



# PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Kurukshetra University, Kurukshetra)

Issue 8 Vol 1 2022



# EX TECH VISION

A MAGAZINE BY DEPARTMENT OF COMPUTER APPLICATIONS

# NEWSLETTER

## Interactive session on “National Education Day” recover and revitalize for the covid-19 generation

Every year since 2008, November 11 is celebrated as “National Education Day” to commemorate the birth anniversary of Maulana Abdul Kalam Azad who was a great freedom fighter, an eminent educationist and the first union minister of education.

As part of the celebration, the Department of Computer Applications of PIET organized a seminar on 11th November 2021. Dr. Akhilesh Mishra, who was invited as the expert speaker for this lecture, shared his opinion about the New National Education Policy 2020 on the International Education Day. He described this policy as a big game changer of India's Education Industry. He talked about topics like Vedic Math, Holistic Development, and Yoga by using various shlokas. He also touched upon the topics like creative thinking and spiritual thinking. The students were enlightened by his words on ancient India's Gurukul and some of the very early universities. While concluding the session he assured his faith in the new NEP 2020 and said that he is very optimistic regarding India's optimal growth in the education sector.



## Expert talk on “Machine Learning” (22nd Jan, 2022)



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MET Club of Department of Computer Applications organizes  
Expert Talk on  
**MACHINE LEARNING:  
REGRESSION PROBLEMS & HANDS-ON**

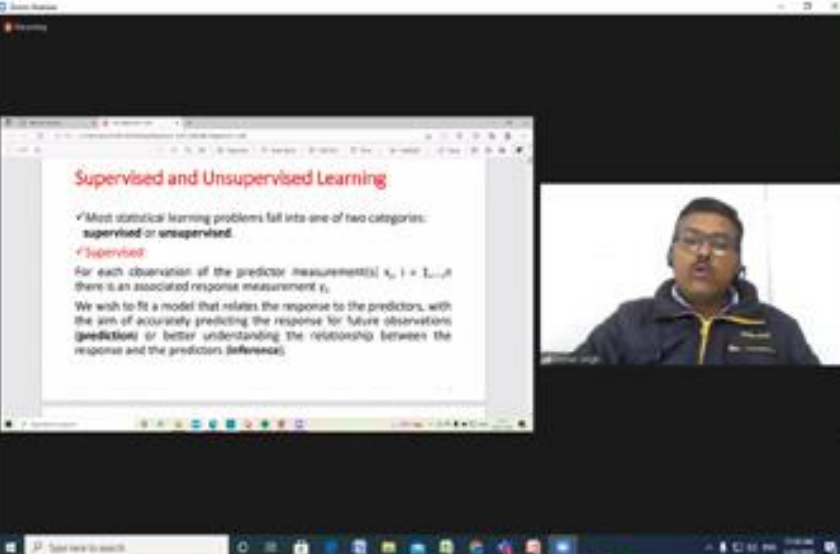
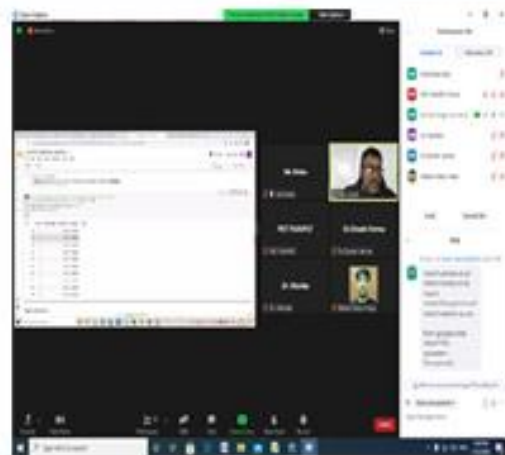
**Resource Person:**  
**DR. HARI SINGH, JP University, Solan**

**Date: 22nd Jan, 2022 | Time: 11:00 AM to 02:00 PM**

zoom

PIET believes in improving the quality of education. Seeing the rapid change of technologies in the market, the Department of Computer Applications organized a one-day workshop on Machine learning. MET Club of Department of Computer Applications organized an Expert Talk on Machine Learning: Regression Problems and Hands-On 22nd January, 2022 in virtual mode using Zoom Platform. Resource person for the session was Dr. Hari Singh, Professor JP University, Solan. More than 80 students and faculty of various branches of CSE, IT, BCA, BCA-Cloud and MCA participated in the talk.

Dr. Hari Singh, shared his views regarding growing importance of machine learning in both academics and industry as per the current trend in technology. The session started with a deep explanation of basics of ML to advanced level where various topics such as linear regression, multiple regression, supervised unsupervised learning, various graphs were taught. This was then followed by practical session in which the students got hands on experience to practice the topics taught in the theory session, they were presented with data sets and directed by the trainer how to use this data set to perform various activities on it. Not only students but also faculty members learnt a lot from the session and did hand-on along with the expert. Session was very beneficial to learn the emerging technology and to have insight into practical approaches. Session was ended thanking to resource person by the Head of Department. He also mentioned that more workshops will be conducted in the future.



**Supervised and Unsupervised Learning**

- ✓ Most statistical learning problems fall into one of two categories: supervised or unsupervised.
- ✓ **Supervised**

For each observation of the predictor measurement(s)  $x_1, x_2, \dots, x_n$  there is an associated response measurement  $y$ .

We wish to fit a model that relates the response to the predictors, with the aim of accurately predicting the response for future observations (**prediction**) or better understanding the relationship between the response and the predictors (**inference**).

Education is not the filling of  
a pail but the lighting of a fire.

W.B. Yeats

## Cryptocurrency and related terminology

Cryptocurrencies are digital assets created using computer networking software that enables secure trading and ownership. Cryptocurrency is decentralized digital money that's based on blockchain technology, which maintains a tamper-resistant record of transactions and keeps track of who owns what. Public blockchains are usually decentralized, which means they operate without a central authority such as a bank or government. You may be familiar with the most popular versions, Bitcoin and Ethereum, but there are more than 5,000 different cryptocurrencies in circulation.

To make it secure, each currency has its blockchain, which is an ongoing, constantly re-verified record of every single transaction ever made using that currency. The key aspects of cryptocurrency are as follows.

### Key parameters

#### Security

Almost all cryptocurrencies, including Bitcoin, Ethereum, Tezos, and Bitcoin Cash are secured using a technology called a blockchain, which is constantly checked and verified by a huge amount of computing power.

#### Privacy

When paying with cryptocurrency, you don't need to provide unnecessary personal information to the merchant. This means your financial information is protected from being shared with third parties like banks, payment services, advertisers, and credit-rating agencies. And because no sensitive information needs to be sent over the internet, there is very little risk of your financial information being compromised, or your identity being stolen.

#### Transparency

Every transaction on the Bitcoin, Ethereum, Tezos, and Bitcoin Cash networks is published publicly, without exception. This means there's no room for manipulation of transactions, changing the money supply, or adjusting the rules mid-game.

#### Portability

Because your cryptocurrency holdings aren't tied to a financial institution or government, they are available to you no matter where you are in the world or what happens to any of the global financial system's major intermediaries.

#### Safety

The network powering Bitcoin has never been hacked. And the fundamental ideas behind cryptocurrencies help make them safe: the systems are permissionless and the core software is open-source, meaning countless computer scientists and cryptographers have been able to examine all aspects of the networks and their security.

