VOLUME 4, ISSUE 1
FEBRUARY 2022

Mail to: csc@sfc.ac.in

SFC-BYTES
VOLUME 4, ISSUE 1

NEWS LETTER

DEPARTMENT OF COMPUTER SCIENCE
ST. FRANCIS COLLEGE FOR WOMEN, HYD—16

PRINCIPAL- DR. SR.SANDRA HORTA

CSC DEPT.

Ms. Padmasree
Ms. B. Kavitha
Dr Sr.Sujatha Yeruva
Ms. Rekha
Ms. D. Sowjenya
Ms. B. Jyothi
Ms. Prabhmeet
Ms. Shobana
Ms. Savitri
Ms. Afeefa
Ms. Navya
Ms. Khalida Tabassum
Ms. Kalpana
Ms. Renuka
Ms. Swetha
Ms. Rajeshwari
Ms. Preethi
Ms. Srivalli Sumalatha
Ms. Ummiya
Mr. Krishna Murthy
Ms. Susan
Ms. Yamuna
Ms. Maria
Mr. Nihal
Mr. Abhishek Reddy
Mr. Kiran

Vision: Inspired by the visionary dynamism of St. Bartholomea, the Foundress of the Sisters of Charity, St. Francis College has its vision “Holistic Education for the Empowerment of Women”

Mission

Therefore we strive to help students develop into

- Intellectually Competent
- Morally Upright
- Socially Committed
- Emotionally Stable
- Spiritually Inspired
- Patriotic Women citizens of India

The Department of Computer Science conducted a National Level Faculty Development Program on "CYBER SECURITY AND ETHICAL HACKING" on 31st July 2021 ,Saturday from 10.00 A.M to 4.00 P.M online through Google meet platform in Collaboration with " DATASPACE SECURITY PVT LTD, KOLKATA, INDIA".

The Department of Computer Science organized the event c@nnect 4.0 on 21st August 2021,as a part of the event a workshop on "Web Development" was conducted from 1:30pm - 4:00pm.

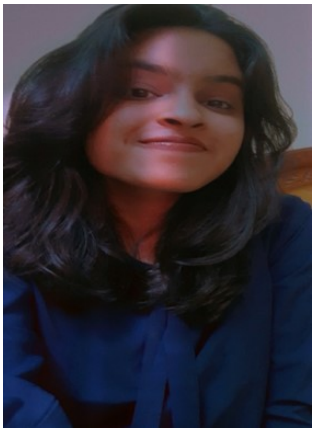
The resource person was Ms.Swapna Corporate trainer. The workshop was attended by MSc computer science and final year BSc (H) students along with computer science department faculty headed by Head of Department Ms.Padmashree Josyula.

The Department of Computer Science, conducted a workshop to all the Second year students of BVOC, BMS, BCom(cap), Bcom(Honour), M.A Mass Communication, M.Sc ComputerScience on DIGITIAL MARKETING on 04thAugust 2021, Wednesday from 1.30 A.M to 4.00 P.M online through WebEx platform.

The Department of Computer Science, conducted a webinar to all the Final year students of BSc, M.Sc Computer Science on PYTHON on 30th August 2021, Monday from 1.30 A.M to 4.00 P.M online through Web Ex platform.

The webinar aims at learning programming skill in PYTHON and providing knowledge of the benefits of PYTHON LANGUAGE.

ARTIFICIAL INTELLIGENCE AND IT'S ROLE IN INDIA'S DEVELOPMENT



Kirti Goel
Bsc 3H
121319052017

What is Artificial Intelligence?
Artificial Intelligence describes the action of machines that have historically required human intelligence. It includes technologies like machine learning, pattern recognition, big data, neural networks, self-made algorithms etc.
AI involves complex technology like entering data into the system and making it react differently depending upon the situation. Basically, it's about creating self-learning patterns where the machine can give answers to the questions which cannot be answered by human mind. It is often confused with machine learning. AI is a broader concept with a bunch of technologies that include machine learning and other technologies like language processing, neuron networks etc.

It performs frequent high volume computerized tasks in a reliable way. Facebook's list of suggested friends, a pop-up page telling about an upcoming sale while you're browsing through the internet, are the works of artificial intelligence. According to Global AI Report 2019, India stood at the ninth position in terms of the number of AI specialists working in this field. CBSE has AI as an elective subject for its ninth classes.
IIT Hyderabad has launched a B tech program in AI becoming the first Indian institution to do so.
IIIT Hyderabad also introduced popular executive programs on AI such as machine learning, blockchain and distributed ledger technologies.
Corporates have also started collaborating with academia on AI. Example: IBM'S Blue Project. It is an estimation that AI will add 957 billion dollars to India's GDP by 2035 which will boost India's annual growth by 1.3%.Defense forces in India are now also using AI in their defense measures.

Benefits of AI in different sectors:

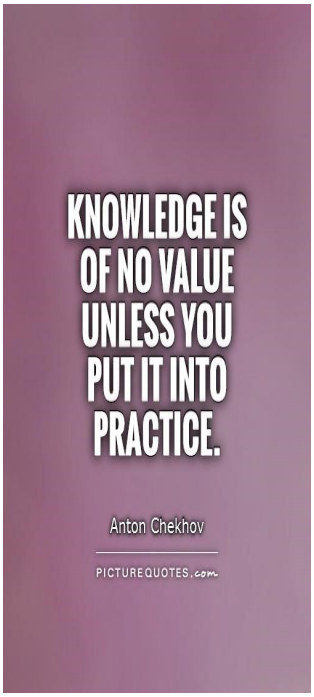
In Policy Making :AI based products open a new window of opportunity to do predictive policy in India. We can predict the pattern of crime, analyze CCTV footages in an efficient way, digitize all civil and criminal records, storing biometrics etc.

Gaming sector: AI has a significant role in games like chess, poker etc, where the machine can come up with innumerable number of possibilities according to heuristic rule.

Space sector: Robots can be fed with information and can be sent to explore space. These machines are more resistant and have a higher ability sustain in hostile atmospheres.

Mining sector: AI can be put in use in mining and other fuel exploration processes. Also, they can be sent to explore the greater depths of ocean water thus overcoming human limitations.

Defense sector: It would truly aid the defense forces in areas such as decision support, data analysis, maintenance, situational awareness, data extraction, security etc. Thes tools will assist defense personnel in better operations, maintenance and support.



CLOUD COMPUTING

Aanchal Dugar

BSc MSCS 3D

121319044001

Since the start of commerce and industry, we have needed increasingly better ways to store data and access it whenever required. The need for storage that can store and process significant amounts of data has become a priority. This is where Cloud Computing comes to play.

Cloud computing is a network of remote servers hosted on the internet for storing and retrieving data. It is the foundation for a vast number of services. A fundamental concept behind cloud computing is that the location of the service, and other details such as the hardware or operating system on which it is running, are irrelevant to the user. It is with this in mind that the metaphor of the cloud was borrowed from old telecoms network schematics.

Cloud computing is a better way to run your business, instead of running apps yourself they run on a shared data center. You just plug in, like a utility, this makes it fast to get started and cost-less. Cloud computing offers your business many benefits. It allows you to set up what is essentially a virtual office to give you the flexibility of connecting to your business anytime, anywhere. Gmail or the cloud back-up of photos, Netflix relies on cloud computing services to run its streaming services and other business systems too. Companies that offer all these services are called cloud providers. They provide the ability to store and retrieve data and run applications, managing them through configuration portals. Two of the best cloud providers available today are Amazon Web Services and Microsoft Azure.

Dream, Dream , Dream because dream transforms into thoughts and thoughts result in action

- A.P.J Abdul Kalam

Y2K BUG

AKKIRAJU CHAKRITHA

BSC MSCS (3D)

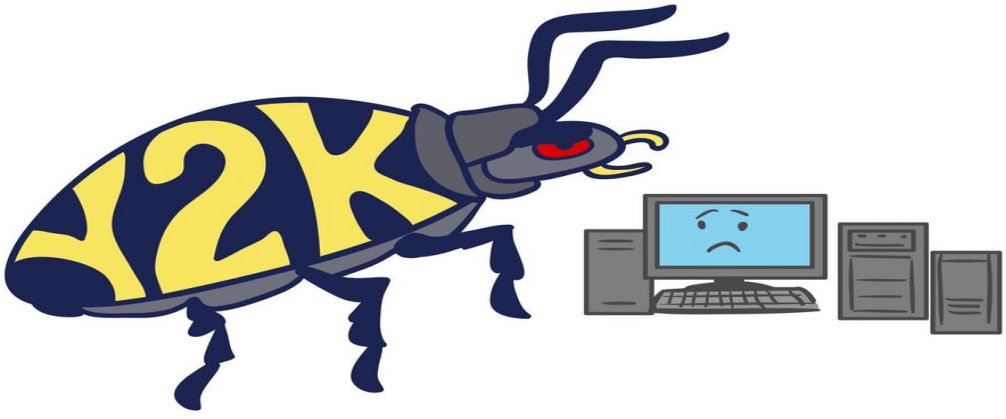
121319044002

Generation Z is no stranger to the word Computers or operating systems as the whole World revolves around these immense networking systems but is Gen z aware of the Y2K bug ? Technology is something that always advances towards it's betterment and enhancement with time and knowledge.The question arises,is it always a smooth sail ? The answer is no.Any advancement is always challenged by many factors revolving the concerned technology and so was the case with the computers in the 20th Century.

Around 1980s,a concern was brought to light which addressed the issue of systems not working properly or causing problems in working as we entered into the 21st Century.Back in the 1960s and so on ,the storage aspect for a computer was extremely expensive and so the year part of the date was stored in a 2 digit format (yy),where the 2 digits stood for the last 2 digits of the year. So if it was 1983 ,the computer would show just 83.If it is 1999,it would show 99 and for 2000 it would have shown 00.How would the computer then comprehend that as either 1900 or 2000 was the alarming question.This was regarded as the Y2K (Year 2000) bug.The World was already connected to the systems in a wide range of applications.The banking systems would have taken a huge blow if the problem wasn't solved as the records could have all disappeared . The engineers then worked day and night to set a solution to this.The best was to expand the date format to a 4 digit format.The Indian human resource was the most useful at this point due to which the IT sector boomed during this period.Many companies raced to fix the bug and provided Y2K compliant programs for aid.

Many countries like the USA and UK came together and fixed this bug. Some countries like Russia did not acknowledge this bug as they thought no major loss would occur.

The problem was finally solved and had a very little overall effect on the systems in fewer places around the world.The World didn't stop,the advancements didn't stop and new innovations and inventions in the field of technology didn't stop and are efficiently enhancing everyday. Yet there are problems that can arise in the near future, that ofcourse is inevitable but with the current skilled human force and better equipment and technology, the general public can sure be assured of the safety.



Success is a vehicle which moves on a wheel named hard work, But the journey is impossible without the fuel named self confidence. - A.P.J Abdul Kalam

THE SPECTRUM OF HACKING:

M SHARANYA

BSc MSCs 3D

121319044036

We often hear news about security breaches in multinational companies or n number of accounts getting hacked on a social media platform. It isn't an unknown fact that these security breaches include the hacking of millions of user accounts. We tend to imagine these hackers in a long black coat, a black hat, and an evil smirk surrounded by half a dozen of devices, all of these running codes in various programming languages, and the hackers putting their fast fingers to use. This is how most of the time hackers are portrayed in movies and dramas. It is based on these concepts from western movies, that the hackers with malicious intentions are termed 'Black Hats' or 'black hat hackers'. These hackers exploit the vulnerabilities and intrude the software and hardware of a company which is usually with ill intentions like defamation, personal recognition, or financial gain.

However, did you know that this could be done legally? Pretty much a concept from the western movies where the heroes wear a white hat, these ethical hackers are called 'White Hats' or 'white hat hackers'. These hackers abide by the law to test the security systems of the organization and perform assessments with permission from the officials of the organization. Sometimes, white hats are former black hats, who gain a better understanding of the law over the years. The white hats use methodologies like penetration testing, duplicating strategies and social engineering to assess the degree of security of a company's software, hardware, network, or the company itself to an ill-intentioned individual. They portray the role of a malicious hacker, perform security breaches-virtually and sometimes physically, disclose the company on how vulnerable the security of the particular software or application is, and provide suggestions on how the security can be improved. On the spectrum of black and white, we also have the 'Grey Hats', the third kind of hacker, who hacks with good intentions but not completely abiding by the law or in other terms, without the permission of the company heads. The grey-hats may hack the company's security systems for financial gain from the owner of the company but do not cause any damage to the software or network. These hackers may disclose sensitive information of the company based on their will and judgement of right and wrong.

So, what's your favorite kind of hat?

The greatest sin is to think that you are weak

- Swami Vivekananda

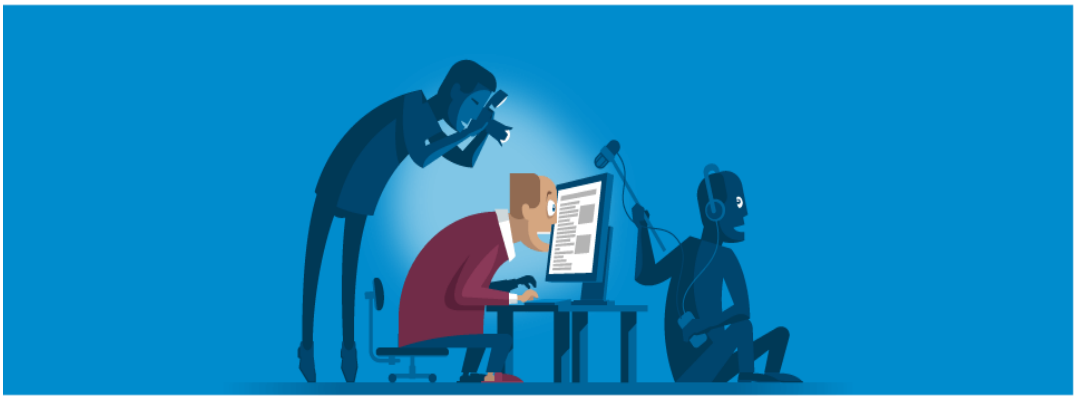
PRIVACY: A MYTH IN THE MODERN WORLD

Aravinda Chenji

BSc 3D

121319044007

Ever felt someone is constantly spying on you? Or let me put it this way , How would you feel if I say that there is someone who is constantly spying on you, listening to your private conversations?. And what if I tell you that it's all true? We all know that privacy in the modern world is like a myth. Daily there are many researches being done on this. But some way or the other you're data is being exposed to the outside world as most of our work these days is performed using devices irrespective of the field. Do you ever get ads on your social media platforms of things that you've never searched for and feels like you're being spied? In real time this is as creepy as it sounds. This theory has been making rounds from a lot of time. There are many interpretations and explanations on this. One school of thought says that there is a software named "Alphonso" which is a start-up company that collects the users data in any way possible. They leave no stone unturned and go up to any extent to know what the user is consuming. This has been found in many apps from play store and also some apps from apple's app store. It's said that this software is mostly downloaded in your devices through gaming platforms where they have access to your microphone. While this is only one such platform that has been named publicly, it is believed that there are many such software's that reassemble this one. This threat to user's privacy doesn't seem to go way soon but will only multiply. The only thing that we users can do is to go through the app description thoroughly and check if you find suspicious soft ware's like this. The other school thought says that there is nothing like this and that collecting information about the consumers isn't a big deal anymore. This is because we already provide so much data about ourselves to the apps that they don't need to use such software's. The internet has a huge database and stores all the data. For instance, if you are at a place for a long time, then it tracks everything and everyone around you in the same location and also the same network. It tracks the activities of you and the ones around you and accordingly makes changes to your web interface. Even though you don't use something or didn't talk about it you'll still get those irrelevant ad's because someone around you uses it. Summing up it's better to say that there is no way out of this in the near future but will only grow. All that we consume in the internet world is not what we want to, but what the application wants to show you based on its analysis and will keep on reconstructing the interface based on the actions being performed by people on the same network or around you.



