acm CCET STUDENT CHAPTER
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Chandigarh College of Engg. & Tech.
CCET

THE CCET ACM TECH MAGAZINE

Digital Outlet

NOVEMBER - DECEMBER, 2021

VOL 2, ISSUE 2

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Newly Launched
ACM CCET Mobile App

read inside

VISION

Chandigarh College of Engineering and Technology aims to be a center of excellence for imparting technical education and serving the society with self-motivated and highly competent technocrats.

MISSION

1. To provide high quality and value based technical education.
2. To establish a center of excellence in emerging and cutting edge technologies by encouraging research and consultancy in collaboration with industry and organizations of repute.
3. To foster a transformative learning environment for technocrats focused on inter-disciplinary knowledge; problem-solving; leadership, communication, and interpersonal skills.
4. To imbibe spirit of entrepreneurship and innovation for development of enterprising leaders for contributing to Nation progress and Humanity.

DEPARTMENT-VISION AND MISSION

VISION

To produce self-motivated and globally competent technocrats equipped with computing, innovation, and human values for ever changing world and shape them towards serving the society.

MISSION

M1. To make the department a smart centre for learning, innovation and research, creativity, and entrepreneurship for the stakeholders (students/scholars, faculty, and staff).
M2. To inculcate a strong background in mathematical, theoretical, analytical, and practical knowledge in computer science and engineering.
M3. To promote interaction with institutions, industries and research organizations to enable them to develop as technocrats, entrepreneurs, and business leaders of the future.
M4. To provide a friendly environment while developing interpersonal skills to bring out technocrat's inherent talents for their all-round growth

TABLE OF CONTENTS

LOOK WHAT OUR MENTORS HAVE TO SAY

Our mission at CCET is not only to produce engineering graduates but to produce engineering minds.

- Dr. Manpreet Singh

Principal CCET (Degree Wing)

ACM CCET provides student a great opportunity to learn scientific and practical approach of computer science.

- Dr. Sunil K. Singh

Professor and HOD, CSE | Faculty Mentor

Every person should be provided with an opportunity to learn and explore the field of computer science.

- Sudhakar Kumar

Assistant Professor, CSE | Faculty Sponsor

We, at CCET ACM Student Chapter hope to encourage students to diligently pursue their interest in computer technologies and contribute towards the revolution our world is moving towards.

-Muskaan Chopra

UG Scholar, 5th Semester, CSE | Chairperson

CCET ACM STUDENT CHAPTER

Research and Development

Hackathon and Coding

Student Speaker Program

Internship and Career opportunity

Web-App designing and Digital Art

ABOUT CASC

ACM boosts up the potential and talent, supporting the overall development needs of the students to facilitate a structured path from education to employment. Our Chapter CASC focuses on all the aspects of growth and development towards computer technologies and various different fields. Overall, we at CCET ACM Student Chapter, through collaboration and engagement in a plethora of technical activities and projects, envision building a community of like-minded people who love to code, share their views, technical experiences, and have fun.We have been trying to encourage more women to join the computing field, so we started an ACM-W Chapter to increase the morale of women. CASC launched an app which aimed at maintaining a decorum of reading among CS members and sharing their ideas.

BENEFITS

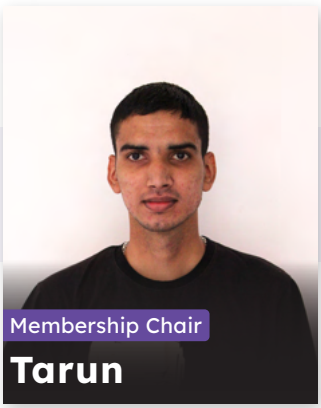
- A vast network of nearly 100,000 highly dedicated student and professional peers.
- Become a member of computing community with hundreds of Professional and Student
- A full year subscription to ACM magazines and newsletters.
- Participation in ACM Distinguished Speakers Program (DSP).
- An option to subscribe to full ACM Digital Library, which includes over 2 million pages of text.
- Unique volunteering opportunities to gain hands-on experience and knowledge.

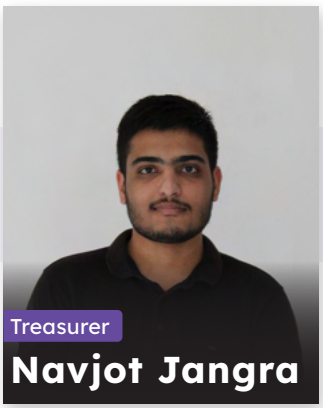
MEET OUR TEAM


Chairperson
Muskaan Chopra

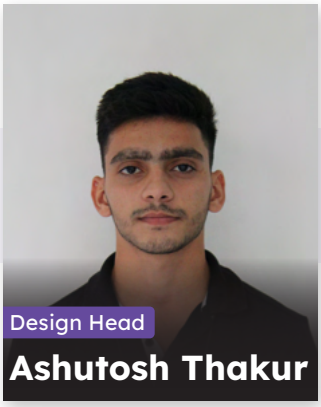

Vice Chair
Kriti Aggarwal


Secretary
Anureet Chhabra

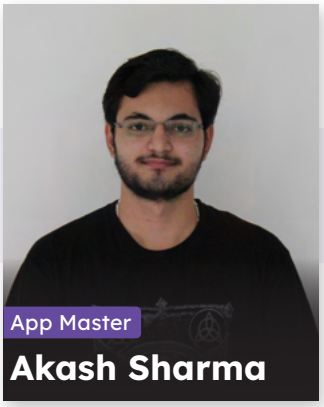

Membership Chair
Tarun

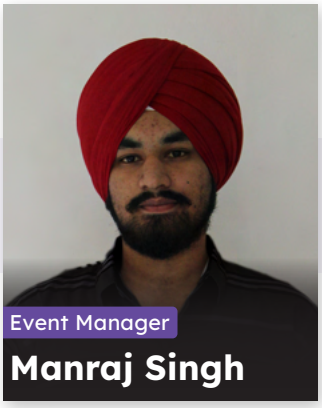

Treasurer
Navjot Jangra

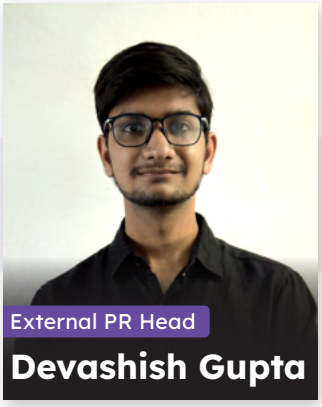

Webmaster
Parnit Kaur


Design Head
Ashutosh Thakur


Executive Member Head
Taruna Saini


App Master
Akash Sharma


Event Manager
Manraj Singh


External PR Head
Devashish Gupta


Editorial Head
Dipesh Singla


Social Media Manager
Karan Singh

CASC'S INITIATIVES

ACM-W

ACM W: - We at CCET have taken the initiative to encourage women to become more active in the computing field, especially. Women in computing are supported and kept in the workforce by ACM-W Professional Chapters. Women only make up 25% of the computing workforce, so CCET started an ACM-W Chapter to boost up women's morale.

CASC MOBILE APP

The aim of the app launch is to maintain a decorum of reading in CS individuals and share their ideas via application itself and creating an environment where people can read the latest emerging tech trends. Read content from the CASC website and from current and archived issues of the monthly Communications of the ACM magazine. This application allows you to read, send, and save CASC content anytime, anywhere.

CASC'S RECENT ACHIEVEMENTS

Syscom

Articles accepted in the International Conference on Smart Systems and Advanced Computing

We congratulate our team members for getting articles accepted in the International Conference on Smart Systems and Advanced Computing. Under the guidance of Faculty Mentor and CSE HOD, Dr. Sunil K. Singh, and Faculty Sponsor Mr. Sudhakar Kumar.

CASC Featured

CASC Featured for reporting highest number of activities

CASC is featured on the ACM India student chapter website for the highest number of activities in a month. We congratulate our team members for letting the team achieve this and like to thank the Faculty Mentor and CSE HOD, Dr. Sunil K. Singh, and Faculty Sponsor Mr. Sudhakar Kumar for giving the guidance throughout.

