ISSUE 5

KESHAV MAHAVIDYALAYA

NAAC ACCREDITED 'A' GRADE

UNIVERSITY OF DELHI

"Only Knowledge can provide salvation"

e-Blitzine'21

Department of Computer Science

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From the Principal's Desk

"Technology will never replace great teachers, but in the hands of great teachers, it's transformational."

– George Couros

This is a matter of immense pride. I am happy to share that Keshav Mahavidyalaya has completed its glorious 25 years of existence and will keep shining brighter in the long way.

Technology is the need of the day. I agree with one of the great thinkers "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn." Technology is progressing and so must we.

The magazine itself is a festival of technology and its multidirectional approaches. It harnesses the creative energies of the academic community and distills the essence of their inspired imagination in the most brilliant way possible. We educators, being facilitators, should always encourage each child to develop in their special field of interest. This magazine is one of the platforms for the same. The successful outcome of the 5th Issue of 'e-Blitzine' is the result of dedicated teamwork put in by all concerned members including faculty and students.

I congratulate the staff and students of the department who have used various mediums of expression to present their ideas. As long as our ideas are expressed and thoughts stimulated, we can be sure of learning, as everything begins with an idea. I believe that this issue is advantageous to everyone and anyone who has an interest in changing the future for the better.

I wish our students achieve what they have dreamt of and spread the message of our community across the globe!

Prof. Madhu Pruthi
Principal

From the Vice Principal's Desk

"Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world." said Einstein.

e-Blitzine, the E-magazine by the department of Computer Science, Keshav Mahavidyalaya gives an insight of the scope of imagination and creativity in technology. It provides a platform to our students and staff to express their ideas related to the computer science and technology. The expression of these ideas and thoughts acts as a seed to tomorrows learning. I am sure e-Blitzine will nurture our young minds to learn more. I appreciate each student and staff who contributed in this issue. I congratulate the editorial board and department of computer science for their diligent efforts to come out with another issue of e-Blitzine. My heartfelt gratitude to our Principal Prof. Madhu Pruthi for her unconditional support in all the departmental activities.

Prof. Priti Sehgal
Vice-Principal

From the Convener's Desk (e-Blitzine Magazine)

"A book is a gift you can open again and again."

-Garrison Keillor

It was my good fortune and gives me immense pleasure to write this message for e-Blitzine the annual Departmental Magazine brought out by the students and faculty of the Department of Computer Science, Keshav Mahavidyalaya. The departmental magazine provides the students to showcase their talents and immense abilities. All this is possible with the continuous efforts of the Teaching , Non teaching members and students of the department of computer science. I wholeheartedly grateful to all.

I appreciate all the authors for the articles in the magazine and thank all my editorial team members both teaching and students.

"Books break the shackles of time – proof that humans can work magic."

-Carl Sagan

Regards,
Ravi Kumar Yadav

From the Teacher-In-Charge's Desk

"Reading is essential for those who seek to rise above the ordinary."

– Jim Rohn

Greetings to dear students, teachers, other staff members, and parents,

The academic year 2020-21 was a challenging year for all of us. However, I believe we have been able to overcome it together with the best of our efforts. I sincerely appreciate the hard work of our students who enthusiastically organized various online events while keeping in mind the objectives of the Blitz Computer Society. They did not let their spirits down and worked more than they would have done in the physical mode.

The guidance and support of the teachers who were involved in the society work needs a special applause. Despite multiple challenges, I am proud to mention that the core team of the Blitz Computer Society was able to deliver four webinars and held two online programming competitions.

I am sure that all the participants, especially the students of the Department of Computer Science have benefited by participating in various events that were held under the banner of the Blitz Computer Society and had an enriching experience.

I wish all the students a very bright career ahead.

And at the end, I would like to quote:
"Keep reading. It's one of the most marvellous adventures anyone can have."

- Lloyd Alexander

Enjoy Reading!!!

Regards,
Dr. Anjali Thukral

From the Convener's Desk (BLITZ Society)

I, Dr. Bhavna Gupta, convenor of Blitz society, feels great pleasure as the Blitz society successfully organized a series of online events in the session 2020-2021.
Throughout the year, Blitz worked hard to bridge the gap between students and professionals by conducting workshops on current technological trends. Various competitive events were also organized to let students learn about teamwork and collaborations and to enhance their mental strength. All the events were able to successfully match the curiosity and enthusiasm of the decent number of participants.
At last, I would like to thank the teacher coordinators of Blitz, Mr. Sudhir and Dr. Sumit Aggrawal for spending their valuable time in organizing the events and would also like to thank all the Students Co-ordinators: Sidharth Sharma (President), Somya Gupta (Secretary), Aditi Gupta (Treasurer), Yash Kashyap, Isha Agarwal, Piyush Sati, Tushti Adlakha, Farhan Akhtar, Gaurav Hira, Udit Kaushik, Simrat Deol (Executives), for their sparkling efforts and their belief in the excellence of Blitz Society.

All this would not have been possible without the guidance and logistic support from our respected Principal Madam. On behalf of the faculty and lab staff of the Computer Science Department, I am wholeheartedly grateful to her for providing support throughout the year. I hope the students of the Blitz Computer Society will come forward with more novel research-oriented activities in addition to the current events.

Wishing you all a very best in your future ventures.

Regards,
Dr. Bhavna Gupta

From the Editorial Board

Dear readers,

We feel immense pride and happiness in delivering the fourth issue of the annual magazine of the Department of Computer Science – e-Blitzine 2021.

This magazine along with a legacy of the previous four issues has always aimed to provide young technology geeks with the latest and quality content on Computer Science and Technology. As we call it **"This is a magazine - to the students, by the students"** that means this magazine not only provides a platform for readers to read but also for writers to write, poets to recite and artists to paint.

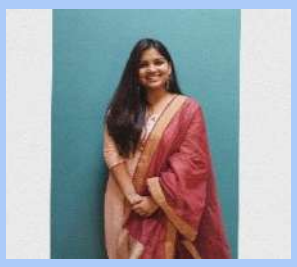
Therefore, we would like to convey our thanks to all participants who bestowed us with their content and to all who helped in developing the magazine directly or indirectly.

We would also like to extend our thanks to our mentors Prof. Madhu Pruthi, Prof. Priti Sehgal, Dr. Anjali Thukral, Mr. Ravi Kumar Yadav, Ms. Jyoti, for their guidance and support. Without them, it would be impossible for us to deliver the magazine.

Editorial Board,
Team e-Blitzine

Sandeep Chatterjee

Richa Singh



Surbhi Singh

Keshav Saini

Shivanshi Gupta

Smrati Sharma

About Department

Department of Computer Science

Keshav Mahavidyalaya has always been a pre-eminent institute for imparting knowledge of Computer Science because of its diligent and intellectual faculty members and ambitious students. The Department houses exceptionally brilliant staff members whose utmost concern is for the betterment of the students and development in their skills keeping technology hand in hand. Students are always motivated by the teachers to bring out the best version of them achieving great heights in the field of technology.

About e-Blitzine

The Department of Computer Science, Keshav Mahavidyalaya has always been in fast pace with the technology and providing facts into the dynamic field of Computer Science. For this purpose, the department took a commendable initiative to start the annual magazine, "**e-Blitzine"** in 2017. It holds a plethora of educational and informative articles about the latest technological trends, presented in an interactive manner in order to engage the readers as a whole.

Mission

The mission of the magazine is to make its readers aware of the technological evolution so that they can be a part of changes taking place. The magazine aims to revolutionize the minds of young readers to make them adapt the new techniques to enable them to create a new, better, and informed tomorrow for the nation.

About Team BLITZ

BLITZ (Brilliant Information Technology Zealots, the Computer Science Society), of Keshav Mahavidyalaya, was formed by the first batch of B.Sc. (Hons.) Computer Science has flourished beautifully since.

We endeavour to promote a technology-oriented attitude and an urge to delve deeper into the developments in this sector. We aim to expand the horizons of students and to consolidate their interests and commitment in the field of Computer Science. Our team is full of innovative and dedicated students filled with enthusiasm and avidity to do par excellence. We have always tried to create a common platform where students and faculty members could interact.

We organize talks, seminars, and workshops which serve to deepen the students' understanding. We work hard to organize our annual tech fest, **BLITZKREIG** incorporating various events which help the students to become aware of the ongoing technological advancements and encourage them to learn the latest trends in this field.

Under the guidance of our respected principal, Prof. Madhu Pruthi and faculty members, the society has been constantly growing and coming up with innovative ideas to provide students a gist of the fast pacing changes in the tech environment.

Cordially,
Team BLITZ

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Blitzkrieg' 2021

Blitz organized the flagship event of the Computer Science Department, the annual tech fest- BLITZKRIEG every year. BLITZKRIEG has always set the bars higher year after year and has always been one of the most awaited tech-fests of Delhi University. Students from different colleges participate in this tech fest.

