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Sector-5, Rohini, Delhi

THE STUDENT'S IT PRESS

IT KALEIDOSCOPE

APRIL 2022 EDITION

EMERGING ERA OF ₿LOCKCHAIN

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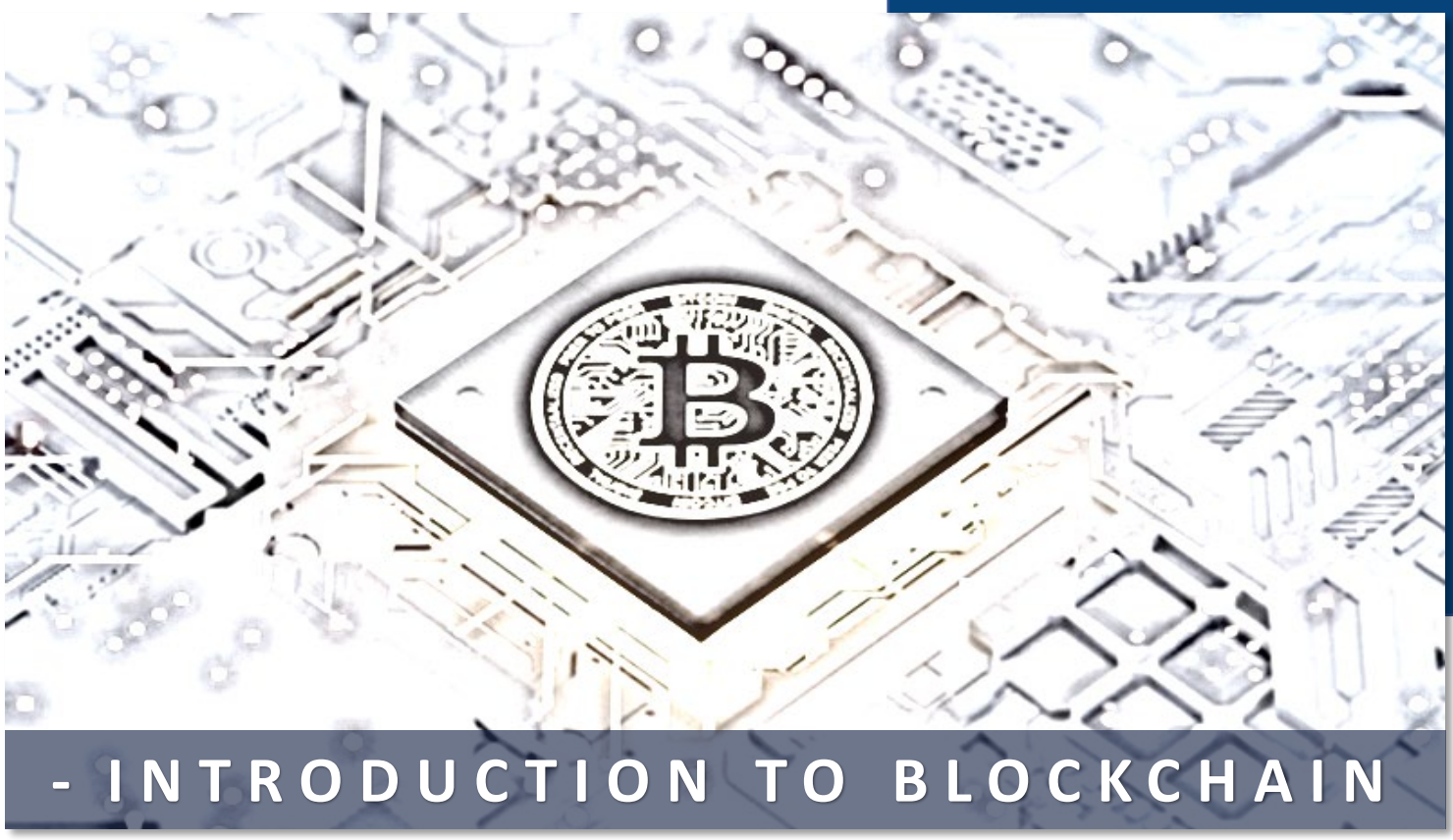