#### Future of cryptocurrency

Experts often talk about the ways crypto can provide solutions to the shortcomings of our current financial system. High fees, identity theft, and extreme economic inequality are an unfortunate part of our current financial system and they're also things cryptocurrencies have the potential to address. The technology that powers digital currencies also has wide-ranging potential beyond the financial industry, from revolutionizing supply chains to building the new, decentralized internet.



By: **Dr Dinesh Verma**  
HOD, DCA

## SCIENCE, TECHNOLOGY & ETHICS

The present education system has become largely skill-based. The prime emphasis is on science and technology. However, science and technology can only help to provide the means to achieve what is considered valuable in terms of facilities. Value Education is a crucial missing link in the present education system. Because of this deficiency, most of our efforts may prove to be counter productive and serious crises at the individual, societal and environmental level are manifesting.

Values and skill complement each other. Values mean importance or participation and skills mean qualities, training, and capabilities. To fulfill our aspirations both values and skills are necessary. When we identify and set the right goals and produce in right direction, this is known as value domain, the domain of wisdom. Basically we must know what really is useful to achieve human happiness, the happiness to all and for all the time.

And when we learn and practices to actualize this goal to develop the techniques to make this happen in real life, in various dimensions of human Endeavour, this is known as domain of skills. Hence, there is an essential bonding between values and skills for the success of any human endeavor.

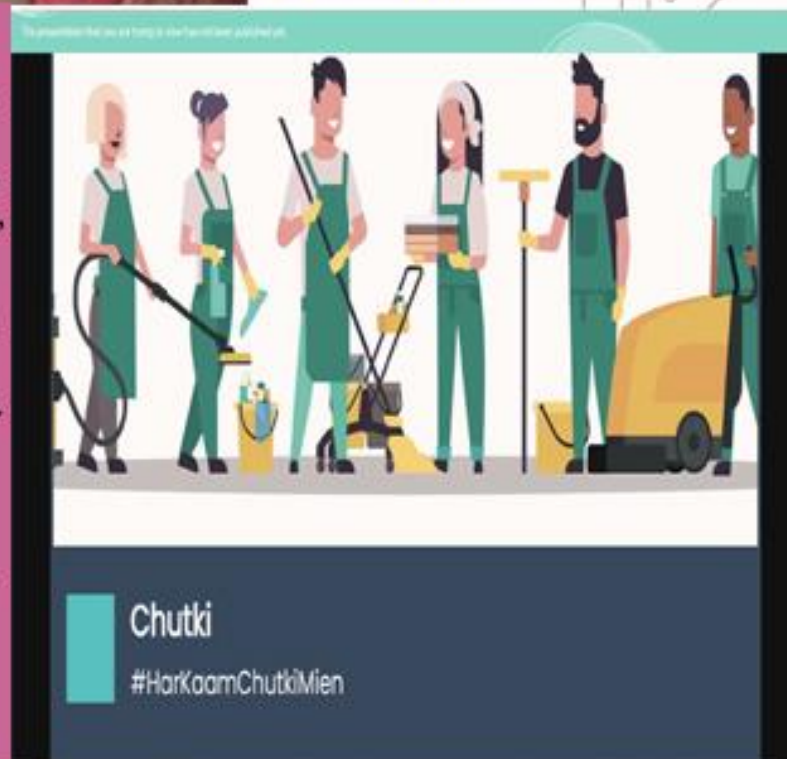
For a happy and successful life it is important to know, explore, verify and practice universal human values, professional ethics. At PIET, Samalkha we not only educate our students and staff community but also practice values and ethics so that students can realize and actualize all goodness with human values and professional ethics.



An Article by  
Er. Deepa  
Assistant Professor

### Students Achievements:

Manmeet Singh, BCA 1<sup>st</sup> year student got selected for final round of Startup Spardha 2021-22, An ideathon competition for students to spotlight the next wave of startups from the PIET Campus for the project "Chutki" guided by Dr. monika. He got first position in semi-finale round with 40 marks. Chutki is an application (interface) between the domestic workers and people. It is an application which is used to hire domestic workers. The application works according to the locality of the city. At first the user will sign up and enter their location manually or using the gps. After that the list of workers will appear according to their requirement. After that they can contact the worker by calling them on the details provided by us on the application.



## An event on “DCA Quest”-An Event to gain insights of Placement Process

Department of Computer Applications organized a coding contest with the name of DCA Quest . The contest , which was held last December , was opened to students from all branches (BCA,MCA) across our department.Event was conducted in three sessions from 22<sup>nd</sup> Dec & 24<sup>th</sup> Dec 2021 consisting of Aptitude Test, Technical Test and Interview Session. 100 students of BCA and MCA Classes participated and 50 enthusiastic participants joined the event .Event was conducted by Ms Mandeep and Ms Nisha Mam on MS Teams platform. Vagish of BCA 2<sup>nd</sup> Year won first Prize and Shivam of MCA 1<sup>st</sup> year won consolation prize. During the event, the members of this quest ensured the smooth happening of this event. We believe that this DCA quest event would have encouraged students and been a learning experience to all the students.



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**MET Club of Department of  
Computer Applications**

organizes

# DCA QUEST

*(An Event to gain insights  
of Placement Process)*



#### Rules:

1. It will be a 3 day event from 22nd December, 2021 – 24th December, 2021 comprising of 3 sections.
2. 22nd December & 23rd December, there will be Aptitude Test and Technical Test of 1 hour at 2p.m respectively.
3. On 24th December, there will be Group Discussion and Interview Session.
4. It is mandatory for BCA Final year, BCA-2ndYear, MCA (all 3 years) students to participate; interested students from BCA-1st year can participate

**Date & Time**  
22nd & 23rd Dec 2021 (02:00pm)  
24th Dec 2021 (11:00 am onwards)

**Venue:**  
E-Block

For any further query, you may contact Faculty or Student coordinator.

**Ms. Nisha**  
(Assistant Professor, CA)  
Contact No. 9729823371

**Ms. Mandeep**  
(Assistant Professor, CA)  
Contact No. 9896310304

**Ms. Tannu**  
(BCA-1st Year)  
Contact No. 9996177241

**Mr. Tarun**  
(BCA-CC-1st Year)  
Contact No. 9650690237

### Students Achievements:

Gourav Nagpal, member of Campus Super 30 batch , BCA 2<sup>nd</sup> year student got a live project grant from PIET for project ‘Achievers portal’, guided by Dr. Shakti Arora. Achievers portal is developed in PHP. It is a Web Application which is used to manage the student’s achievements (Certificates, Authored Books and Blogs, etc.), with its great features, the department and institute check the progress of any student. At the first student creates their profile on achievers portal and then they upload their achievements and after that their respective department verify their achievement and give points to them and according to their points they will take a certain position on the portal. Project Justification: The problem that an institute faces, Many students achieve certificates such as (Training and Internship Etc.), but they don't get any reward when they are learning face, So this portal gives the opportunity to achieve rewards by uploading their certificates on this portal.

## NEED OF VALUE BASED EDUCATION

The purpose of education is to facilitate the development of clarity on the aspirations and adequate competence to actualize it. For this, it is important to understand what a happy, fulfilling and successful life is- what is really valuable for human beings; what is the purpose as a human being? Understanding human aspiration, or what is really valuable for human beings, is the value domain. The subject which enables us to understand this domain is called 'Value Education'(VE). Nowadays we are learning only skill based education which enables us to learn science, technology, management and other skills for fulfilling our aspiration.