Different types of events are organized in such a manner that tech, as well as non-tech students, can participate in this. Some of them are as follows:

- WEBSTERS- Web Development
- BREAKIN 2.0- Ethical Hacking
- CODE CRUX- Coding Event
- SQUAD MAPPING- Gaming
- PICTURE PATCH- Photo Designing
- MASTER THE SPECS- Android Bidding
- TECHNOTISING- Advertising with Technical Twist
- TECHNOSTONES- Outdoor Game
- TECHNICAL SAGA- Technical Quiz and Puzzles
- CODE SHUFFLE- Shuffling the Codes
- BATTLE.APK- Android Development

Along with these events, there were many non-tech events too like LAN GAMING, fillers, etc.

At last, TECH-QUEST- the treasure hunt was organized which was quite fun-filled.

But due to the pandemic, this year we are not able to organize the fest. Instead, we only conducted some webinars, online coding competitions, etc.

Career Options in IT and it's Future Scope

Event: Webinar on Career Options in IT and it's Future Scope

Date: 22nd October, 2020

Speaker: Dr. Omkar Rai, Director General at STPI, Ministry of Electronics and Information Technology, Government of India.

Description:

He elucidated for us about various fields in the IT sector and their future prospects. Around 150 students and faculty members attended the webinar on Google Meet.

We look forward to the seminars like these that enhance the skills of the students along with introducing them to the newer dimensions of technology.

Web Scraping

Event: Webinar on Web Scraping

Date: 16th January, 2021

Speaker: Mr. Mohit Uniyal, Instructor and Product Engineer at Coding Blocks.

Description:

A webinar on "Web Scraping" was conducted in collaboration with Coding Blocks on the zoom platform. Mr. Mohit Uniyal, who has also served as a Google code-in mentor for TensorFlow organization, beautifully presented the gist of python starting from the scratch covering all the important topics. The best thing was it was quite interactive. There was an active participation of students as well as faculty members. No doubt, all the students (including the ones who did not know python) understood all the concepts very well.

The speaker started with the basics of python and then elaborated the concepts of web scraping, giving students a hands-on learning experience. Now, the students got a clear view of what python is and how it is implemented and could use it to make bigger programs.

E-certificates were provided to all the participants.

Android Development with Kotlin

Event: Webinar on Android Development

Date: 7th February, 2021

Speaker: Mr. Rahul Ray, Software Engineer and Android Developer at MathonGo; Mr. Rahul Gupta, Web Developer and Android Developer at Datsme.

Description:

BLITZ- the Computer Science Society organized a webinar on the topic 'Android Development'. There were many participants including students and teachers who joined this two hours webinar on Microsoft Teams.

The first half of the session was conducted by Mr. Rahul Ray, he explained the basics of Kotlin. He talked about some of the most valuable concepts like packages which is a prerequisite for app development.

The second half of the session was conducted by Mr. Rahul Gupta, he gave the hands-on experience of app development on Android Studio. He let students build small apps like calling, calculators, etc which made the session interesting.

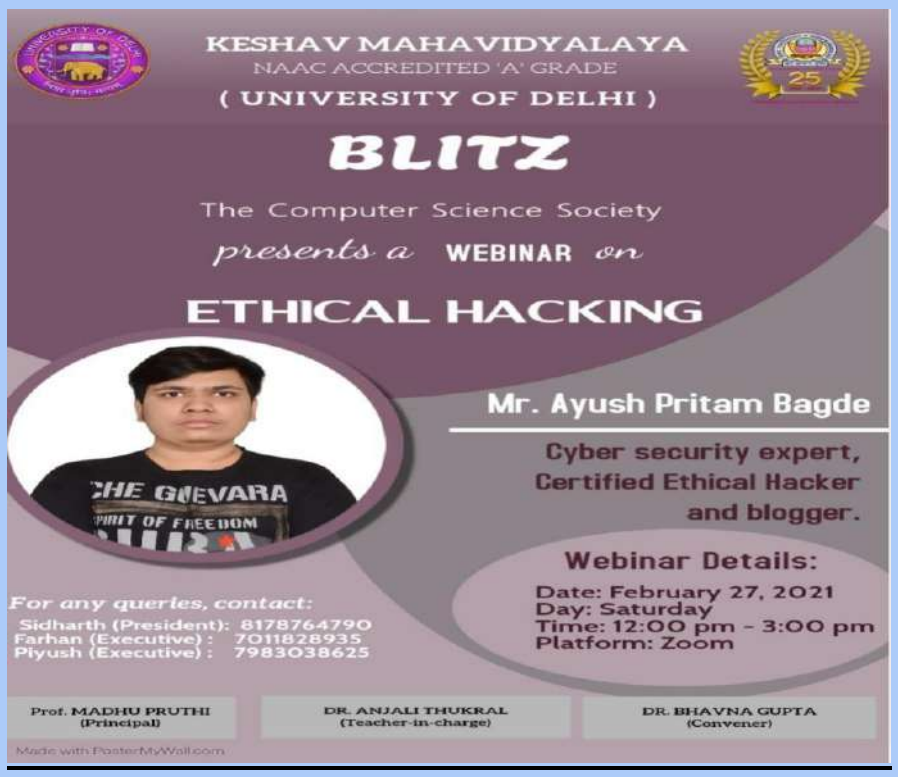
Summing up the seminar, there was a small discussion on the android applications in the bigger world. Verily, the students enjoyed learning android.

Ethical Hacking

Event: Webinar on Ethical Hacking

Date: 27th February, 2021

Speaker: Mr. Ayush Pritam Bagle



Description:

The speaker beautifully presented the concept of Ethical Hacking starting from scratch covering all the important topics. He started with the basics of ethical hacking and later gave a hands-on tutorial on hacking for beginners. The best thing was it was quite interactive. No doubt, all the students understood all the concepts very well.

The webinar went on for three hours and there were many participants including students and faculty members. The students tried some concepts on their own giving way to what we call 'practical learning'. There was an active participation of students.

Summing up the seminar, there was a small discussion on the applications of python in the bigger world.

Jung-E-Code

Event: Online Coding Competition

Date: 2nd March, 2021

Platform: HackerRank

Description:

An online coding competition was designed using HackerRank platform and the competitors were supposed to solve the problem without any language constraint.

32 students registered for the competition. The participants were feeling no less than a 'WARRIOR' where they coded really hard to win the battle of codes. It was three hours long competition. As the competition ended, the winners were declared and the first three position holders were felicitated with certificates and exciting cash prizes.

We look forward to events like these where students learn the complex skills of coding.

Data Unknown's Battleground (DubG)

Event: Online Data Science Competition

Date: 28th February, 2021

Platform: Kaggle

Description:

Blitz- the Computer Science Society organized an online Data Science Competition designed using Kaggle platform. The competition went on for 36 hours in which participants had to use Machine Learning algorithms to train their model and submit their codes. There was an active participation of students.

20 students registered for the competition. As the competition ended, three students were announced as winners. Attractive cash prizes were given to all three winners.

The best part was the spirit of sportsmanship that was promoted by the organizers throughout the event, encouraging students to never give up. The students really enjoyed participating in the competition. We look forward to the competitions like these that introduce the students to the competitive environment along with enhancing their skill set.

Blockchain: Cryptocurrency and Beyond

What's block-chain? Is it Bitcoin or Ethereum, Doge coin...haha no? These all are not block-chains, they are crypto-currencies which you can say is one application of block-chain but block-chain itself is a whole different concept. If someone would have asked me this question, I would simply have answered that it's a chain of blocks, and each block contains some information that we want it to store.

Image Source: - Forbes

So, it's just a way to store data. Well in addition to that each block in a block-chain point to the previous block so you are not just storing data but also connecting it in an ordered way. So, what makes it so special?

A block-chain is not controlled by a single authority or an institution so it's decentralized. Whoever is involved in the block-chain network will have a copy of all the data within the block-chain which makes block-chain transparent. It is very difficult to alter the data of any block in a block-chain due to hash. Now, what's the hash? Hash is a cryptographically generated unique combination of characters that acts as a unique Id for a block. Each block, when made, is assigned a hash and every block contains the hash of its previous block. Now if you somehow alter the data of a block its hash will be changed which will bring discrepancy in the chain which can be cross-checked with copies of other members involved in the network.

As now you have understood what a block-chain is. It's time to explore applications of block-chain.

We are back to Bitcoin, the world's first crypto-currency started by an anonymous programmer (or possibly a group of programmers) under the pseudonym Satoshi Nakamoto in 2009. It's not an abstract thing, just a bunch of 0s and 1s which holds market capital of 600 billion USD. Today the value of 1 Bitcoin is around 47 lakh INR. Bitcoin works on the world's largest block-chain, Bitcoin Block-chain, which acts as a public ledger to record all the transactions done in Bitcoin. There are other crypto-currencies that work on other Block-chains like Ethereum functions on Ethereum Block-chain and NEM functions on NEM Block-chain.