Shoot to the moon even if you miss, You will land among the stars

- Les Brown

CLOUD DATA WAREHOUSING

Naaz khan

B.Sc 3-D (MSCS)

121319044040

Let's debunk some of the myths regarding cloud data warehousing.

Most of the businesses had commenced their journeys of cloud migration. A company - predicted that the market of cloud-migration services increased, resulting in a compound annual growth rate. However, despite the growth, organizations seem to be sceptical regarding cloud data storage and warehousing. A data warehouse is referred to as a repository for all of the data that can be accessed and evaluated to run a business that a company consolidates from different sources - Basically, Cloud data warehouses are essential to keep up with the growing plethora of data sources .It do has benefits of 'Data Quality and Consistency' - An integrated database of historical data, that helps in enhancing the work efficiency and implementation of a high data amount that eventually decreases the stress on the system of production offering more precise business insights. The second 'Drives Revenue' - What turns out to be extremely important here is that these revenue gains better on themselves over a time and improved decisions make the business stronger. With the 'Timely Access to Data' - the use of analysis tools and query in a data warehouse lets you spend more time while performing data analysis and acquiring data.

Thereafter 'Saves Time' – The Business users can instantly access critical and sensitive data from varying sources - all at one place - they can swiftly make informed decisions and hereby, will not have to wait until IT comes around to develop reports. In the final analysis with 'Enhanced Productivity' - By altering data into meaningful information, a data warehouse lets business managers to execute more accurate, consistent and considerable analysis. With the evenly benefits, as one contrives the Myths that surmise are that: 'You will not have control on your files.' Fact: A lot of business owners have a fear that they will end up losing control on files when moving to cloud data warehousing. In case you are also dealing with the same issues, consider moving all of your files to the cloud as moving your items to a physical storage unit. Even if you don't have physical access to the content, you still own them, right? With cloud data warehousing, you will simply be moving the files' location and enhancing their security. While the files will be yours, they will be safeguarded by somebody else. 'The cloud data warehousing is not secured.'

Fact: This is another common and prevalent data warehousing myth. However, upon exploring the history of security breaches, a huge number of them originated in the on-premise data centers. Accordingly, human error has turned out to be the primary reason behind data leaks, letting the companies know that they need to enhance the internal sharing protocols of the data. Switching to a secured version of a data storage unit can be effective and simple for companies to avert data leaks. Thus, choosing the right cloud data warehousing is a critical decision.

DA VINCI® SURGICAL ROBOT: A MULTI-ARMED WONDERBAR

M.Gloria

BSC 3D

121319044038

What is that one thing patients are scared of while going through a surgery? Most would say, it is the pain associated with incisions that gives them the biggest scare. The *da Vinci* Surgical System is the world's first FDA-approved robotic surgical procedure invented by California-based Intuitive Surgical, reduces surgical errors, make surgery less invasive and reduces the pain significantly for thousands of patients. The three parts of da Vinci are Surgical Console, the Patient Cart and the Vision Cart. The da Vinci system is operated by the surgeon through a surgical console which controls the robot arm. Instruments which are used in the surgery are attached to the patient cart and the patient cart is placed alongside the bed of the patient. After a small surgical incision is made, the surgeon inserts long, delicate instruments into area to be operated on. The tools include an endoscopic camera with magnification, lighting and temperature control on a control arm which allows the surgeon to see inside of the body. The camera along with other instruments such as a scalpel are manipulated through small hand movements by the surgeon with the help of master controllers at the surgical console. We can also view the video of the surgery on the touchscreen of vision cart. Pros of da Vinci Robotic Surgery for patient includes more precise surgery, significantly less pain, less risk of infection and blood loss, earlier discharge from the hospital, less scarring and shorter recovery ,etc. Pros of da Vinci Robotic Surgery for Surgeon includes an enhanced visual field, superior dexterity, access to hard-to-reach places ,etc. Cons of da Vinci Robotic Surgery are device malfunction, time lag between surgeons commands and action of robot could harm the patient, possible burns, cuts or tears to surrounding organs,

costlier (2.5 million euros approximately 0.2 billion rupees),doctor lacking in experience ,etc. For proper and well-done da Vinci surgeries, it is required high-quality and well-maintained technological equipment (robots, systems and sensors), further optimization of visual display, almost zero latency time, and haptic feedback technology. Technologies such as WSN, IoT, and 5G are necessary for the implementation of the da Vinci

system. Therefore technology is also helping doctors to perform complex surgeries and thus saving human lives.

Success consists of going from failure to failure without loss of enthusiasm.

- Winston Churchill

CYBER SECURITY

M. Sravya

BSc 3D MSCS

121319044037

Cyber Security refers to the method of protecting programs, networks,
Computer systems and their components from unauthorized digital access and attacks. It consists of a set of techniques that are used to protect the integrity of networks. Cyber Security is implemented to prevent cyberattacks.

The person who carries cyberattacks is called a hacker. We can prevent cyberattacks with the help of cybersecurity. Cyber Security involves techniques that help in securing various digital components, networks, data, and computer systems from unauthorized digital access, there are multiple ways to implement cybersecurity depending on the kind of network we are connected to.

The various cyberattacks one could face are

Malware Attack: It is a common cyberattack where malicious software executes unauthorized actions on the victim's system.

Phishing Attack: Here the hacker usually sends fraudulent emails which appear to be coming from a legitimate source this is done to install malware or to steal sensitive data like credit card information and login credentials.

Man-in-the-middle Attack: Here the hacker gains the access to the information path between the victim's device and the website server the hacker's computer takes over the IP address.

Few cybersecurity practices to prevent cyber-attacks are:

By installing a firewall, it is a virtual wall between our computer and the internet firewalls filter the incoming and outgoing traffic from our device to safeguard our network also by implementing honey pots known as dummy computer systems which attract attackers these systems are made to look vulnerable in order to deceive attackers and this helps to defend the real system. Cyber Attacks are not just confined to individuals but also to public and private organizations and results in colossal losses, motives of such attacks are to interfere with crucial data to monetary gains.

Cyber Attacks that companies are subjected to are:

- Advanced Persistent Threat(APT): In this form of attacks hackers gain access to networks for a prolonged period in order to continuously gain confidential information.
- Denial of Service Attach: Here networks are flooded with traffic which in turn leaves legitimate service requests unattended, a variant of this is the Distributed

Denial of Service when multiple systems are used to launch the attack.

SQL Injection Attack: When a hacker manipulates a standard SQL query in a database-driven website they can view, edit and delete tables from databases.

Wisdom is not a product of education; it is the result of a lifetime of learning

- Albert Einstein

GETTING COMPUTERS TO WORK FOR YOU

Ananya Pandey

BSc 3D

121319044005

Automation is the process of replacing human effort with a program that runs automatically or independently. Although the seeds of automation had been sown very early on by the Analytical Engine, the term was first coined in the automobile industry, by Ford Motors Company in 1946 to improve their manufacturing, and slowly the rest followed. Today, automation is not just applied to creating machines and manufacturing, but in various industries ranging from Information Technology (IT) to Banking and Sales.

Reducing human effort is the prime goal of automation. Paying bills online, self-driving cars, auto-filling online forms, your automatic washing machine, even baking a pizza in your microwave are some automated tasks you must be familiar with. Speaking of other benefits, this powerful tool can save time, reduce human errors, and most importantly boost consistency. Say, you want to send personalized emails in bulk, rather than inputting all the custom information manually you can create macros and scripts to automate it. Sure, Google has made it easier by using mail merge with Google Sheets but writing the code yourself can facilitate other conditions and operations of your choice to be applied in the mail merge. This way, simple and primitive tasks can be automated, making you more efficient by letting computers do the boring jobs for you. Often confused with Artificial Intelligence (AI), the two technologies are elementally different. AI is based on learning and perception techniques combined with auto feedback control from human data. It is used for dynamic or non-repetitive tasks whereas Automation is used to perform repetitive tasks with some to zero human interference. In fact, AI is a specialized form of automation. A good deal of technologies have evolved from automation: Robotics and AI are the most specialized branches of Automation.

The applications of Automation are classified into multiple categories. The above-mentioned applications are a part of home, office and network automation which use a combination of hardware and software technologies to manage, digitise, store, process, and communicate routine tasks. Data processing, Website testing and software Quality Assurance (QA) testing are also its major applications. A plethora of programming languages can be used to write automation scripts. However, JavaScript and Python are the current coders' favourite. They are even used by large websites like YouTube, Instagram and Wikipedia. Other demanding options include Bash, PowerShell, C#, PHP, and Java. With the present and future being all about growth and expansion of technology one can learn these languages to improve their skill set and easily automate tasks. However, all benefits considered, automation is not the solution to every situation. Some tasks are just not suited for automation, especially the ones that require a degree of creativity and flexibility. Tasks like cooking, teaching, and cutting hair for instance cannot be performed efficiently by robots when compared to us humans doing the same. So, sure automation is special and important but you are no less.

Our greatest weakness lies in giving up. The most certain way to success is always to try just one more time.

- Thomas Edison

VIRTUAL REALITY AND EDUCATION

Bhavana Chodavarapu

B.Sc. - 3D (MSCS)

121319044016

We all have experienced general classroom learning where we interact with our teachers and learn via lengthy textbook paragraphs verbally explained. But imagine learning interactive content which enables us to view the entire scene and takes us to another world where we not only learn the lesson but can feel it just by sitting on your bench in your classroom. For example, learning newton's gravitation law verbally is a simple thing but learning while experiencing it is completely different thing. You just get lost into 1600s witnessing the fall of apple on Newton's head. Isn't it fascinating? But is this kind of learning possible? Of course, yes.

This can be made possible using Virtual Reality. Most of the people might be familiar with this word but many of them do not know that this fascinating technology can make our learning better. Virtual reality allows students to experience destinations across the world without leaving the classroom. VR can improve education by providing students with memorable experiences that would otherwise not possible and this can all take place in the classroom itself. It can also be easily monitored by teachers.

These virtual experiences can engage students in their learning and take them to the world of education where they not only learn the content but can easily memorize by experiencing it. VR provides an opportunity to students where they can learn through experience, in contrast to the traditional reading and writing. VR also provides realistic travelling experiences to students. It can also improve creativity and their imagination is allowed to flourish. Students try to interact with each other in this virtual experience and would be eager to share their thoughts and experiences. Virtual reality can make our learning interesting without ever having to leave the classroom.

ARTIFICIAL INTELLIGENCE

Penumuchu Rohiny

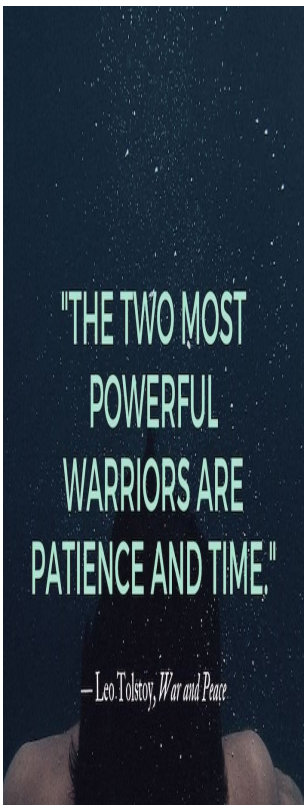
BSC MPCS 2B

121320043027

Necessity is the mother of invention. Difficulties faced by man made him to invent tech equipment . Evolution of technology changed from making things easy to living a luxurious tech life. We are living in a world driven by technology. The advancement of technology has played an important role in the development of human civilization. The electronic appliances, gadgets, faster modes of transport have added to the comfort factor in our lives. It has helped in improving the productivity of an individual. Technology has brought a revolution in many operational fields. It has undoubtedly made a very important contribution to the progress that mankind has made over the years. One such important contribution is made by **Artificial Intelligence**.

Imagine a day spent where you and your family members were served by a machine which organized all things as you like . I t makes your day easier ,doesn't it. These are the products of Artificial Intelligence. Artificial intelligence, or AI, is a field of computer science that attempts to simulate characteristics of human intelligence or senses. Man-made reasoning is viewed as the most progressive type of software engineering, and it makes a brain where the PC cerebrum can think like people. In the year **1956**, American computer scientist **John McCarthy** organised the **Dartmouth Conference**, at which the term 'Artificial Intelligence' was first adopted. From then on, the world discovered the ideas of the ability of machines to look at social problems using knowledge data and competition.AI experienced a resurgence following concurrent advances in computer power and large amounts of data and theoretical understanding in the 21st century.

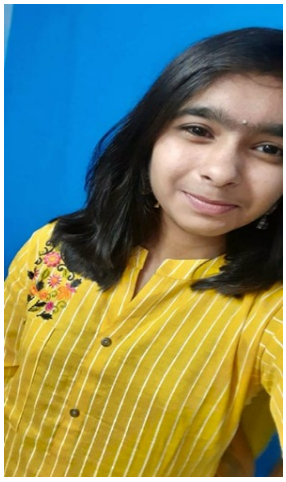
From **Apple Siri** to self driving cars, AI is progressing rapidly. Artificial Intelligence is built using complex and math functions. AI is being used in cars, automobiles, social media feeds, video games, banking, surveillance, and many other aspects of our daily life. In Artificial Intelligence, machines have the same characteristics as human, in fact they act more advanced , accurate and fast than humans. Machines which do generalized learning, reasoning and problem solving are called artificially intelligent. In short AI provides machine with a capability to adapt, reason, and provide solutions. AI is categorized into three types such as Artificial Narrow Intelligence(ANI), Artificial General Intelligence(AGI) and Artificial Super Intelligence(ASI). **Artificial Narrow Intelligence** also known as weak AI involves applying AI only to specific tasks. Alexa, and also the social humanoid robot Sophia are examples of weak AI.



Artificial General Intelligence also known as strong AI involves machines that possess the ability to perform any intellectual task that a human being can. But they are not yet capable of thinking and reasoning like a human.

Artificial Super Intelligence (ASI) is a term referring to the time when the capability of computer will surpass humans. ASI IS presently seen as hypothetical situation as depicted in movies and science fiction books where machines will take over the world . However tech masters like **Elon Musk** and **Stephen Hawking** believe that ASI will take over the Earth by the year 2040.

5G NETWORK



Pampati Sreya

B.Sc 3D MSCS

121319044044

5G, the fifth-generation mobile network is a new global wireless standard after 1G, 2G, 3G and 4G networks. 5G brings three new things to the table: wider channels (speed), lower latency (responsiveness) and more bandwidth (the ability to connect *a lot more* devices at once). 5G key features are:

(i) Fast: Up to 100 times faster data rates (10Gbps): instant access to services and applications.

(ii) Available: Users will experience less network downtime due to the combined use of high, mid, and low frequencies.

(iii) Secure: The most secure mobile network ever, with security built-in as part of the standardization process to ensure higher reliability and availability.

(iv) Reliable: Network latency (the time it takes for data to travel between two points) lowered by a factor of five; making it crucial to manufacturing, automotive, energy and utilities, healthcare.

(v) Capable: The ability to handle connections and mobile data volumes will be expanded by a factor of 1,000.