I am not saying that we are learning wrong education but I am saying that skill based education teaches us how to do it. It does not tell us what to do. Value based education enables us to understand our aspirations and visualize our goals for a fulfilling life and indicates the direction for their fulfillment. In relation to these issues, it also helps to remove our confusions and contradictions. In that sense, VE addresses the issues related to 'what to do'. So, both values and skills are required. There is an essential complementarity between the two.

The priority is values, then skills; i.e first understanding 'what to do' and then developing skills for 'how to do'. The basic aspiration of a human being is continuity of happiness and prosperity. To fulfill this, three things are required in order of priority: right understanding, relationship and physical facility, and one cannot be a substitute for the other. Right understanding can be gained by self exploration. Self exploration is the process of seeing the reality in our own right, by our own investigation, observation and analysis.

The first step of self exploration is to verify given proposal on your own right, by referring it to your 'natural acceptance'. If the proposal is naturally acceptable to you, it is right for you otherwise it is not right for you. We can also apply this process on our kids as well as on students also. Rather than telling them do and don'ts. We should give them proposals and let them learn from those proposals. Let them identify what is right and what is wrong. So, self exploration is the process of seeing the reality in your own right, by our own investigation, observation and analysis. Through this process we are trying to understand the reality that exists and our participation with it; this participation is what we are calling values. Self exploration is done at four levels, starting from the individual level. So now the question is that what is a human being, it is only the body, no, we always mistaken that human being is only a body. Human beings are the co-existence of the self and the body.

Both self and body have different needs. The need of self is happiness while the need of the body is physical facility. All the needs related to the self are continuous in time while all the needs related to the body are limited time. Other differences between the two are in terms of quantity (physical needs) and quality(self need). It can be understood by the example that the need of food is quantitative in nature, on the other hand the feeling of respect, trust, etc. is not quantitative. So the needs of both have to be fulfilled separately. A gross misunderstanding is to assume the two to be the same, and this leads to the feeling of deprivation and exploitation. Same mistake is also made in our teaching institutes. We are just preparing the students to acquire physical needs. And we think that more they acquire physical facilities more they will be. But the real truth is that happiness comes only when you work for yourself, not for the body as physical facilities only fulfill the needs of the body not the self. To fulfill needs of self we must understand our self desires, our relationships, feelings among relationships. We should also be able to make a difference between happiness and excitement. Excitement is a short term feeling but happiness is continuous. When we live in a state of harmony, then we acquire real happiness in our life. And then only we can come into human consciousness from animal consciousness because animal consciousness is all about physical facilities but human consciousness is about right understanding, relationships, and physical facilities. To teach all these values to students, we should include value based education in the curriculum. A initiative is already taken by AICTE. Let us hope it will be done on a broad level in future and we again acquire our values for which our country was known in ancient times.



by:

**RAJNI**  
Assistant Professor

# PLACEMENT 2022



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**nagarro**

Thinking Breakthroughs



**AAKRITI**  
MCA-2020-22



**DIVYA**  
MCA-2019-22



**AALIYA KHAN**  
MCA-2020-22

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## CLOUD COMPUTING

Cloud Computing is defined as a large scale distributed computing paradigm which has numerous hosts as well as application requests. It is an eventual and promising way of managing and boosting up the resource utilization and delivering various computing IT services. It is mainly admired in both IT sector as well as academia. With the support of virtualization, it is well recognized as utility based systems. Because users only pay for that resources which is utilized by them. The rapid growth of cloud computing has increased the traffic rate exponentially in the data centre networks. According to International Data Corporation (IDC), the amount spent by Cloud IT infrastructure for deployment has increased by 15.5% in 2017 and reached to \$37.1 billion in 2019. In 2022, a survey of IDC estimated that 90% CSPs will spend \$48.4 billion on IT infrastructure for delivering services. The enterprise workloads will be shifted on cloud infrastructure by 2023. The cloud computing industry is expected to grow with 14.6% compound annual growth rate and become \$300 billion industry by 2023 as of \$188 billion in 2019. With this, 60-70% of the costs can be saved by transferring of data by clients to the cloud.

**Architecture-** As virtualization is a major step towards cloud environment which is managed by system administrators and trusted authority agents. This cloud stack offers the services from the bottom layer to top layer, each layer represents one service model. IaaS (Infrastructure as a service) is a layer in which computing resources are aggregated and managed physically or virtually to end users. These users can deploy and run the software, operating systems and other abstracted hardware. This includes Amazon EC2 and Rackspace Cloud. PaaS (Platform as a Service) is a middle layer which allows customers to develop applications using API and configurable remotely running on cloud infrastructure. Google App Engine and Microsoft Azure gives environment for programming of software executions. SaaS (Software as a Service) locates in the top layer and offers applications that running on a cloud can deliver services such as enterprise resource planning (ERP) or accounting. Google Apps and Salesforce CRM are the service providers. Each service model has its own advantages and implementations as demonstrated in Figure above.

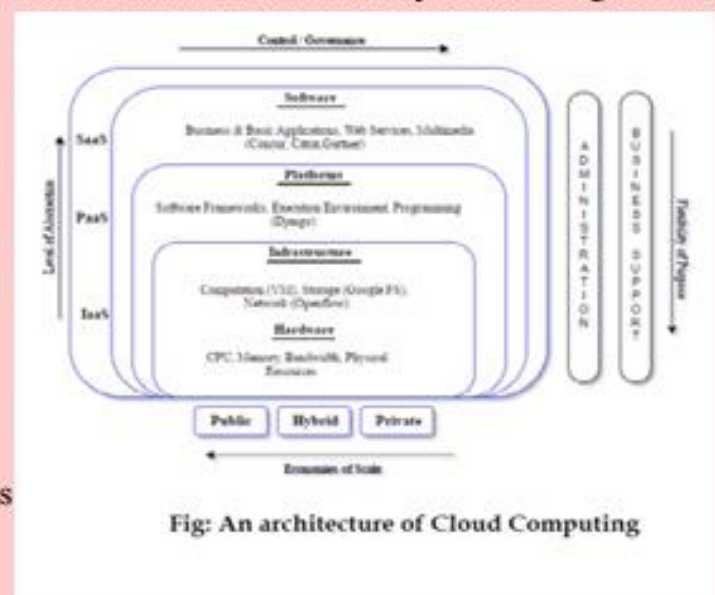


Fig: An architecture of Cloud Computing



An article by  
**Dr Saakshi**  
Assistant Professor

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**HCL**



**KAJAL**  
MCA 2020-22



**RUPAL**  
MCA 2020-22

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**nagarro**

Thinking Breakthroughs



**SAHIL**  
MCA-2020-22



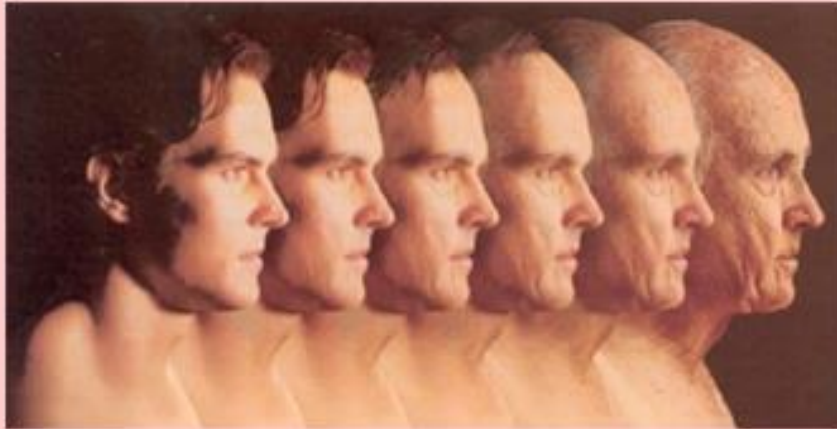
**SHIVAM**  
MCA-2020-22



**SHRISHTI JAIN**  
MCA-2019-22

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## WILL I AGE WITH DIGNITY?