CASC'S RECENT ACHIEVEMENTS

International Conference on Smart Systems and Advance Computing (SysCom-2021)

CERTIFICATION OF BEST PAPER AWARD

This is to certify that the paper entitled **"Efficient Speculative Parallelization Architecture for Overcoming Speculation Overheads"** by **"Sudhakar Kumar, Sunil K. Singh, Naveen Aggarwal and Kriti Aggarwal"** has been awarded with the BEST PAPER AWARD in the International Conference on Smart Systems and Advance Computing (SysCom 2021) organized during **December 26-27,2021 in New Delhi, India (Online Mode)**

Zhili Zhou | Kwok Tai Chui | Brij Gupta | Justin Zhang

Syscom 2021

Sudhakar Kumar, Faculty Sponsor, won the Best Paper Award for his paper which was published in the International Conference on Smart Systems and Advance Computing

Sudhakar Kumar, Faculty Sponsor, won the BEST PAPER AWARD for his paper entitled "Efficient Speculative Parallelization Architecture for Overcoming Speculation Overheads" which was published in the International Conference on Smart Systems and Advance Computing (SysCom 2021) organized during December 26-27,2021 in New Delhi, India (Online Mode). The paper was written under the guidance of Dr. Sunil K. Singh and Naveen Aggarwal and was co-authored by Kriti Aggarwal.

TECHNICAL PAPER WRITING CONTEST 2021

November 10, 2021

Competition Details

We at CCET encourage students to excel in each and every field of science and document it also. So we have hosted an event to enhance the writing potential of each and everyone and told the students to write articles for insghts2techinfo website and in fact few students from our chapter even won some prizes. Students have responded enthusiastically to this contest.

POSTER DESIGN COMPETION -VIVIFY

November 13-15, 2021

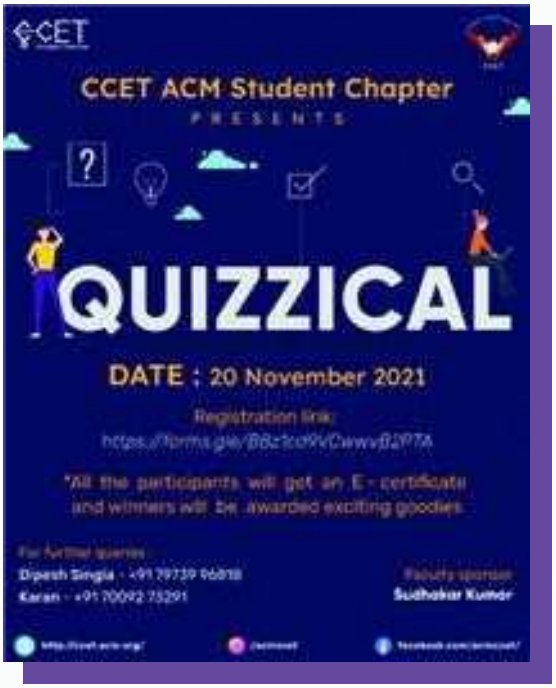
Competition Details

Designing is one of the most important parts for any computer science student since it the the way to effectively show your thoughts and emotions via some pictorial representation. Keeping this in mind CASC arranged a competition called VIVIFY to seek the talents in designing posters by using tools like illustrator or photoshop etc.

QUIZZICAL

November 20, 2021

Competition Details



A quiz competition “Quizzical” is being organized by CCET ACM Student Chapter to help strengthen the grasp of computer science concepts as a whole. Discover some computing concepts, technologies, methods, and facts and be in the running to win some exciting prizes.All the participants got an E-certificate and winners were awarded with exciting goodies. Students have responded enthusiastically to this contest.

INTERNATIONAL VIDEO CONTEST

December 10, 2021

Competition Details

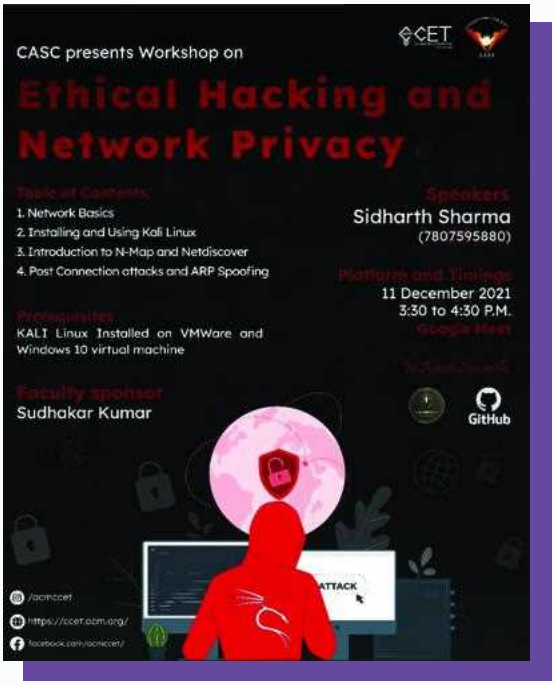
The CASC has organized a video contest in which students record videos demonstrating the latest and upcoming tech trends in any field of science. We have seen topics of all kinds including basic to advance and some topics which many haven’t even heard of. It created an effective sharing of knowledge with each other. Students have responded enthusiastically to this contest.

Ethical Hacking and Network Privacy

December 11, 2021

Event Details

Event hosted by CASC Chapter to spread a piece of knowledge about Ethical Hacking and Network Privacy and how it plays a very important role in this digital era where multi talented hackers are trying to steal each and every details related to you especially financially. In the event Network Basics, Installing and Using Kali Linux, Introduction to N-Map and Netdiscover, Post Connection attacks and ARP Spoofing and more topics are also discussed.



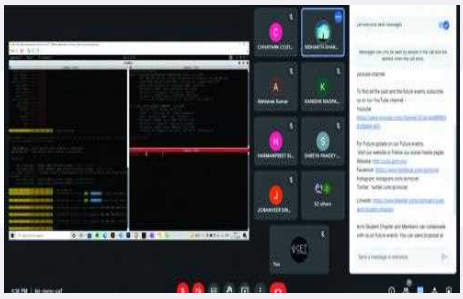
Speaker

Sidharth Sharma

UG Scholar, CSE @ CCET
3rd Semester

Event Gallery

Youtube Stream



FLUTTER UP 2021

November 28, 2021

Event Details

The event majorly focused on Flutter and making students able to understand Flutter and be familiar with the basic commands and functions. Along with Brief Introduction to Flutter we discussed Benefits of Flutter development, Why Flutter for Mobile Development?, Using Dart language in development, Discussion on components used in app development, Hands on Session: Demonstrating the concepts by creating a BMI app using different widgets and user-friendly UI and more topics. And various interesting queries of students were resolved.

Speakers

Manraj Singh

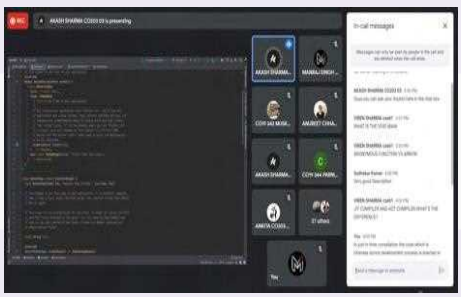
UG Scholar, CSE @ CCET
3rd Semester

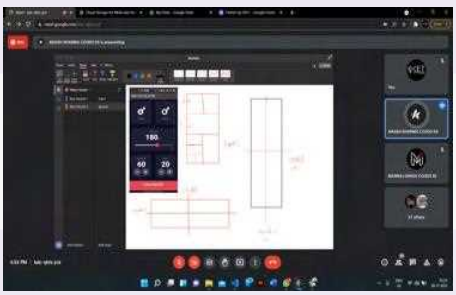
Akash Sharma

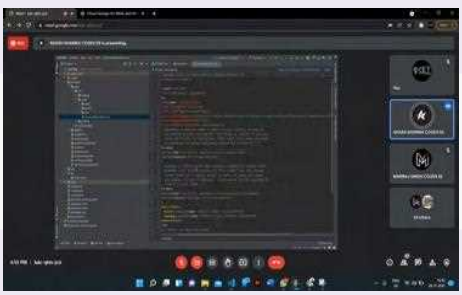
UG Scholar, CSE @ CCET
3rd Semester

Event Gallery

Youtube Stream





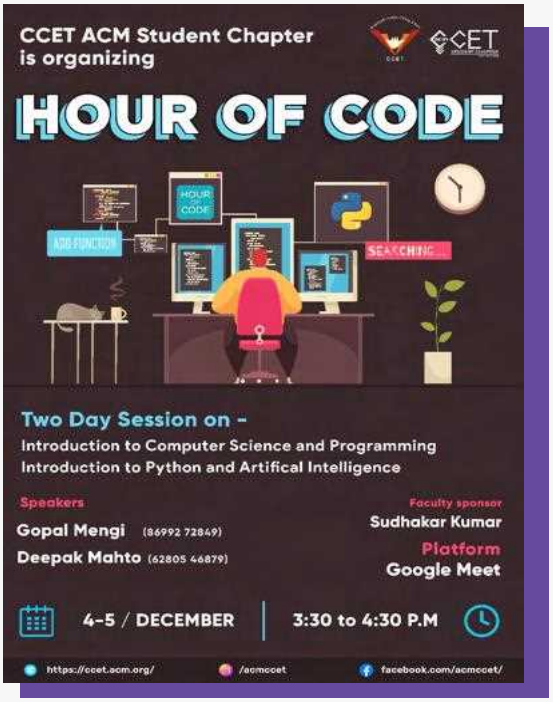


Hour of code

December 4-5 , 2021

Event Details

The Hour of Code takes place each year during Computer Science Education Week. We at CCET hosted this event in online mode. And it created a boost in morale of people who are scared to code or who just code for the sake of college assessments. Participating in the Hour of Code means doing a one hour computer science activity. The main aim of this event is to show that anybody can learn the basics, and to broaden participation in the field of computer science.



