack, have to face the losing assets, business reputation and potentially the organisation have to face regulatory fines and taking legal action and the costs of remediation. A survey taken by UK government about cyber security in 2017, found that the average cost for a large business is £19,600 and for a small to medium-sized business is £1,570.

## THE LEVEL OF CYBER RISK

There are some additional reasons for that threat is overrated. First, as combating cyber-threats has become a highly politicized issue, official statements about the level of threat must also be seen in the context of different bureaucratic entities that compete against each other for resources and influence. This is usually done by stating an urgent need for action (which they should take) and describing the overall threat as big and rising. Second, psychological research has shown that risk perception is highly dependent on intuition and emotions, as well as the perceptions of experts (Gregory and Mendelsohn 1993). Cyber-risks, especially in their more extreme form, fit the risk profile of so-called, dread risks, which appear uncontrollable, catastrophic, fatal, and unknown. There is an inclination to be afraid of Low probability risks, which translates into pressure for serving an action with all sorts of willingness to bear high costs of uncertain benefit. Only the system attacks sufficiently destructive or disruptive need the attention of the traditional national security apparatus. Attacks that interrupt the services or that cost mainly a nuisance to the computer.

Depending on their (potential) severity, however, disruptive incidents in the future will continue to fuel the military discourse, and with it fears of strategic cyber-war. Certainly, thinking about (and planning for) worst-case scenarios is a legitimate task of the national security apparatus. However, for the favour of more plausible and more likely problems they should not to get more attention Therefore, there is no way to study the "actual" level of cyber-risk in any sound way because it only exists in and through the representations of various actors in the political domain.

# BEACON TECHNOLOGY
## -Gaganpreet Kaur(1st year)



Beacons are small, wireless transmitters that use low-energy bluetooth technology to send signals to other smart devices nearby. They are one of the latest developments in location technology and proximity marketing. Put simply, they connect and transmit information to smart devices making location based searching and intea=raction easier and more accurate.

### HOW DO BEACONS WORK?

The beacon device is itself incredibly simple. Each device contains a CPU, radio, and batteries, and it works by repetaedly broadcasting out an identifier. This identifier is picked p by your device, usually a mobile, and marks out an important place in your environment.

The identifier is a unique ID number that your smartphone recognizes as unique to the beacon. Once connected, the beacon will carry out whatever function it has been programmed to perform.

### BENEFITS OF BEACON TECHNOLOGY

The technology itself has lots of applications and potential. Some functions were available when the beacons were first introduced, and some have become available as the technology has advanced. Improved offline distribution with Google ads. By connecting the signals to your Google ads account, gain a lot of useful insight into your searcher's offline activity and may even help you track. This means that when you serve your Google search ads, you may be able to attribute the number of online users that walk into the store.

### FUTURE IN BEACON TECHNOLOGY

The possibilities of beacon technology in proximity marketing and location-based technology are numerous. As data gathering tools, beacon offers Google a chance to better understand businesses that use their services, as well as the users themselves in order to improve their algorithm. The logistics and transportation industry is one of the main benefactors of improved location-based technology.

# GRAPHIC DESIGNING
## -Parmeet(1st year)


www.graphic-design-institute.com

Do you love playing with visuals? Are you full with the creative ideas and artistic mind? Then it will be like a cake walk for you to make your career as a graphic designer. Now-a-days, as we all know that graphic designing has become pretty much trendy and is in demand.

Graphic designing is basically an art of visual communications that combines words, images and ideas to express information to the people. If you are interested in creativity and you know the basics of computers, then the field of graphic designer can be a good career for you.

Graphic designing is becoming a popular profession in this digital age. Graphic designers are generally employed in the web designing companies. Due to the increasing impact of visual and graphic, its scope is also increasing, so nowadays almost every company needs a graphic designer. So in this article I'm going to talk about how to become a graphic designer.

These are some of the types of graphic design you're likely to hear about as you explore this field. So take a look to see which type of graphic design strikes your fancy!!

1. Visual identity graphic design
2. Marketing and advertising graphic design
3. Web design
4. Publication graphic design
5. Packaging graphic design
6. motion graphic design
7. Environment graphic design
8. Illustration for graphic design

These terms must be confusing right?? I know. But there is no need to panic as when you'll move forward in this field, you'll get a clarity about these terms and then you'll be able to make a choice that in which type you want to excel based on your interest.

*"THERE ARE THREE RESPONSES TO A PIECE OF DESIGN- YES,NO, AND WOW! WOW IS THE ONE TO AIM FOR..."*

So now the main question arrives that how to become a graphic designer? The first step to become a graphic designer is to hold a bachelor degree in this field. You can pursue diploma, certificate, bachelor, master and doctoral courses in the field of graphic design. Along with pursuing professional courses in graphics design, you can also take online education for learning HTML, CSS, Photoshop and Web design. It is very important for students to pass 12th as a qualification.