I had once read a poem written by Dave Griffith, titled, "Cranky old Man". It unfolds the thought of an old man completely at the mercy of his nurse asking her what she thinks of him. He recalls the years gone by, when he had been a child, a teenager, a youth, a middle aged person ultimately reaching to his final stage of senility. He recollects the fervor and zeal he once had, which are now a thing of the past. In the end he beautifully concludes: "not a cranky old man,

Look closer..... see me!"

This is we all generally fail to see, the real person residing in that dilapidated body, the eyes that once heralded with esteem are now clouded with tears of uncertainty.

This all leads me to contemplate and arrive at the question of how death is going to embrace us? Is it going to be respectable, merciful or anonymous? It is quite worrisome to know that this wretched state is a universal truth for millions of ageing souls and might tense us in our future, the fact that ill treatment of elders has become an ordinary headline of many newspapers, makes it more daunting. It is very appalling for me to even think of how materialism has taken over empathy and compassion completely. Why is it that the hands that rocked the cradle are spread out for alms? why do the hands that made us venture to take our first step are abandoned in solitude?

Why do the young minds have to think and run so fast that they cannot even afford to burden themselves with these hands that shake with Parkinson's or the minds now plagued with Alzheimer's.

Is it true that blood is thicker than water? If it is, then why everyone of my grandparents or my parents' age, for that matter, all filled with the fear that their securities might go in vain one day, a fear they hesitate of even talking about. Millions of people die everyday yet more people yearn to become immortal in some way, young people shouldn't forget that they too have to suffer the pangs of old age while mistreating their elders. They too are going to be in the same position that they let their parents, grandparents in.

Well we hardly have any control over people. Some may say they would always abstain from leaving their elders at the time of trouble, but at the same time may torment them with a breach of trust in the most petty things and it scares me enough that I might be one of them. I am incognizant about others but it will be a living nightmare for me if any doubts will arise in the minds of my loved ones or acquaintances, whether they will age with dignity?

*An article by*  
**Tisha Sachdeva**  
**BCA-I**

## DIWALI BASH

Diwali is the festival of lights and sweetness. It is basically a symbol of the victory of good over evil, brightness over darkness, and truth over falsity. The diyas not only make diwali, the festival of lights, but they also symbolize the supremacy and consequence of brightness over darkness. Diya can be defined as a small earthen lamp that is specially lit on diwali for puja and decoration purposes. A cotton wick is used in diyas, and oil or ghee serves as the burning fuel. Diyas are plain and coloured, big and small, simple and fancy, and so on. Diwali diyas are major attractions in this festival. Diwali celebrations are incomplete and graceless without the use of diwali diyas. Diyas were, are and will remain a significant part of the diwali festival. In order to bring out the creative talents of students and celebrate the Festival of Lights in its true spirit various events were organized by the Chill In Club of Department of Computer Applications on 29th October 2021.

### Diya Decoration Competition:

The participants got aware of the culture and traditions of this specific festival called "Diwali". They acquired knowledge on the importance of making diyas and lighting all over to celebrate the victory of Lord Rama. They learnt how to make diyas more enticing and attractive by painting and colouring.

The winners are:

1. 1st position Harshita Mehta ( BBA)
2. 2nd position Akshita (BCA)
3. 3rd position Urvi (BBA)



### Rangoli Making Competition

In order to bring out the creative talents of students and celebrate Diwali in its true spirit an interdepartmental Rangoli Making Competition was organized by the Chill In Club of Department of Computer Applications on 29th October 2021 in E - block 3rd floor.

The winners are:

1st - Team 4

Gunjan B.Tech ECE 2nd year  
Bhavika B.Tech ECE 2nd year  
Deepakshi B.Tech IT 2nd year  
Kalpana B.Tech IT 2nd year

2nd - Team 10

Kanishka BCA 2nd year  
Akshita BCA 2nd year  
Nishant BCA 2nd year  
Dewyanshu BCA 2nd year



## DIWALI BASH

### Food without Fire

In order to grace the cooking skills of students, Food without Fire Competition was organized by Chil'In Club of Department of Computer Applications. 12 teams from various branches participated in the event. Students got chance to explore the cooking talent. Students really enjoyed this event and made fruitful by preparing a variety of delicious dishes without using flame like Pan laddoo, Biscuit Train, Margarita, Oreo Cake etc. guest of honor for this event was Mr. Subham Tayal sir. He really appreciated student's efforts and also enjoyed the taste of snacks.

Winners of the event are:-

Bhavika, Gunjan(B.Tech 3rd) got 1st position  
Namaya Batra (BBA- 1st ) got 2nd position and  
Nimish , Drishti(CSE-2nd) got third position.



### Mehandi Competition

Mehndi reflects the rich Indian culture, bringing together the knowledge of medicinal herbs with many lovely sentiments and beliefs. The result is a ceremony filled with fun and joy. Vedic customs are centered on the idea of "awakening the inner light". Traditional Indian designs are representations of the sun on the palm, which, in this context, is intended to represent the hands and feet. Mehndi (or Henna) is the application of henna as a temporary form of skin decoration, most popular in various regions of India.

Mehandi Competition was held on the occasion of Karvachauth to inculcate among the learners interest in traditional customs of India exhibited on various festive occasions. They applied various alluring designs and exhibit their talent in this art form. Few girls holded the cone for the first time in their hand and applied beautiful design which caught hold the eyes of the judges In order to bring out the creative talents of students and celebrate the Karvachauth in its true spirit an interdepartmental Mehendi Competition was organized by the Department of Computer Applications on 23rd October 2021 in E - 401 at 10:00 a.m.

The winners are:

1. 1st position Nirmal ( BCA)
2. 2nd position Sidhi (BCA-CTIS)
3. 3rd position Simran (B.Tech AI+ML)

EVENT COORDINATOR: Ms. Nisha  
Ms. Reema  
Ms. Divya Singla

## Expert Talk on Data Analysis and Visualization



MET Club of Department of Computer Applications organized an Expert Talk on Data Analysis and Visualization on 23rd October, 2021 in virtual mode using Zoom Platform. Resource person for the session was Ms. Neetu Singla, CEO, DataSpire Technologies now Let's Viz, Faridabad. More than 80 students and faculty of various branches of CSE, IT, BCA, BCA-Cloud and MCA participated in the talk. Session was started with deep explanation of basics of Data Analysis following with how to visualize. Importance of BI Tools, different BI Tools like Tableau was explained in the session. Hands-on session was conducted by the resource person explaining the concept of creating different reports and dashboard in Tableau. Session was continued with the deep understanding of how to publish dashboard on server. Ms. Neetu also enlightened students regarding job opportunities as Data Analysts. Session was very informative and students understood each and every concept of it.

## IIT Spoken Tutorial



## Applications of Data Science in Real Life

Data science is the domain of study that deals with vast volumes of data using modern tools and techniques to find unseen patterns, derive meaningful information, and make business decisions. Data science uses complex machine learning algorithms to build predictive models. The data used for analysis can come from many different sources and presented in various formats.