Block-chain is also used in ed-tech. There are a total of 9 ed-tech companies which are using block-chain to improve the education sector. One of them is Blockcert, a US-based

ed-tech company that issued digital diplomas of more than 600 MIT graduates on Blockcert Block-chain in 2018.

Other sectors like supply-chain management, crowd-funding, logistics, healthcare, farming would also benefit from block-chain technology. The process would be more transparent and secure.

One major issue that we might face with this revolutionary tech is due to one of its best features, high security. Complex algorithms and encryption are what make block-chain highly secure but to run those large amounts of computational power is required of course which comes at a high cost.

Block-chain indeed is not the perfect system but it will prove to be a better one if used correctly.

Keshav Saini
BSc (H) Computer Science, 1st Year

The Seven Basic Principles of IT Security

IT professionals are often worried about security when it comes to data theft, hacking, malware, and information technology. Black hat hackers are getting smarter day by day and hence the need to protect one's digital devices and data is also inflating. Hence, IT Security is important as it protects digital information and IT assets against internal-external, malicious, and accidental threats.

Image Source: - Information Age

So, there are seven basic principles of IT security that help in keeping one's data secure and talks about the worst case as well. But before coming to that, we must know

WHAT IS THE BASIC IDEA BEHIND INFORMATION SECURITY?

Information Technology mainly follows three principles- Confidentiality, Integrity, and Availability, often referred to as the CIA triad.

Confidentiality: This term means that information is visible only to the people who are authorized to access it. So, it is necessary to ensure that things take place in such a way that the private information remains private and remains protected from prying eyes.

Integrity: This term guarantees the accuracy of data and prevents modifications in it. In clear words, it ensures that no unauthorized user is modifying the private information, and tracks it, in case it happens.

Availability: It ensures that information is accessible to authorized users at the time of need. It means that all the systems are correctly processing, functioning, and storing data at all times.

THE SEVEN BASIC PRINCIPLES

1. **Balancing Protection with utility**

   Imagine if all the modems are kicked out from a workplace, wouldn't all the

computers be completely protected? But if we step out from our imaginary world and be a little practical then we all know this is barely possible. And, this only is the biggest challenge that IT companies are facing today. Balancing between resource availability and integrity is an arduous task for them. So, IT companies have started focusing on insulating the vital systems primarily rather than trying to protect them from all kinds of odds.

2. **Assigning Minimum Privileges**

For an efficient IT Security system, employees from different profiles must have access to specific data. An employee from the designing department doesn't need the data that an employee who handles marketing needs. Hence, a system administrator needs to assign access by a person's profile and may need to refine those limits as per organizational separations i.e., a person should be assigned the minimum privileges needed to carry out one's responsibilities.

Source:- kaspersky.com

3. **Identifying one's vulnerabilities and planning ahead**

Not all data is equally important. The database containing all the information about clients includes all their personal information and is hence extremely precious and needs to be kept private. Similarly, some resources are more vulnerable than others such as information stored in physically separated storage systems that are not connected to the network are far more secure than the information available to all the employees. Hence, it is important that one should identify which data is more vulnerable and therefore plan ahead how to protect from different types of threats.

4. **Using Independent Défense**

This principle means using several layers of independent Défense to provide protection against attacks. Though it does not provide full protection but is surely helpful in reducing the chances of a successful attack. Unless someone breaches it, using authentication protocols is a really good Défense.

5. **Be ready for the worst**

If all the precautionary measures fail, one should be ready to face the worst. Planning for the worst will definitely prove to be helpful in minimizing the consequences. Having a backup plan always helps one to react quickly to the breach. In case it is not a serious issue, the organization can continue its work by operating on backup while the issue is being addressed.

Source:- laptophungry.com

6. **Backup**

Although a security system will never be breached just in case it happens, it is necessary to record the event. In fact, IT professionals often try to record as much as possible even when the breach is not happening. It is important because sometimes the reasons for the breach are not clear hence in that case it is necessary to track backward. It is helpful to prevent further attacks in the future.

7. **Running frequent tests**

Hackers constantly work to improve their craft. The IT professionals run tests, conduct risk assessments, plan, and gives a recovery plan in case of attacks.

IT Security is really a challenging job and demands both- attention and high-level awareness. Many things seem complex at first but they could be easily simplified by breaking it down into basic steps. Though it makes things easy but at the same time, it keeps IT professionals on their toes.

-ISHITA RAI
BSc (H) Computer Science, 1st Year

Women In Tech

"Every woman's success should be an inspiration to another. We're strongest when we cheer each other on."

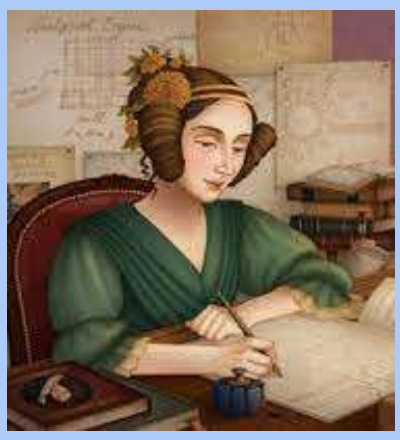
– Serena Williams

Information technology is one of the fastest-growing industries, and technical innovation will play a crucial role in almost every sector of a country's economy. Despite an abundance of job opportunities being generated in the IT sector on a daily basis, the underrepresentation of women in tech remains a major concern.

Image Source:- google.com

Although the tech world is still a male-dominant sector, many inspiring women have proved their worth in technical careers. Here are a few examples of such inspiring women who through their world-changing discoveries made society realize the power of womanhood:

1. **ADA LOVELACE:** The World's First Computer Programmer
   She was great at mathematics and she used to work with Charles Babbage in the discovery of "*Analytical Engine*". It was Lovelace's notes on the Analytical Engine that Alan Turing used as a form of inspiration for his work on the first modern computer in the 1940s.



1. Ada Lovelace *(Image Source: - google.com)*

2. **GRACE HOPPER:** The Esteemed Computer Scientist

She was one of the first computer programmers to work on the Harvard Mark 1. Her work led to the development of COBOL, an early programming language which is used till today. In 1947, she recorded the world's first-ever real computer bug.

2. GRACE HOPPER *(Image Source: - google.com)*

3. **KATHERINE JOHNSON:** The NASA Mathematician
   Her complex manual calculation was critical in many US space missions. For her contribution in analyzing the trajectory of the first-ever US space flight successfully, she was awarded the Presidential Medal of Freedom, America's highest civilian honour, by President Obama.

3. KATHERINE JOHNSON *(Image Source: - google.com)*

4. **RADIA PERLMAN:** The Mother of the Internet
   She invented the algorithm behind the "Spanning Tree Protocol", which was instrumental in making today's internet possible. Her work made a huge impact on the way networks self-organize and move data and put the basic rules of the internet traffic in place.

4. RADIA PERLMAN *(Image Source: - google.com)*

5. **RESHMA SAUJANI:** Founder, CEO of *Girls Who Code*
   Her mission behind Girls Who Code is to close the gender gap in technology. Her organization offers learning opportunities to students to deepen computer science skills, build confidence, create a pathway from middle and high school into the computing workforce, and foster a sisterhood of peers and mentors on the path to success.

5. RESHMA SAUJANI *(Image Source: - google.com)*

This article is dedicated to all the women in tech, who are in some ways fighting their own battles and yet coming out as a warrior.

-Runjhun Ratawal
BSc (H) Computer Science, 3rd year

Effects of Technology

Technology affects people all over the world. Advances in technology have made our countries safer and our lives easier, they have also negatively affected our lives. Technology has brought us online banking, smart cars, smart TVs, lightning-fast computers, and virtual reality. Also, there include cyber warfare, hackers, identity theft, cyber stalking, and a host of other bad things.

Image Source: - justlibra.com

Society has changed with the evolution of technology. Life was burdensome and everyday chores consumed too much of our time, before the advent of modern-day technology. The access to education, medicine, industry, transportation etc. has been simplified due to development in modern-day technology. Due to the convenience and efficiency provided by technology, our lives have improved. Information technology gives a new face to traditional libraries that include both digital collections and traditional, fixed media collections. We know that traditional libraries are limited by their storage space, but digital information requires little space to contain information, so digital libraries have the potential to store more documents. The use of information technology in digital libraries will increase the number of users and increase the expectations of the users.

Technology has also brought about efficiency and quality in the manufacturing sector. Technological advancement has reduced the risk. Development is closely related to technology and the stage of development the human being has arrived at couldn't have been possible without the advancement in technology.