Since this is a highly creative line of work, it goes without saying that graphic designers should have the basic skill sets required of a designer:
1. Basic drawing skills
2. Creativity and imagination
3. Eager learner and observant
4. Have an eye for detail
5. Knowledge of graphic design software
6. Good listening and communication skills

In order to make a mark in the crowd, the candidate needs to make his thinking creative and imaginative. Only then you can become a better graphic designer.

# VIRTUAL REALITY
## -Riya(1st year)





Are you entering virtually in the real world? In today's world everyone and everything is moving on a very fast track which is a very important for us. Nowadays We are getting more and more technologies . Some of you might not know the use of something and some of you might expert at it . This is the reality of virtual world .

In this online world, our thinking is developing, way of doing things is developing, but what about the physical health of the coming generation.

The coming generations are familiar with all the gadgets from their childhood. It might be possible that they are not known about the outside games but they all are very well known about the characters of the virtual (not real) world .

Everything has its own pros and cons. Similarly, virtual world has also its advantages and disadvantages.

Advantages like: We get a chance to imagine those things which we cannot imagine in a real life . We start treating ourselves as a particular character in that world , One can get different visualization. Which is very effective for learning student , a way one could get interest in doing things .

Virtual world is very effective for students, used in military like data gloves to enable military personnel to interact with objects in a virtual world, and in many more cases.

Cons like: Lack of traditional living, addiction to virtual world, functionality issues.

For example: If a brilliant student is addicted to learning thing virtually, and one day the virtual set does not working properly and the student fails in his exam. He might get depressed at that point of time. It means this virtual reality might give you a interest but it does have functionality issues .

The most common is game case in which person feels they are immersed in a particular character. And if that character dies, then a person might get into depression as they are treating that character as their real life .
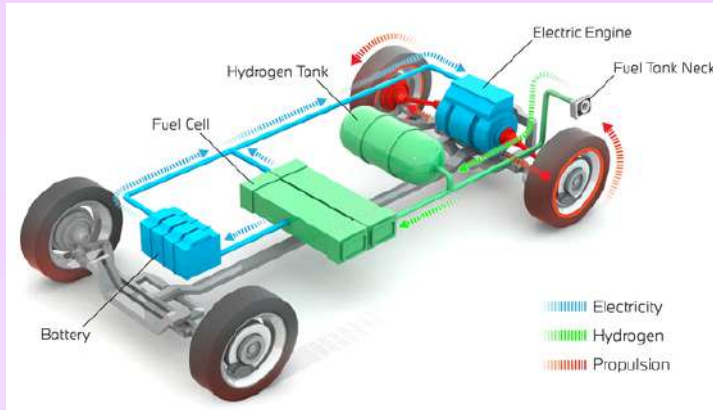
Hence, one must not use the technology in a wrong way, one should be aware of its both cons and pros . and we must not rely ourselves completely to virtual world .

Be on a treadmill of virtual world in REALITY with presence of mind AS this is virtually true!

# HYDROGEN CARS-
# A NEW LIFE TO THE ENVIRONMENT
### -Twinkle Karki(1st year)



Most people have to travel from one place to another and to do so they use vehicles like Cars, which is common nowadays and India has a ratio of merely 22 cars per thousand individuals who possess cars. Cars use petrol as their fuel which emits CO2, which causes pollution. South Korean company, Hyundai, has come up with a new technology named *Hydrogen Cars*.

Hydrogen Car has a different type of functionality, unlike the other petrol and electric vehicle, i.e., the hydrogen car produces the electricity on its own. In an electric vehicle, it gets its power from a built-in battery, which is chargeable from an external power source. However, the hydrogen car has the functionality where 'Fuel Cell' is the energy generator.

A fuel cell produces electricity employing electrochemical reactions between a fuel (typically hydrogen) and the oxygen in the air. During the reaction, hydrogen and oxygen combine to produce electrical energy and harmless water vapor as a byproduct. An extreme amount of energy is released, with no toxic byproducts, which is what makes hydrogen fuel cells such a great power source for electric vehicles.

The hydrogen is pumped into the fuel tank of the vehicle just like gas. The process of filling the hydrogen is like diesel or gas, once the tank is full, the hydrogen car a.k.a fuel-cell vehicle can travel as fast as a gas vehicle.

" Everything isn't perfect! " - this quote tells there are always two sides to a coin, pros, and cons.

Talking about the Pros - this vehicle doesn't produce engine noise and has a start like smooth as butter because it has a feature of full torque even at low speed. It has a quick-charging battery feature. Once the tank is full, it is good to go in less than five minutes and travel 300 miles (approx. 480 km). The exciting feature is that the range of the fuel cell doesn't depend on outside weather, in short, cold weather will not harm the vehicle.