EMERGING ERA OF BLOCKCHAIN

- INTRODUCTION TO BLOCKCHAIN

In 1982 David Chaum an American Computer Scientist and cryptographer found a similar technology like Blockchain. A later description of the chain of blocks secured through cryptography was developed by Stuart Haber and W. Scott Stornetta in 1991. In 2008 developers working under the Pseudonym Satoshi Nakamoto developed a blockchain with a hash method including timestamp blocks after one year they implemented it using the currency bitcoin. In 2014 experts worked on the potential of blockchain in financial transactions and till now there are many implementations of Blockchain in life sciences, healthcare, financial services, etc. Blockchain is a record-keeping system technology designed to make it impossible to hack the system or forge the data stored in it which makes its applications more secure and immutable. It uses DLT (Distributed Ledger Technology), a digital system for recording related data in multiple places at the same time. Blockchain Ledger maintains a copy of data to prevent failure; copies are validated and updated simultaneously.

-Sneha Kaushik
(BCA 1st Year 1st Shift)

Blockchain technology is used in various fields, some of them are listed below:-

- **Money transfers**- Blockchain technology has still proven to be a successful application of its original concept. In comparison to other money transfer methods, blockchain allows for faster and less expensive money transfers.
- **Government benefits**- Government programs such as Social Security, welfare programs, and Medicare can also be administered by storing digital identities on a blockchain. It would cut down on fraud, as well as reduce operational costs and overhead.
- **Insurance**- Customers and insurance providers can benefit from using smart contracts on a blockchain.
- **Securely share medical information**- In addition to providing accurate and up-to-date patient records, blockchains can allow medical professionals and doctors to protect their privacy. Patients who see multiple doctors will be able to receive the most effective care possible.

-Aditi Jain
(BCA 1st Year 1st Shift)

There can be many ways to store information. Writing down something on paper is a way to store information. On an excel file, one's information is structured in the form of a table. Similarly, in a Blockchain, the information is structured in the forms of blocks.

What makes blockchain secure?

Each block is made up of three main things. First, any data or information you store in the block. Second, each block has its fingerprint known as **Hash**. This is the way to uniquely identify a block among other blocks. Every block has its own fingerprint. And third, each of these block stores the fingerprint of the block before it. This is a Blockchain. This is how all the blocks are linked with each other. The most unique thing about this is that if one wants to change the data in any block then the fingerprint, or the hash, of the block will change. And if the hash of one block changes, the hash of the next block will also change. For this reason, it is next to impossible to alter or tamper with the data in a blockchain. Because once a block is defined and becomes a part of the blockchain It cannot be altered after that.

- Navneet Baid
(BCA 1st Year 1st Shift)

The use of the Excel sheets to upgrade data of the recent stage in the supply chain has to be replaced more by the automatic system requiring less human intrusion. Automation itself calls for a system that holds and manages data with the least possible use of a human.. One must have followed Banking, Investment, or Cryptocurrency over the recent years, you may know about the blockchain, and it is the data storage technique after the bitcoin. If it is the blockchain that one wants to know more about, then one may have come across a definition of blockchain as a public, decentralized ledger. Blockchain technology is also known as distributed ledger technology. It allows its participants to protect the execution of transactions, initiate the transaction, and transfer the resources at a low amount. In this technology, transactions are gathered into blocks and stored in cryptographic chain blocks in a Sequential manner and permitting the deriving ledger to be used by various servers. The traditional supply of the chain system has become the heritage system with the development of technology .

- Rajat Tanwar
(MCA 1st Year 2nd Group)

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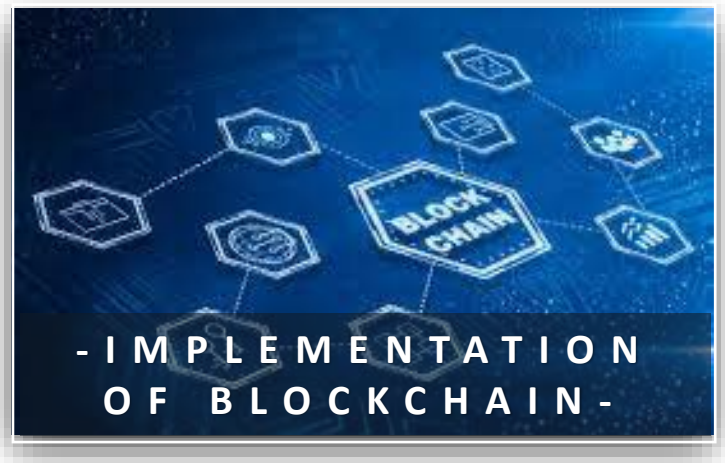