How does 5G work? Whereas 2G, 3G and 4G were primarily radio focused, 5G represents an entire system with radio, a telecom core, and operation systems all transformed to support new requirements. This process will involve new radio technologies, a virtualized cloud-based core, and end to end management to facilitate automation and new concepts like network slicing. With the addition of 5G transmitters, the total exposure to radio waves will remain very low relative to the international exposure limits. There maybe a small localized increase when 5G is added to an existing site or when coverage is provided in a new area, however, all mobile technologies, including 5G, are designed to minimize power and with-it exposure to radio waves.

BLOCKCHAIN TECHNOLOGY

R. Sai Keerthana

BSc MSCs

121319044047

Whether it's bringing transparency to supply chain or reducing the risk of financial transactions, or defining ownership and NFT's, Block chain technology has been a phenomenal technological revolution, right at its installation phase. It played a key role in the rapidly evolving paradigm of newer technologies, that majorly relies on automation and aims to merge physical with the digital.

It's a digital ledger of financial transactions, that's distributed across the network system, where transactions are recorded with immutable cryptographic signature. It enables the users to track orders, payments, production, and much more.

Smart contracts, a set of rules, helps to speed up the transactions.

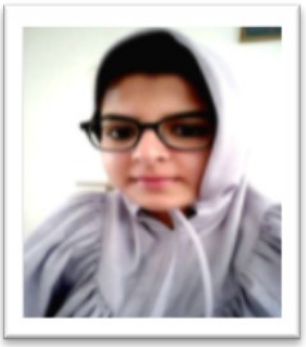
This decentralized, peer to peer network, is one of its kind that rules out the vulnerability of cyberattacks, ensuring trust and security among the users as validated transactions are recorded permanently, hence can't be deleted. Besides, confidential data is shared to those who have a specifically granted access.

Whenever a transaction occurs, it is recorded as a block of data. As and when the ownership of asset is changed, a new block is added before and after the existing one. The date, time, sequence is recorded on a regular basis of a transaction and the link between the blocks is secured through firewalls and necessary software.

Block chain technology, contributes prolifically to sustainable development, through national identification, enhancing property registrations, providing food coupons in refugee camps and so on. So far, block chain technology is being used in a limited sense only, due to speculations with regards to profits on crypto based assets.

Insufficient information, and inadequate knowledge had welcomed a lot of frenzied investments earlier, but experts opine that this would pave way to an array of opportunities, and diversify the national economies thereby maximizing gains.

WHY ALGORITHMS SHAPE WHAT WE SEE ONLINE



Fatema Sugra

121320033009

MSC Computer Science

Algorithms are at the core of decision-making process for all the social media platforms such as Facebook, Instagram, YouTube, Google etc which determines the content that people see and engage with online. The algorithm is designed to maximize user engagement by emphasizing all the content that is most appealing to the user. This filtering is based on user interaction with these platforms and their social media accounts. The platforms collect this data continually and use it to help predict users' behavioral patterns and decision-making processes

In Today's world, more people recognize how this algorithm works in social media and commercial networks and may think twice while clicking on any advertisement .Some users notice their feeds are filled up with content that the platform thinks is important for the user while limiting posts from others .The ability of algorithms to make decisions and the data about people they use to make these decisions raises issues for privacy.

To conclude, the aim is not to abandon social media and other commercial networks instead my aim is to increase awareness and understand that the information the we inhabit on a daily basis can be used in our advantage and can be used more efficiently .

INDIAN NAVY SIGNS PACT WITH BHARAT ELECTRONICS LIMITEDTO DEVELOP EMERGING TECHNOLOGIES

The broad charter of the Technology Incubation Forum (TIF) includes technology development in the domain of weapons andsensors, information technology and emerging technologies such as artificial intelligence and machine learning, quantum computing, autonomous platforms/robotics, image processing and cognitive radio. The Indian Navy inked a pact with premier DPSU Bharat Electronics Limited to develop emerging technologies related to artificial intelligence, quantum computing and robotics. The Memorandum of Understanding (MoU) provides for the setting up of a technology incubation forum to jointly work on developing new technologies. The agreement was signed at Integrated Headquarters, Ministry of Defense (Navy) in New Delhi. “The TIF reflects the joint vision of the Indian Navy and Bharat Electronics Limited towards innovative and creative thinking and fostering the developmentof emerging technologies”, said the defense minister, Shri Rajnath Singh. The TIF will spearhead the mission-made development of deployable products under the government’s “Aatmanirbhar Bharat" (self-reliant India) initiative with the involvement of industry, academia and start-ups. General Bipin Rawat, the Chief of Defense staff stressed upon the need to focus on training hard and remain vigilant to thwart the nefarious designs of Indian Army's adversaries and also he emphasized that all ranks must keep themselves abreast with the latest trends in information technology, emerging cyberthreats and counter measures.

Indian Navy and Bharat Electronics Limited sign an MoU for creation of a joint Technology IncubationForum (TIF), at Integrated Headquarters, Ministry of Defence (Navy) in New Delhi

Rajamoori Sudha Sree

121319044048

BSc 3D

Education is the most powerful weapon which you can use to change the world.

-Nelson Mandela.

ADVANCING ETHICAL THINKING IN COMPUTING

Sumaiya mehek

BSC 3D (MSCs)

121319044056

New case studies series examines social, ethical, and policy challenges of present-day computing activities. A case studies series from the social and ethical responsibilities of computing programs explores into a range of topics, from social and ethical implications of computing technologies and the racial inequalities that can arise from installing Facial recognition technology in uncontrolled condition, real world settings to the leaning of risk prediction algorithms in the criminal justice system and modification of data collection. Traditional computer scientists and engineers are trained to develop solutions for specific needs, but aren't always trained to consider their broader implications. Each new technology generation, and particularly the rise of artificial intelligence, leads to new kinds of systems, new ways of creating tools, and new forms of data, for which norms, rules, and laws frequently have yet to catch up. The kind of impact that such innovations have in the world has often not been apparent until many years later. As part of the efforts in Social and Ethical Responsibilities of Computing (SERC); a new case studies series examines social, ethical, and policy challenges of present-day efforts in computing with the aim of facilitating the development of responsible "habits of mind and action" for those who create and install computing technologies. Advances in computing have undeniably changed much of how we live and work. Understanding and absorbing broader social context is becoming ever more crucial. This case study series is designed to be a basis for discussions in the classroom and beyond, regarding social, ethical, economic, and other implications so that students and researchers can pursue the development of technology across domains in a holistic manner that address these important issues. In managing the series, they interpret 'social and ethical responsibilities of computing' broadly to focus on perspectives of people who are affected by various technologies, as well as focus on perspectives of designers and engineers. The cases are not limited to a particular format and can take shape in various forms from a magazine like feature article or Socratic dialogues to choose your own adventure stories or role-playing games grounded in experimental research. Each case study is brief, but includes accompanying notes and references to facilitate more in-depth exploration of a topic. Multimedia projects will also be considered. The main goal is to present important material based on original research in engaging ways to wide amateur audiences. Some cases focus on a particular technology, or on trends across platforms, while others assess social, historical, philosophical, legal, and cultural facets that are relevant for thinking critically about current efforts in computing and data sciences. Most of us agree that we want computing to work for social good, but which good? Whose good? Whose needs and values and worldviews are prioritized and whose are overlooked? These case studies help us understand the unequal histories that shape our technological systems as well as study their different outcomes and effects. These are an exciting step towards holistic, sociotechnical thinking and making.

It always seems impossible until it is done. - Nelson Mandela.

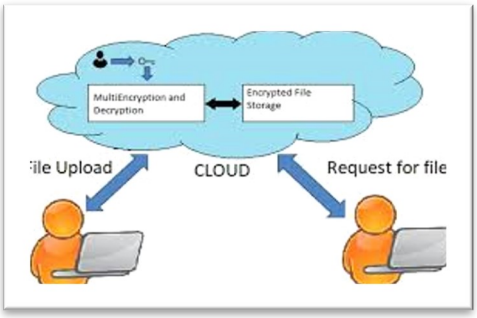
CLOUD CRYPTOGRAPHY

Priyanka Thakur

MSC-2 Computer Science

121320033030

Cloud Cryptography is the encryption for safeguarding the data which is stored within the cloud. It adds a stronger layer of protection to secure the data within Cloud Cryptography to avoid being breached, hacked or affected by the malware. Cloud Cryptography secures sensitive data without delaying in the delivery of the information. Cloud Cryptography is based on the encryption in which computer algorithm is used for converting scrambled text into cipher-text, it helps for converting plain text by using encryption key which decodes the text in series of bits. Cloud Cryptography has the same level of security towards the clouds services for securing the data transmission.



Cloud cryptography are used for Cloud security by the following ways: Symmetric key cryptography Algorithm which gives authentication and authorization of data to be encrypted with a single unique key which cannot be decrypted by another key, Asymmetric key Cryptography Algorithm is used to separate two different keys for the encryption and decryption of data in order to protect the data on the cloud, Hashing is used for indexing and recovering the items in a database as it utilizes to separate keys for encrypting and decrypting a message.

COULD COMPUTING

ADDAGUDURU SATHWIKA

BSC 2H(Software Engineering)

121320052003

Cloud computing is a creation of a virtual (rather than actual) version of something, such as a server, a desktop etc that allows us to create, customize applications cloud computing have many advantages they are improved collaboration,

Excellent accessibility, low maintain cost, mobility. With help of improved collaboration group of people quickly and easily share information. Through shared storage. And cloud computing allows users to quickly and easily to access store information anywhere in the world we can easily access all Cloud data via mobile.

CLOUD computing has low cost maintenance for organizations.

CLOUD computing also has disadvantages, they are. Internet connectivity we can access data through the cloud by using internet connection. If internet connection is not good users cannot access the data. Security; cloud provides best security quality to store important information but while sending the data. Using cloud there is a chance that information of organization can be hacked by hackers. Cloud computing is the way of the future. Cloud computing has potential to have a great impact on world cloud computing has many benefits provides to users and business.

ROBOTICS

Jamalpuri Sai Sreeja

2B(BSC MPCS Sem 3)

121320043012

Robotics is a branch of technology dealing with design, construction, and operation of robots. Robotics is one of the upcoming computer technologies. First robot was made by George C. Devol in early 1950s.Robot is a machine which does many human like activities. Sophia is one of the most popular robots. Sophia is one of the social humanoid robots developed by Hanson Robotics which is a Hong Kong based company. It is the first robot to get citizenship. She has cameras within eyes combined with computer algorithms which allow her to see. She can give speech and have conversation using a natural language subsystem. She can give 60 facial expressions and she can walk with upgraded functional legs. Till now I told about Robotics and gave bit information about one robot. But my question is “Will the robot be our friend or enemy?” Everyone have their opinion first let’s see the pros of robots. Robots can work for 24 hours continuously. They can finish task faster than humans. They are reliable. They can perform certain tasks that humans can’t by providing some functionality. They perform work with high rate of accuracy. Even we hotel or restaurant where robots serve customer, people go there to see robots. There may be a time where robot will be our family member maybe. But one question arises “Are robots harmful to us?” So now let’s see cons of robots. Robots have no emotion they may not know the value of life and affection. There are many movies which tell how robots are harmful. There are some scary answers given by robots during interview I watched few in YouTube. One of the robot answered that she wants to rule the world and another said that she want to keep humans in zoo. These answers really made me think that robots are harmful. I think there should be a deactivator so that whenever we feel the robot is crossing their limit we should immediately switch it off. There was a game “My talking Angela” where parents found that laughing voice and her eyes were scary, there was controversy not only this but there many. As the technology is increasing we should be more careful. I am not saying it’s bad but I just telling that we should be more careful and cautions with it. Robots may also lead decrease in human job which will eventually lead to unemployment. A small malfunction in robot may lead to large destruction. Robots are not simple, it is complex and expensive to install and run. Robots have both pros and cons. Some are scared of robots whereas some are interested. Everyone has their opinion regarding this technology I think we should have friendly robot like one of our favorite cartoon. I hope mostly those who are reading this article have watched “Doraemon” am I right? We should also develop such a friendly robot with emotion which can help us in difficult times, a world where robots and humans are friends.

Live as if you were to die tomorrow. Learn as if you were to live forever.

-Mahatma Gandhi

CHATBOTS CHANGING THE FUTURE

MONDADDULA HIMASHAYANI

BSC HONORS(1H)

121320052028

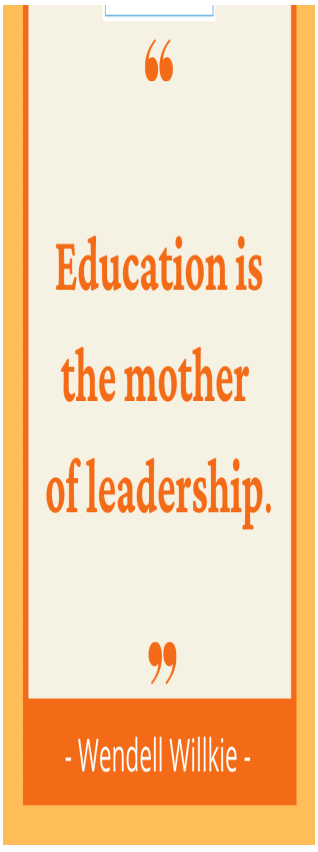
A chatbot is an artificial intelligence software which generates a conversation with users in natural language through applications like WhatsApp, website or mobile applications. The first chatbot as created in the year 1966 by Joseph Weinbaum which is designed to be a therapist by stimulating conversation by using pattern recognition techniques from then to till this date chatbot has undergone several modifications. The usage of chatbots has been increased significantly in the past few years.

The demand for a chatbot is increasing because of two different perspectives one in business standpoint and the other in developer perspective. In Business Perspective Chatbots are easily accessible, Efficient, Available 27/7, Scalable, cost-efficient, and gives lots of meaningful insights. They help in increasing the revenue of a business as replacement of employees, it also stores the customer behaviour which can be later used to get meaningful insights to improve customer experience and planning strategies by applying machine learning and data science techniques.

There are different type of chatbots in the market but the following are the top most used chatbots. They are Support Chatbots, Skill chatbot, Assistant Bots, Transactional Bots, Information Bots and Conversational Bots. Support chatbots are used to solve a specific problem which requires context-awareness. These models are trained using a natural language process and deep learning techniques. We can find these bots in service-related company applications like Flipkart or Amazon where you get an answer related to any issue you are facing in that application/product. Skill Chatbots are used when you don't have 24/7 support. In these chatbots they are predefined questions and sometimes answers to choose and based on the answer you give the bot performs actions like submitting the data to the company so that they can contact the user later. Assistant chatbots are similar to support chatbots, it is good at conversation and answering FAQ's.

The best example of assistant chatbots is Google assistant, Siri and Amazon Alexa. The next chatbot is Transactional chatbot as the name suggests this bot assists the users in performing transaction-related tasks like reserving a table in a restaurant, placing an order making a payment etc. Informational bot act as a research assistant which helps in fetching the information either from human or from internet resources like website and e-books. The last chatbot is the conversational bot these chatbots allow the user to have a conversation with the customer support people of the company to answer user queries.

In order to build a chatbot, there are many companies in the market providing these services for free. Few of them are Rasa Chatbot, Googles Dialogflow, woebot, qnamaker and many more. In conclusion, we can say that chatbots are smart assistants with artificial intelligence will dramatically change businesses. In near future, we can see that most of the customer support related task will completely be replaced with these kinds of chatbots.