Speakers

Deepak mahto

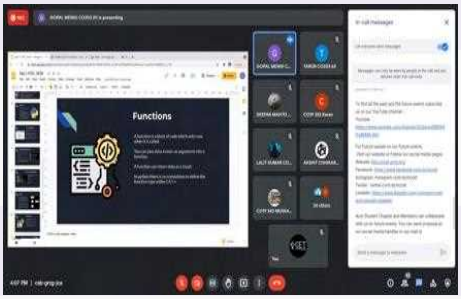
UG Scholar, CSE @ CCET
3rd Semester

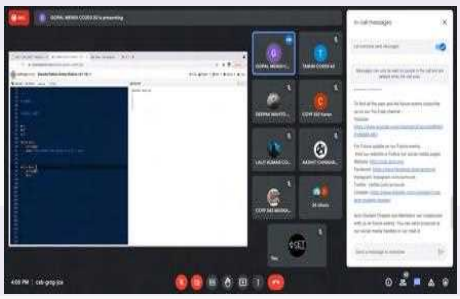
Gopal mengi

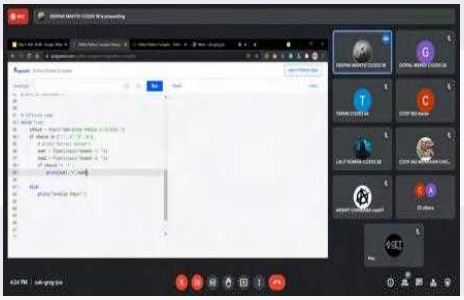
UG Scholar, CSE @ CCET
3rd Semester

Event Gallery

Youtube Stream







FUNDAMENTALS OF BLOCKCHAIN TECHNOLOGY

December 12, 2021

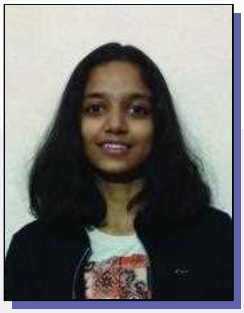
Event Details

Event hosted by CASC Chapter to spread a piece of knowledge about the blockchain and blockchain based systems. Basics of Blockchain were also mentioned during the event. Along with this Structure of blockchain, Proof of work and Peer to Peer Network, Smart contracts and its application, Difference between bitcoin and blockchain and applications are also discussed in the event.

Speakers

Manisha Kumari

UG Scholar, CSE @ CCET
3rd Semester

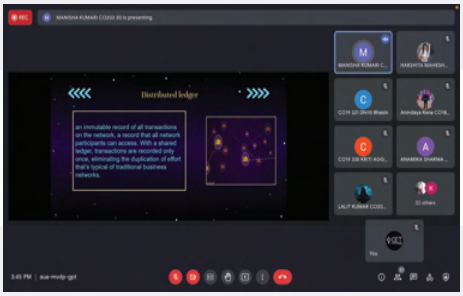


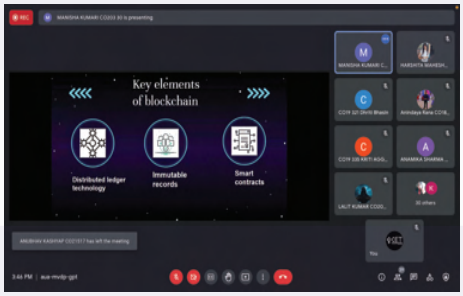
Shreya Pandey

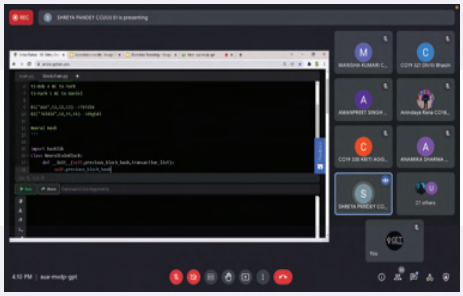
UG Scholar, CSE @ CCET
3rd Semester

Event Gallery

Youtube Stream





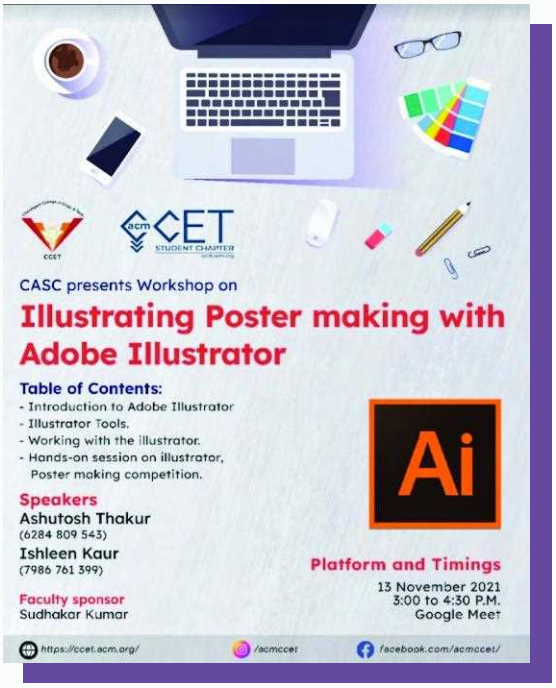


ILLUSTRATING POSTER MAKING WITH ADOBE ILLUSTRATOR

November 13, 2021

Event Details

Designing is one of the most important part for any computer science student since it the the way to effectively show your thoughts and emotions via some pictorial representation. Keeping this in mind CASC hosted this event and discussed In-troduction to Adobe Illustrator, Illustrator Tools, Working with the illustrator, Hands-on session on illustrator, poster making competition.And various interesting queries of students were resolved.



Speakers

Ashutosh Thakur

UG Scholar, Civil @ CCET
5th Semester

Ishleen Kaur

UG Scholar, CSE @ CCET
3rd Semester

Event Gallery

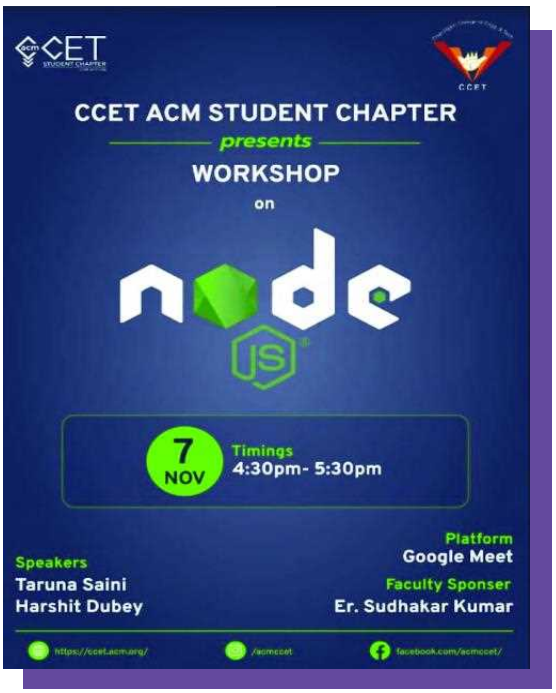
Youtube Stream

WORKSHOP ON "NODE JS"

November 07, 2021

Event Details

Demand of JS especially node JS is increasing rapidly in the industry keeping this in mind we at CCET hosted interesting workshop on Node JS. and topics like Introduction and Basic Node JS commands, Synchronous and Asynchronous Programming, Handling Core Modules, Making a Web Server, Handling HTTP requests and routing are discussed and we have seen a lot of good queries and interaction in the event and all of the queries are very well resolved.