-IMPLEMENTATION OF BLOCKCHAIN-

Blockchain technology is gaining a significant amount of interest in the retail space due to its potential to disrupt the consumer goods industry. Blockchain came into supremacy with the beginning of cryptocurrencies like bitcoin, a peer-to-peer electronic funds approach. Blockchain utilization and industrial application have since raised a terrific deal. Blockchain use cases continue to expand. Here are some typical commercial applications:

- **Supply Chain Management:** Blockchain technology has emerged as an effective solution to provide an efficient network for commercial transactions between the seller and the consumer. It is becoming increasingly popular to use blockchain technology to verify and enhance data integrity.
- **Security:** Financial service providers are leveraging blockchain technology to create secure transactions. The use cases for blockchain are so broad that they have been classified into verticals. The financial services vertical is gaining the most momentum due to its sheer magnitude.
- **Transaction Reporting:** The decentralized nature of blockchain technology makes it easier to disseminate transaction information to many parties and automated systems. Financial reporting can be significantly improved as a result of improved data integrity.
- **ID Verification and Tracking:** This technology can help reduce the costs of cross-border operations by enabling the tracking of intellectual property, identification of victims of human trafficking, and other unique attributes.
- **Patent Verification:** According to a Deloitte survey, the blockchain is the most sought-after technology for securing intellectual property. Blockchain technology makes it easier to verify and authenticate information, including in legal disputes, product origin, and physical security. In other words, blockchain technology can help ownership and control intangible assets.
- **Proof-of-Stake:** A proof-of-stake algorithm is used to establish the validity of a transaction. In this system, the stakes (the people who validate the transactions) are rewarded based on the popularity of the transactions that they validate. Instead of the proof-of-work algorithm, proof-of-stake creates a more orderly and reliable transaction history.
- **Network Consensus:** The consensus algorithm ensures that all the nodes agree on a set of rules and, in a perfect world, the system works smoothly. Consensus algorithms are usually based on the availability and requirement of computing power.
- **Payments and Transactions:** Bitcoin facilitates payments without a trusted intermediary. Transactions are made without third parties and without a centralized authority to intervene. Since there is no need for third-party processing and clearing, the fees for each transaction are lower.

-Ankit Singhal
(BCA 3rd Year 1st Shift)

EMERGING ERA OF BLOCKCHAIN

Blockchain contributes much more than only bitcoin and cryptocurrencies. With its capacity to increase transparency and fairness while also saving businesses time and money, the technology is influencing many industries in ways ranging from contract administration to government efficiency.

Some of the services are:

1. Transfers of funds

Money transfers via blockchain are much less expensive and are faster than traditional methods.

2. Loaning

To make collateralized loans, lenders can use blockchain smart contracts. Certain events can be automatically triggered by smart contracts created on the blockchain.

3. Real Estate

Real estate transactions need a massive amount of documentation so a more secure and accessible method of validating and transferring ownership can be provided by blockchain technology to record real estate transactions.

4. Protect personal information

Keeping data such as your Social Security number, date of birth, and other identifying information on a public ledger (e.g., a blockchain) may be more secure than current hack-prone systems. Blockchain technology can be used to secure access to identify information while improving access for those who need it in industries such as travel, healthcare, finance, and education.

-Rohan Singh
(BCA 1st Year 1st Shift)

Blockchain technology includes many preventive measures to minimize cyber-attacks. The people who have benefitted most from blockchain technology are those who adopted blockchain technology in the early stages of its introduction in the finance sector. A single node can govern or dominate the whole chain, which in the wrong hands can turn the major part of the currency upside down. In the finance sector, blockchain technology has proposed many innovative methods to organize data, transactions, the creation of smart contracts, payment systems, and many more. In the non-finance sector also, blockchain technology is gaining the spotlight. For example, trying to incorporate blockchain technology in voting systems would provide transparency to the masses, while every record is maintained inside the blockchain. For making huge transactions via bit coins or blockchain technology, trust was the integral aspect when it came to introducing the technology to the masses. Organized, decentralized and collated data is what blockchain technology is all about. As each block is connected to the others via a peer-to-peer connection. Till now, a completely secure blockchain exists at a theoretical level, but at the real-time application level, it needs to be brought to life. The blockchain, on an initial level, works on network security, which assures users the privacy of their data.