TYPE SCRIPT

SAMBA MAHATHI

BSC(2H)Software Engineering

121320052043

The language has extended its application domain beyond the browser. The versatility of java script paired with its high adoption rate has created an increasing demand for scalable, secure, perform and feature rich high java script applications. This in turn has created a need for tooling, libraries, and frame works to write applications that meet those expectations.

Type script is a subset of java script that complies to plain Java script. It is a language for application scale and Java script development. It is first mode public in October 2012. The latest version is typescript -1.7. It is created by father of C #.Anders Hejlsberg. It is based on ecmascript-4 ecmascript-6.It is a typed subset which compliments to plain Java script to any browser, any host and open source.

For Installing we need to download any appropriate visual studio from Microsoft. It is available in the multiple platforms. The main goal is to provide type system for Java script and also modular and future development process. The main features are Data type supporter, optical static type Annotation, classes, Interference, Modules, Arrow Expressions, Ambient Declaration, Source life Dependences. Even the companies like Adobe, Palantir, Palmart, Microsoft uses the typescript. Even the typescripts needed to grow the J squirt, but yet many of systematic updates are needed to be done. But still the Java script tries to improve them. It has a let of great parts. Unlike Java script, it is not a walking nightmare when the project goes beyond 100 lines of code. While backward compatibility is strategic step for language designers.

QUANTUM COMPUTING

Kondapalli Lekha Saranya

B.SC 3D MScs

121319044033

Have you ever thought about what's the next generation of computing?

it's Quantum computing. This computing is a decussation of Mathematics, Computer science and Physics. Quantum computing is the study using quantum physics to create new ways of computing and creating applications. Superposition and entanglement are the two main features of quantum physics on which these super computers are based. In Quantum computing, Superposition is a quantum or anything which exists multiple times and entanglement refers to two pairs existing in a single quantum. These computers basically use binary signals (0's and 1's) which are measured in bits. Quantum computing is made up of qubits. The power of quantum computers grows exponentially with more qubits unlike normal computers. Even though we have classical computers to carry out our day-to-day activities, Quantum computers are not meant to just replace the classical computers. It is a different tool with which we can solve complex problems that cannot be solved by classical computers. A quantum computer has excellent features of working when compared to classical computers. It is many times faster than the classical computer. Quantum computers have the capability to change the world. There are a list of quantum computers like IBM(IBM Q20 Austin-20 qb), Intel(17-Qubit superconductivity test chip-17 qb),etc and the most advanced quantum computer is China's Quantum Supremacy. It is the most powerful quantum computer in the world.

It is capable of solving at least one task 100 trillion times faster than the world's fastest computer. The Quantum computers greatly contribute in the field of finance, military affairs, Artificial intelligence, cyber security, aerospace designing, Traffic optimization, Weather forecasting and climate change.

Tanuja Rani
BSc. Bc.Ca.C(2F)
121320061021

IS THIS THE FUTURE WE ARE WAITING FOR!!??

Imagine sitting at one place and things happenings on their own just by thinking about is, Interesting intends.

Recently, a video was released by *Neurotechnology company, Neuralink founded in July 2016 by Elon musk*. In which a nine-year-old macaque monkey named "Pager" was seen playing a pong game with the joystick, and then was able to play with his mind even after the removal of the joystick. Where for every correct play and move he was rewarded with a banana smoothie.

This is a revolution, where a small chip controlled the whole body, neurochip (an integrated circuit chip that is designed for interaction with neuronal cells) a wireless world. A bottle cap size chip called "link" was implanted in the brain of Pager through a *robotically performed surgery which led to the connection of thousands of neurons that are responsible for the motion and understanding capability of the brain*. In starting the pager played the game of pong with the joystick that's when the implanted chip recorded the movements and transfer of neurons and understood the working of the brain. And thus, after the removal of the joystick, he was able to play the game of pong easily without any trouble just with his mind, without any harm to his brain.

After this successful experiment, the question aroused as to how much can we trust a small chip in our mind, what all help can it be, and can it be hacked-can someone else control us? Well, it is still a need to experiment on humans. But Elon Musk came forward to answer this question. According to their research and theory they believe, that a *paralyzed person* can use smart devices faster than a person with a thumb, also making a prosthetic limb feel real, they also believe that *depression and anxiety such physiological problems* can also be manipulated by chips to make a person feel happy. And about the fact of being hacked where there is AI, there is a threat to humankind, but one must believe that to surpass the living condition one needs to become humanoid, he further added that humans believed that AI, robots cannot be intelligent or smarter than us but we are wrong to interpret it this way. To secure our existence we need to move forward. Which he needs to achieve.

To sum up, about all that is mentioned above that, the future that is waiting for us is right in front of us, few steps away we need to protect it and we need to find the way today to secure the future of tomorrow.

Education is the passport to the future, for tomorrow belongs to those who prepare for it today.

-Malcolm X

ARTIFICIAL INTELLIGENCE (AI)

K.Durga Bhavani

B.SC(MEC's)

121320054021

Artificial Intelligence is the simulation of human intelligence process by machines, especially computer system. The goal of AI is to create system that can function intelligently and independently. However the artificial intelligence was the first coined decades ago in the year 1956 by john McCarty he defined artificial intelligence as the science and engineering of making intelligent machines AI is a technique of getting machines to work and behave like humans in the reason past AI has been able to accomplish this by creating machines and robots. Artificial Intelligence as robots doing our daily course but the truth is AI has found its way into our daily lives AI is a science of getting machines to mimic the behavior of humans machine learning is subset of AI that focuses on getting machines to make decisions by feeding them data. The specific applications of AI include expert system natural language processing, speech recognition and machine vision.AI programming focuses on three cognitive skills they are learing,reasoning and self -correction.

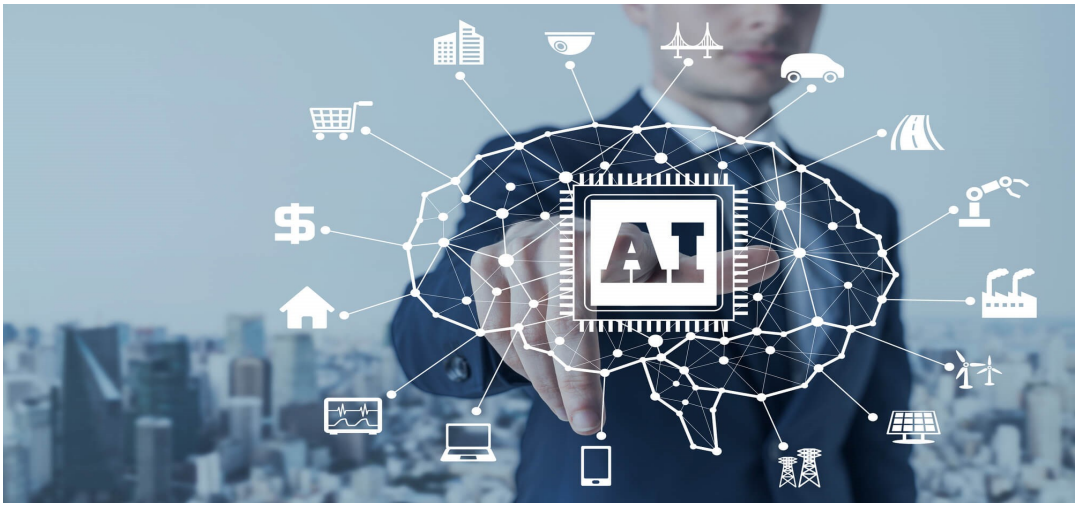
LEARNING PROCESS:- It focuses on acquiring data and creating rules for how to turn the data into information.

REASONING PROCESS:-It focuses on choosing the right algorithm to reach a desired outcome.

SELF-CORRECTION:-It is designed to continually fine-tune and provide accurate results.

EXAMPLES OF ARTIFICIAL INTELLIGENCE:- Smart Assistant like SIRI and ALEXA, Optimized , personalized healthcare treatment., Drone Robots, Conversational bots for marketing and customer service., Robo-advisors for stock trading., Self-Driving cars .

"The key to artificial intelligence has always been the representation."



One child, one teacher, one pen and one book can change the world.

- Malala Yousafzai

ARTIFICIAL INTELLIGENCE IN CHEMISTRY

G. Snigdha

BSc. Bc.Ca.C(2F)

121320061005

Artificial intelligence is a booming sector, its applications ranging from self-driving cars and Google Lens to social media and so much more! **Have you ever thought of its applications in the field of chemistry?** If not then you should know that it has been speeding up the process of development in so many spheres of chemistry like analyzing a molecule's properties to exploring databases of existing molecules and generating new possibilities. Machine learning algorithms have been used to predict properties such as solubility, melting points, atomization energies, molecular orbital energies and so much more. It is also used to predict the optimal temperature, concentration of catalyst and other reaction conditions required for a higher yield of the product. For more than a decade, ML methods have been extensively used in medicinal chemistry, studying biological activities of small molecules etc. The influence of AI over this field will only keep increasing and will definitely lead to some interesting developments.

CODING FOR KIDS

Navya Rathod

BSc 3E [MECs]

121319054060

While humanity takes its first steps towards a world where technology is not just a luxury thatonly the rich can afford, but second nature to each & every person irrespective of their financial or social background. In today's day & age if one looks around at every field of arts & sciences, they are sure to find out that technology has played a crucial role in its advancement. Coding has been constituent in furthering innovation & improving technological efficiency.Coding is simply communication with the computer using programming languages such as C++, Python, JAVA & so on. It is made use of in producing apps & other outcomes which help us in resolving numerous issues. The younger generation hence should be encouraged to learn to code. With the world turningmore technically advanced with each passing day, the need to understand machine languageshas become as important as learning English. Coding not only helps in communicating with a computer but also has various other benefits. At an early age in their life, it can instill several skills in kids. To begin with, it makes them skilled at problem-solving by teaching them to break a complex problem into smaller bits andmanage it tactfully. Further, it inspires creativity, as coding is all about bringing an idea to life. It encourages kidsto broaden their creative horizons, to find ways to better a pre-existing technology or create abrand new one. Coding also makes their mathematical skills better, as it requires solving mathematical problems to be utilized by the program, which helps them interactively gain practical solvingexperience. Coding helps kids learn in a much more engaging manner by offering them to createsomething that they can take full credit for, instilling the desire to do better. As mentioned earlier, learning to code encourages further learning as it helps kids learn at their own pace, find their strengths & weaknesses, & explore different learning techniques, &find what best suits them. Coding effortlessly helps them learn to learn. In a fast-paced world like ours moving towards a technological revolution, understanding technology will not suffice. Skills to put it to proper use with efficiency & tact are equallyimportant. Coding helps us accomplishing a perfect balance of both. In conclusion, coding for kids can prove to be beneficial to them in the future irrespective ofwhether they choose to pursue it as a career or not.

CYBER SECURITY

Archana Saxena

B.Sc Honors (SE) – 2H

121320052005

The more we witness advancement in technology, AI, Data transmission, high speed information exchange & storage both offline & cloud, the more there is a need for developing stronger & efficient **Cyber Security** measures. It protects the data and integrity of computing assets belonging to/or connecting to an organization's network such as PCs, Switches, Routers, LAN/WAN networks, Access points, Servers etc. & to keep these assets against danger of attacks from outside elements we need Cyber Security.

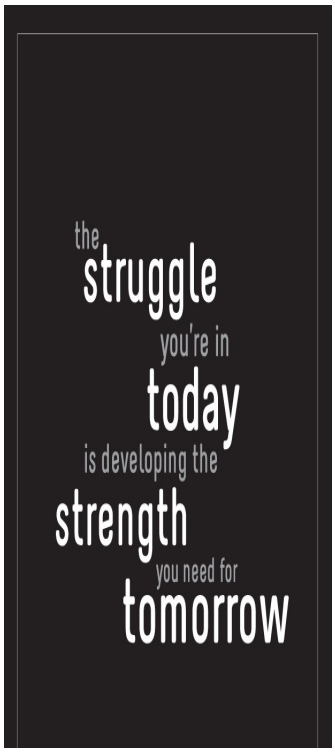
Application Security ensures steps that are to be taken while the application is in the development phase, thereby protecting at base level from threats that may seem challenging in later stages like development, design, deployment, up-gradation or during maintenance. Techniques include Input parameter validation, User/Role Authentication & Authorization, Session management, parameter manipulation & exception management & Auditing and logging.

Information Security method protect the information from illicit/unauthorized access to avoid distinctiveness theft and protects privacy of data. Techniques used to cover this involve Identification, authentication & authorization of user & Cryptography.

Disaster Recovery Planning is a process that involves performing assessments based on risks, prioritizing, working on recovery methods in case of disaster. In today's times, any business entity must have minimal error/error free plan for disaster recovery to restart business operations instantly post a disaster.

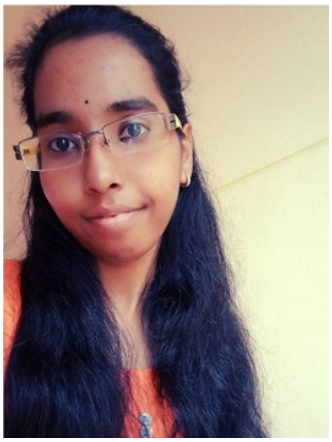
Network Security protect the usability, dependability, veracity and safety of the network. Efficient network security aims to analyze wide range of possible dangers and stops them from incoming/distribution on the network. Anti-virus, Firewall, Intrusion prevention systems (IPS) & Virtual Private Networks (VPNs) are few mechanisms.

Today, cyber security is extensively applied in **Government organizations, Military, Corporate, Financial and medical organizations** to mention a few sectors.



WINDOWS 11

The amazing new version....



LANDA SRINIJA

121320052025

BSC(2H) Software Engineering

The Microsoft company had a huge demand in providing the new version of the software. Windows is an operating system software mostly used in the personal computer (PC). It helps users easily interact with the computer, even though there are many versions released by Microsoft in which it gained huge popularity in Windows 7, Windows 10, and now Windows 11. Microsoft released the first version of windows in the mid-1980s followed by the New versions, but this year the Microsoft company launched a News version of ***Windows 11.*** The trending windows 11 supports only 64-bits systems and some of the deficiencies are found in windows 10 are totally redesigned in Windows 11 where the users couldn't find the issues with the new version. The developer focuses mainly on usability and flexibility updating the security and accessibility where these features are found in windows 10 as deficiencies. Microsoft store is used as a unified storefront other app are used under the Universal Windows Platform app is also redesigned in window 11. In Windows 10 by default, skype is bundled with the operating system But in Windows 11 skype is no longer supported.

In windows11 Microsoft improved the performance such as faster accessing of web browsing in any browser including window hello Authentication. In Windows 10 subsystem Linux (WSL), but windows 11 launched a new feature subsystem for Android. The user can easily install and run the Android app in Windows 11. The new Windows subsystem for Android (WSA) and AOSP these apps are available in the Microsoft store

The Security features of Windows 11 are run on devices Trusted Platform Module 2.0 security coprocessor which protects against firmware and hardware, for error handling Microsoft using VBS and HVCI.

Hard work never brings fatigue, it brings satisfaction. - PM Narendra Modi

DATA SCIENCE IN HEALTHCARE

SANGRAS SREEJA
121319052035
BSC-3H

Data Science is rapidly growing to occupy all the industries of the world today. And one amongst them **is Healthcare Industry.**

We all know that medicine and healthcare are essential parts of our lives. The traditional method of practicing medicine was based solely on the discretion of the doctors. For instance, a doctor would have to suggest treatment options based on the symptoms of a patient.