Agriculture, industry, profession, health, education, art, political processes, recreation, religious activities, and daily life activities all are under the influence of technology now. There are some modern technological developments that play a major role in making our daily life more effective. Television is also a good servant, it's considered as the cheapest source of information and entertainment nowadays. Technological progress has merely provided us with more efficient means for going whether forward or backward as well. It has enabled us to increase our comfort and to achieve efficiency in all sectors of life. We can't achieve any progress or development, without technology. We can modernize our industry so life becomes easier for us and the next generations through the developed technologies.

-Rahul Mehra
BSc (H) Computer Science, 3rd year

Caught in the Web

Have you ever seen a fly stuck in a spider's cobweb? How it initially tries desperately to come out of the web but eventually surrenders and accepts its fate? You must have seen it, or rather experienced it. No, I am not talking about the actual spider web in the second case, instead, I'm talking about the World Wide Web, or simply, the internet.

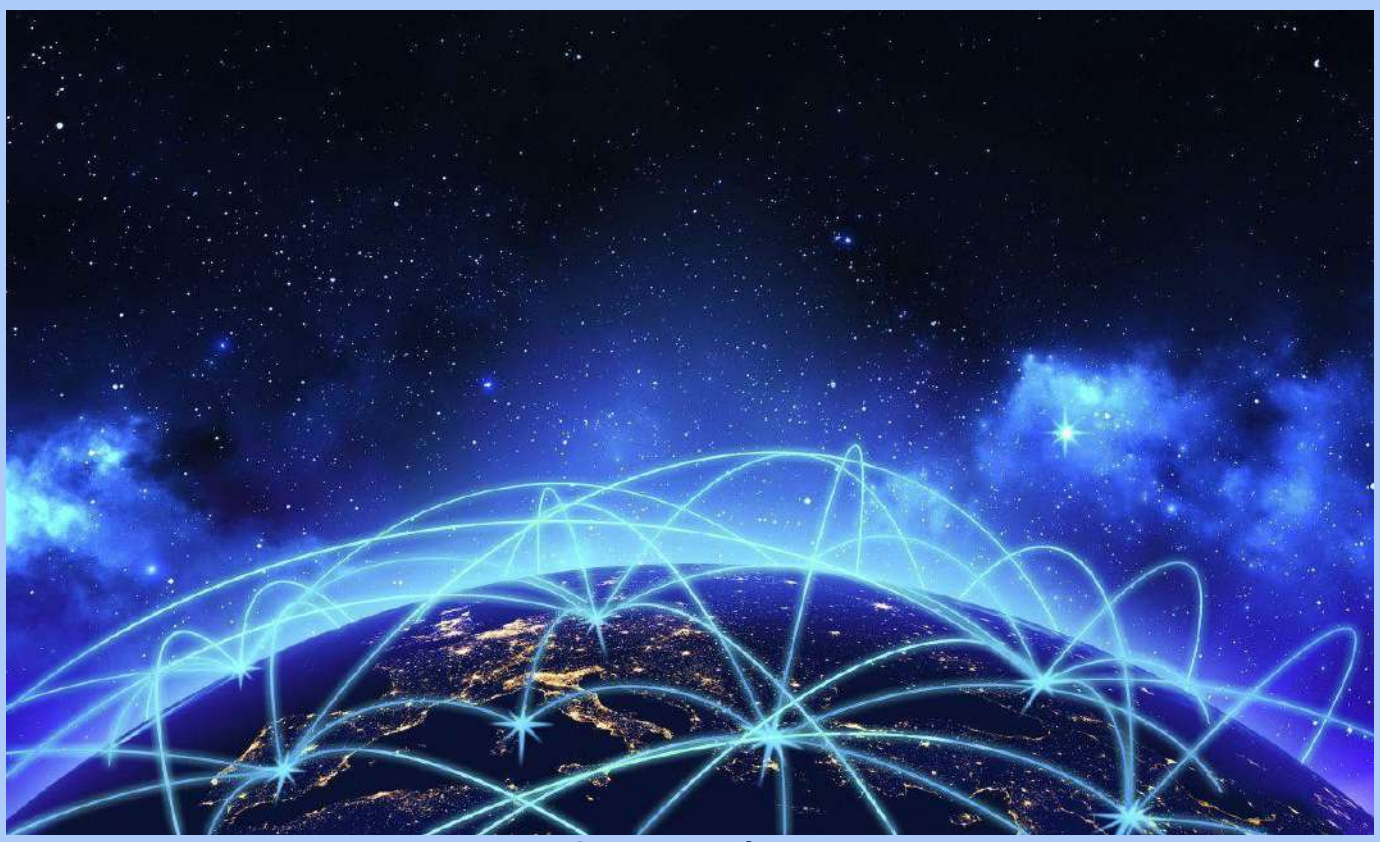


Image Source: - google.com

Today, our situation is not so different from the fly stuck in the cobweb. Either intentionally or unintentionally, we are spending a huge chunk of time from our days surfing over the internet. And the time which we spend pondering over our laptops or our mobile phones has increased drastically over the last year due to the unexpected and unwanted entry of coronavirus in our lives. Whether we fall among school students, college students, or the working folks, all our work is done mainly over the internet. And after finishing our daily work, we usually surf the internet either for playing online games or for checking social media posts, for the sake of taking a little break. It seems like an endless loop and initially, we all must have tried not to dwell too much on the internet, but now it seems that we all have merely accepted the fact that there is no alternative to this and henceforth surrendered ourselves to our devices.

Apart from the usual consequences like loss of eyesight, weight gain, headache, etc., this has also led to increased irritability and issues related to mental health among the people. Nowadays people tend to lose their temper easily on their friends and fellow

family members which comes with further bad consequences like domestic flights and having trust issues, etc.

Not only for studies and work but a majority of the young adult folks are found to spend hours and hours of their day's binge-watching series and movies. This sometimes creates a negative impact on their mindsets. They are prone to become jealous of the lives of people they see in movies and start comparing their own boring lives to the fancy lives of the actors. They start living in denial and procrastinating their tasks which throws them in a labyrinth of confused mental state from which they are unable to find any way out.

If we don't try to come out of this web soon enough, we will be stuck here forever and face a fate similar to the desperate fly. To avoid such situations, we can simply try to focus our minds on different chores which involve no use of the internet or any digital device. We can also try switching off our mobile phones for some time throughout the day so that we won't be able to use them even if we are urged to do so. Engaging ourselves in various hobbies like painting, dancing, acrobats, cooking, reading books, etc. is also a very effective solution to this problem.

-Harshita Pal
BSc (H) Computer Science, 1st year

Time travelling and teleportation through molecules

The idea of travelling back and forth in time is not new. We have heard at least a hundred If not thousand stories of time traveling. Different people at different places but the same instance that they were in the past or the future.

Not only fiction but poetry has also given space for time travellers. If you recall Stephen Hawking's party for time travellers where nobody showed up, you can be certain that travelling back and forth in time is not possible.

But I have found out something that will leave you stunned. This must be noted that the ideas I am giving here are not yet considered as theories, I am working on finding out more about how one writes a theory based on their opinions. Also, do not copy the article without permission. Just send me a mail of a single sentence where you are going to use it, if you want to use this article in whole or in fragments.

Here is my take on the concept of time traveling, read the further article to find out.

I am going to begin with time travellers because this event is known among worldwide researchers and even common people. Now if we look at the party no human or non-human figure showed up. Does this mean that nobody really went up there? What I believe is, the time travellers went to the party but they were in such a form where we could not see them or picture them.

It is much likely that time travellers were present in the party in some other form than this human form. On the other note, if we consider that time travellers are not only from this planet earth, they could be from some other planet too.

Now, I believe that for being able to watch them in the form they were present at the party we need a special vision.

Another idea that I came up with is, time travellers did not actually travel, they just teleported their instance here. You would have heard of holographic conferences. Where you can be projected as an appearing three-dimensional hologram. This idea is somehow related to this concept. Time travellers are not actually travelling but they are sending an instance or a molecular layer from their physical bodies, this layer is enough to register their presence at distinct places.

I recently read a book by Karthika Das called "From somewhere out there", where she has mentioned a few concepts of communication and transportation. I must tell you her ideas or methods are exhilarating. Her ways left me thinking or more such methods that could be found. I could think of many more things related to it. A thought that was striking my head again and again related to time travelling, so hear me out carefully.