- Parul Mehra
(BCA 2nd Year 1st Shift)

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EMERGING ERA OF BLOCKCHAIN

- FEATURES OF BLOCKCHAIN-

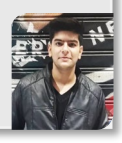
Various crucial features of blockchain includes:

- **Tokenization**- Tokenization is the technique for changing over the worth of a genuine or advanced resource into a computerized token, which is then put away on and shared through blockchain.
- **Improved security and privacy**

One more significant benefit of blockchain-based frameworks is their security. The expanded security given by blockchain is because of how the technology works: With end-to-end encryption, blockchain creates an unalterable record of exchanges that forestalls misrepresentation and unlawful direction.

- **Reduced costs**- The nature of blockchain can also help businesses in saving money. It improves transaction processing efficiency. It also develops exchange handling proficiency.
- **Immutability**- Immutability for the most part implies that exchanges can't be changed or taken out after they have been added to the blockchain.
- **Individual control of data**- Experts claim that blockchain gives people extraordinary command over their computerized information. People and organizations might pick what portions of their advanced data they wish to share, with whom, and for how long, it is possible because of the smart contracts provided by blockchain innovation.

- Arjuna Sharma
(BCA 1st Year 1st Shift)



Though blockchain is generally associated with cryptocurrencies, with Bitcoin in particular, there is much more to it. For a huge number of tech companies, this technology has become an integral part of their business operations. Some of the key features of blockchain includes:

- **Consensus**- Consensus algorithms underpin every blockchain. At the heart of this architecture are sophisticated consensus algorithms. For a blockchain to work, a consensus is required..
- **Faster Settlement**- Using traditional banking systems is quite slow. After finalizing all settlements, it can sometimes take days for a transaction to be processed. It also can be corrupted quite easily.
- **Distributed Ledgers**- All the information related to a transaction and its participants will typically be contained in a public ledger.

- Aditi Jain
(BCA 1st Year 1st Shift)

The most reviewed features of blockchain includes:

- **Increased Capacity**- This is an important feature of Blockchain. The most remarkable thing about this Blockchain technology is that it increases the capacity of the whole network. Because of the reason that there are a lot of computers working together which in total offers a great power then few of the devices where the things are centralized.
- **Better Security**- Blockchain technology is considered more secure than its contemporaries because of the lack of a single point of failure.
- **Immutability**- Creating immutable ledgers is one of the main values of Blockchain. Any centralized database is destined for hacks and frauds since it requires trust in some third-party intermediary to keep the database secure.
- **Decentralized System**- Decentralized technology gives you the power to store your assets in a network without the oversight and control of a single-person organization or entity.

- Deversh Khandelwal
(MCA 1st Year 2nd Group)

- Keeping in mind the current financial frauds and scams around the world, the most important feature of Blockchain is that it is immutable. Blockchain remains a purely decentralized network as long as it is unaltered. Nobody can alter the transaction block once added to the ledger. It is a technology to fight corruption.
- Blockchain is not ruled by anyone. In other words, it is not governed by any governing authority and users completely have the authority and control over their assets and properties; no third party is involved which makes it less risky.
- Blockchain is comparatively faster than traditional banking systems. It offers a relatively quicker settlement and transfer of money which saves a lot of time.
- Blockchain is special because of its Consensus algorithm due to which the nodes can agree relatively quicker. There are many different Consensus algorithms for Blockchains around the world.

- Muskan Juneja
(BCA 2nd Year 2nd Shift)