Data science combines multiple fields, including statistics, scientific methods, and artificial intelligence (AI), and data analysis, to extract value from data. Data science encompasses preparing data for analysis, including cleansing, aggregating, and manipulating the data to perform advanced data analysis. Those who practice data science are called data scientists, and they combine a range of skills to analyze data collected from the web, Smartphone's, customers, sensors, and other sources to derive actionable insights. Data is the bedrock of innovation, but its value comes from the information data scientists can glean from it, and then act upon.

### Applications of Data Science in Real-Life

#### Healthcare

Data science is making huge strides in the healthcare business. Data science is used in a variety of sectors like:

- \*Image Analysis in Medicine
- \* Genetics and Genomics
- \*Drug Development
- \*Virtual Assistants and Health bots

#### Road Travel

Driving plays a central role in American life. The Supreme Court has called it "a virtual necessity," American automobiles burned more than 140 billion gallons of gasoline. Unfortunately, this habit contributes to climate change. That's where data science comes in. It can optimize road routes. And though data-driven route adjustments are often small, they can help save thousands of gallons of gas.

#### Targeted Advertising

If you thought Search was the most important data science use, consider this:

the whole digital marketing spectrum. Data science algorithms are used to determine virtually anything, from display banners on various websites to digital billboards at airports. This is why digital commercials have a far greater CTR (Call-Through Rate) than conventional marketing. They can be tailored to a user's previous actions.

#### Internet Search

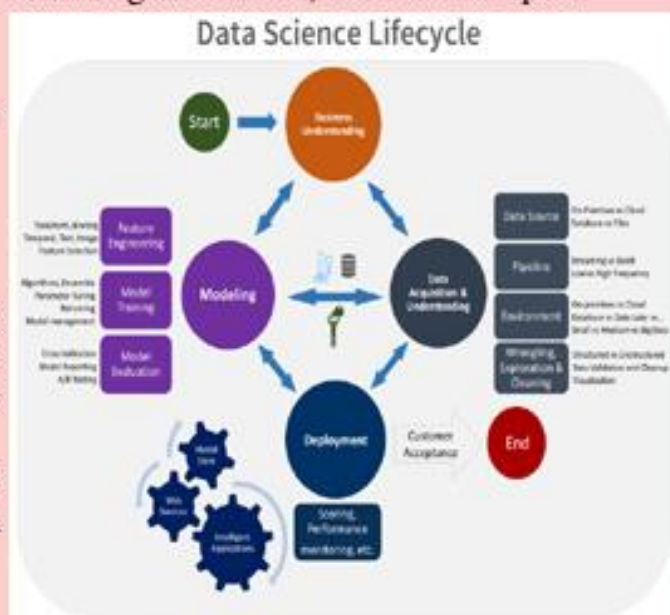
When we speak of search, we think 'Google'. Right? But there are many other search engines like Yahoo, Bing, Ask, AOL, and so on. All these search engines (including Google) make use of data science algorithms to deliver the best result for our searched query. Considering the fact that, Google processes more than 20 petabytes of data every day. Had there been no data science, Google wouldn't have been the 'Google' we know today.

#### Speech Recognition

Some of the best examples of speech recognition products are Google Voice, Siri, Cortana etc. Using the speech-recognition feature, even if you aren't in a position to type a message, your life wouldn't stop. Simply speak out the message and it will be converted to text. However, at times, you would realize, speech recognition doesn't perform accurately.

#### Gaming

Games are now designed using machine learning algorithms that improve/upgrade themselves as the player moves up to a higher level. In motion gaming also, your opponent (computer) analyzes your previous moves and accordingly shapes up its game. EA Sports, Zynga, Sony, Nintendo, Activision-Blizzard have led the gaming experience to the next level using data science.



By: Ms Nisha , Assistant Professor  
Ms Reema, Assistant Professor

## Information Security

Information Security is not only about securing information from unauthorized access. Information Security is basically the practice of preventing unauthorized access, use, disclosure, disruption, modification, inspection, recording or destruction of information. Information can be physical or electronic one. Information can be anything like your details or we can say your profile on social media, your data in mobile phone, your biometrics etc. Thus Information Security spans so many research areas like Cryptography, Mobile Computing, Cyber Forensics, Online Social Media etc. During First World War, Multi-tier Classification System was developed keeping in mind sensitivity of information. With the beginning of Second World War formal alignment of Classification System was done. Alan Turing was the one who successfully decrypted Enigma Machine which was used by Germans to encrypt warfare data.

Information Security programs are build around 3 objectives, commonly known as CIA – Confidentiality Integrity Availability

1. Confidentiality – means information is not disclosed to unauthorized individuals, entities and process. For example if we say I have a password for my Gmail account but someone saw while I was doing a login into Gmail account. In that case my password has been compromised and Confidentiality has been breached.

2. Integrity – means maintaining accuracy and completeness of data. This means data cannot be edited in an unauthorized way. For example if an employee leaves an organisation then in that case data for that employee in all departments like accounts, should be updated to reflect status to JOB LEFT so that data is complete and accurate and in addition to this only authorized person should be allowed to edit employee data.

3. Availability – means information must be available when needed. For example if one needs to access information of a particular employee to check whether employee has outstanding the number of leaves, in that case it requires collaboration from different organizational teams like network operations, development operations, incident response and policy / change management.

Denial of service attack is one of the factor that can hamper the availability of information. Apart from this there is one more principle that governs information security programs. This is Non repudiation.

• Non repudiation – means one party cannot deny receiving a message or a transaction nor can the other party deny sending a message or a transaction. For example in cryptography it is sufficient to show that message matches the digital signature signed with sender's private key and that sender could have sent a message and nobody else could have altered it in transit. Data Integrity and Authenticity are pre-requisites for Non repudiation.

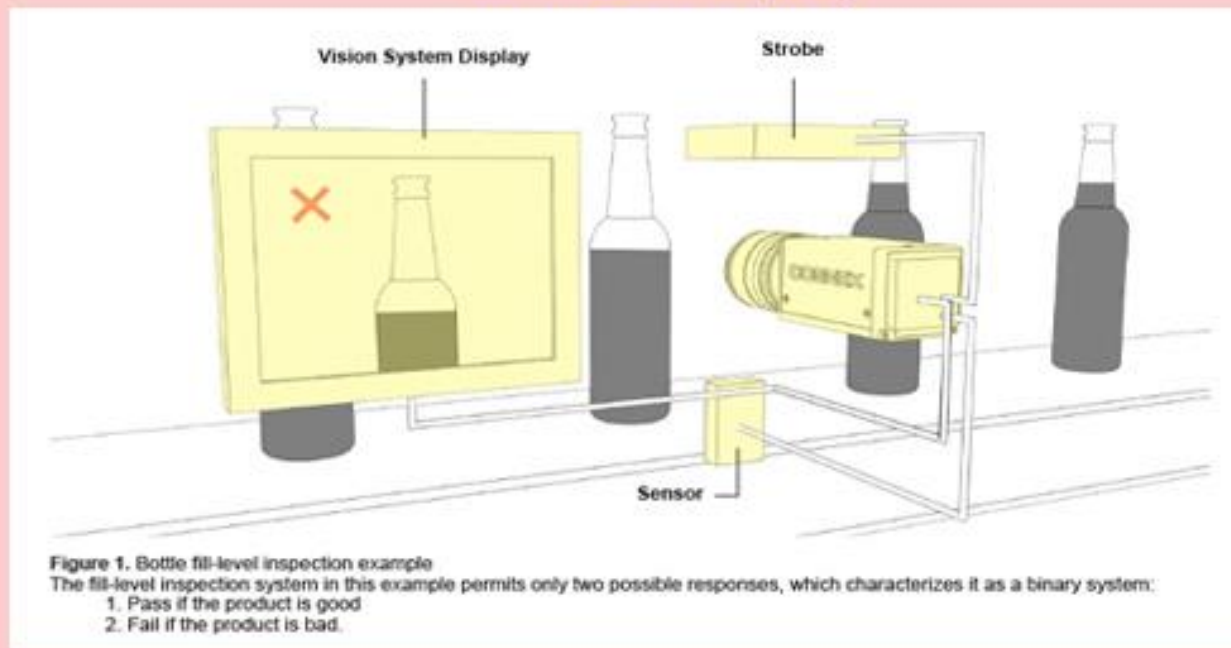
• Authenticity – means verifying that users are who they say they are and that each input arriving at destination is from a trusted source. This principle if followed guarantees the valid and genuine message received from a trusted source through a valid transmission. For example if take above example sender sends the message along with digital signature which was generated using the hash value of message and private key. Now at the receiver side this digital signature is decrypted using the public key generating a hash value and message is again hashed to generate the hash value. If the 2 value matches then it is known as valid transmission with the authentic or we say genuine message received at the recipient side.