Talking about the Cons - the only disadvantage of this new-tech vehicle is refueling. For refueling a hydrogen engine, some specific fuel pumps are required, and to establish those specific pumps, the process has to be fast but once done is good to go.
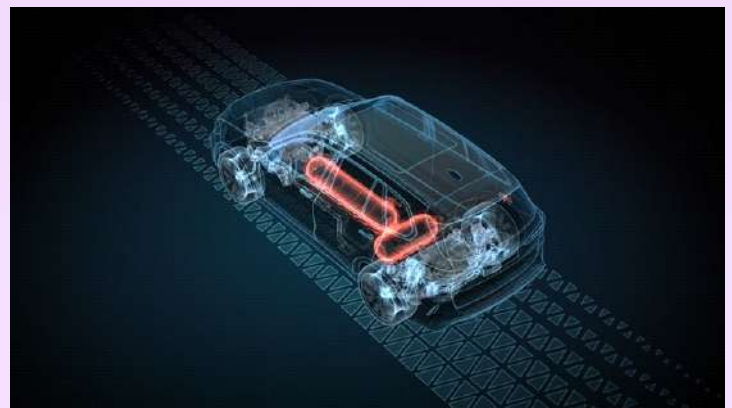


So this complicated technology must make you ponder about the cost. As of now, this vehicle hasn't launched in India but going to launch in 2021-2022. According to Indian rupees, the amount is around 6-7 lakh. But once launched, one must try to buy a hydrogen car as this would revive our environment.

# FUTURE SCOPE OF A SOFTWARE DEVELOPER
## -Vidhi Sharma & Surbhi Bhardwaj(1st year)



$S$ince we are moving into the new era of automation, mobile apps, and post-pandemic life, our reliance on software continues to increase. It is not a bad thing at all; an application or software has the power to make your lives even better. To succeed in such a technological world, businesses need to invest in software development.

Software Development is not just about a mobile application or a website but much more than this. You can get a lot of benefits like either to start your own start-up by building anything you want or sell that software to other companies, never ending a career, work remotely, increase your thinking skills, different career paths, multiple income sources. Software industries want highly qualified people at their workplaces so that they can give the best results. Tech companies like Facebook, Amazon, Google, Apple, Microsoft and Samsung are spending too much money on research based on machine learning, artificial intelligence, virtual reality, data mining and big data.

For a beginner it's difficult to find out where to start and what would be the best path to become a software developer.

Following is a complete roadmap to be a successful software developer:

1. *Pursue a degree in computer science field:* To study in depth theoretical concepts about the principle of software engineering i.e. Data Structures, Algorithms, Web Technology, Computer Networks, Mathematics, Database System, and a lot of major subjects help students to have a comprehensive understanding of software engineering and modern approaches of software development.

2. *Learn language:* As we need to learn a language to communicate with others, similarly we also need to learn a programming language so that machine can understand this and perform the respective task. Also it allows us to minimize manual work. With the help of this, we can make scripts that can help us do our work at a much faster rate. It can change our lives entirely as it can help us create many programs & scripts which can run automatically and can easily accomplish our task in almost no time. There are lots of language you can learn but it's not important to learn 3-4 languages simultaneously. Start with one language and get well versed in it. Once you are experienced, you can try your hands on another language. Switching to the next language becomes easier after the first one.

3. *Learn Data Structure and Algorithm:* An algorithm is a step by step approach to solve a specific problem, whereas data structure is the way of organizing data. These two concepts help programmers to solve the problem within less amount of time and memory. It is very major part of programming as a software engineer is always expected to give the best solution for a specific problem taking care of time and memory both and they should know which algorithm and which data structure will be suitable or the best fit for a certain problem. And you will understand how problems are solved in real world or in industries using these two basic building blocks.

**Top Skills for Software Engineers**

1. Problem Solving
2. Attention to Detail
3. Clear Communication
4. Continual Learning
5. Teamwork
6. Empathize with End Users

4. *Always enhance your skills:* Programming is a never ending journey. You need to keep practicing and updating yourself with new technologies and software. Stay up to date in this field by joining communities where you can discuss and share programming surround yourself with experienced developers, watch youtube videos  or read technical blogs and participate in coding contest.

5. *Build your own software and projects:* Your practical knowledge is very valuable, there is no point to learn all the concepts if you don't know how to implement it in real world project. So improve your skills by building software and projects. And by this, you can contribute to some open-source projects and also showcase it to your recruiters and also you work as a freelancer and make money.

*"You can mass-produce hardware; you cannot mass-produce software; you cannot mass-produce the human mind."*
*— Michio Kaku*