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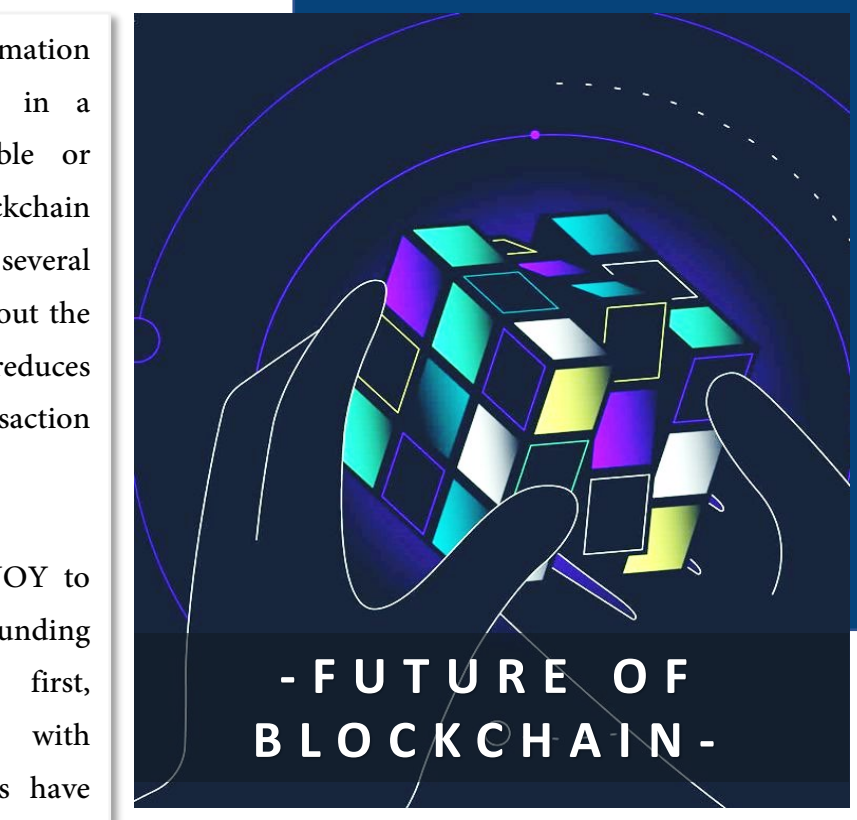
Blockchains facilitate transactional information recording and tracking asset ownership in a business network. Assets can be tangible or intangible assets. We can look at the blockchain and observe that it is linked with several computers. Also, it allows it to operate without the need for a central authority. It just not only reduces risk but also eliminates processing and transaction fees.

At present Global Funding surges 713% YOY to reach $25.8B, which means, as per NFT, funding soars 12,878%(130x) year-over-year. At first, blockchain technology started dealing with cryptocurrency, but now many companies have adopted it for its better programmable, secure, time-stamped, and other features. General Motors and BMW have already partnered to share self-driving car data using blockchain tech.

In the medical sector, patients, clients, and other entities can collaborate and give access to critical data without risking privacy. In the pharmacy and finance sectors, like banking, it helps enhance accuracy and information sharing in the financial ecosystem.

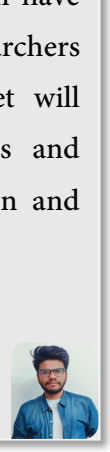
There are many challenges in between, and the most significant challenge identified is the scalability of the implementation and performance of blockchain networks. India undoubtedly has immense potential to emerge as a global leader in blockchain technology, just like it has proved its capabilities in successfully developing other IT innovations.



- Priyal Jindal
(BBA 1st Year 2nd Shift)

The future of cryptocurrencies is inclusive as they are increasingly users looking for decentralized digital cash systems where they don't have to depend on a third party. Because of its decentralized control, the buyer and seller of cryptocurrency aren't dealing with a third party, which attracts more buyers and sellers. The future of cryptocurrency is vast as its use is increasing daily. Nowadays, bitcoin is accepted almost all over the internet as it has a standard value and does not need to convert into another currency; hence can be used for all types of trade and commerce. Unlike other digital cash, it provides users with more security options, and it uses blockchain technology. Therefore, bitcoin has been the most flavored digital money over the internet. Cryptocurrency such as Bitcoin and Ethereum have been widely used in recent years, and the researchers say that by 2027 the cryptocurrency market will touch sky high. Many corporate companies and financial institutions have widely used Bitcoin and Ethereum to buy and sell commodities.

-Rajat Tanwar
(MCA 1st Year 2nd Group)



From being a Bitcoin stage, as brought about by Satoshi Nakamoto in 2009, blockchain technology was initially introduced in cryptocurrency applications. Blockchain has progressed significantly as an inventive spine innovation to enhance organizations across areas, much beyond the initially arranged digital money domain. This innovation will be a distinct advantage in the days to come. A Gartner report indicates that numerous new inventive organizations will utilize it. No less than one business made utilizing this cutting-edge innovation would be valued at $10 billion by 2022. By 2030, it very well may be utilized as a central innovation for 30% of the worldwide client base. By 2025, blockchain would add business value to more than $176 billion. This would build further to $3.1 trillion by 2030. Some of the top organizations which have adopted blockchain technology include Microsoft, Wells Fargo, Coca-Cola, and even the US Postal Service.