It was, however, not always accurate and was subject to human error. Due to the advancement of computer technology, as well as Data Science in particular, we are now able to obtain accurate diagnostic measures.

There are several healthcare fields that use data science,

They are:

1. Medical Image Analysis Using Data Science

For the analysis of medical images just like X-rays, MRIs, CT-Scans, etc., data science has gained great influence. Previously, doctors and medical examiners would have to search manually for clues.

But now, Due to advancements in computing technologies and the influx of data, scientists have created powerful image recognition tools that help doctors make better and more informed decisions about their patients.

2. Drug Discovery with Data Science

Drug Discovery is a highly complex field. Pharmaceutical industries heavily rely on data science to create better drugs and solve problems. In addition to the time commitment, drug discovery requires heavy financial outlays, as well as extensive testing. As a result of advancements in data science facilitating drug discovery, it is now possible to improve the collection of historical data to aid the drug development process.

By combining genetics with drug-protein binding databases, it is possible to develop technological advances in this area.

If people are not laughing at your goals then your goals are too small.

-Azim Premji i

3. Predictive Analytics in Healthcare

Healthcare is an important area for predictive analytics. Using historical data, a predictive model finds patterns, learns from it and makes accurate predictions.
It finds different correlation and associations among symptoms, discovers habits, and makes meaningful predictions.

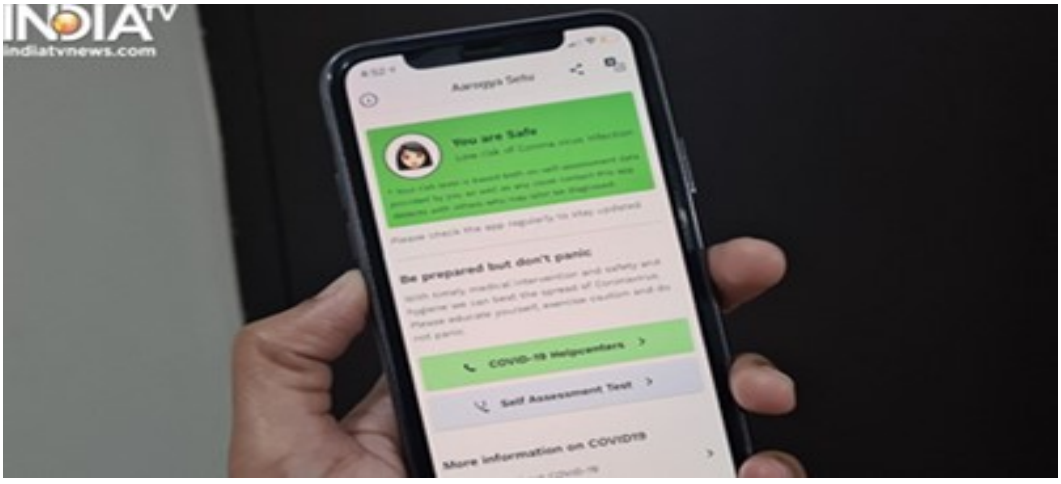
Using data science, hospitals can identify the signs of an afflicted patient's health and provide preventive measures and early treatments to reduce the risk of further deterioration.

4. Tracking & Preventing Diseases

The data science field also plays a crucial role in monitoring patient's health and notifying them of any necessary steps to take in order to prevent diseases from taking place. Data Scientists are using powerful predictive analytical tools to detect chronic diseases at an early level.
In many extreme cases, illnesses do not spread to an early stage due to negligibility. And Costs of curing a disease grow along with its spread.
Thus, data science is crucial when it comes to optimizing health care spending.

5. Providing Virtual Assistance

With the help of the disease predictive analytics, data scientists have developed a comprehensive virtual platform that provides assistance to the patients.



Additionally, those suffering from mental disorders like depression and anxiety, as well as diseases such as Alzheimer's can make use of virtual tools to assist them in daily tasks.

ARTIFICIAL INTELLIGENCE FOR THE GROWTH OF OPERATIONAL EFFICIENCY

Moole Pranavi

121320033019

Msc computers

Artificial Intelligence (AI) is a general field of computer science that has thegoal of making machines do what humans can do. Many people think that intelligent machines can be achieved in about 20 years, but the truth is thateven if they can achieve this goal it will be difficult to achieve it. Today, our computers have already performed many “intelligent” tasks and this trend has been in process for some years now. The major category of AI-based solutions is Machine Learning.

Intelligence in Industry 4.0: AI use in industry 4.0 has grown at a rapid pace in the past five years. 4.0 technologies havebrought about new and disruptive technologies, such asIndustry 4.0. It is one of the hottest topics and is a subject that interests all business processes. This will mean that AI usage willbe an inescapable part of work, but also business processes. Artificial Intelligence is being used in many industries for automating human tasks. It is being used for detecting frauds, monitoring, and controlling factories, providing a better customer experience, and many more.

By using AI in industries, there are several benefits:

- The time and money spent for developing the solutions are reduced
- It leads to a more accurate data
- It also leads to an optimized process
- It helps in providing an excellent user experience
- It helps in making the system easier and efficient
- The results obtained by AI are more accurate
- There are fewer mistakes, as there is less of a manual process

Machine Learning is a field of study that focuses on the way computers learn to make intelligentdecisions about the past. Many different types of computer programs exist and are developed over time, and a computer program may be one of these programs. This has been very successfulin many fields, especially in the banking and healthcare sector. There is a lot of hype around artificial intelligence, in which people are talking about the future.

Some of its key benefits include:

- Machine learning is faster and more accurate than using the traditional methods of dataanalysis and learning.
- It does not make use of a large number of human resources which is useful in thehealthcare industry.
- It can help create a model of a specific business.
- It is easier to use when compared to traditional methods.

People throw stones at you and you convert them into milestones

.– Sachin Tendulkar

IoT devices, especially those which are connected to the internet, are generating a large amount of data. Many IoT device owners want to do their best to harness this valuable data and transform it into valuable information and insights. AI in a system helps you to make smarter business decisions by giving you a better understanding of the system's environment. You may need this kind of knowledge to monitor the system or to take corrective actions. AI can help youto monitor, manage and process data related to your IoT devices.

CRYPTO CURRENCY

Lokhande Vyshnavi

121320033018

MSc Computer Science

Crypto currency –from being fraud-proof to easily accessible there are many reasons why world is moving towards the digital currency. As any other currency we use, Crypto currency is a medium of exchange where individual coin ownerships are stored in ledger in a computer's database. This payment system doesn't rely on banks for any transaction verification. , rather encryption is used to verify the transactions. All the transactions made are public and stored in digital wallets. There are many types of this Crypto currency like Bitcoin, Litecoin , Dogecoin etc.

Real money is to be traded to buy any Crypto currency. The safety of Crypto currency is arguable. Block-Chain technology is used to build this currency. This technology aims at storing the data in blocks with a timestamp. Although encryption holds onto the safety and security of the data, but it doesn't mean that currency is un-hackable.

So , why is this currency becoming popular? There are many reasons behind it. For starters many supporters see this as a currency of future and want to buy them before the value rises. Others like the fact that banks will no longer be part of money supply, as banks cause inflation.

Crypto currencies generate no cash flow, the profit happens when someone else buys the currency for a higher rate than you bought.

DSS - DECISION SUPPORT SYSTEM

CASHYAP KOMAL

B.Sc-2H

121320052010

DSS -What is this DSS? Let us know about it. Decision Support System also known as DSS is a computer based program that analyses large amounts of data and helps in compiling all kinds of information that can be used for problem solving and decision making. DSS gathers the data, analyses the data and then synthesizes it to produce informative reports. A DSS is an information based application. This informative application provides users with the relevant information from different data users so that a better decision is made. Some of the benefits of DSS are , the efficiency and speed of decision making activities is improved, interpersonal communication is facilitated, managerial process is automated, it is a fast method for making decisions, DSS is an efficient method.

There are 5 types of decision support system. They are

Data Driven DSS are the ones that make decisions based on the data collected from the internal and external databases. **Model Driven DSS** are the ones that customize according to predefined set of requirements. These kind of DSS may assist us with developing financial statements. **Communication Driven and Group DSS**, these types of DSS use different communication tools so that more than one person can work on any given task. **Knowledge Driven DSS**, in this the data is present in the Knowledge base and is continuously maintained and updated by the knowledge management system. **Document Driven DSS**, it uses documents to retrieve data and is also a type of information management system. We cannot completely depend on DSS every time, it has some uncertainties. Some of them are it is unaware of assumptions, difficulty in quantifying all the data, lack of technology knowledge in users, information overload and so on.

The output of DSS's mostly include the quantitative results from models, presentation of historical data, displaying of facts in various formats, retrieving relevant documents.

There are three fundamental components of the DSS. They are

- The Database, The Model ,The User Interface

The Framework of a DSS consists of four phases. They are Intelligence, Design, Choice, Implementation.

Intelligence :- In this phase the conditions that call for a decision are searched

Design:- Alternative actions required for a solution are developed and analyzed.

Choice:- The course of action is selected

Implementation:- The selected course of action is adopted in the decision situation.

Education is not the learning of facts but the training of the mind to think.

- Albert Einstein

CYBERCRIME!

Arya Anil
121320061002
BSc. Bc.Ca.C(2F)

Today's age cannot be thought of without the Internet, even in dreams. Although the Internet has made many things easier but at the same time it has posed many security risks too, if not used in a proper way. Thus, it is important to know about possible threats, challenges and risks of working on the Internet to ensure personal safety and information security. Cybercrime is one of the greatest threats which comes to our mind.

What You Should Know ?

While using social networking sites, you should know about what the right online behaviors are and what is considered a cybercrime. If one thinks that by making some anonymous profile and using fake information, he/she can do so much activities without getting caught, he/she is certainly mistaken. Modern technology tools can find anyone online using IP address, location etc. So, one **must not indulge in these activities at all.**

Other than that, there are some dangers and possible traps that you must know about.

Digital Footprint are the records and traces individuals leave behind as they use the Internet. Your interactions on social media, your friend circle on social media sites, site you visit, online purchases, locations visited through Facebook check-ins etc. all make up your digital footprints. A common comparison to digital footprints is the footprints you leave behind you when walk along a beach. Every step you take leaves an impression on the sandy surface that allows another person to see the marks of your activity has made and offers the possibility for them to follow your trail. Digital footprints are also referred to as "digital tattoos". Unlike a beach footprint which will eventually fade away, the Internet- and any electronic 'event' in general, doesn't work the same way. It's safe to assume that anything you do, publish or post online may be there permanently and won't be 'washed away'.

What You Should Do ?

While using social networking sites, you should know about what the right online behaviors are and what is

considered a cybercrime. If one thinks that by making some anonymous profile and using fake information, he/she can do so much activities without getting caught, he/she is certainly mistaken. Modern technology tools can find anyone online using IP address, location etc. So, one **must not indulge in**

Other than that, there are some dangers and possible traps that you must know about.

Digital Footprint are the records and traces individuals leave behind as they use the Internet. Your interactions on social media, your friend circle on social media sites, site you visit, online purchases, locations visited through Facebook check-ins etc. all make up your digital footprints. A common comparison to digital footprints is the footprints you leave behind you when walk along a beach. Every step you take leaves an impression on the sandy surface that allows another person to see the marks of your activity has made and offers the possibility for them to follow your trail. Digital footprints are also referred to as "digital tattoos". Unlike a beach footprint which will eventually fade away, the Internet- and any electronic 'event' in general, doesn't work the same way. It's safe to assume that anything you do, publish or post online may be there permanently and won't be 'washed away'.

PACEMAKER

Charita Adla

Bsc. oftware Engineering (2H)

Technology advancements have always made one's life much simple and easier to live. New inventions not only saved time but also saved the lives. One of those inventions is the pacemaker. It is a device used to maintain the heartbeat of a person who is suffering from irregular or abnormal heartbeats. It was an idea of Dr. William Chardack, Dr. Andrew Gage, and engineer Wilson Greatbatch who worked together to create a pulse generator that could be placed inside the body to maintain the rhythm of the pulse in case of a pulse decline. That was considered as the first implantable pacemaker and was implanted into a 77-year-old man with a heart block who survived two years with it.

A pacemaker is used in conditions like arrhythmia which is an abnormal heartbeat. This condition is caused due to sick sinus syndrome, atrial fibrillation, heart block, and cardiac arrest which are commonly known. As we know, the pumping of the heart is controlled by electrical signals, and disruption of these signals can cause major heart conditions.

The pacing leads are connected to the heart through a computer circuit that is called as a pulse generator. The pacing rate is the rate at which the electrical impulses are sent by the generator. The pacemaker is placed under the skin near the collarbone. The pulse generator is attached to the wires so called the pacing leads that goes to the heart. It sends out signals whenever your heart misses a beat or is beating at a slower pace by special sensors which check the body movements and breathing rate. Before the surgery, some tests would be conducted such as blood tests, ECG to make sure the person is eligible for the surgery. The surgery takes about an hour or two, and an overnight stay at the hospital is required. After the implant, the cardiologist will test the pacing leads by increasing the heart rate. These pacing leads send small amounts of energy to the heart to make it regain its rhythm. The doctor would then adjust the settings based on how much energy is needed in order to maintain the heartbeat. Regular check -ups and changing of the battery after a particular period of time are required. There are 3 types of pacemakers based on the number of pacing leads required.

Everything has a few drawbacks and risks so does the pacemaker. Some of them include blood clots near the area, pacemaker infection, during the procedure the lungs might get punctured and air might leak causing pneumothorax and this air must be drained. There might also be problems with the pacemaker if it's fitted wrong or is not programming properly. People may also face problems using mobile phones as it is necessary to maintain a certain distance while using them, airport security systems, MRI scans, and jobs that require be in contact with strong electrical fields etc.

Moreover, it has its benefits too. It improved the living conditions of many people who suffer from dizziness caused by an irregular heartbeat. There are many people who lived more than 10 years with a pacemaker and have given positive responses as it not only makes one active but also removes the previous symptoms and helps them live a normal life. Technology keeps on changing and keeps making one's life better. It is a gift to humankind that can be used endlessly to improve the quality of life.

EVERYTHING AS A SERVICE(XAAS)

Scholastica solomon

M.sc computer Science

121320033025

Cloud computing has become one of the emerging technologies which have changed a lot in the business world and in the life of people. Cloud computing provides services such as analytics, database, computing power and intelligence over the internet. So, we can say that Cloud has helped business to manage, re drive the stored data it has reduced the cost of production. The high scalability of cloud technology makes it more flexible and reliable for the people to use it for business and personal needs. XaaS also known as everything-as a-service is a service provided by the cloud technology. As we know cloud provides many other services too like platform-as-a-service, infrastructure-as-as-service and Software-as -a- service, the Xaas service has become the most popular one because it is a kind of service which can be accessed on demand over the internet and through this service people are able to utilize all kinds of computer resources which they do not have access to, in their premises. High scalability, device independence, location independence, unlimited storage and multitenancy are few of the main features of this service, that have made it the most desired technology, especially these days during the pandemic when all the sectors are choosing the internet platform to work and connect to people.

XaaS recognizes the vast number of products, tools and technologies that vendors now deliver to users as a service over a network. XaaS has provided continuous digital connection that fundamentally transforms not only how businesses engage with their customers but also their internal operations, it has been flexible enough to provide companies with customized solutions according to their requirements.