Speakers

Taruna Saini

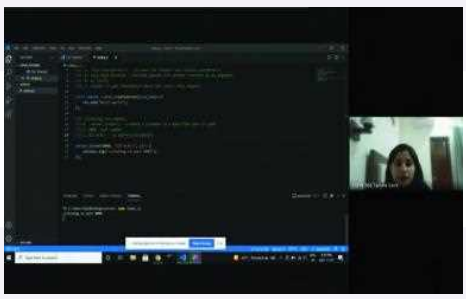
UG Scholar, CSE @ CCET
5th Semester

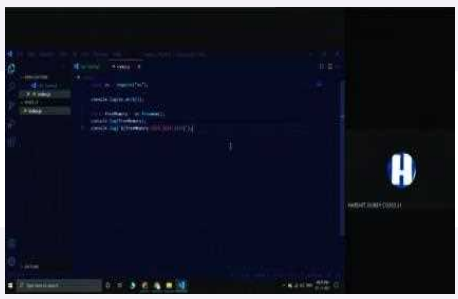
Harshit Dubey

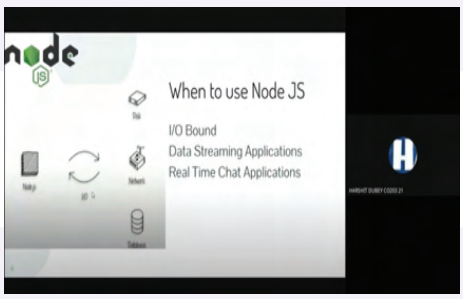
UG Scholar, CSE @ CCET
3rd Semester

Event Gallery

Youtube Stream





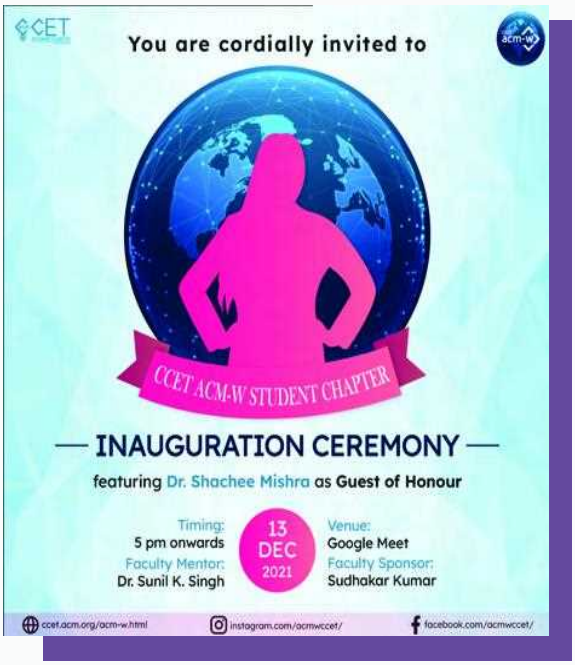


ACM-W INAUGURATION AND INDUCTION PROGRAMME

December 13, 2021

Event Details

Women Chapter to encourage more active participation, especially from women in the field of computing. ACM-W Professional ACM-W Chapters help retain and support women in the computing workforce. Only 25% of the computing workforce are women, so we at CCET have taken up the initiative to boost up womens morale and started ACM - W Chapter at CCET.

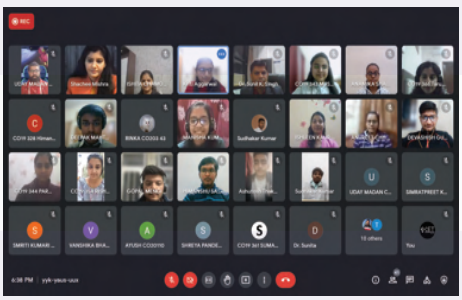


Chief Guest

Dr. Shachee Mishra

Research Scientist, IBM Research
Phd,Stony Brook University, NY

Event Gallery



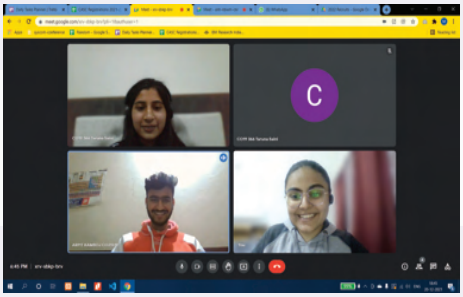
INDUCTION AND RECRUITMENT PROGRAM

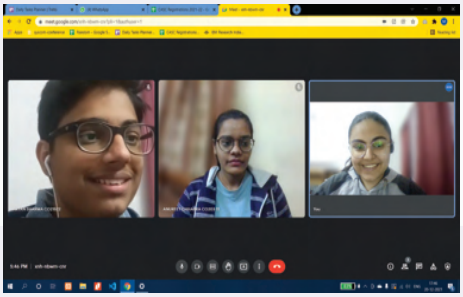
December 18, 2021

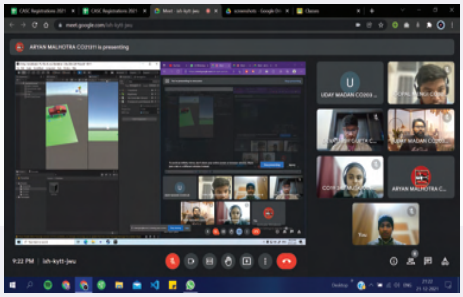
Event Details

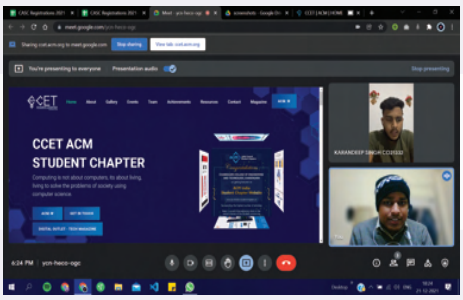
CASC held a session for recruitments in the ACM CCET in the 2022 batch for all years and seniors interacted with new members well. As part of the interview process, technical and non-technical questions were asked about computer science. The event majorly focused on Recruitment of best talent for the field of Computer Science. Various queries of students were resolved by interview taking students.

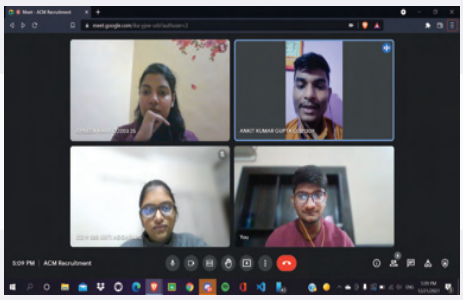
Event Gallery











ANTI-DESIGN

By Ashutosh Thakur, UG scholar Civil @ CCET
co19209@ccet.ac.in

Have you ever heard of Antidesign? You might not know the name and you might have never heard of it, but I'm willing to bet that you've seen examples of anti design without even knowing it, and today we're going to talk about it. A sector of graphic design that is growing at a rapid rate and explore what it is and ask the question, is it about to take over the graphic design space?

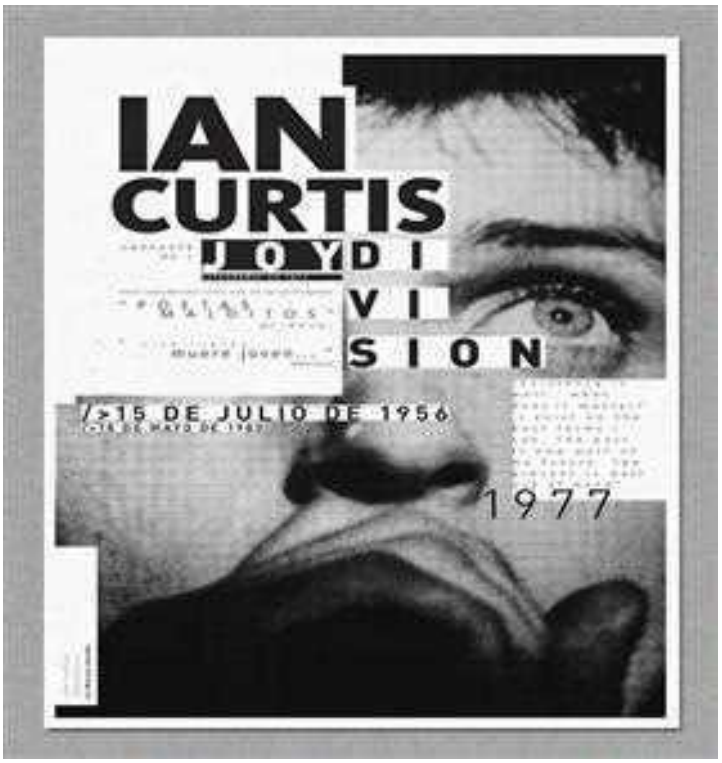
Anti-design is a style of design where most rules are chucked out of the window right away. The designer will purposely do things such as, using hideous colour palettes that clash, totally ignore alignment, choose fonts that suggest he or she doesn't know, and often typography won't even be legible. Anti-design is shocking. It comes into the graphic design world with a sense of energy and rebellion.