• Accountability – means that it should be possible to trace actions of an entity uniquely to that entity. For example as we discussed in Integrity section Not every employee should be allowed to do changes in other employees data. For this there is a separate department in an organization that is responsible for making such changes and when they receive request for a change then that letter must be signed by higher authority for example Director of college and person that is allotted that change will be able to do change after verifying his bio metrics, thus timestamp with the user (doing changes) details get recorded. Thus we can if a change goes like this then it will be possible to trace the actions uniquely to an entity. At the core of Information Security is Information Assurance, which means the act of maintaining CIA of information ensuring that information is not compromised in any way when critical issues arise. These issues are not limited to natural disasters, computer/server malfunctions etc.



By  
Divya Singla  
Assistant Professor

## Machine Vision (MV)



In industry, machine vision (MV) refers to the technology and methods for providing imaging-based automatic inspection and analysis for applications such as automatic inspection, process control, and robot navigation. MV has a wide range of applications. MV is linked to, but not the same as, computer vision.

Consider a brewery's fill-level inspection system as an example (Figure above). Each bottle of beer is inspected by a vision system, which flashes a strobe light and takes an image of the bottle. Vision software evaluates or analyses the image after it is captured and stored in memory, and then delivers a pass-fail response based on the fill level of the bottle.

While traditional (2D visible light) imaging is most typically employed in MV, other options include infrared band line scan imaging, 3D surface imaging, and X-ray imaging. Monochromatic vs. color, resolution, and whether or not the imaging process is synchronous over the full image, making it ideal for moving operations, are all important distinctions in MV 2D visible light imaging. Scanning-based triangulation, which uses motion of the product or picture during the imaging process, is the most widely used approach for 3D imaging. Time of flight, grid-based, and stereoscopic 3D approaches are also utilized in machine vision.

The imaging device (e.g. camera) can be independent or coupled with the main image processing unit, in which case the combination is referred to as a smart camera or smart sensor. The connection to specialized intermediate hardware, such as a frame grabber, can be made using either a standardized (Camera Link, Coax Press) or proprietary interface once separated. Digital cameras with direct connections (without a frame grabber) to a computer through FireWire, USB, or Gigabit Ethernet interfaces have also been used in MV implementations. Despite the fact that the vast majority of machine vision applications are solved using two-dimensional imaging, 3D imaging machine vision applications are becoming more popular in the market. Grid array-based systems using pseudorandom structured light, as used by the Microsoft Kinect system in 2012, are one technique.



By  
**Mr. Satywan Panchal**  
Assistant Professor

# Phishing Attacks

## What is a phishing attack?

Phishing is a type of social engineering attack often used to steal user data, including login credentials and credit card numbers. It occurs when an attacker, masquerading as a trusted entity, dupes a victim into opening an email. An attack can have devastating results. For individuals, this includes unauthorized purchases, the stealing of funds, or identity theft. Moreover, phishing is often used to gain a foothold in corporate or governmental networks as a part of a larger attack, such as an advanced persistent threat (APT) event. In this latter scenario, employees are compromised in order to bypass security perimeters, distribute malware inside a closed environment, or gain privileged access to secured data.

An organization succumbing to such an attack typically sustains severe financial losses in addition to declining market share, reputation, and consumer trust. Depending on scope, a phishing attempt might escalate into a security incident from which a business will have a difficult time recovering.

## Phishing attack examples

The following illustrates a common phishing scam attempt:

- A spoofed email ostensibly from myuniversity.edu is mass-distributed to as many faculty members as possible.
- The email claims that the user's password is about to expire. Instructions are given to go to myuniversity.edu/renewal to renew their password within 24 hours.

Several things can occur by clicking the link. For example:

- The user is redirected to myuniversity.edurenewal.com, a bogus page appearing exactly like the real renewal page, where both new and existing passwords are requested. The attacker, monitoring the page, hijacks the original password to gain access to secured areas on the university network.
- The user is sent to the actual password renewal page. However, while being redirected, a malicious script activates in the background to hijack the user's session cookie. This results in a reflected XSS attack, giving the perpetrator privileged access to the university network.

## Email phishing scams

Email phishing is a numbers game. An attacker sending out thousands of fraudulent messages can net significant information and sums of money, even if only a small percentage of recipients fall for the scam. As seen above, there are some techniques attackers use to increase their success rates.

For one, they will go to great lengths in designing phishing messages to mimic actual emails from a spoofed organization. Using the same phrasing, typefaces, logos, and signatures makes the messages appear legitimate.

In addition, attackers will usually try to push users into action by creating a sense of urgency. For example, as previously shown, an email could threaten account expiration and place the recipient on a timer. Applying such pressure causes the user to be less diligent and more prone to error.

Lastly, links inside messages resemble their legitimate counterparts, but typically have a misspelled domain name or extra subdomains. In the above example, the myuniversity.edu/renewal URL was changed to myuniversity.edurenewal.com. Similarities between the two addresses offer the impression of a secure link, making the recipient less aware that an attack is taking place.

## How to prevent phishing

Phishing attack protection requires steps be taken by both users and enterprises. For users, vigilance is key. A spoofed message often contains subtle mistakes that expose its true identity. These can include spelling mistakes or changes to domain names, as seen in the earlier URL example. Users should also stop and think about why they're even receiving such an email. For enterprises, a number of steps can be taken to mitigate both phishing and spear phishing attacks:

- Two-factor authentication (2FA) is the most effective method for countering phishing attacks.
- In addition to using 2FA, organizations should enforce strict password management policies.
- Educational campaigns can also help diminish the threat of phishing attacks by enforcing secure practices.

By: Mr. Rohit Sharma, Assistant Professor

## How to Write a Resume

Whether you are applying for an internal position or searching for jobs online, you won't get far without a professional resume. This step-by-step resume writing guide is designed to help you build a resume that stands out to recruiters and adequately communicates your skills and experience. Let's get started.

### 1. Choose a resume format

There are three standard resume formats: chronological, functional, and hybrid (sometimes called a combination resume). For most job seekers, a hybrid resume format, which puts equal emphasis on skills and work experience, is the best choice. However, in some cases, a chronological or functional resume might work better.