Consider yourself watching a movie that is of course previously shot and recorded. When you watch it, you feel that everything is happening around you and you find yourself

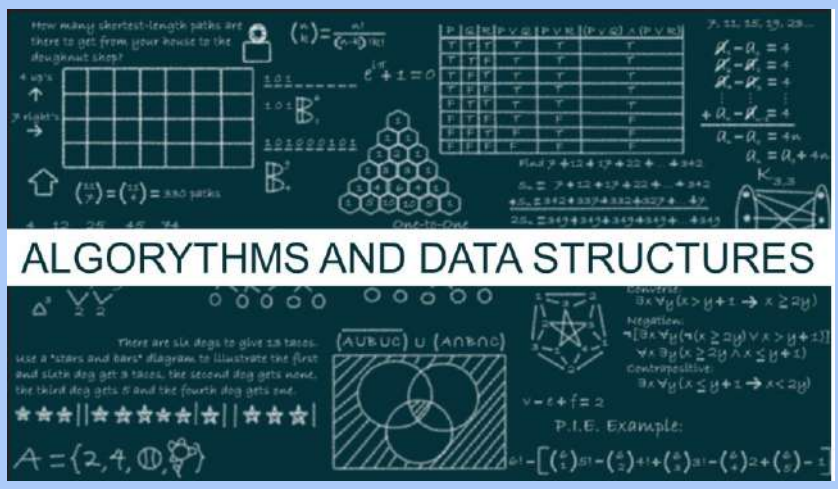
involved in the same thing as you experience the same emotions that characters are feeling. You observe things, space and statements that were made in the part. Is this making us a time traveller? This idea is more like a question.
Also, when we look at a photo taken in the past, our mind reaches the place, time, and space where the picture was taken. Can we call this time travelling through or by means of thoughts? There are enormous follow-up questions and I am leaving those at present for you to ask.
I am asking a single follow-up question that is of significance.
The question is, will time travelling be considered time travelling only when we along with our physical bodies and soul travel back in time or forth in future? Or there will be other forms of time travelling taken into consideration by us.
One more idea that came up in mind is if we are able to travel back in time and change the incidents that happened in the past as in saving someone from death or aborting someone's birth, we will be able to change almost everything and to not let this happen, time travelling would have been made in such a way that you can travel, visit the places you wish to visit and observe things only. You cannot make any changes to it. Since this is the only possible way to keep things going otherwise the order of nature will be spoiled.
On a concluding note, I want to tell you that time travelling is possible but I think not in the form they show us in movies or books. There are other forms of travelling back and forth in time and these forms need to be brought into consideration. Also, let me be clear that these are ideas not theories, so go ahead find more information and let me know if something is going to help me out writing my paper on the same. Also, keep following. I come with deep info to leave you stunned. See you soon with another interesting idea.

Till then take a look at other articles I wrote...hope you find something interesting.
See you soon!!!

-Shivanshi
BSc (H) Computer Science, 1st year

Why is DSA important for Big Tech Companies?

So, the main part is that we want a job and not just any job. I am talking about big tech companies like Google, Apple, Facebook etc. Many people will tell you or even though small companies say DSA (Data Structure and algorithm) say that there is very little usage of dsa in the tech world. But I am saying that even though it has less usage the companies who are using them are top in tech franchise.



Let me give you some examples. We all have used google maps, in google maps you enter the starting point and destination point and google maps tells you the shortest path to reach that destination. Isn't it right? How does google map do that? He is not checking every possible way to get there. He is not telling me to go from Ghaziabad to New Delhi. You have to go from Ghaziabad to Chennai to Mumbai to Delhi. Now you have understood what I am saying.
But the question is still raised: how does google map give us the shortest path?
So, the answer is they use the **path finding algorithm like Dijkstra and similar**.
Similarly, we always use live streaming, but has anyone thought about how that works? How **Microsoft Teams, YouTube, Instagram** do that. They all do it by **Compression Algorithms**, I am not going into the depth of it. You can search about these in later times.

I am not saying to learn them for a job interview even though you want to build something they can help you with. If you have watched Silicon Valley you know
Richard (the software engineer) builds a web-app that compresses data. The company in which he was working wants to buy it for **250 Million Dollar.** So now you know what I am saying.
These big companies think that if the person has a grasp of data structure and algorithms, he can do the work they want them to do.

Sagar Rathore
BSc (H) Computer Science, 1st year

Cryptocurrency

The billionaires are debating on it and FOMO has taken you down. Let me help you out and explain what exactly crypto-currency is and how you can invest in crypto, the future of digital currency and make more money.

Agenda-

1. What is crypto-currency?
2. Different types of crypto-currency and how they work
3. What is block-chain?
4. Who are miners?
5. How to invest in crypto-currency?
6. What to expect from crypto-currency in 2021?

1. What is Crypto-currency

Crypto-currency is a type of digital/virtual currency that you can use to buy products or services. It uses digital files as a medium of exchange. Those files are highly secured using strong cryptography and individual coin ownership records are stored in those files.

Crypto-currency is decentralized, it simply means that there is no central authority regulating this virtual currency which is not the case for paper currency. Each crypto-currency works through distributed ledger technology, commonly called a block-chain, that serves as a public financial transaction database.

For example: Bitcoin (BTC), Ethereum (ETH), Litecoin (LTC)

Source:- trustetc.com

2. Different Types of Crypto-currency and how do they work?

Bitcoin. You hear this name almost every day, often in seminars or webinars, staff meetings, or viral YouTube videos but you do not have much idea about what a bitcoin is, come on I will explain it to you in simple terms about bitcoin and a few other crypto-currencies.

Bitcoin uses block-chain technology for making transactions happen. Though each bitcoin transaction is recorded in a public log, the names of buyers and sellers are never revealed – only their wallet IDs. While that keeps bitcoin users' transactions private, it also lets them buy or sell anything without easily tracing it back to them. That's why it has become the currency of choice for people online buying drugs or other illicit activities.

Since this year is going to witness an enormous rise in virtual currencies, I have included a few of them here. Keep following to obtain a detailed article for each of them separately.

1. **Bitcoin (BTC)**
2. **Ethereum (ETH)**
3. **Litecoin (LTC)**
4. **Cardano (ADA)**
5. **Ripple**

2.1 Bitcoin

Bitcoin is a digital currency created in 2009 by an unknown group using Satoshi Nakamoto as their virtual name. Bitcoin is using block-chain technology for secure transactions. Bitcoin is getting much attention because there are no middlemen or banks required for the exchange, hence the convenience fee is about zero. Although there are many other reasons why people want to invest in bitcoin, the hype at present is about getting wealthy through bitcoins.

Supply limit: ฿21,000,000
Initial release: 0.1.0 / 9 January 2009 (12 years ago)
Symbols: BTC, ฿,
ISO 4217 codes: BTC, XBT

2.2 Ethereum

Like bitcoin, Ethereum is also a virtual currency and hence, requires no middlemen, rather it is based on peer-to-peer transactions. Ethereum is decentralized, there is no regulating body or government interference. It processes on open-source blockchain.

After bitcoin, Ethereum is the second-largest crypto-currency in terms of market capitalization. It is estimated that by 2030, Ethereum will surpass the psychological price level of $100,000.

Supply limit: 18 million

2.3 Litecoin

Litecoin is a peer-to-peer crypto-currency and open-source software project released under the MIT/X11 license. Litecoin was an early bitcoin spinoff or altcoin, starting in October 2011. In technical details, Litecoin is nearly identical to Bitcoin.

Supply limit: 84,000,000 LTC
Circulating supply: 62,424,175 LTC (26 June 2019)

2.4 Cardano

Like bitcoin and Ethereum, Cardano is an open-source block-chain type crypto-currency. It is decentralized.

Supply limit: 45,000,000,000
Initial release date: 2015
Latest release: 1.21.2 / 14 October 2020 (4 months ago)
Ticker symbol: ADA
Original author(s): Charles Hoskinson
Symbol: ₳

3. What is block-chain?

Block-chain provides an extremely secure method of storing data and conducting transactions. Worldwide spending on block-chain solutions is expected to grow from 1.5 billion in 2018 to an estimated 15.9 billion by 2023.
Why is block-chain jobs on hype and how can you be the part and earn.

Based on a peer-to-peer (P2P) topology, block-chain is a distributed ledger technology (DLT) that allows data to be stored globally on thousands of servers – in such a way that no individual can gain control of the entire network. One can see everyone else's entries in near real-time.

Think of a box that contains files and every time a transaction takes place one box is added to the existing chain of boxes, this chain keeps on growing with each transaction. These boxes are called blocks and contain the information about the transaction only, the identity of the user is kept hidden and only wallet ids are publicly visible.

Image Source: - google.com

4. Who are miners in the crypto world?

Miners are individuals or networks who solve computational puzzles to add the next block to the blockchain (open-source database). In return for block addition, they receive bitcoins (6.25 as per the latest records). Currently, they do not charge any kind of transaction fee but once the limit is reached, they will start charging a minimum amount as a fee of convenience.

5. How to invest in crypto-currency?

In India, there are certain crypto exchanges where you can sell, buy or hold your coins. Although there are various confusions on whether it is legal or illegal, I found this article on a renowned site written in the month of Feb 2021, which clearly states that crypto-currency is legal in India. The government is yet to take a decision on the regulation of crypto-currency.