Covid pandemic has increased the demand for XaaS service, as the model helped them in cost reduction and provided them with survive-and-thrive strategies amid a grim economic atmosphere. This model is only expected to expand in the future due to the emerging technologies and the expansion of e-commerce market. It can be said that supply chain management, automated inspection tasks, Artificial Intelligence and Internet of Things (IoT) are moving cloud-wards and will gain momentum in the near future.

The roots of education are bitter but the fruit is sweet.

- Aristotle

OBJECT ORIENTED PROGRAMMING

CHINTAL DEEPTI

121319043010

BSC MPCS 3B

Object Oriented Programming (OOP) is an approach to standardize the programs by creating partitioned memory area for data and function.

Procedure Oriented Programming consists of writing a list of instructions for the computer to follow and organize these instructions into groups, known as functions, most of the functions share global data and data moves more openly around the system from function to function. OOP does not allow data to flow freely from function to function and procedure to procedure, the complete problem is decomposed into number of entities called objects. Those objects are created and maintained along with a set of related data. These data are so used and maintained that they cannot be changed or edited from other functions or objects. The data of an object can be accessed only by the functions associated with that object.

An Object Oriented Programming (OOP) is a modular approach, which allows the data to be applied within stipulated program area. It also provides the reusability feature to develop productive logic, which means to give more emphasis on data.

FEATURES OF OBJECT ORIENTED PROGRAMMING

It gives stress on the data items rather than functions.
It makes the complete program/problem simpler by dividing into number of objects.
The objects can be used as a bridge to have data flow from one function to another.
You can easily modify data and function as per your requirement.

BASIC ELEMENTS OF OOP

Objects: Object is a unique entity, which contains data and functions (characteristics and behavior) together in an Object Oriented Programming Language.

Classes: Class is a group of similar types of objects, which possesses same attributes and behavior. It also defines the abstract characteristics of an object, including characteristics and the behaviors.

Data Abstraction: Data Abstraction is defines as the process of identifying only the required characteristics of an object ignoring the irrelevant details. The properties and behaviors of an object differentiate it from other objects of similar type and also help in classifying/grouping the objects.

Encapsulation: The system of wrapping data and function into a single unit is known as encapsulation.

Data Hiding: Data encapsulation, also known as data hiding, is the mechanism whereby the implementation details of a class are kept hidden from the user. The user can only perform a restricted set of operations on the hidden members of the class by executing special functions commonly called methods.

Inheritance: Inheritance is the process by which objects of one class can link and share some common properties of objects from another class.

Failure is the opportunity to begin again more intelligently.

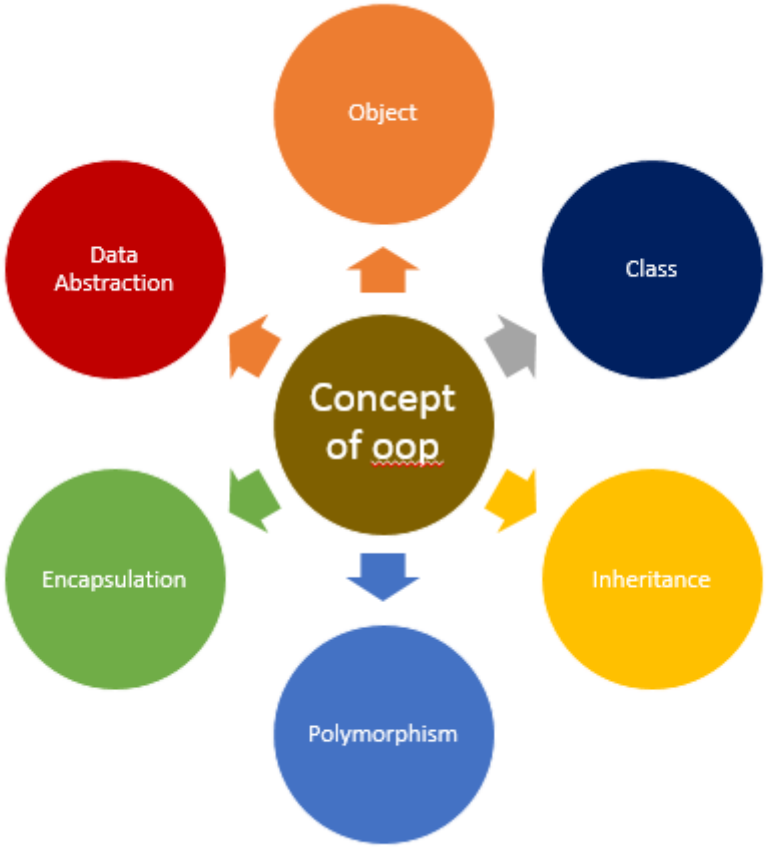
- Henry Ford

Polymorphism: Polymorphism is the process of using a function for more than one purpose. It allows the use of different internal structure of the object by keeping the same external interface.

Dynamic Binding: Dynamic Binding is the process to link the function call with function signature at run-time i.e., during execution of a program.

BENEFITS OF OBJECT ORIENTED PROGRAMMING

* You can extend the use of existing class through inheritance.
* Using the concept data hiding can generate secured program.
* Multiple instances of an object can be generated to co-exist without any interference.
* You can create different modules in your project through objects.
* It is highly beneficial to solve complex problems.
* It is easy to modify and maintain software complexity.



WHEN IMMERSIVE TECHNOLOGIES MEET ART

Hashitha Gunta
121320061006
BSc. Bc.Ca.C(2F)

With the pandemic secluding us to our houses and limiting our travel, we are bound to rely on the technology for accessing information as well as leisure activities. Concerts, which invite a large crowd of people to experience the music of artists have all been cancelled and to keep their art alive and provide their fans with better performances, they relied on the digital platforms.

With many immersive technologies in the making, few big named artists utilised them to create better performances for the viewers. This article looks into three such technologies.

Augmented Reality (AR) – It is an immersive technology in which the computer-based graphics are overlayed onto real world.

During the 2020 concert, the popular R&B Artist- The Weekend - performed as a digital avatar with the help of AR. Additionally the visual theme of the virtual experience could be changed according to votes of the fans in the comments.

Virtual Reality (VR) - Virtual Reality allows the user to immerse themselves in a virtual world by engaging all five senses through realistic sounds and images. Usually, it is experienced through headsets.

Indian electronic musicians – Nucleya, Ritviz and Anish Sood – organised a virtual gig called Retrofuture, where the viewers could experience 360-degree VR event where the background changed along with the music.

Extended Reality (XR) - It is an emerging umbrella term for all the computer-based technologies that can extend the reality we experience by either blending the virtual and "real" worlds or by creating a fully immersive experience.

The popular k-pop group BTS, in their virtual concert - Map Of The Soul On:e , used XR for few performances where viewers could see the artists going from an elevator to a desert in an immersive way.

Though technologies went through a creative path due to the pandemic, they still have the scope to be used in the post-pandemic world. They can be used in the fields of education, business, training, etc.

The utilises the technologies we already have today—augmented reality (AR), virtual reality (VR), and mixed reality (MR) plus those that are still to be created.

The current technologies under it are:

VIRTUAL REALITY:

Virtual Reality uses headsets to allow the user to immerse themselves in a virtual world by engaging all five senses through realistic sounds and images.

AUGMENTED REALITY

Computer-generated graphics overlaid on the physical world.

Examples include Pokémon Go, that overlays digital creatures onto real world.

MIXED REALITY

Also known as hybrid reality, it merges the real and virtual worlds and allows interaction between them in real time.

The way to get started is to quit talking and begin doing.

-Walt Disney

Microsoft's Holo Lens is a great example of this.
Some of the applications of Extended Reality include training soldiers and doctors, Retail, Entertainment and many more. Though XR makes us feel near to the technology we find in the futuristic sci-fi films, it comes with its own challenges. One of it being its vulnerability to cyber-attacks as it collects a lot of personal information and the other being its high cost of implementation.

KOTLIN-THE BETTER JAVA?

Angara Naga Gayathri

B.Sc. 3E, M.E.Cs.

121319054002

"Kotlin" has been one of the most searched keywords in the computer field in 2017, and the interest in the language has skyrocketed again. But what is it? Kotlin is a general-purpose programming language that first appeared in 2011. It was designed by JetBrains, the official designer of the most intelligent java IDE, named Intellij IDEA. It's is also cross platform and is a statically-typed language, which means that the variable types are known at the compile time. It was designed specifically to be a more concise version of java, so it works for both JVM (Java Virtual Machine) and Android development. Its an open source programming language that combines object-oriented programming and functional features into a unique platform. Kotlin is very easy to learn and is more expressive, and since it's based on JVM, it reduces a lot of boiler plate code in programming languages. It has also better performance and small runtime. Up until May 2017, the only officially supported programming languages for android were Java and C++. Google announced official support for Kotlin on Android at Google I/O 2017, and starting with Android Studio 3.0 Kotlin is built into the Android Development Toolset. The question of whether to choose Kotlin or Java for new development has been coming up a lot in the Android community, and the short answer is that Kotlin code is safer and more concise than Java code, and that Kotlin and Java files can coexist in Android apps, so its useful for newer apps and also for expanding existing apps. For anyone interested in programming or in Android development, the advantages of Kotlin over Java are very compelling. The only good argument for learning Java is that Java forms a good base over Kotlin for anyone who is completely new to Android development. Since most Android documentations and examples have been historically in Java, learning Java might be the smarter option. The typical time for learning Kotlin for is just a few hours, and the typical rough estimate indicates approximately a 40 percent cut in the number of lines of code from Java to Kotlin. With all these features, Kotlin might just replace and become the new Java.

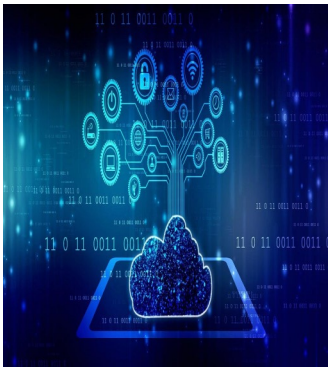
CLOUD COMPUTING

121320052022

KOKNE SRUTHI

B.Sc-2H

Have you ever heard of cloud computing? We generally come across this word in phones, banks, Media Streaming, E-commerce, etc. Have you ever wondered what does cloud computing mean actually? It has become very crucial in the growing technologies of our World. Cloud refers to a network or the internet. Cloud computing is the on-demand resource in this growing technology that delivers the computing services such as servers, storage, databases, networking software, analytics, and intelligence over the network (cloud). It is usually used for storing, managing, and accessing data over the internet. The data can be anything such as files, documents, audio, video, documents and more. It is easy to maintain and has scalability and rapid elasticity. Cloud computing is easy to set up, has high-speed services, uses remote resources, and does not cost much as it follows a pay-as-you-go basis which makes it affordable and comes with a package of services. It offers flexibility, a high level of security, backup of data at the time of failure, reliability, unlimited storage capacity, mobility, and so on. Some of the characteristics of Cloud Computing include Agility, High availability and reliability, High Scalability, Multi-Sharing, Device and Location Independence, Maintenance, Low Cost and Services in the pay-per-use mode. Cloud Computing Technologies include Virtualization, Service-Oriented Architecture (SOA), Grid Computing and Utility Computing. Cloud computing is being used by many software companies like Amazon web services, Microsoft Azure, Netflix, Dell Technologies, Cisco Systems, Oracle, VMware, SAP, and even Google. The applications of Cloud Computing are being used in the field of Arts, Business, Data Storage and Backup, Education, Entertainment and Management. There are four types of cloud Public Cloud, Private Cloud, Hybrid Cloud and Community Cloud. Public Cloud is open to all to store and access data. Private Cloud is used by organizations to build and manage their data internally. A Hybrid Cloud is a combination of Private and Public Clouds and is less secure. Community Cloud is accessible to a group of several organizations for sharing the information among organizations. It is divided into three cloud computing models as Infrastructure-as-a-service (IaaS), Platform-as-a-service (PaaS), and Software-as-a-service (SaaS). Infrastructure-as-a-service (IaaS) is a fundamental building block of computing that can be rented. The services provided by IaaS are Compute, Storage, Network and Load balancers. Platform-as-a-service (PaaS) provides computing platforms such as operating system, database, web server, etc. The services provided by PaaS are Programming languages, Application Frameworks, Databases and Other tools. Software-as-a-service (SaaS) is the delivery of application as a service. The services provided by SaaS are Business Services, Document Management, Social Networks and Mail Services. The world without Cloud Computing is unimaginable now. We cannot survive a day without Cloud Computing. You cannot work from home, cannot login to the office, cannot meet at a new client's office, etc. Collaboration of work, Cloud enabled accounting systems, Data storage and backup, Data security, Virtual Scalability. Netflix Streaming, Spotify, Skype, Pinterest, PayPal cannot work without Cloud Computing. Internet Connectivity, Vendor lock-in, Limited control, Security risks are some of the disadvantages of Cloud Computing.



CYBERSECURITY

Pooja
121320052037
BSc Honors 2H

Cybersecurity is the protection of our computers, electronic gadgets, networks, sensitive data from destructive or malicious threat. This cybersecurity can be also called as information technology (IT) security. As this covid pandemic has brought all of us closer to all our gadgets study, work, even consulting to doctors is done through our systems but there is a threat may be happening to our gadgets without our acknowledgment i.e., cyber-crime. Cybercrime happens when a system is being hacked. Hacking is method were unauthorized user intentionally and illegally gain access to systems personal data. The primary intention of the hackers is to steal sensitive data, violate privacy rights, transfer money from bank accounts. These hackers mostly attack on systems confidential data, read emails, access personal data and files. Whenever a system is hacked it also shows some symptoms like device constantly getting heated up, files of the system disappear, strange files appear, hard disk shrinks in size, or sometimes system start to crash. Cyber-crimes are a controversy which is rapidly increasing every year. According to a report everyday around 30000 websites hacked and these hackers create around 300000 malwares . As the cyber threats are increasing it has become the responsibility of every individual to secure their gadgets and avoid getting into this cyber-crime. Many organizations secure their data from cyber-crimes through cyber security. Any type of data like personal, governmental, or corporate and even the highly confidential data which belong to government defense system, scientific research and development organization needs the security, small amount of negligence would cause a great damage to whole nation, therefore such data need a very high level of security. Cybersecurity ensures the organization the safety of the data and prevent from malicious threat and according to a report Spending on Cybersecurity are Predicted to Hit the Trillion Mark by 2021. Even our gadgets can be protected by cyber threats by updating our software and operating system, using strong passwords, using anti-virus software, using VPN and sometimes avoiding opening mails from unknown users, and also avoiding to connect to unsecured WIFI network and being aware of common attacks. Cyber security can be considered to be the best protection against cyberattacks. Ultimately, prevention is the only key to protect and reduce the risk from cybercrimes which can be achieved through cyber security.

Spread love everywhere you go. Let no one ever come to you without leaving happier.

-Mother Teresa

ROLE OF AI IN FINANCE SECTOR

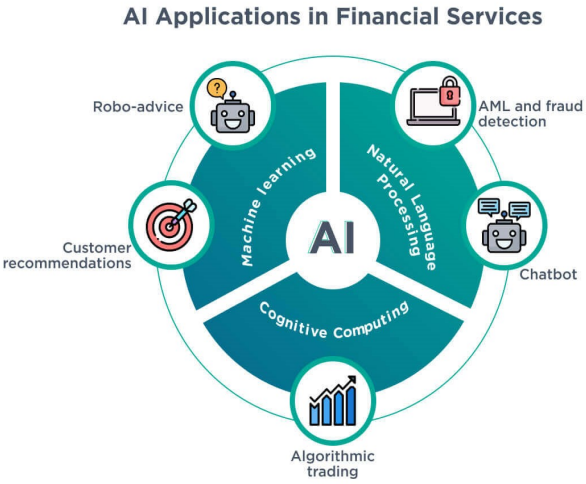
Byreddy Sankeerthana

B.Sc. 3E, M.E.Cs.