### 2. Add your name and contact information

The top of your resume should include the following information:

• Name • Phone number • Location (City, State, Zip Code) • Email Address • LinkedIn profile URL

### 3. Write a standout resume headline

A resume headline is a concise, one-line description of who you are as a candidate. A well-written headline can grab a recruiter's attention and encourage them to take a more detailed look at your qualifications.

### 4. Add your professional resume summary statement

A resume summary statement is a short paragraph or section of bullet points at the beginning of a resume that highlights your professional skills and experience. Your summary should expand on your headline and communicate to recruiters and hiring managers why you are a good fit for the job.

### 5. Detail your work experience

The work experience section is the heart of your resume. Employers look at this section closely to determine whether your job history and prior accomplishments make you a promising candidate. Work experience section is your chance to show recruiters and hiring managers how you have added unique value to other companies. Each job should have its own subheading that includes the following information:

• Company • Job location • Your job title • Start and end dates

### 6. List relevant skills and keywords

Resume keywords are important terms of interest that recruiters look for whether skimming a resume or searching within an applicant tracking system (ATS). The more role-specific keywords—often hard skills—your resume contains, the better optimized your resume is. Where on your resume should you include important skills?

### 7. Add your education, certifications, and any other relevant information

There are other resume sections that may be worth adding, depending on both the job and your unique experience. These sections include things like education, awards and accolades, volunteer experience, and certifications. Most job seekers can get away with providing only the following information on their resume:

• Name of Institution • Degree • School Location • Years Attended

If you've recently graduated college, your education section goes above your work experience and includes more detail. Skills developed in school are real skills that have value in the professional world. Recent grads can include relevant coursework, societies, organizations, and extracurriculars that strengthen their candidacy.

### 8. Tailor your resume and optimize for applicant tracking systems

It's very easy these days to fire off your resume to dozens of jobs, but if you've tried this method, you may have been disappointed by your success rate. That's because you didn't take the time to customize your resume for each individual role—and recruiters can tell. The most impactful thing you can do to improve your chances of getting interviews is tailor your resume to each and every job.

### 9. Polish up your grammar and formatting

Resume writing is a unique style. It can be tricky to remember which tense to use or when (and why) to omit pronouns.

### Resume Fonts

It's important to use a font that is easy to read on screen, ATS-compatible, and commonly available. A few traditional resume fonts to consider include Helvetica, Garamond, or Georgia. Don't use a font size below 10.

By: Ms Mandeep Kaur, Assistant Professor

## Intelligent Basket



Intelligent basket is a future technological concept that is going to revolutionize the purchasing experience of every buyer. Imagine how happy we would be if someone can deliver the weekly essentials at our doorsteps, without even worrying about building the online shopping cart too.

Purchasing and shopping at big malls is becoming daily activity in metro cities. We can see big rush at these malls on holidays and weekends. After completion of purchases, one needs to queue up in a billing counter for payments. At billing counter the cashier prepare the bill using bar code reader which is another time consuming process and results in long queue at billing counter. Once purchase is over, carrying all the shopping things and reaching home is another tiring process. In rural areas people purchase daily house essentials from different stores. For a busy person, the precious time to spend with family is lost while shopping. Some people are not aware about the leftout items at home and buy things unnecessarily which leads to wastage of items and money. The Intelligent basket is a system which uses artificial intelligence to predict the customers purchase behaviour of retail items. This model needs to be trained initially to learn the details of a family including number of members, gender, age, their food preferences and family purchase history. Purchase history consists of their monthly household items bought including grocery, vegetables, milk, poultry, bakery etc, the quantity of each item and the frequency of purchase from a retail shop or locality. From this, the model is capable of predicting the possible future purchase of that customer. From the purchase history and customer family details intelligent basket can build an Automated Shopping Cart.

Once the user approves the cart things are delivered at the customer doorsteps the very next day. Once developed intelligent basket can be an innovative product that can attract high societal acceptance since it can assist a person in everyday shopping in terms of reduced time, comfort, convenience and efficiency.



By  
**Ms Mini**  
Assistant Professor

## Technology for Physically Challenged Persons

People with impairments face a variety of obstacles. Technology, on the other hand, is assisting in the reduction of many of these hurdles. Students and employees with disabilities can handle a greater range of activities independently by using computing technology for tasks such as reading and creating documents, talking with others, and looking for information on the Internet. Even yet, people with impairments confront a range of challenges when it comes to using computers. Assistive or adaptive technology refers to equipment, tools, hardware, or software that allow persons with disabilities to utilize computers to some extent. It provides an alternative method for accessing screen content, controlling the computer, and processing data. The figures show some scenarios where physically disable persons are taking benefits from technology.



The person with a disability, in collaboration with his or her carers and a team of specialists and consultants, usually determines which form of rehabilitative or assistive technology will be most beneficial. The staff has been trained to match certain technology to specific needs in order to improve or increase the person's independence. Family doctors, regular and special education teachers, speech-language pathologists, rehabilitation engineers, occupational therapists, and other specialists may be on the team, as well as representatives from assistive technology manufacturers.



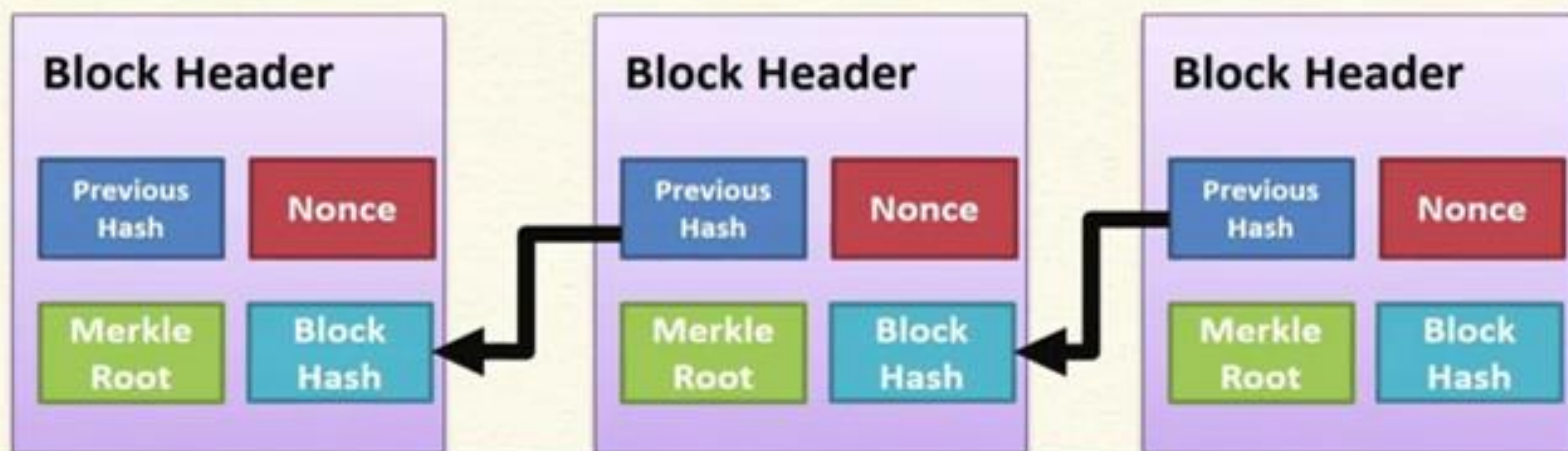
By  
**Dr. Monika**  
Assistant Professor

## Blockchain: - A recent trend in Technology

Blockchain is relatively a new area of research. However, a surge of research studies on the blockchain has taken place in recent years. These research studies have mostly focused on designing and developing conceptual frameworks to build more reliable, transparent and efficient digital systems. Blockchain technology is one of the latest innovations, which can be considered as a new paradigm for the regulation of human and business activities. It is a distributed consensus mechanism to store the transaction information in a Peer-to-Peer (P2P) network. It was actually designed as an open-source project to introduce a digital currency (i.e. cryptocurrency) named bitcoin. Although the concept of blockchain was first discussed through bitcoin, it has use cases that go far beyond the cryptocurrencies.