# ARTS
## CORNER

Gauranshi Varshney, 11 yT



Riya Rohilla, 1 yT



Gauranshi Varshney, 11 yT



Anjali Jha



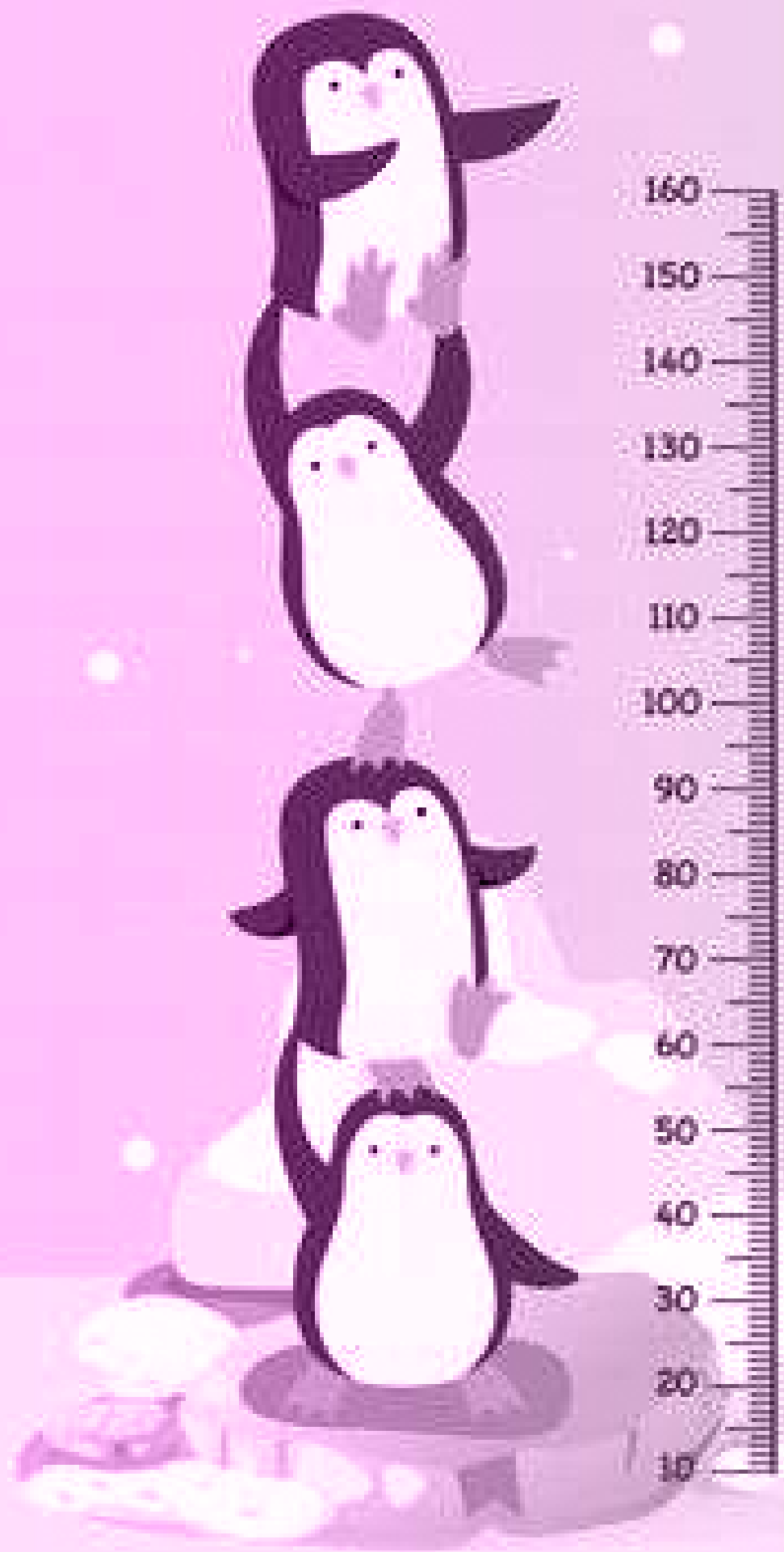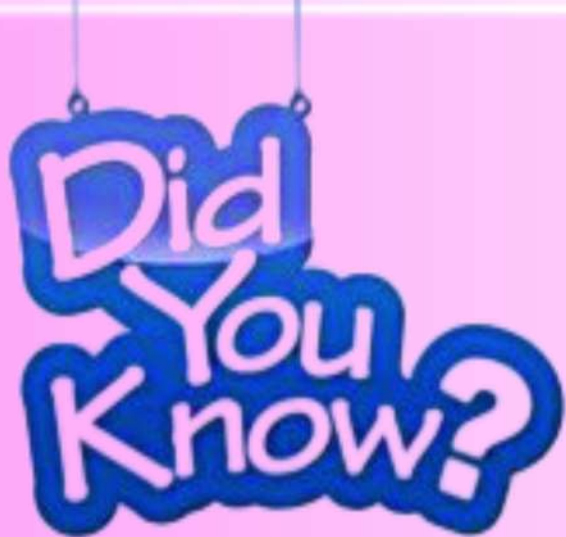Gauranshi Varshney, 11 yT



Himanika, 1 yT

Anushka PurÂar, ll yT



## 'VIRTUALLY CONNECTED'

Virtual or Real
but it's connected
So close yet so far
however
it's connected.
You, we, all stay
yet leave
Dont really mind,
yet feel
Sometimes hurt,
then heal
Some are down,
some with zeal
At the end
it's connected..