121319054011

AI is based on the principle that the intelligence demonstrated by machines as opposed to natural intelligence. The goals of AI include learning reasoning and perception. AI is making huge impact in all domains of the industry even in finance sector. Financial markets are turning to more and more to machine learning a subset of AI to create more accurate models these predictions help financial experts utilize existing data to pin point trends, identifies risks, conserve man power and ensure better information for future planning.

The massive shift towards a remote work force due to covid19 has proven a lot of business that they can successfully shift their operations away from bricks and mortar. Over the next eight years, technology “things” will become customers and will move beyond alerting human counter parts that they need attention, instead becoming decisions makers on their own. AI provide smooth customer experience, in a digital first world organizations are developing unified various tools and software's with simple use cases that can be easily configured.



If there is one technology that is paying dividends, it is AI in finance. AI has given the world of banking and financial industry as a whole way to meet the demands of the customers who wants smarter, more convenient, safer ways to access, spend, save and invest their money. AI in finance is transforming the way we interact with money. AI is helping the financial industry to streamline the processes ranging from credit decisions to quantitative treading and financial risks.

AI helps in making credit decisions a recent study found that 72% of consumers prefer to pay with a debit card or credit card compared to 12% who favored cash. AI solutions are helping banks and credit lenders to make smarter decisions by utilizing various factors that are more accurate. Auto lenders using machine learning cut losses and more accurately predict the risk . Data robot provides machine learning software for data scientist business analyst software engineers executives and it professionals. Data robots helps financial institutions and business to quickly build accurate predict you models that helps in decision making around the issues like fraudulent credit card transactions digital wealth management.

AI helps in reducing the risk. Time is money in finance but risk can be deadly if not given proper attention so AI minimizes the risk and helps to make profits.

It is during our darkest moments that we must focus to see the light.

-Aristotle

SMART INDIA HACKATHONS

Ullikrishnaveni

121320043039

2B (BSC MPCs Sem 3)

Smart India hackathon is a nationwide 36-hour Hackthon organized by the MHRD,Govt.of India.It started in the year 2017 and gaining huge success, it is now annual event with SIH 2020 being the 4th edition.The Worlds Biggest Hackathon now it is ,and reached out to over 10 Lakh+ students across 7218+ institute in India. There are 2 editions of this Hackathon: software and Hardware ,here ,we discuss the software Edition. “If you look at history, innovation does not come just from giving people incentives; it comes from creating environments where their ideas can connect,” says Steven Johnson, an American author. In a way, hackathons complement traditional innovation method .Through hackathons, companies harvest ideas and knowledge to take their technology to the next level. With the added advantage of crowd-driven ideation, companies can now move fast, reduce the time-to-market, and get ahead in the race.

Sri Ramesh Pokhriyal Nishank was launched in India The grand finale of smart India hackathon(SIH)-2020(software edition) was inaugrated by Union Minister for Education, Shri Ramesh Pokhriyal Nishank on 1st August ,2020.It was started in the year 2017,with participation of around 500000 students, In year 2018 around one lac students participated. Hackathon is a tool to drive sustained innovation and crowdsource solutions to address pressing real-life business problems and social issues. A hackathon is typically a time-bound competitive event where participants collaborate to build proofs of concept and minimum viable products for a pre-defined problem or to innovate.

Online hackathon :Companies use online hackathons to engage their employees simultaneously across different geographies and time zones to solve a problem or drive innovation and used to engage with external audience of wider geography. They are also used for narrowly-defined coding challenges, which test participants’ experience and expertise.

Hackathons have some clear advantages over traditional innovation management processes. They are inclusive, agile, promote multidisciplinary collaboration, and have shorter innovation cycles that are better suited to addressing fast-changing consumer demands.

Along with generating new ideas and future proofing a business, hackathons help de-risk product development, improve employee engagement and retention, find excellent talent, enable customer focused innovation and engagement, accelerate the speed of innovation and problem solving, enhance collaboration between teams, bring about cost savings through R&D, and build community, brand, and leadership.Brodly ,hackathons are event in which communicate members collaborate to solve problems.They assume many different forms ,but most are designed to bring researchers from various career stages and backgrounds together to create shareable solutions to problems of common interest.

Many of life's failures are people who did not realize how close they were to success when they gave up.

-Thomas A. Edison

PEGASUS, THE EPOCH OF CYBER WEAPONS

"CYBER-SECURITY IS MUCH MORE THAN A MATTER OF IT." — STEPHANE NAPPO

SAKSHI PANDIT

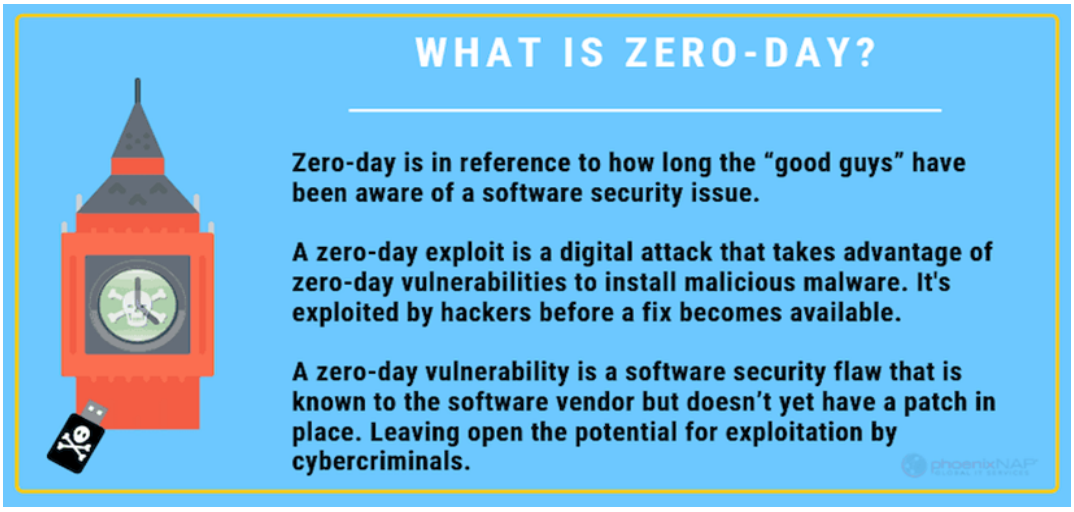
121319052034

BSC 3H (SOFTWARE ENGINEERING)

The issue across the world on the misuse of Pegasus spyware — a great deal of which is mired in facts, suppositions, false trails, allegations and counter-allegations. From occasional instances of cyber attacks previously, cyber attacks on institutions such as banks and on critical infrastructure have proliferated to an alarming extent, signaling the emergence of the cyber security threat and a great disadvantage of 21st century's technology. This spyware is by no means the ultimate cyber weapon of 21st century . It has, however, compelled nations to come up with technologies to reverse the threat posed by such new age weapons, even though it has been quite a few decades since the world saw the advent of cyber weapons, albeit more primitive than those in vogue today.

What are the causes if installed

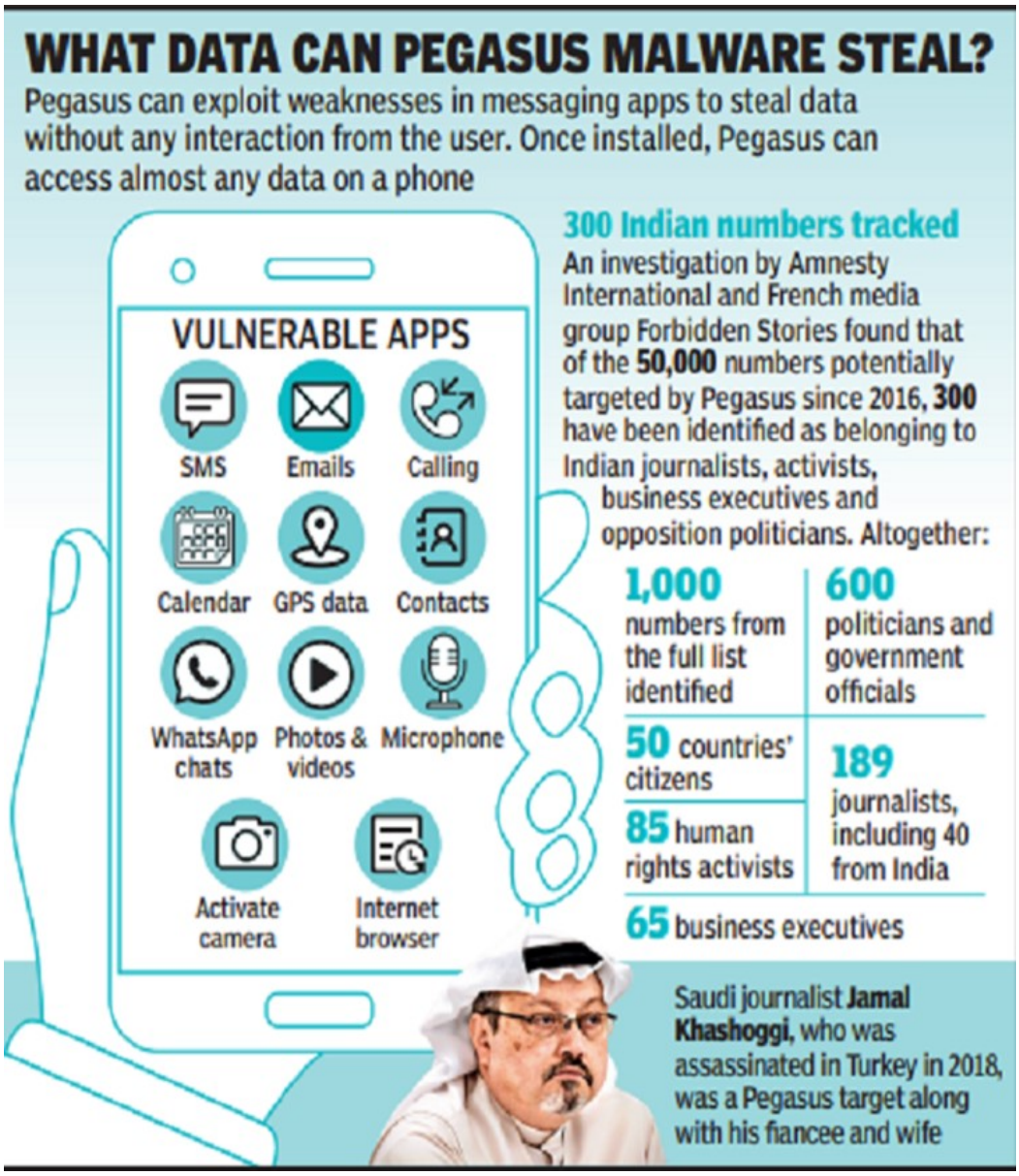
The Pegasus spyware as it is stated that it can copy messages that are sent or received, capture photos and record calls, secretly record through the phone's camera, or activate the microphone to record conversations in the infected system. It can potentially pinpoint location and your search History too. Once installed on a phone, the spyware can copy more or less any information or extract any file and send it to the dedicated organization. The NSO Group, the makers of Pegasus, are devoted in making the spyware difficult to detect as an ongoing effect. An earlier version of Pegasus, identified back in 2016, infected phones mainly through 'spear phishing'. Since then, it has expanded its circle , and it currently employs 'zero click' attacks, which do not require any interaction from the victim side. It is used to exploit certain 'zero day' vulnerabilities found in operating systems — about which the manufacturers themselves are also unaware. Where 'spear phishing' or a 'zero click' attack cannot succeed, the Pegasus spyware can be installed over a wireless trans-receiver located near a target and can execute the operations. Essentially, the Pegasus virus seeks what are termed as 'root privileges' — that enable communication with its controllers through an anonymised network on Internet and transit data .



Need for exploration

Short-term remedies are unlikely to achieve desired outcomes. With the advent of cyber weapons such as Pegasus, technology which is perceived as a friend could well become a matter of despair. At the very pace at which cyber technology is evolving, constructing proper defenses will prove difficult. Artificial Intelligence (AI) is also seen as a kind of panacea for many of the current problems, but all advances in technology tend to be a double-edged sword. Meanwhile, easy access to newer cyber espionage tools will add to the existing problem. All this suggests that security in this era of ever-expanding cyber weapons and technologies could become an ever-receding horizon.

So, *the need of the hour to have strong data protection laws and effective security measures from cyber weapons like The Pegasus, spyware*



"Life is never fair, and perhaps it is a good thing for most of us that it is not."

-Oscar Wilde

VACCINE DISTRIBUTION MADE SAFER AND MORE RELIABLE WITH BLOCKCHAIN INNOVATIONS

V.KHANISHKA

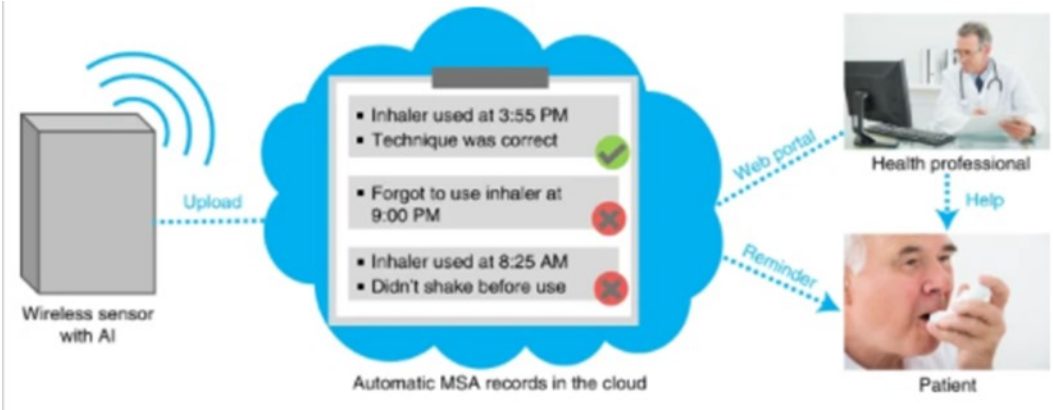
BSC BCCAC 3F

121319061034

Blockchain could play an essential role in the distribution of the COVID-19 vaccine. a system in which blockchain technology is used to guaranty data integrity and immutability of beneficiary registration for vaccination, avoiding identity thefts and impersonations. Smart contracts are defined to monitor and track the proper vaccine distribution conditions against the safe handling rules defined by vaccine producers enabling the awareness of all network peers. A prototype was implemented using the Ethereum test network, Ropsten, considering the COVID-19 vaccine distribution conditions. The results obtained for each on-chain operation can be checked and validated on the Etherscan. In terms of throughout and scalability, the proposed blockchain system shows promising results while the estimated cost in terms of gas for vaccination scenario based on real data remains within reasonable limits. Blockchain can increase the efficiency and transparency of COVID-19 vaccine distribution assuring the traceability and the rigorous audit of the storage and delivery conditions. Blockchain-based solutions may provide a fully automated implementation of data accountability and provenance tracking in vaccine distribution. A breach in guaranteeing the delivery conditions will be registered on the blockchain in a tamper-proof manner. All network peers will be made aware due to the distributed ledger block distribution and replication features. Finally, the blockchain can act as proof of the delivery chain, making it very difficult to counterfeit the vaccine. At any point, the medical units and the vaccine beneficiaries would cab trace it back up to the companies that have registered the vaccine lots in circulation.