It's almost a new guard is replacing the old guard, but there's a catch. It isn't, maybe exactly what makes people think it is. Yes, anti-design disregards many rules in graphic design. However, it still requires talent to get right. But why does anti design exist? There really is just one single reason for something like it to exist. But I personally have three factors in mind that I think have contributed.

The first thing I feel is the availability of design software. Several decades ago, it used to be that a select few people would have access to graphic design tools and were able to actually create artwork.

These days, you can pick up any high end software say, Adobe for next to nothing, or even just use 100% free software that does an excellent job too. And this means that anybody can make graphic designs.

Many people are creating design work without ever studying graphic design or learning about the principles that work so well. Secondly, the designers who are bored with the rules and who have rebelled against the industry, they've kind of gained traction and notoriety. And that's because the work is so novel, so striking and so powerful it does make it really hard hitting presence. And with the Internet these days, such ideas are able to be shared globally in an instant.



The younger generations find such a rebellion and energy intriguing. Lastly, I feel that because of what's happened globally, starting back in early 2020-2021, many people were discouraged and angry at the world. Things are vastly different now in comparison to how they were a couple of years ago. Some people who have felt a slight change in society, whereas other people probably seen a huge change in their country they reside in. Looking back through the years, art has almost always been a reflection of society.

The futurist artists in the early 20th century created work around speed, energy and movement. And this was a reflection of the machine industry being introduced into the modern world. And I think that anti design is something somewhat similar, and it's a way for people in the graphic design world to revolt against something, whatever that might be for each individual. Now, there are a lot of anti design examples that I find interesting and actually like. But don't be fooled that any old person can just make it look good. It still requires a skillset to create a nicer design.

API AND ITS APPEARANCE IN WEB APPLICATIONS

By Shreya Pandey, UG scholar CSE @ CCET
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Computers have evolved from simple routines to complex, large-scale online systems. Software interaction in the technological world was a series of commands at the terminal, even before the internet was common. This interface is today commonly referred to as an API in the age of the Internet, specifically after the spread of the World Wide Web.

Application Programming Interface (API)

Using APIs, or application programming interfaces, software developers and programmers can exchange data smoothly and securely, facilitating the development of software.

How does the API work?

The client application starts an API call for information - also called an application. The API's Uniform Resource Identifier (URI) transmits the request from the client to the web server and includes the action of the application, the title of the application, and sometimes, the theme.

APIs receive valid requests and call external applications or servers for information. The server sends data in response from the API to the original application that made the request.

Web Service

Through a web service, two machines can communicate with each other over a network.

Other computers can submit requests to a web server based on a computer. Web services respond to requests from other computers via the network by returning the requested applications. A network application can be a JSON, XML, HTML file, Image, Audio File, etc. One should be aware of the requirement for a network application.

API contributions to Economy

A clear statement has been made that data is the new fuel, and this data can be accessed via APIs.

Businesses can be built around direct applications and market executions to build the API economy.

To create an automatic ecosystem, API monetization techniques are needed, and it can be indirect or product-based, emphasizing on consumer data, which enables limitless access to ecosystems and faster marketing.

Comparing Web.1 and Web.2 API s

Examples of real-life business using API

Networking helps create revenue streams and connect like-minded collaborators. Its services reduce the time and cost of partnering with Expedia-owned companies as a result of its access to its systems. A rich API collection has been designed by Expedia (EAN), which features features designed to increase traffic, get higher conversion rates, and offer higher order prices to its partners, including airlines and tour operators. Customers can access bookings, photos, search results and user reviews directly through websites and mobile applications developed by third parties.The result is a consumer who is more likely to plan a trip. Expedia now generates 90 percent of its revenue via APIs, drives plenty of traffic, creates new revenue streams through collaboration, and spawns new distribution channels.

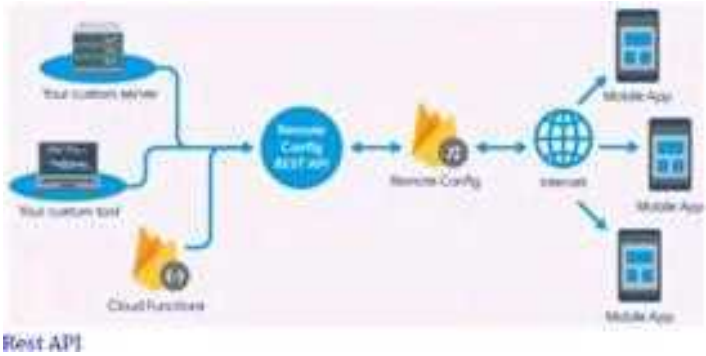
Appearance of APIs parallel to the World Wide Web

Organizations can use APIs to share data and applications through open standards and forums. App developers and data scientists get more than just basic tools . APIs - any interface that enables the commercial exchange of functions and skills between two parties - have captured not only the attention of software developers, but also of strategists, market leaders, and corporate managers who are trying to rise to the next level of market segmentation.

APIs in Web 2.0 World

The development of web-based applications has skipped full suits for web-based software products.

In the past, the API did not have the



flexibility of data collection, but in conjunction with the WWW, it became more flexible.

With the rise of Web 2.0, software has played a key role in analyzing customer life cycles, performance, and outside parties in order to provide more relevant input.

The REST (Representational State Transfer) framework has led to a great deal of change in API architecture. It describes a set of guidelines and recommendations for defining links between APIs, which is a model of real-world objects.

Path breaking trends in APIs with Web 3.0

With Web 3.0 we are living in the third wave of evolution. Web 3.0 is all about showcasing Web data , with the balanced integration of people and equipment, enabled by IoT, AI, and ML. Web 3.0 is also fundamentally about distributed web structures including Blockchain., which is very reliable and gives personal autonomy to many people.

Clients and developers are restricted when it comes to responding to highly interactive, manmade web applications with real-time interactive equipment. Event-driven paradigms are required, where APIs involved in the interaction capture as many human interventions as possible and process them automatically.To carry out the development in a humane and hassle-free manner.

METAVERSE

By Deepak Mahto, UG scholar CSE @ CCET
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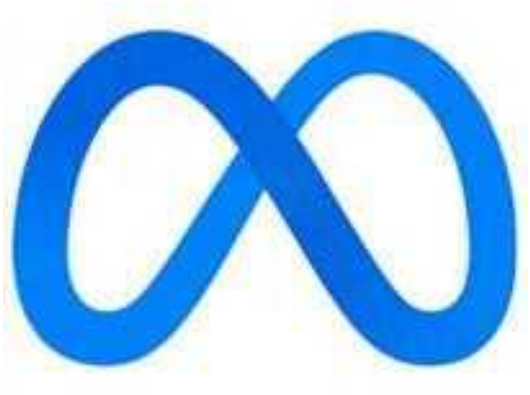
Centralized virtual worlds, a parallel space or universe to the material world, which was once a hollow concept favoured by only techno-geeks, have exploded into the mainstream. Mark Zuckerberg announced a rebranding of Facebook under the new name "Meta" on October 28. The company's entire focus shifted to creating and supporting Metaverse. Various companies announced new ways to collaborate online, which is boosting interest in virtual productivity platforms. Companies and investors are looking forward to being part of what might become the next big thing as interest in the metaverse grows.

A brief introduction to the Metaverse

Metaverses are virtual worlds that facilitate social interaction in the three-dimensional world. The term "metaverse" is commonly associated with Neal Stephenson's 1992 novel Snow Crash, with Earnest Cline's 2011 novel Ready Player One serving as a more recent inspiration. Virtual and augmented reality technologies allow people in the metaverse to interact with one another. We can shop, play games, buy things, and own properties in the metaverse. Iterations of the metaverse may involve the integration of virtual and physical spaces, and virtual economies, as well as the advancement of virtual reality technology.