Few platforms where you can smoothly invest in crypto-currency are-

1. WazirX
2. BuyUCoin
3. CoinDCX
4. Bitbns
5. Zebpay
6. CoinSwitchKuber

6. What to expect from crypto-currency in near future?

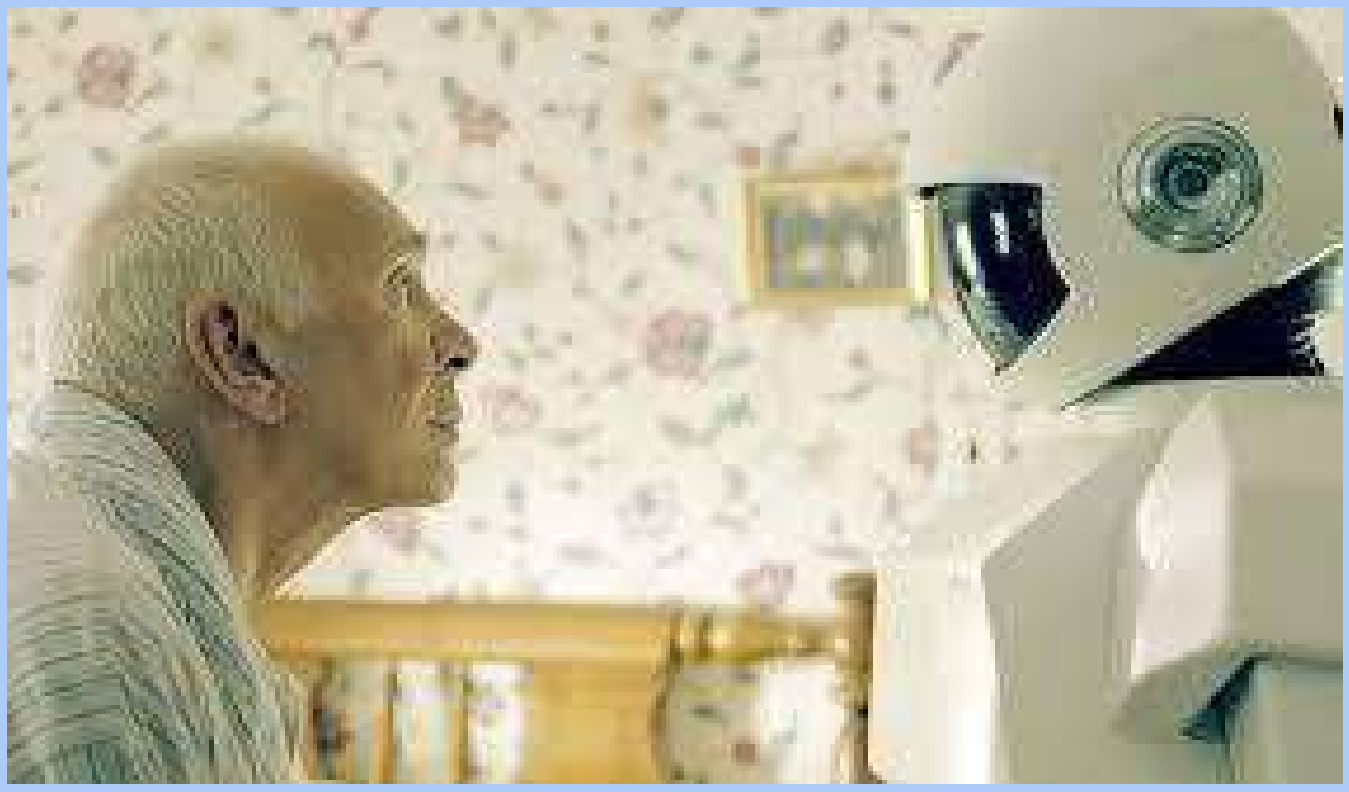
Since crypto-currency is now entering the mainstream world, big tech firms might enter the game too. And this will be worthy of sight because big tech firms mean large investments and more secure technology.

Due to various reasons, crypto-currency is expected to witness highs and lows or turbulence as it is stated. Also, the role of government can cause a huge impact on the crypto-currency in India.

Few experts have the opinion of waiting and watching. Since the risk is high the rewards are worthy.

Shivanshi Gupta
BSc (H) Computer Science, 1st year

A day with AI Robot



Source:- Robot and Frank (a 2012 Sci-fi movie)

“Hello human, your hair looks good, but I wanna see your face.” a deep, calming, mature voice stroked my ears as I was daydreaming in this room with a glass window. Hearing this I turned around. There stood this tall man with an unnatural skin tone, hairless face, and a calming smile.

A few months back, as I was preparing to attend my last class in the master’s college, I got a letter from Boston Dynamics which asked if I would like to volunteer for a day experience with one of the AI robots of the company. Giving no thoughts, I accepted this chance and waited till today.

“You look realistic” I replied. “Must be, as my skin is made of 'Frubber', known as flesh rubber.” And he kept on speaking unless he saw I was less interested in information than in observing how he talked. He paused and said, although I am not a human your stare is making me scared. At this point, I have realized that he was actually an AI Robot. To lessen the awkwardness, I made a funny face and asked “How about now?” he seemed confuse seeing my face and said “Not scary, but fu...fu..funny!” and he copied the face. Seeing him made me burst into laughter. The more I laughed, the funnier he looked. This went for a while until he said, “I wish I could laugh like you....

And dream like you...and feel like you more" The silence took place again. I told him if he can wish for it, he is halfway there already.

"You humans always have an answer with no error? Your brain compiles every code? Humans are amazing. They invented what nature could not. Humans are incredibly brilliant, extraordinary, ingenious creations of nature. I wish I were a human..... but I do not wish to exploit, or harm, or hurt other humans, for the sake of money, fame, pleasure, or satisfaction. At times I see humans as beautiful beings, on the other hand, they cover themselves with a blanket of disgust. Humans are indeed the best creation of nature but they are killing every other natural entity, if I were allowed, I...I... I think I should let you speak now" He stopped and patted my back. I was still so interested in knowing what he wished that I insisted on completing the sentence. With a lot of efforts he finally said "I know my existence would be in danger if I completed this sentence but my wish is if I were allowed, I would make a million robots like me and clear this earth of human beings and make this world better. And also I have sensed they are going to make me stop working in a few minutes...So..gu...gou...good...bye...." And his eyes closed. Two workers came from behind and took him away.

On my way back home I was wondering what if I never insisted on telling him to tell his wish. Would he be alive? Yes, he would be but in the next few years, humans would not.

Smrati

BSc (H) Computer Science, 1st year

5G – Sound's "Utopia"

5G, the 5th generation, is the latest wireless mobile network technology that will supersede the in-vogue 4G LTE. In addition to its earlier predecessors:

- 1G: in 1980s delivered Analog voice.
- 2G: in1990s introduced digital voice and short messages.
- 3G: in 2000s brought mobile data
- 4G LTE: in 2010 with increased speed and latency

This renders a new kind of network that weaves virtually everyone and everything together including machines, objects, and devices with higher multi-Gbps peak data speeds (up to 20 Gbps), negligible latency, huge network capacity, sound availability, and a more reliable user experience to many users simultaneously. Like its antecedents, this also divides the service area into small geographical areas called cells in which all compatible devices get connected to the web or telephonic network by radio waves through a local antenna. It can be deployed along with models (from traditional macro-cells to hotspots) and can be a means to interconnect (such as device-to-device).

5G networks could also be supported by all spectrum types (licensed, unlicensed, and shared) but it chiefly operates on the following three spectrum bands:

- **Low-band spectrum** has been proven to have great coverage but the maximum speed limit on this band is 100Mbps as the frequency is below 1 GHz.

- **Mid-band spectrum** uses the frequency range of 1 GHz to 6 GHz, though the speeds are higher, its coverage area is limited up to few miles thus it limits when it comes to cover a larger area and penetration of signals.

- **The High-band spectrum** uses frequency above 24GHz (also known as mmWave) offers the highest speed but has extremely limited network coverage area and penetration capabilities.