Mishika Rawat, lll yT

# Did You Know?

# AMAZING FACTS
*-Himanika, Riya Rehal, Akriti*

1. *WOMEN WHO CHANGE TECH WORLD:*

   Ada LoveLace: First programmer of the WORLD

   Hedy Lammar: Invented the basis for all modern wireless communication

   Radia Pearlman: Mother of internet

   Adele Goldberg: Inspiration of GUI

2. *Firefox logo isn't a fox.* It's a common misbelief that the Firefox Logo is a fox but it's actually a red panda!

3. *Every iPhone advertisement has the time set to 9:41.* This is the time that Steve Jobs announced the very first iPhone in 2007.

4. *Name Google was created accidentally.* It was originally supposed to be named 'Googol'. (Googol is the digit 1 followed by 100 zeroes). Founders checked to see if that domain name was taken, but accidentally, searched for 'google.com' instead of 'googol.com'. They liked that name better and registered the domain name on September 15,1997.

5. *YouTube was created to be a dating site.* YouTube.com was registered on February 14th,2005(Valentine's day) with the purpose of being a video-dating site. But after sometime when no one was uploading their videos, YouTube changed to allow uploading of any kind of video.

6. *Mark Zuckerberg is red-green colour blind.* This is why the colour blue dominates the Facebook website and mobile app.

7. Samsung started off as a grocery store.

8. *TYPEWRITER* is the longest word you can type on a QWERTY keyboard using only one of the rows on the keyboard.

9. Nokia used to sell toilet paper, before nokia sold mobile phones.

10. Google rents out goats to replace lawnmowers.

KNOW THE FACTS

# ABBREVIATIONS

- *ASCII-* American Standard Code for Information Interchange
- *BASIC-* Beginners All-purpose Symbolic Instruction Code
- *DBMS-* Data Base Management System
- *DMA-* Direct Memory Access
- *DVD-* Digital Video/Versatile Disk
- *ENIAC-* Electronic Numerical Integrator And Calculator
- *GUI-* Graphical User Interface
- *HTML-* HyperText Markup Language
- *HTTP-* HyperText Transport Protocol
- *IBM-* International Business Machine
- *JPEG-* Joint Photographic Experts Group
- *PDF-* Portable Document Format
- *SQL-* Structured Query Language
- *URL-* Uniform Resource Locator
- *USB-* Universal Serial Bus
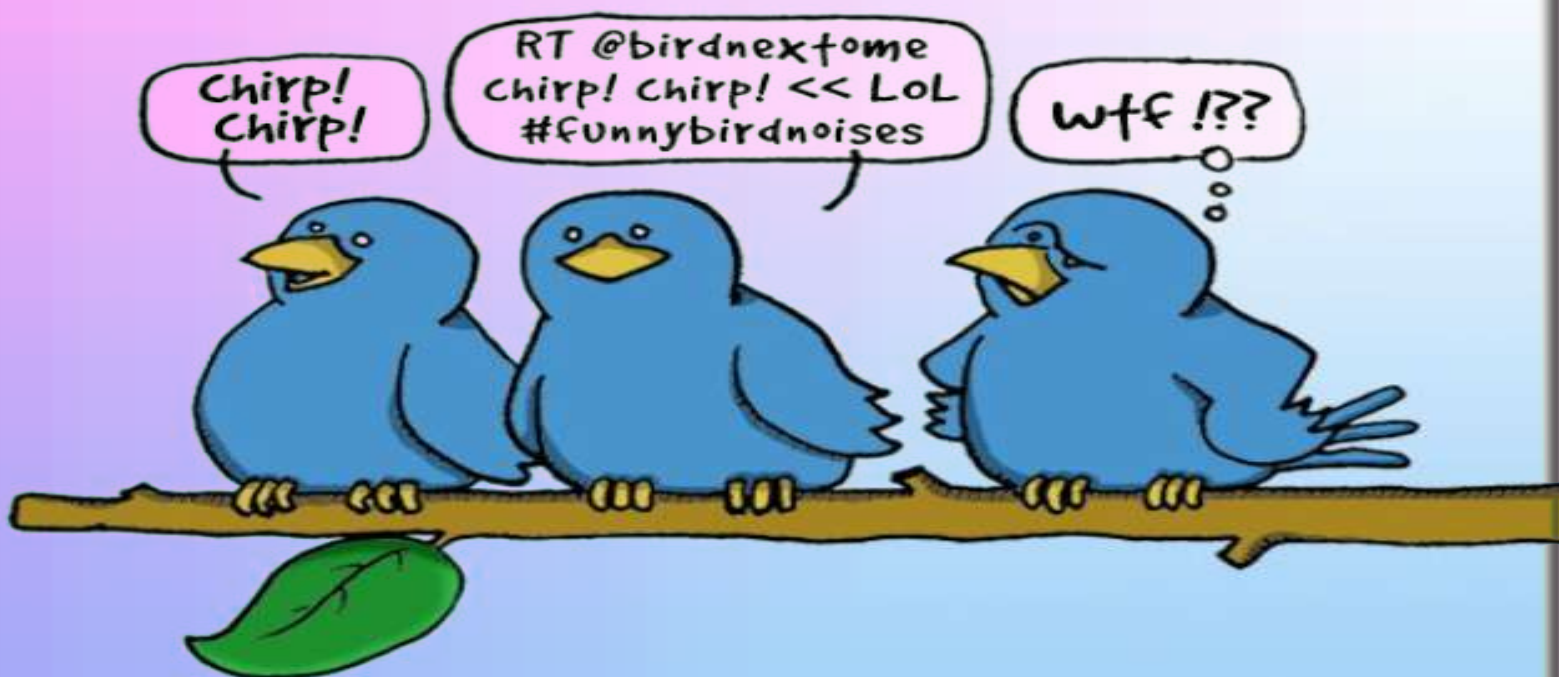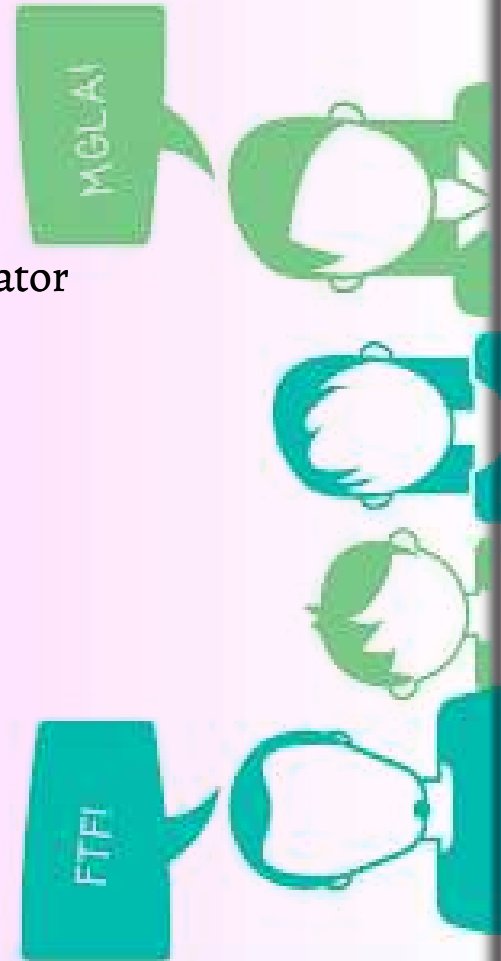
# CHECK YOUR IT KNOWLEDGE