Metaverse is considered Web 3.0 which is a stage in the evolution of the internet that is based on the fundamental concepts of de



centralization, openness, and increased user utility. There are two types of metaverses: centralized metaverses and decentralized metaverses. Meta and Roblox are some examples of large corporations that are all focused on the centralized metaverse.

Popular metaverses include virtual world platforms. The 2003 game 'Second Life' can be considered an earlier version of the metaverse. Meta, Nvidia Corporation, Epic Games Inc, Nextech AR Solutions Corp, ByteDance Ltd, Roblox Corporation are among the leading companies in the field of the metaverse.

Benefits of Metaverse

Meetings through video conferences have some drawbacks. It can be overcome by metaverse. Metaverse will make us feel as if we are all sitting in the same room by allowing us to interact with digital avatars. The metaverse's virtual currencies are expected to have a significant impact on the global economy. Using the metaverse will help us save valuable resources. We will be less dependent on the government as a result of decentralization. It will also be a huge boon for sustainability because it will provide us v

with new and often more efficient ways to achieve our goals. The Metaverse will significantly lower the cost of a wide range of experiences and products, allowing the poor and middle classes to enjoy luxuries previously reserved for the wealthy.

Problems and concerns related to the metaverse

Information privacy is a concern for metaverses. Few companies may have control over the metaverse, concentrating power and influence in the hands of a few people

In addition, forming alliances with corporations may increase government surveillance and control. Addiction and inappropriate use are other concerns. Digitally alienating spaces and online echo chambers may be amplified by metaverses. They may employ common social media engagement strategies, such as posting biased content, to distort users' perceptions of reality even further. Experts are also concerned that, like current internet technologies, metaverses could be used to "escape" reality.

BLOCKCHAIN TECHNOLOGY

By Rishika Yatishwar Gaur, UG scholar CSE @ CCET
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Blockchain has transformed the economy and has significantly changed business processes. Blockchain is widely known as a decentralised database and an unchangeable ledger. It is mutual among several network nodes. A blockchain organises data into groupings called blocks. When a block is full then the data is stored in another block that is linked with it, forming a data chain. It makes recording transactions and managing assets much easier.

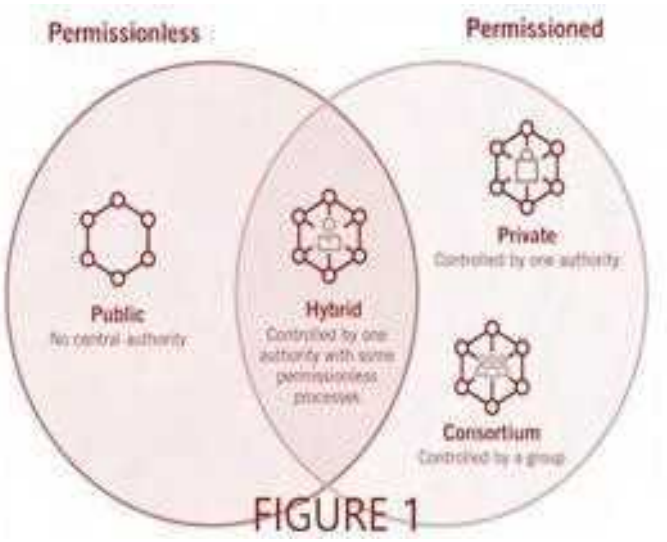


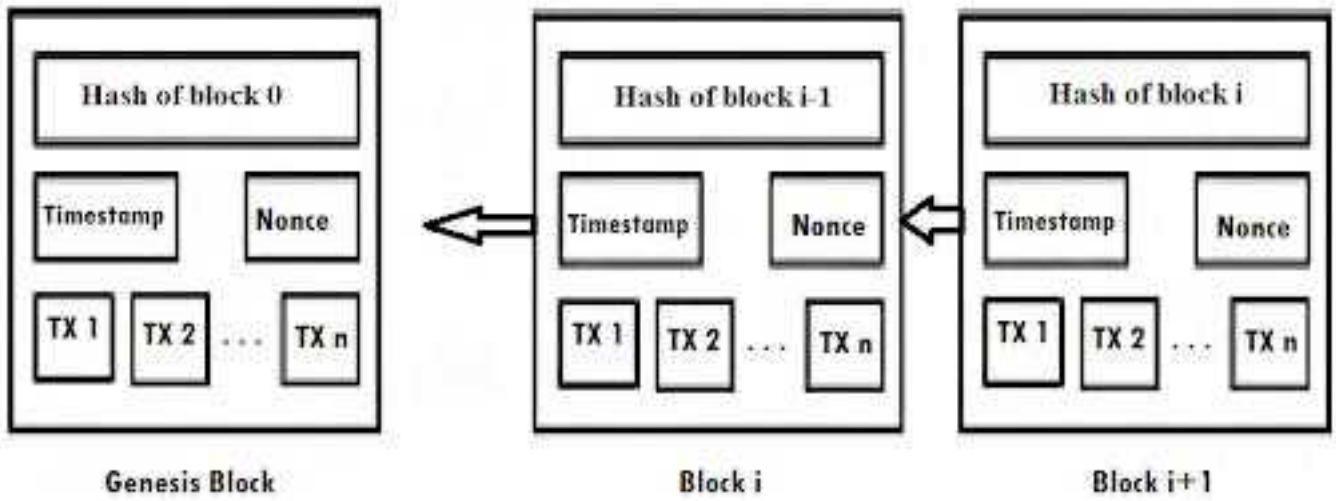
FIGURE 1

Working and Components

A blockchain architecture can be public, private, hybrid, or consortium as shown in Figure 1.

Its architecture consists of : Transaction, Nodes (it can be a user or a computer), Chain (sequence of blocks), Consensus (rules and sequence of doing operation), Miners (nodes that perform verification process) and Block.

It can be implemented using linked list and hash function. Blockchain starts working when there is a request for a transaction. After requesting, a block is created that portrays the transaction. This block is then sent to every other node in a P2P network. Verification process is performed by these nodes. After verification, the previous blockchain was extended by one block which led to the completion of the transaction.



Applications

In Figure 3, some leading applications of blockchain are shown.

Some of the Benefits of Blockchain are Disintermediation, High Quality Data, Durability, better Security, more transparency, improved level of integrity, longevity, fast and Traceability.

Some of its problems are complex verification processes, private keys, large energy consumption, scalability, robustness and regulation. Since it has greater benefits it has been used in various industries.

Figure 3: Blockchain applications

GENERATIVE ADVERSARIAL NETWORKS:

By Gopal Mengi UG scholar CSE @ CCET
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Generative Models:
Going ahead to Generative Adversarial Networks it is essential to get what are generative models. Generative models are the models that use an Unsupervised Learning approach, where it uses simply the data elements to set up the model and sees configuration variables to make an outcome subject to the arrangement data. Generative models can make new models from the models that resemble various models present in the data yet are dubious as well.

The most notable outline of a generative model can be a Naive Bayes Classifier, consistently used as a discriminative model. Various cases of generativemodels join the Gaussian Mixture Model and a high level model that is General Adversarial Networks.

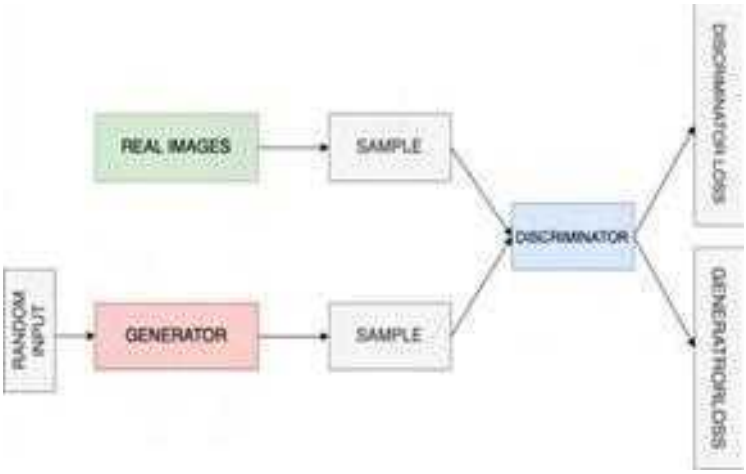
What are Generative Adversarial Networks?
Generative Adversarial Networks, in any case called GANs is an algorithmic designing that uses two neural networks, set one against the other and likewise the name "adversarial" to deliver as of late mixed events of data that can be confused with veritable data. GANs are used extensively in the field of picture age, video age and voice age. Ian Goodfellow introduced GANs and other individual experts, presented as a paper conveyed at the University of Montreal in 2014.