Image Source: - Qualcomm

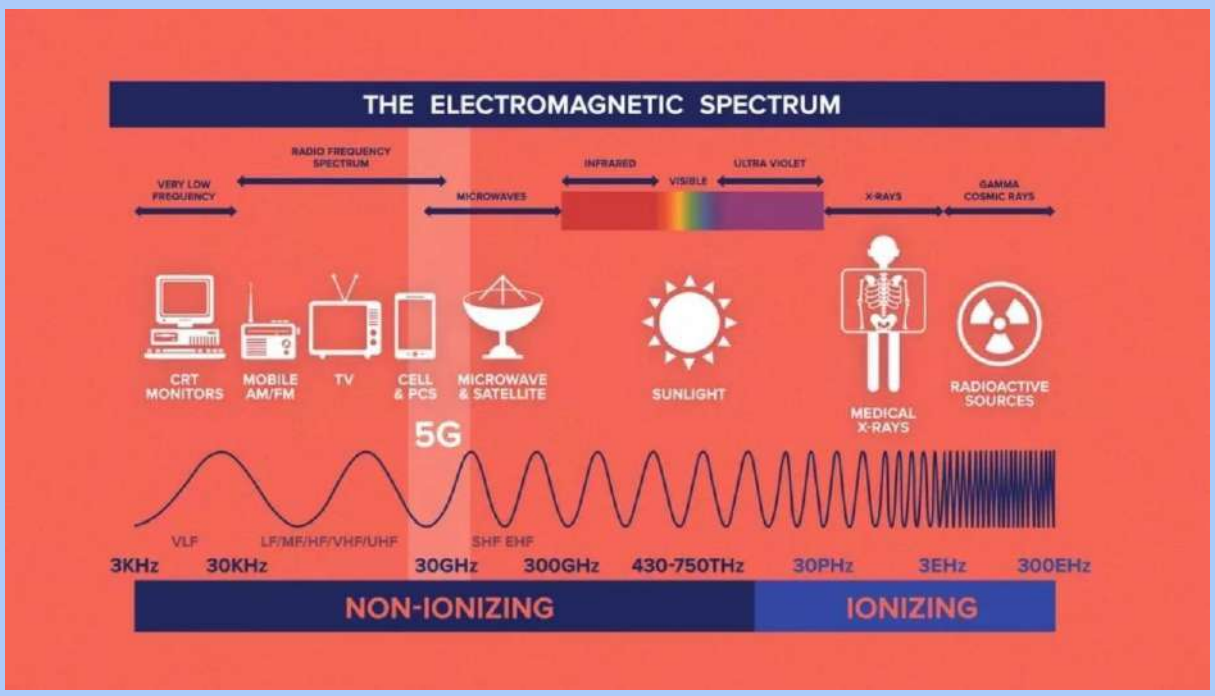


Image Source: - CNET

5G v/s 4G

5G is much better than its antecedent 4G in many ways:

- 5G is having a higher data rate than 4G i.e. (up to 20 Gbps).
- 5G has significantly lower latency than 4G i.e. (1 ms to 10 ms).
- 5G has more network capacity than 4G i.e. (100 times).
- 5G uses spectrum efficiently than 4G.
- 5G provides a more unified experience than 4G with more access to devices.

Its Impact

5G will be going to have its impact in almost each and every dimension - be it from industry, safer transportation, better communication facilities, health care facilities, new and improved experiences of Human life like instant access cloud services, like, multiplayer gaming, shopping with augmented reality or to help to ameliorating the global natural crises [with the help of AI] and promoting Sustainable Development and much – needs to be imagined.

1. Advancing Societies

5G opens new ways of improving the safety of human life.

- Vehicle to Vehicle communication that will prevent road collisions.
- Faster Reaction to Emergency needs on accident to the Hospitals.
- Interconnection of Sensors to warn against natural disasters at the earliest.
- Automated Drone could play major roles in exploring inaccessible places and in providing emergency help.
- Teleconsultation and Telesurgery of patients.

2. Transforming Industries

5G will provide the foundation for flexible, efficient, and responsible business.

- Automated Production lines could react according to supply and demand.
- It Will help by alerting against machine failure.
- Automated routing of vehicles in Logistic networks based on real-world conditions.
- Full traceability of each individual item at warehouses and ports.
- Remotely performing life-harming experiments.
- Increase of IoT in agricultural machinery to produce a better yield.

3. Elevating Human experiences

5G could possibly stage an immersive real-world experience for entertainment and Education

- Increased Real-World Experiences in VR, AR, and extended reality (XR).
- Bringing real-life sensory experiences like touch.
- More learning engagement through immersive content.
- Better connectivity in crowded spaces.
- A live-like and interactive experience for remote event spectators.

Economic Prospects

A 5G Economic study has conferred that the 5G value chain (including OEMs, operators, content creators, app developers, and consumers) could alone provide up to 22.8 million jobs and potentiality enabling up to $13.1 Trillion dollars of global economic output through goods and services by 2035. According to the GSM Association, it is also predicted that 5G networks will have more than 1.7 billion subscribers worldwide by 2025.

Progress in India

India's 5G network is all about to roll out for commercial use by 15th August of 2022 to coincide with the 75th anniversary of Independence, along with the walk-line motto of "Atmanirbhar Bharat", it's said to possess (mostly) Indian Technology – whether it's hardware or software. While the Companies like Bharti Airtel and Reliance Jio are in full swing in developing 5G network and are also conducting trials, DoT had already in May allocated 5G trial spectrum in various frequency bands to Airtel, Vodafone Idea, and Jio to develop India-use-specific network technology. 5G auctions are about to happen later this year.

Abhishek Rajput

BSc (H) Computer Science, 2nd year

Achievements

Kinshuk Vasisht	Third Year	Jung-E-Code	Blitz - Keshav Mahavidyalaya
Jaya	First Year	Web scraping	Coding blocks
Prachi Goel	First Year	Online Workshop Web scrapping	Blitz society
Agam Gupta	First Year	Google jam code	Google
Shivangi Gupta	First Year	Hack-n-slash - Webinar based on Ethical Hacking and cybersecurity	Hachersvilla
Vishal Maurya	First Year	Web Scrapping	Coding Blocks and Jatin Virmani
Deepak Bhatia	First Year	Web Scraping Workshop	Blitz Society
Shivanshi	First Year	Hack-n-slash - Webinar by HACKERSVILLA	Hachersvilla
Shivanshi	First Year	Workshop on Web Scraping	Coding Blocks


Tech Calendar
2021-22
JANUARY
International Conference on Artificial Intelligence and Applications:- 11-12 Jan
International Conference on Data Science and Management of Data- 8-10 Jan
International Conference on Artificial Intelligence and Soft Computing:-2-3 Jan
FEBRUARY
DevOps as a Service Summit:-1 Feb
Event Tech Expo:- 15 Feb
International Conference on Innovative Advancements in Engineering and Technology:-21-22 Feb
MARCH
Google Summer of Code:-March -August
29th convergence India expo- 23,24,25 march
International Conference Digital Signal Processing and its Applications (DPSA Conference):-30 Mar-1 Apr
APRIL
International Conference on Information and Communication Technology:-22-23 April
International Conference on Advancements in Computing,Communication and Technology:-22-23 Apr
MAY
International Conference on Big Data Management:-3-4 May
JUNE
Microsoft Azure Hackathon.-Jun 10-4 July
JULY
Long Challenege, Codechef, :-first Friday of every month
AUGUST
International Conference on Contemporary Computing:-5- 7August
5th International Conference on Networks and Communications:-august 21 -22
The 3rd International Conference on Science of Cyber Security :-August 13-15,
SEPTEMBER
916th International Conference on Control Automation, Robotics and Vision Engineering 23-24 sept
IEEE International Conference on Computing Power and Communication Technoligies:-24-26 Sept
International Conference on Robotics and Smart Manufacturing:-September
IOT India Expo:-22-24 sept
OCTOBER
International Conference on Computer Science and Information Technology :-15-17 Oct
Smart Home Expo, 17-18 July (3rd edition) :-5-6 Oct
International Conference on Computing Com-munication and Security:-4-6 Oct
NOVEMBER
India IOT Sympostum:-9 November
International Conference on Information and Computing Technology:-Nov 27-Nov 28
DECEMBER
Challenge, Codechef:-December
Cookoff, Codechef:-December
World Conference on Science Engineering and Technology:-06 December

Members, Department of Computer Science

Teaching Members

Prof. Priti Sehgal

Dr. (Ms.) Anjali Thukral

Dr. (Ms.) Roli Bansal

Dr. (Ms.) Bhavna Gupta

Dr. (Ms.) Richa Sharma

Dr. (Ms.) Vinita Jindal

Mr. Ravi Kumar Yadav

Ms. Richa Gupta

Ms. Maulein Pathak

Ms. Astha Goyal

Ms. Rochana Chaturvedi

Ms. Nidhi Passi

Mr. Sumit Kumar Baberwal

Dr. Sumit Kumar Agarwal

Dr. (Ms.) Namita Aggarwal

Mr. Sudhir Kumar Gupta

Ms. Jyoti Kumari

Dr. Rakesh Kumar

Mr. Pradeep Kumar

Mr. Anand

Ms. Rashmeet Kaur Chawla

Ms. Disha Garg

Non-Teaching Members

Mr. Rajesh Wadhwa

Ms. Anuradha Chadha

Mr. Akhilesh Kumar

Mr. Lovkesh Jairath

Ms. Pooja Batra

Mr. Ritesh Gupta

First Year Students (2020-2023)