*Riya, Sakshi, Isha, Himanika, Deepika, Harshita*

*(Ist Year)*

1. In the context of 4G wireless technology, expand LTE.

2. Which Popular Computer Game Was Secretly Intended to Increase Mouse Proficiency?

3. About how many computer languages are in use?

4. What was the name of the chess-playing computer that made history when it defeated world champion Garry Kasparov in 1996?

5. What is the name of the digital file format that was devised in 1987 to reduce the size of images and short animations?

6. What is the maximum limit of free cloud storage on Google drive?

7. What is Koo?

8. A unit of data storage that equals 2 to the 70th power is called –

9. First cyber law which provides the legal infrastructure for e-commerce in India is -

10. LIFI is also used to send and revive data wirelessly . How data is transmitted through LIFI ?

11. Which programming language is exclusively used for artificial intelligence?

12. What does fiber optic cable resemble in terms of size?

1. Long Term Evolution 2. Solitaire 3. 2000 4. Deep Blue 5. GIF 6. 15GB 7. Micro blogging app developed by Indians 8. Zebibyte 9. The Information Technology Act, 2000 10. Through LED Light bulb 11. Prolog 12. Human Hair

# CROSSWORD PUZZLE
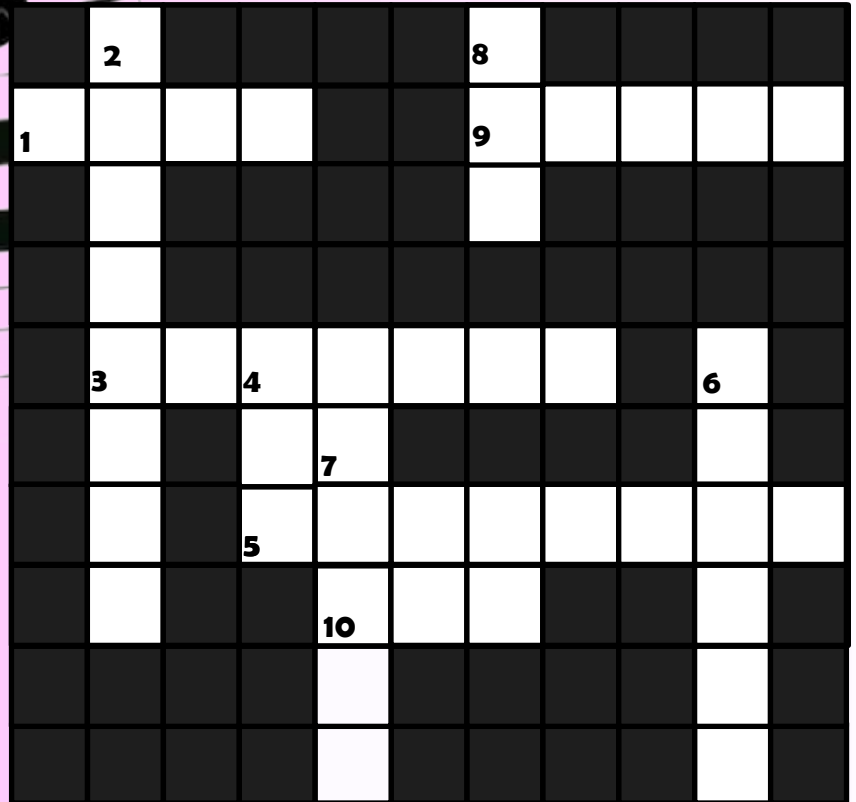


## Across:

1) Language led by James Gosling and created by sun Microsoft

3) Collection of web pages

5) IT comprises entire set of programs

9) At the end we need to _____ the output

10) It's also known as battery backup of computer

## Down:

2) Physical parts of computer

4) Topology in which nodes are connected to single wire

6) Main computer that serves other computer known as clients

7) It is used to move cursor

8) Brain of computer
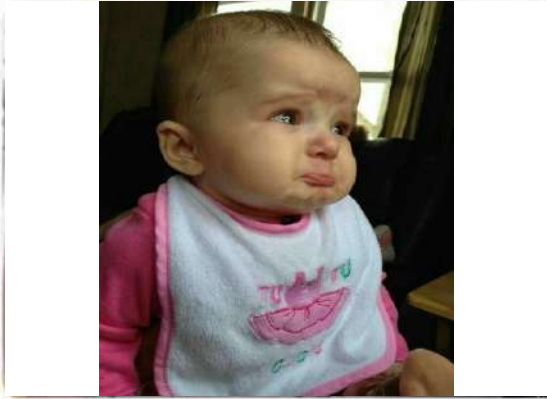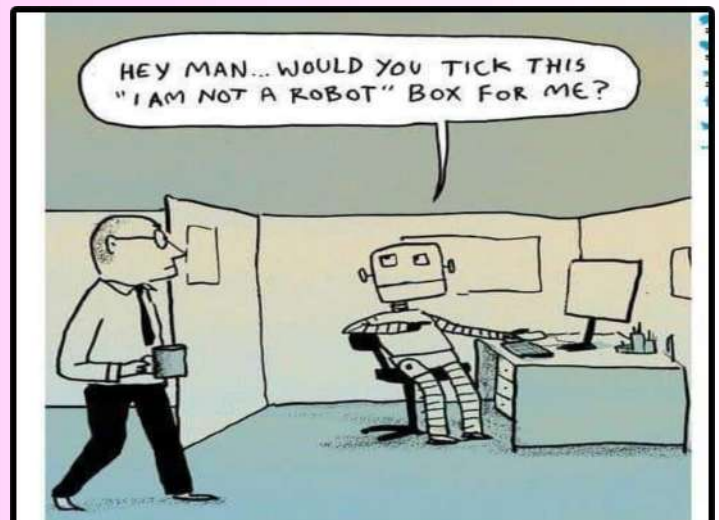
# LIFE OF PROGRAMMERS

*-GurBreet Kaur*

- ★ ROSES ARE RED,

  VIOLETS ARE BLUE

  UNEXPECTED '{'

  ON LINE 32 .

- ★ PROGRAMMING IS 10% WRITING CODE AND 90% UNDERSTANDING WHY IT'S NOT WORKING.

- ★ SOMEONE:

  THERE ARE NO 3 WORDS BETTER THAN "I LOVE YOU"

  LE ME:

  "COMPILED WITHOUT ERRORS" ARE BETTER.

- ★ 1ST RULE OF PROGRAMMING: IF IT WORKS DON'T TOUCH IT.

- ★ PROGRAMMING IS LIKE WRITING A BOOK.......

  EXCEPT WHEN YOU MISS A SINGLE SEMI COLON ON LINE 126, THE WHOLE THING  MAKES NO SENSE .

- ★ YESTERDAY I CHANGED THE NAME OF MY WIFI TO "HACK IF YOU CAN"

  TODAY I FOUND IT NAMED "CHALLENGE ACCEPTED".