Blockchain can be either public or private. Public blockchains are permission less and therefore, anyone can join. Bitcoin is a public blockchain. In contrast, in order to join a private blockchain, permission is needed. IBM's Hyper ledger is an example of private blockchain. The first generation blockchain (i.e. Bitcoin) did not support smart contracts and was capable to store data related to only transactions of bitcoin.

### Blockchain as a Hashchain



Blockchain platforms such as Ethereum and IBM Hyper ledger support smart contracts. These platforms are also able to store any type of data. Therefore, recently blockchain is used in many domains (other than cryptocurrencies) to achieve more security, flexibility, efficiency and transparency. The domains include health informatics for storing and managing patient data, secured energy trading, banking.

Technique/ tools used: - Solidity Language, Merkle tree (Data structure), Ethereum (Platform), Cryptographic primitives, Hash Functions etc.



By: Mr Deepak  
Assistant Professor

## The Metaverse – the new buzzword in Internet Technology



The metaverse is the next big technology platform, attracting online game makers, social networks and other technology leaders to capture a slice of what we calculate to be a nearly \$800 billion market opportunity. Social, persistent, shared, virtual 3D worlds, the metaverse is the convergence of the physical and digital realms in the next evolution of the internet and social networks using real-time 3D software. It presents an opportunity for leading online entertainment and social media companies to capitalize on new revenue streams. The metaverse is the joining of physical and digital worlds. The idea isn't new, particularly to gamers of Fortnite or Roblox. Second Life has been running a metaverse-like online world for a couple of decades. It also translates to a digital economy, where users can create, buy, and sell goods. And, in the more idealistic visions of the metaverse, it's interoperable, allowing you to take virtual items like clothes or cars from one platform to another. In the real world, you can buy a shirt from the mall and then wear it to a movie theater. Right now, most platforms have virtual identities, avatars, and inventories that are tied to just one platform, but a metaverse might allow you to create a persona that you can take everywhere as easily as you can copy your profile picture from one social network to another.

The flashiness of VR and AR also obscure the more exciting aspects of the metaverse that might be more likely to come to fruition. It would be trivially easy for tech companies to invent, say, an open digital avatar standard, a type of file that includes characteristics you might enter into a character creator—like eye color, hairstyle, or clothing options—and let you take it everywhere. There's no need to build a more comfortable VR headset for that.

Broadly speaking, the technologies that make up the metaverse can include virtual reality—characterized by persistent virtual worlds that continue to exist even when you're not playing—as well as augmented reality that combines aspects of the digital and physical worlds.

Popular Brands in the Metaverse

1. Meta – Facebook.
2. Disney – MagicBand+
3. Hyundai – Roblox.
4. RTFKT Studios on Twitter.
5. In the Heights Block Party – Roblox.
6. Coca-Cola – Tafi.
7. Louis Vuitton – Louis The Game.
8. Charli Cohen & Selfridges – Electric/City.



**By: Ms Hemlata**  
**Assistant Professor**

## Impact of Modern technology in Education

The era of 21st century is often regarded as an era of technology. Technology, today, plays a very important role in our life. It is seen as a basis of growth of an economy. An economy which is poor in technology can never grow in today's scenario. This is because technology makes our work much easier and less time consuming. The impact of technology can be felt in every possible field one such field is Education.

Technology is a gift of God. After the gift of life it is perhaps the greatest of God's gifts. It is the mother of civilizations, of arts and of sciences. Technology has certainly changed the way we live. It has impacted different facets of life and redefined living. Undoubtedly, technology plays an important role in every sphere of life. Several manual tasks can be automated, thanks to technology. Also, many complex and critical processes can be carried out with ease and greater efficiency with the help of modern technology. Technology has revolutionized the field of education. The importance of technology in schools cannot be ignored. In fact, with the onset of computers in education, it has become easier for teachers to impart knowledge and for students to acquire it. The use of technology has made the process of teaching and learning all the more enjoyable.

### **Importance of technology in education:-**

The role of technology in the field of education is fourfold: it is included as a part of the curriculum, as an instructional delivery system, as a means of aiding instructions and also as a tool to enhance the entire learning process. Education is essential in corporate and academic settings. In the former, education or training is used to help workers do things differently than they did before. In the latter, education is geared towards creating curiosity in the minds of students. In either case, the use of technology can help students understand and retain concepts better. Students today can make use of technology in the following ways:

- Internet connection and round the clock connectivity
- Using projectors and visuals
- Digital footprint in the education sector
- Online degrees\certificates with the use of technology

### **Positive Impact of technology in education-**

- Enhanced teaching and learning- Use of projectors, cameras, presentation slides.
- Globalization- When school in different parts of the state, students can "meet" their counterparts through video conferencing without leaving the classroom.
- No geographical limitations- With the introduction of online degree programs there is hardly any need of being present physically in the classroom. Distance learning and online education have become very important

### **Negative Impact of technology in education-**

- Declining Writing Skills- Due to the excessive usage of online chatting and shortcuts, the writing skills of today's young generation have declined quite tremendously.
- Increasing Incidents of Cheating- Technological developments like graphical calculators, high tech watches, mini cameras and similar equipment have become great sources to cheat in exams.
- Lack of Focus- SMS or text messaging has become a favorite pastime of many students. Students are seen playing with their cell phone, iPhone day and night or driving and very often even between lectures.



**By: Mr Mohit Chandna**  
**Assistant Professor**

## Data analytics:- Latest trend in Technology

Data Analytics seeks to provide operational insights into complex business situations. The concept of big data has been around for years; most organizations now understand that if they capture all the data that streams into their businesses, they can apply analytics and get significant value from it. A business would have gathered information, run analytics and unearthed information that could be used for future decisions, today that business can identify insights for immediate decisions. The ability to work faster – and stay agile – gives organizations a competitive edge they didn't have before. Looking into the historical data from a modern perspective, finding new and challenging business scenarios and applying methodologies to find a better solution are the prime concerns of a Data Analyst. Not only this, but a Data Analyst also predicts the upcoming opportunities which the company can exploit.

Data analytics (DA) is the process of examining data sets in order to find trends and draw conclusions about the information they contain. Increasingly, data analytics is done with the aid of specialized systems and software. Data analytics technologies and techniques are widely used in commercial industries to enable organizations to make more-informed business decisions. Scientists and researchers also use analytics tools to verify or disprove scientific models, theories and hypotheses.



Data analytics initiatives can help businesses increase revenue, improve operational efficiency, optimize marketing campaigns and bolster customer service efforts. Analytics also enable organizations to respond quickly to emerging market trends and gain a competitive edge over business rivals. The ultimate goal of data analytics, however, is boosting business performance. Depending on the particular application, the data that's analysed can consist of either historical records or new information that has been processed for real-time analytics. In addition, it can come from a mix of internal systems and external data sources.

Types:- Predictive data analytics, Prescriptive data analytics, Diagnostic data analytics, Descriptive data analytics.

Tools/techniques used: - Python/R language, tableau, Microsoft excel etc....



**By: Ms Neha Singla**  
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