SYSTEM DETECTS ERRORS WHEN MEDICATION IS SELF-ADMINISTERED

Wireless sensing technology could help improve patients' technique with inhalers and insulin pens. From swallowing pills to injecting insulin, patients frequently administer their own medication. But they don't always get it right. Improper adherence to doctors' orders is commonplace, accounting for thousands of deaths and billions of dollars in medical costs annually. To reduce this type of incidents the new technology pairs wireless sensing with artificial intelligence to determine when a patient is using an insulin pen or inhaler, and flags potential errors in the patient's administration method. An automated system that can be broken down into three broad steps. First, a sensor tracks a patient's movements within a 10-meter radius, using radio waves that reflect off their body.



Next, artificial intelligence scours the reflected signals for signs of a patient self-administering an inhaler or insulin pen. Finally, the system alerts the patient or their health care provider when it detects an error in the patient's self-administration. This system of sensing method was adapted from a wireless technology they'd previously used to monitor people's sleeping positions. It can even work through occlusions, similar to how you can access your Wi-Fi when you're in a different room from your router. Researchers says that, through repetition and reinforcement, the network successfully detected 96 percent of insulin pen administrations and 99 percent of inhaler uses. **"with this type of sensing technology at home, we could detect issues early on, so the person can see a doctor before the problem is exacerbated."**

Life is either a daring adventure or nothing at all. - Helen Keller

WORLD'S FIRST 2 NANOMETER CHIP TECHNOLOGY BY IBM

Misha Bhargava

B.Sc. 3E, M.E.Cs.

121319054040

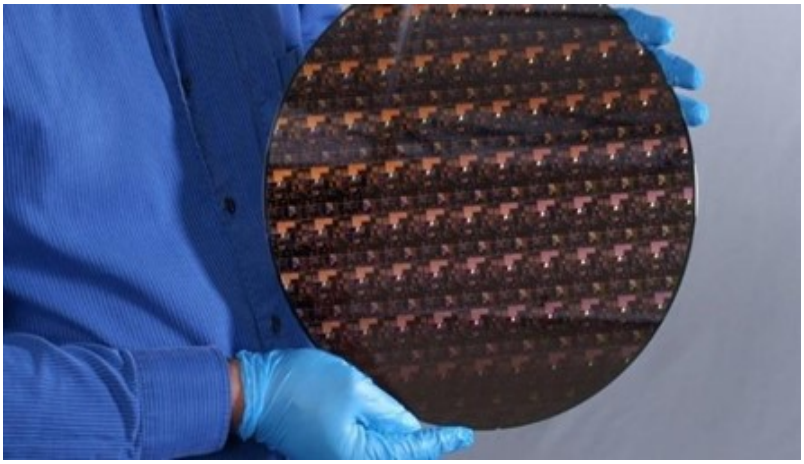
A few months ago, on May 6, 2021, **IBM released the world's first semiconductor design breakthrough by building the world's first chip with a 2-nanometer (nm) nanosheet technology.** This latest breakthrough allows the 2 nm chip to fit up to 50 billion transistors on a chip the size of a fingernail!

Let's recall all the encounters we have with electronic devices. How many have we seen or used in the last 24 hours? Each one has important components that have been manufactured with electronic materials.

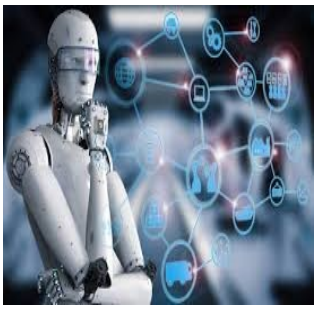
Without semiconductors, the technology that we count on every day would not be possible!

Semiconductors are an important component of electronic devices, providing advances in communications, computing, healthcare, transportation, clean energy, and many more other applications.

Developments in semiconductor technology during the past 50 years have made electronic devices smaller, faster, and more reliable. The demand for increased, faster, better performance and better energy use is continuously increasing, especially with the rise of AI, the Internet of Things etc. The Covid-19 pandemic in the world has greatly increased the need for semiconductor chips, as we are all studying & working from home and various remote areas, resulting in a global chip shortage and causing chip companies of all types to increase their capability and capacity.



IBM 2nm silicon wafer



IBM's (International Business Machines Corporation) breakthrough and development of the 2 Nanometer chip (nm) on nanosheet technology is towards the goal to ensure this 2-nm technology gets into the hands of manufacturers and the hands of consumers by the end of 2024 at the earliest.

This will most certainly advance the semiconductor industry, *giving a solution* to the increasing demand. It is said to achieve 45 percent higher performance, or 75 percent lower energy use, than today's most advanced 7 nm node chips!

However, how does this semiconductor breakthrough help?

Cellphones:

Cell phones are an everyday component for all of us, and this advanced 2 nm chip could quadruple the battery life of cell phones, giving a longer period of time between charging. We would only have to charge the devices every four days!

Laptops:

Instead of carrying our laptop charger everywhere, this chip would allow laptops to have faster functionality and long battery life, particularly benefiting gaming. It will also greatly speed up a laptop's functions, giving quicker processing in applications, assisting in language translation more easily and faster internet access!

Carbon Footprint:

The carbon footprint is the total greenhouse gas emissions caused by each one of us. Data centers account for one percent of global energy use. By changing all the servers to 2 nm-based processors the carbon footprint could be reduced significantly.

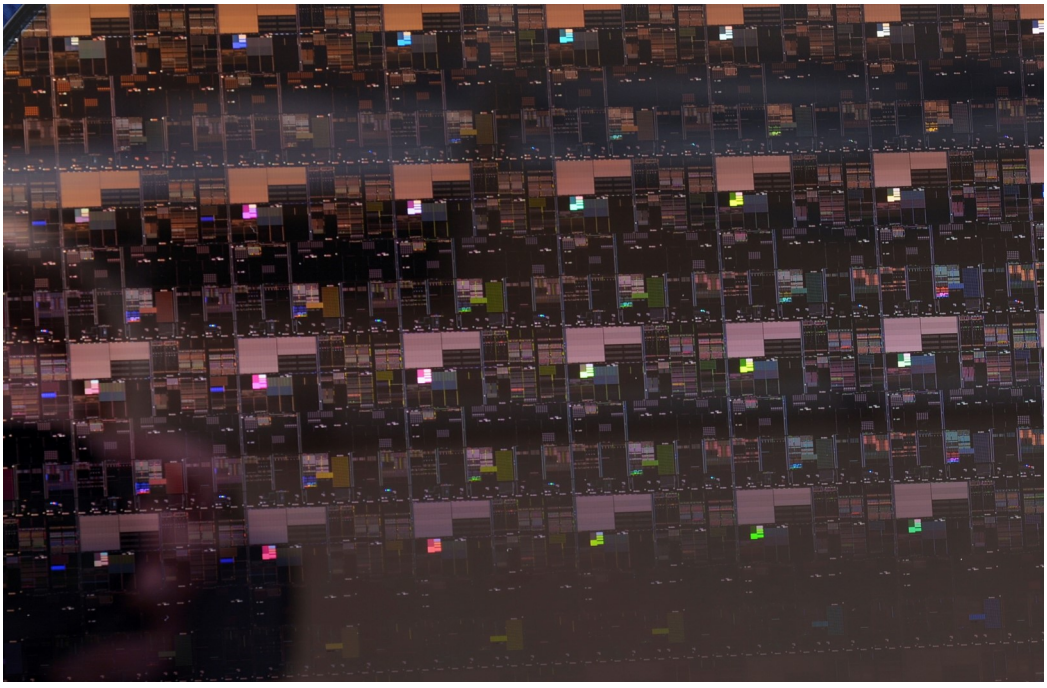
This chip can also contribute to faster object detection and reaction time in vehicles like self-driving cars.

With the current Corona Virus pandemic, this chip also has immediate implications. It will provide aid in the discovery of new drugs, materials! It will also be very helpful for climate and sustainability because of the significant benefit towards reduced power consumption.

If this 2-nm chip breakthrough could be achieved despite the current odds, imagine what could be achieved beyond! This chip is just the beginning to innovations improving the leading upcomers like AI and cloud computing.

This technology can now enable semiconductor innovation and semiconductor improvement to continue for the next decade and its various uses will carry us as far into the future as anyone can now foresee.

I look forward to it very much.



Success is not final; failure is not fatal: It is the courage to continue that counts. - Winston S. Churchill

LIFE IN XR (EXTENDED REALITY)

N SAI VINEELA

BSC 3H (SE)

121319052028

The world has come a long way in the subject of technologies . From inventing emails to watch people around the world online in front of you. These inventions are eternal as long as the human species exist.

The evolution of technology has taken us to an era where we can now merge the physical and virtual realities. The XR (extended reality) umbrella name is used for technologies like VR(virtual reality), AR (Augmented reality), and MR(Mixed reality). These three high techs give us different kinds of experience wherein one we can see the artificial world around us (VR) than the other where the virtual information and objects are overlaid on the real world (AR).

So why do we have to consider this? Is this useful for mankind? Then how can we implement this? Yes, we should consider this because this technology can be the lifelike technology platform that builds connections for many other techs like AI, robotics, and all other technologies around the world.

When we talk about the uses of this it revolutionizes the system of education and training. According to the research, after two weeks of learning new things we remember 90% of the things which we do in practice whereas we will just remember 20 % of what we hear. So this clearly says that having a system where we can do and learn increases the ability to learn things quickly.

This technology helps us to solve, learn and experience even minute things such as where we can show children the microns of the plant and it also enables us to touch the things which we can never actually do it. This one is implemented not just in learning things but helps us to make wiser decisions. The try-before-you-buy experience in IKEA collaborated with APPLE which allows you to try things out in your home.

This technology destroys the geographic distance and bridges our imagination. All this happens only when we adapt to the new technologies as we can already see VR with smart phones as the brain. As technology is increasing with the rate of acceleration we should start adopting and building the technologies which may play a crucial role in the future.

If you believe in improvising the way we learn, interact and share information then technology is the best resource which we have and something which we can give to our future generations. So don't settle for less because if Vinton Cerf and Bob Kahn haven't invented the internet today I may not get the opportunity to share this piece of information with you which even I got to know through the internet by persons who are another side of the world.

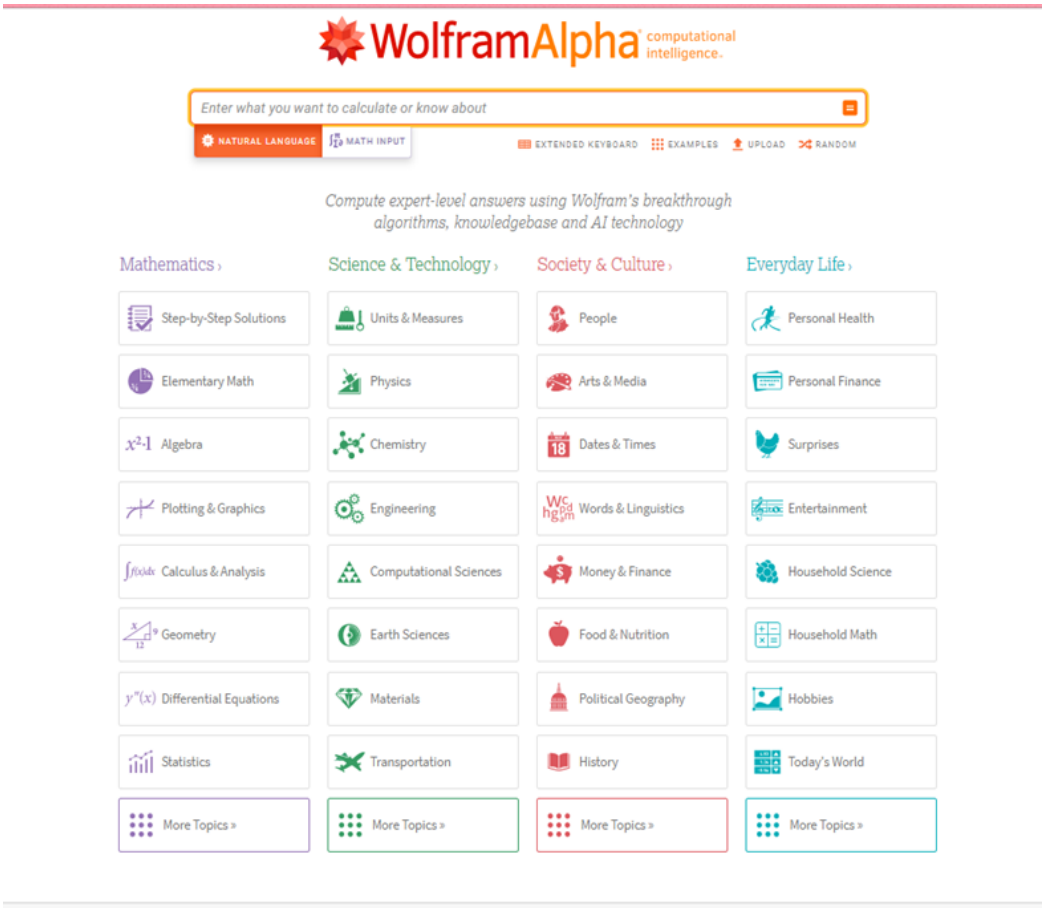
ARTIFICIAL INTELLIGENCE

121319044026
J.V.Krishna Haritha
B.Sc-3D M.S.Cs

The world is taking many turns in today's technology. AI and ML will be leading the future of technology. AI (Artificial Intelligence) is actually a technology where a computer can perform things that a human can do. This technology is able to think as a human brain and can do the problem solving techniques.

In the coming years of development, AI plays an important role. This tech may take form from PYTHON. Because, they have some similarities in the programming or advancing in the computer world. There can be many levels, but are categorized broadly in three ways : Weak or narrow AI, General or strong AI and Artificial Super intelligence. Artificial narrow intelligence (ANI) is now being very useful in the form of voice assistants or so. iOS Siri is also an example of a weak AI which has a number of weak AI strategies to work. It can do a lot of things for the user, and we can see how "slim" it is when we attempt having discussions with the virtual assistant. Simply, we can consider wolframalpha.com which works based on AI.

This can solve any kind of problems in any subject like Mathematics, Physics, Calculus and Analysis, step-by-step solutions or Algebra. This defines that the growth in technology will take over the world. Robotics in now-a-days is taking a step forward with the help of AI. So we can see that, there will be a day where everyone will have an online assistant to simply do their easy tasks such as web-browsing or setting alarms or reminders .



"Believe you can and you're halfway there." - Theodore Roosevelt

DEPARTMENT OF COMPUTER SCIENCE

The department was established in 1988, an iconic year in the lifeline of St. Francis College as it marks the grant of autonomy to the college. Computer Science is an interdisciplinary field and it is as much about teaching and learning of computer science as it is about the areas that impact on computer science – mathematics, linguistics, natural sciences, psychology, philosophy and how they interrelate with the theory and practice of education. Highly qualified and dedicated teaching faculty supported by equally able and competent lab faculty are the strength of the department. The college has hi-tech state of the art computer labs with over 400 high end computer terminals facilitated with high-speed internet access and connected to Linux and Windows servers equipped with all the required licensed software.

The department offers an assortment of programs at the undergraduate level, M.Sc. Computer Science at the postgraduate level and CCNA certification course. While we believe man is still the most extraordinary computer of all, we endeavour to provide the best possible exposure and training to the students, making them strong to face the IT challenges of the world.