- ★ PROGRAMMERS ARE : CODE-BLOODED

- ★ WHILE THERE'S ~~LIFE~~ CODE

  THERE'S ~~HOPE~~ BUG

```
* //programmer's qoute

  always:
  try
  {
     your best and;
     do
        {
           what you need to do;
        }while(you still have the time);

     for(opportunity;comes;only once)
        {
           so grab the chance;
        }
  if(you fail)
     throw "all your worries";
  }
  catch(yourself)
  {
     everytime you fall;
     and you know to whom
      you should goto always;
  }
```
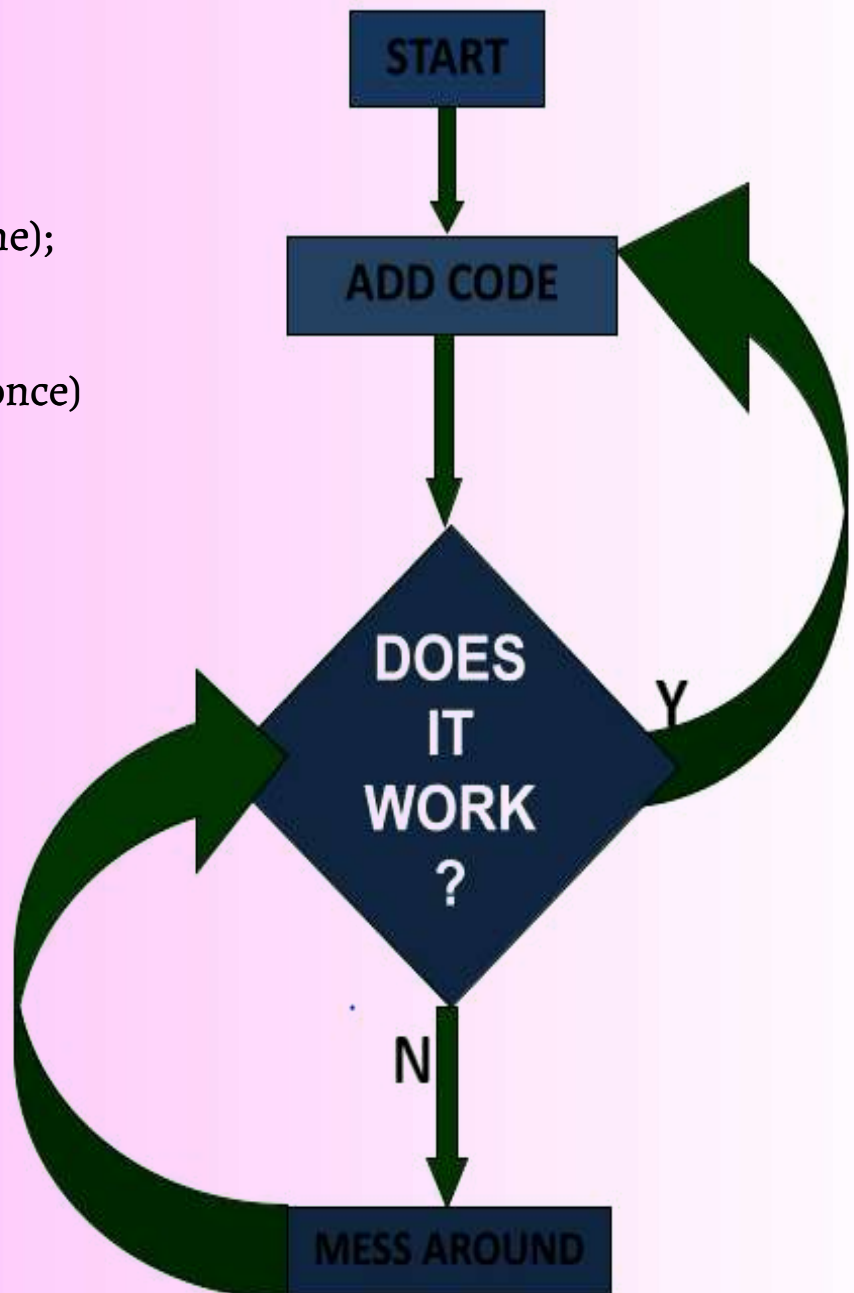
- PROGRAMMING PRINCIPLES



START

ADD CODE

DOES IT WORK ?

Y

N

MESS AROUND

# STUDENT'S ACHIEVEMENTS

## PLACEMENT DATA

| NAME OF THE STUDENT | Mishika Rawat (2018-2021) | Chakshita Gupta (2018-2021) |
|---|---|---|
| **POSITION OFFERED** | Associate Analyst | Associate Analyst |
| **ANNUAL PACKAGE** | 3.82 LPA | 3.82 LPA |

## RESEARCH DATA

| NAME OF THE STUDENT | Gunjan Batra (2019-2022) | Nida Khan & Divya Choudhary (2018-2021) |
|---|---|---|
| **PRESENTED RESEARCH ARTICLE** | Investigation of Machine Learning Assistance to Education | Modern Stage of Health Services in IoT Era |
| **CONFERENCE** | Int'l Conf. Computing Methodologies and Communication Computing Methodologies (ICCMC 2021) | |

# TECH
## INSIGHT' 21



**Mata Sundri College for Women,
University of Delhi
Mata Sundri Lane, New Delhi - 110002**

**matasundricollege.du@gmail.com**

**cybernauts.mscw@gmail.com**

**mscwdu**

**cs_mscw**