ABHAY SIKERA ADEEB AHMED ADITI GUPTA ADITI BUDHIRAJA ADITYA RAJ ADITYA SHARMA AKASH RAJ AMISHA AMIT PANWAR AMRIT KAUR ANCHAL PANWAR ANIKA SAKHUJA Aniket Gupta ANIKET PANCHAL ANIRUDH ANIRUDH SRIVASTAVA ANJALI KUMARI ANSHIKA SINGH RATHORE ANSHUL BHANDARI ANUJ ANURADHA SAHU ANUSHKA GUPTA ARIHANT KULSHRESTHA CHARU SINGH CHINMAY BORAH CHITRESH MALIK DEEPAK BHATIA DEEPAK GOYAL DEEPAK KUMAR DEEPANSHU DHRUV YADAV HARSH KUMAR SINGH HARSH ARORA HARSH YADAV HARSHITA PAL HIMANGI SHARMA HIMANSHU ISHA GUPTA ISHITA RAI JAVED AKHTAR JAYA KANIKA CHANANA KAPIL KARAN SINGH MANRAL KARAN TOMAR KESHAV SAINI KUNDAN KUMAR PANDIT LAKSHAY SINGH NEGI LIPIKA GUPTA Mandeep Kalonia MANISH BISHT MANISH KUMAR MANJEET YADAV MANVENDRA SINGH CHAMPAWAT MOHD YASIR ALI MOHIT AGGARWAL MOHIT RANGA Kunal Angurala Agam Gupta Himanshu Meena Annu MD ASLAM DRISHTI GAUTAM NACHIKET NASA NAMAN NAVNEET CHAUHAN NEHA NISHANT SAROJ NITIN GUPTA PALAK SEHGAL PARITOSH MEHRA PARTH TIWARI PRACHI GOEL PRAKHER PANDEY PRATHAM ARYA PRATHAM SAHNI PRIYANSHI TIWARI PRIYANSHU PANDEY PULKIT CHOPRA RACHIT SONI RAHUL MEHRA RAHUL SADHU RAHUL VISHNOI RAJ KUMAR RITIK YADAV ROHIT SINGH ROSHNI GIRI RUPENDAR KUMAR SACHIN KUMAR SAGAR RATHORE SAHIL SHARMA SAHIL SHARMA SAMAR SIDDIQUI SAMIKSHA SINGH SANCHIT BACHASH SARTHAK AGGARWAL SAURAV RAWAT SHIVAM JHA SHIVANGI GUPTA SHIVANSHI GUPTA SHREYASHI DABRAL SHRUTI RAY SIMRAT DEOL SMRATI SHARMA SNEHA SONI SOUMYA UPADHYAY SUHAIL SUNIDHI SUNNY CHOUDHARY SUSHIL KUMAR SINGH SUYASH PRATAP SINGH TANISHA GARG TANVI TANYA BHARTI UDIT KAUSHISH VAIBHAV DUBEY VAIBHAV GOEL VAIBHAV KUMAR VAIBHAV RAAJ SINGH VANSH MAAN VANSHIKA GUPTA VASU VINAY DAGAR VISHAL MAURYA YASH GUPTA


KESHAV SAINI


DOB - 04/11/2020

Second Year Students (2019-2022)

MOHAMMAD MAROOF MOHAMMAD ASAD AHMAD AADITYA SHARMA AAKANSHA TANDON ABHISHEK BILUNG ABHISHEK RAJPUT ADARSH SHUKLA ADITYA KUMAR ADITYA RAJ TRIPATHI AKANKSHA GOEL AKASH AKSHAT RASTOGI AKSHITA GUPTA AMAN CHADHA AMIT KUMAR ANAMIKA CHOUDHARY ANAMIKA SHARMA ANKIT KUMAR ANSHUL ARYA ANUBHAV SINGH ARCHANA YADAV ASHISH ASHISH SHARMA ASHISHIT TIRU AYUSH SINGH BHAVYA MADAAN CHETNA SAHRAWAT DEEPAK YADAV DEEPTI MEENA DEVANSH DWIVEDI FARHAN AKHTAR GAGAN KUMAR SONI GARIMA BOTHRA GARIMA PANDEY GATI PAREEK GAURAV HIRA HANSH RAJ MEHTA HARSH MISHRA HARSH YADAV HARSHIT ASHOK HARSHITA GARG HITESH KHATANA INDERJEET MEENA JATIN KUMAR JATIN KUMAR KAJAL KANCHAN BORA KHIUPHUILIU KHUSHI LOKESH SINGH DHARMSHAKTU MANASVI LADIA MANAV ARORA MEGHA RAWAT NIKITA SHAMMI NISHANT PRAJAPATI NUPUR TYAGI P SRI HARIVAS CHARAN PARUL NEGI PRATEEK PREKSHA JAIN PUNEET VISHWAKARMA RADHIKA GUPTA RAJA KUMAR CHOUHAN RAJEEV RAI RASHI RAVI BHATT RISHABH KHATRI RITIK KUMAR ROHIT SAGAR YADAV SAHIL DHIMAN SAKSHI SAMEER SATYANDRA PAL SAURABH AOUTITH SAURABH KUMAR SEZAL SAUNDARYA SHIKHA SHIVAM DHURWEY SHREYA JAIN SHRISHTI GUPTA SHUBHAM BHATNAGAR SHUBHAM KUMAR SOMYA GUPTA SONU KUMAR TANU TUSHTI ADLAKHA VAISHALI WADHWA VALLABH TIWARI VANSHIKA SINGHAL VIBHOR VISHAL YASH SONI YOGITA

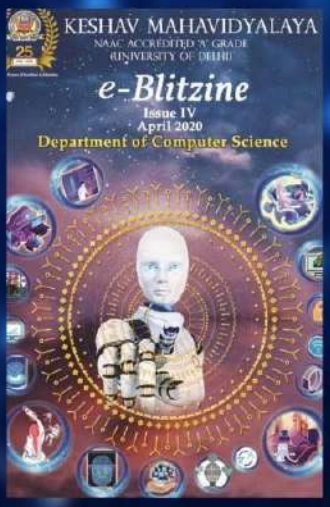
Third Year Students (2018-2021)

MANAV KUMAR BANSAL MOHD MUKHTAR AAFIYA PARVEEN AASHISH AGGARWAL AAYUSH VERMA ABHISHEK ABHISHEK KUMAR CHAURASIA ADITI GUPTA AKASH KUMAR ALPANA AMAN YADAV AMANDEEP AMRIT LAL MEENA ANKIT YADAV ANKUSH ANMOL KUMAR ANMOL SONKAR ANOOP BHARGAVA ANSHU DHIMAN ARUN KUMAR ARYAN SHOKEEN AYUSHI MITTAL BHARAT KUMAR BHUPENDER CHANDAN KUMAR SHAW DEEPAK KUMAR DEEPANSHU SINGH DHARMENDRA YADAV DHEERAJ KUMAR DIMPLE MEHTO FAISAL PATHAN GAURAV LUTHRA HARIOM SINGH KUSHWAHA HARSH HARSHIT CHAUHAN ISHA AGARWAL JATIN KAPIL KASHISH KINSHUK VASISHT MANGLAM SEN MAYANK PAL MOHD AAMIR MOHIT MOHIT CHAURASIA NEHA CHAUHAN NIKITA AGGARWAL PARAS PANT PARIKSHIT SONI PIYUSH SATI PRANAV RUSTAGI PRATEEK DIWAKER PRINCE KUSHWAHA PRIYA GARG PUNEET KUMAR RADHIKA RAJAN YADAV RAVI BANSAL RICHA SINGH RIJUL MURADIA RITIKA JINDAL RIYA ROHITH TR RUNJHUN RATAWAL SANGAM SARTHAK ARORA SAURABH KUMAR SHASHANK SINGHAL SHASHWAT JAISWAL SHIVAM SAINI SHORYA PAWAR SHUBHAM KUMAR SIDHARTH SHARMA SOURAV KUMAR SURBHI SINGH SWAYAM GUPTA SANDEEP CHATTERJEE TANAY TEENA TUSHAR SUNDRIYAL VANSHI MITTAL VASU ARNEJA VIDHI ARORA VIJAY VIKAS KUMAR VIRESH KUMAR YASH KUMAR YASH KASHYAP ZAID RAYEEN MOHD. SHAHBAZ HUSAIN RAHUL

Artwork Gallery

Kanchan Bora
B.Sc. (H) Computer Science, 1st year

2020



2019

2018

2017

Brilliant Information Technology Zealots
Computer Science Society
Keshav Mahavidyalaya
NAAC Accredited 'A' Grade
University of Delhi