Genuine working utilizing GAN began in 2017 with human countenances to take on image enhancement that produces better representation at extreme focus. Adversarial networks were in a general sense propelled by the blog that was composed by Olli Niemitalo in 2010 however a similar thought is known as Conditional GAN. GANs and adversarial training methods have been acknowledged as one of the most important findings in the field of machine learning. GANs' potential for both being a help and a plague is immense on the grounds that they can figure out how to impersonate any circulation of and from the information. GANs can be instructed to consequently make numerous things like pictures, music, discourse, or exposition.

GAN : Architecture
GANs contain two segments: a generator, which can be portrayed as a neural organization that makes new data events, while the other part, known as the discriminator, surveys them for authenticity. The discriminator picks whether or not each case of data that it studies has a spot with the genuine getting ready dataset. The discriminator furthermore rebuffs the generator for conveying unrealistic results.

It can in like manner be depicted as adversarial, where the generator endeavors to hoodwink the discriminator by delivering data like those present in the arrangement set. The Discriminator attempts to distinguish the fake information from genuine information, and the two of them work at the same time to learn and prepare complex information, for example, sound, video or picture records.

Below is a pictorial representation of a GAN Architecture :-



Working of GAN Models

The GAN working depends on three standards, first and foremost to make the generative model learn, and the information can be produced utilizing some probabilistic portrayal. Secondly, the preparation of a model should be possible in any conflicting circumstance. Lastly, by utilizing the profound learning neural organizations and involving the computerized reasoning calculations for preparing the total framework. The essential thought of GAN network organization is for unaided ML methods yet in addition ended up being better answers for semi-managed and support learning.

These variables generally together empower GAN networks as thorough arrangements in many fields like medical care, mechanics, banking, etc.

Applications of Generative Adversarial Networks.

1. Generate Photos of Human Faces - GAN's are being used to generate the images of human faces that look exactly the same as a real human being.

2.Generate Realistic Photographs - generation of manufactured photos using the strategy BigGAN that are basically indistinguishable from genuine photos. 3. Image-to-Image Translation - generating a more clearer and real life image using a blur and old image also the sketches of the image can be given as an input and a real life image will be generated.

4. Text-to-Image Translation - use GAN's specifically StackGAN to generate real looking images using a textual description.

1.Semantic-Image to Photo Translation
2. Photos to Emojis
3..Face Aging
4.Photo Blending
5.3-D Object Generation
6.Generating Images with Higher resolution and pixels

MACHINE LEARNING

By Manisha Kumari, UG scholar CSE @ CCET
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Abstract:
The aim of machine learning is to mimic human intelligence by analyzing the envi+ ronment around it, a branch of computation devoted to learning from it . Computers that learn automatically through experience can be built using machine learning . Several different applications of machine learning have been effectively applied to assorted fields like pattern recognition, finance, en+ tertainment, spacecraft - engineering and computational biology to biomedical and medical fields .The field lies at the crossing point of computer science and statistics, and it lies at the heart of data science and artifi+ cial intelligence, one of today's most fastest growing technical fields .

Introduction:
As a universal process, learning consists of acquiring new behaviors, values, skills, knowledge,or preferences, or changing ex+ isting behaviors, knowledge values and skills. As a component of artificial intelli+ gence, machine learning (ML) enables computers to think and learn for them+ selves.Compared to what humans learn through experience, machine learning is fundamentally different. Making computers adjust their reactions to obtain better accu+ racy is all about making the actions more accurate. Accuracy is measured according to how many times selected actions lead to the correct response.
Tom Mitchell provides a more precise defi+ -puter program is said to learn from experi+ ence E with respect to some class of tasks T and performance measure P, if its perfor+ mance at tasks in T, as measured by P, im+ proves with experience E."

Machine Learning Paradigms:
The models of machine learning can be further divided on the basis of how an algo+ rithm is trained and the outputs that are available for training which are supervised Learning , Unsupervised Learning and Re+ inforcement Learning .

Supervised Learning:
By comparing the algorithm's output with its inputs, supervised learning enables an algo+ rithm to learn to respond more accurately by learning from a series of examples or train+ ing modules .
A supervised learning procedure is one in which we are given a data set and already know what the result will look like, assuming there is a relationship between inputs and outputs .

Unsupervised Learning:
Machine learning that uses unsupervised methods is able to work with unlabeled data. The program can therefore handle much larger datasets without the need for human labor, because it does not require humans to make the data machine-readable. It allows us to derive structure from data without necessarily knowing the effects of various

-bles. It allows us to learn by doing in an un+ supervised manner without having any pre+ conceived notions about what the results will be.

Reinforcement Learning:
In reinforcement learning, a calculation enhances itself and improves itself acquiring from new conditions by experimentation by experimentation strategy. The framework takes motivation from how people gain from information in their regular routines . Posi+ tive results are empowered or 'supported', and non-favorable outputs are discouraged or 'punished' . Reinforcement learning uses a reward system to put the algorithm in an environment with an interpreter based on the psychological concept of conditioning .

Some Applications of machine learning:
Playing Checkers Game :By playing check+ ers games against itself, through winning at different types of tasks related to the game, a computer program acquires information in the form of experience to play the game better and to improve its performance.

Speech Recognition: Modern speech rec+ ognition systems use machine learning algorithms to identify spoken sounds.For in+ stance, the SPHINX framework utilizes discourse signs to recognize speaker-explicit sounds . To naturally redo speakers, word references, clamor, and so forth, different Neural Network learning techniques deci+ phering stowed Markov Models are com+ pelling .

Autonomous Vehicles: Autonomous vehi+ cles such as drones and cars , etc. are cur+ rently being controlled with machine learn+ ing models. Examples: Google's self-driving cars, Tesla's electric cars. Machine learning is additionally profoundly compelling in controlling sensor-based applications .

Conclusion:
Throughout the digital age and Internet revolution, an increasing amount of struc+ tured and unstructured data have become available for analysis . Using machine learning as a prime technology driver, you can harness the power of being able to make sense of your data using intelligent algo+ rithms .The not so distant future will be set apart by the consistent maintenance of ap+ propriate data by machine learning devices and strategies associated with the web. As a result, algorithms will always be retained and no need for constant retraining will be necessary . There is potential to enhance personalization and improve recommenda+ tions, making users' experiences more suc+ cessful and beneficial .

NFT ERA

By Kanishk Nagpal UG scholar CSE @ CCET
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Over time, the internet has cultivated to the finest of itself. It's astounding how much it has
done for the living and the nonliving. Out of the thousands of new developments made and resources added, Blockchain is one burning technology netizens have taken to themselves. Residing on its terrain is NFT.

What and Why?

Expanded as "Non-Fungible Token", NFTs are the non-replaceable cyber assets. They are one of its kind with unique metadata codes to prevent theft or duplication. It includes digital assets like artwork, music, feature videos, real estate games, etc. The creator sells it along with the usage and ownership rights to the buyer. The above explanation seems like an obvious thing, something close to the definition of "market". The aspect that differentiates NFTs from the local market is the concept of blockchain.

NFT was first supported by the Ethereum blockchain. It is based on the non-equality of money to the product. For instance, Bitcoin is exchanged among each other in equal quantities because it's the same bitcoin both the traders have. But NFT is the one and only one ever created or owned.

Providing tokens to these real-world tangible assets increases efficiency in their sale and trading as it gets recorded in the blockchain ledger. It is made by the artists and the creative community. NFT has been su cessful in raising the bar for quality by connecting the creator directly to the buyer.

Impact on the Digital World

NFTs have done exceptionally well, especially in the year 2021 with an average sales of over $2 billion per month for digital arts. This is luring more and more artists to create and invest in it. Now, as u sual, the demand is proportional to value, NFTs can make fortunes. Recently, history was made by a digital artist Mike Winkelmann also known as "Beeple" as his NFT "Everydays:

The First 5000 Days" which is a collage of his works was sold for over $69 million in an auction.

Credit goes to the meme community too. The NFTs of "Bad Luck Brian", "The Disaster Girl", "Success Kid", and the world-famous "Doge" have been sold for a ridiculous amount of money.

The NFTs related to games like Pokémon and Football cards are of huge value to their collectors. Concept artists work on them to make a good sale. NFTs are permanent and are the most innovative way to protect one's intellectual property. The true identity will always belong to the rightful owner which promises its uniqueness. Not to forget, there is a dark side to it too.

The blockchain servers are running all day every day doing huge amounts of calculationscontinuously. This requires an insane load of energy which is undesirable for the environment. Cryptocurrency is a dangerous system. If there are big wins, there are miserable losses too, all depending upon the risk taken.

Future

It's too early to blame NFTs for killing the environment. If the artists understand blockchain technology and use it to their advantage they can escape exploitation and enter the competitive game. It is a relatively new concept and has proven itself to be flourishing in the crypto market. Hence it is here to stay.

QUANTUM COMPUTING

By Ishita Chamola, UG scholar CSE @ CCET
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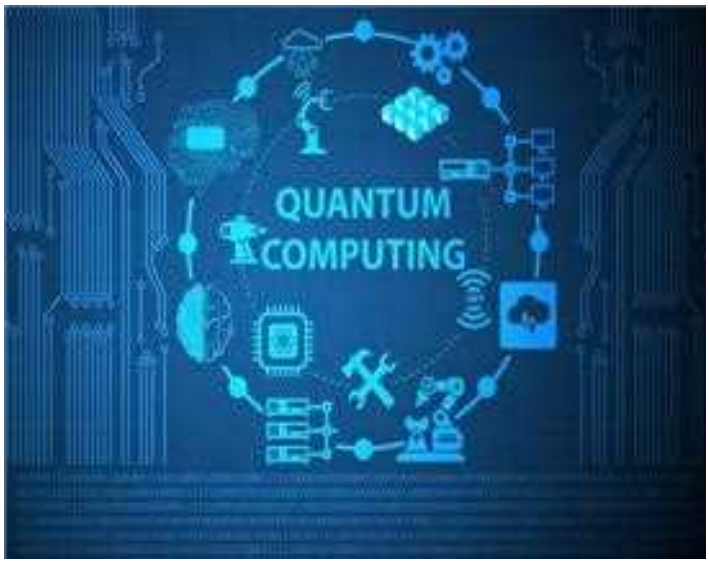
Quantum computing is flourishing as one of the rising technologies which provides exponential improvement for applications by using the laws of quantum mechanics. Quantum computing by making use of collective properties of quantum states such as superposition, interference and entanglement potentially enables completely new territories of computing.

By understanding the fundamental working of quantum computing we can comprehend the difference between the working of a quantum computer and a classical computer. What makes quantum computers different from the regular classical computers is that they use two phenomena of quantum mechanics which are crucial for their operations: superposition and entanglement. Understanding these two phenomena will more or less give us the idea of why quantum computers are efficient and why they give tremendous speed-up's while solving problems .

In classical computers the bits represent the transistors which can be either on or off and these two states are represented by values 1 and 0 respectively. However, in quantum computers we have qubits (quantum bit) which are the basic bit of quantum information. Qubits, such as electrons are either in a lower energy state or in a higher energy state and these states are represented by 0 or 1.



The property of quantum superposition allows electrons to exist in several separate quantum states at the same time with different probabilities. Unlike regular bits, qubits don't necessarily have a value of either 0 or 1.

Entanglement is a quantum phenomenon in which the quantum state of any object must be described by referring to the quantum states of other things, regardless of their spatial distance. This prevents the loss of individual identities. The measurement on one of the entangled pair will immediately give the other's, giving the impression that the information is travelling quicker.

These quantum phenomena sound cool, right? They sound easy and impressive in theory but are they this easy to implement in practical use? Well, no. When it comes to hardware implementation entanglement is

In reality only a small number of qubits are actually entangled so we need a smart enough compiler which can make the decision to swap bits so as to stimulate a system where all the bits can be potentially entangled. So, it is quite difficult to manage qubits for use in quantum computers.

But once these complications are taken care of quantum computers promise to bring a revolution in the field of technology. Perhaps that is the reason why investments as well as start-ups in quantum computing are proliferating. Major leading technology companies like Alibaba, Amazon, IBM, Google and Microsoft have already launchedtheir commercial quantum cloud services. Not only limited to this quantum computing is also catching the interest of various other sectors like automobile manufacturing, pharmaceutical industry, banking, crypto-security as well as weather forecasting. It has been predicted that by the year 2035 quantum computing technology will have a global market value of US $1Trillion.

SPEED UP USING MULTI-THREADING

By Tarun, UG scholar CSE @ CCET
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Nowadays, due to development of modern technologies- data, queries and steps or tasks are also increasing. Which results in an increase in work load on processor and execution time. So, it is very important to reduce work load and decrease execution time and that can be done only by dividing workload between threads by using multi-threading.

Multi-threading is a unique way to do multiple tasks of a same program at same time. It is different from multitasking as multitasking is a feature that allows your computer to run two or more programs at the same time. The multi-tasking process handles simultaneous execution of programs. While, Multithreading is that works with the same execution of pieces of the same system. A computer program consists of two or more components that can work together and each part of such a system is called a thread, and each thread describes a different process.

Thread is a sequence of such commands within a system that can be executed without another code. As, Threads are within the same process address space, therefore, most of the information convtained in the process memory description can be shared across all threads. Some information cannot be duplicated, such as registers and data related to the thread shown in figure 1.

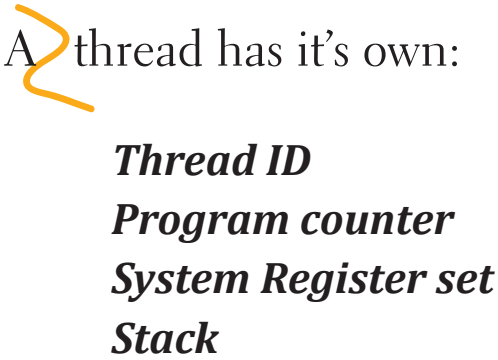

Figure 1: *Information of thread that cannot be duplicated.*

It's cloud-based process analyses and reviews up to 500,000 apps daily and prevents the malicious apps from reaching the Store. But still Google's Play Security is not enough to maintain the security considering there are 2.5 Billion active users and above statistics.

Many Researchers proposed ways to detect repackaging and piggybacking in android application there are many tools also available like Mobile Security Framework MobSF, QARK, DroidMoss which are open source also but none of the above promised to properly detect Vulnerabilities in all categories of apps like (Financial, Social, chatting apps etc.).

Many tools available just uses code wise comparison with the original apps that is both unscalable and inefficient.

Till date many study proved that approach described in [Fast, Scalable Detection of "Piggybacked" Mobile Applications] is better till date in which they presented their developed module decoupling technique to effectively locate the primary module for comparison with O(n log n) complexity.

In a normal c ++ program only one thread is working. It starts from the main function and works on different user defined functions according to function call but using multithreading we can create one or more thread for dividing that work as shown in figure 2.

C++ does not contain any built-in support for such features. So, it depends entirely on the app to provide this feature. The POSIX threads, commonly referred to as pthreads, is an executional model that is independent from the language. As we know a computer program consists of two or more components that can work together and each part of such a system is called a thread, and the creation and control of this flow is achieved by making calls in the POSIX Threads API. Some of the most important benefits of multi-threading are:
Improved computational ability- Many similar computational operations within a single process can be done easily using multithreading.

High performance response- If a request is launched on its own thread, application will not be blocked or freeze. It will just wait while other thread is doing work parallelly-
Better communication- Thread synchronization functions can be used to provide advanced process communication.

In addition, sharing a large amount of data with different threads to perform within the same address space provides a much higher bandwidth connection, a lower link betwev-en different functions within the app.
So, as it is clearly observed that whatever be the research field AI, ML, DL etc. multithreading is important everywhere in coming years because it will help in optimizing code and saving time.

Some future problems are making single chip multithreading possible and multithreading for unstructured problems.

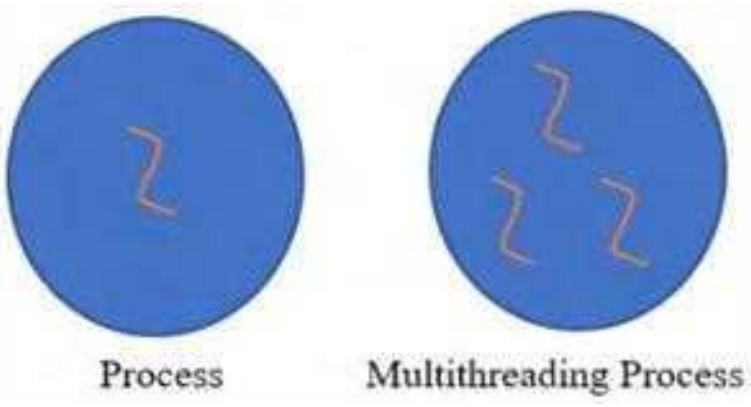

Figure 2: *Thread in normal process and in multithreading process.*

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