- Garima Pal
(BBA 1st Year 2nd Shift)

In the coming time, we're moving towards a decentralized future. Many websites and applications on cloud-based platforms will soon move to Blockchains. According to current scenarios, it can be predicted that in the next 10-15 years, the same applications that we use today, be it social media, censorship or copyright issue, video upload, streaming platform, or any platform that we can name, all those companies will have to use Blockchains because the user today trusts and beliefs in the companies that are transparent with their work Not those who hide from the public eye and modify their processes. For this reason, some people believe that Blockchains can revolutionize the world. Like how the Internet has changed history. Without the Internet, we cannot even imagine life. Similarly, people believe that soon it will be difficult to imagine life without Blockchains.

- Navneet Baid
(BCA 1st Year 1st Shift)

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STUDENT INNOVATION

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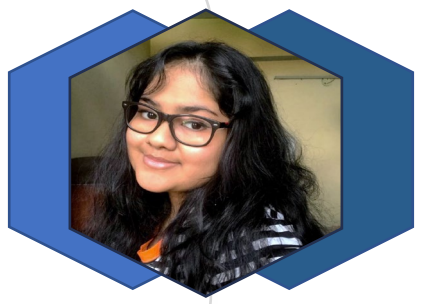
ANKIT SINGHAL – BCA 3RD YEAR 1ST SHIFT

Having a tech-savvy personality, exploring and working with different technologies and use cases adds a star to my skills. I believe that our skills are useless unless they are put to use. To sharpen my skills, I have worked on various projects and queries powered by IBM. I have also published and presented multiple papers in the fields of Data Analytics, Cyber Security, Future Innovations, Data Recovery and Forensics, etc. Currently, I am spearheading and working on all aspects of Data Analytics and Cyber Security. In the last few months, I indulged myself in reviewing, approving, and implementing Cyber Security Solutions for various crucial projects. Learning has no limit until and unless we set it for ourselves.

NEHARIKA AGARWAL – BCA 3RD YEAR 2ND SHIFT



George Bernard Shaw once said that "there is no love sincere than the love of food." And indeed, relating the importance of this saying, me and my teammate Khushboo Jain diligently featured our vision into absoluteness. Our app, ART OF THE GRILL, is an Android application with an image-based UI for searching, sharing, creating, and saving recipes. This application is a time saver providing recipes in a few clicks. Furthermore, the user is given a choice to create a personal cookbook, where the user can create, view, and delete the recipes. Therefore, cooking with your phone is a lot tastier when you have suitable recipes.

SAMPADA VERMA – BCA 2ND YEAR 2ND SHIFT

"The more you explore, the more you will get" as a creative person, I love to improve myself as much as possible. Keeping this in mind, I have been doing graphic design for the past two years as a freelancer and have designed five IT newsletters for JIMS IT student press (for college). For a new experience, I'm currently doing an internship in social media marketing at Suvidha Foundation, where I'm learning a lot about marketing things through social media to get maximum attention. For a new experience, I'm currently doing an internship in social media marketing at Suvidha Foundation, where I'm learning a lot about marketing things through social media to get maximum attention.

AKSHAT JAIN – BCA 2ND YEAR 2ND SHIFT

I always find it interesting to explore about trending technologies, and I always try to research about all the exciting technologies. And I think to gain competence in a particular topic, it is important to maintain consistency and a steady mental state. So from the pandemic time, I decided to explore about IoT and Data Science. And to learn more about these, I attended several seminars and workshops related to IoT and Robotics and also worked on research papers related to the same. Apart from that, I enrolled in an internship where I got a chance to interact with people, which boosted my communication skill and increased my leadership quality.

PRAKASH RAWAT – BCA 2ND YEAR 2ND SHIFT

The Experience of my first MSCDS Marathon was mesmerizing. It was a mixed-signal circuit design and simulation marathon organized by FOSSEE IIT Bombay and VLSI System Design. I designed an RTL NOR circuit using the e-sim tool and was selected as one of the winners of the good category in MSCDS. During those 2-3 weeks of the marathon, I learned about various research in the analog and digital domain and industrial tools and learned the importance of circuit design. It was an unforgettable experience! I had a fantastic time and learned so much in just 2-3 weeks.

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FACULTY INCHARGE

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FUN FACTS ABOUT BLOCKCHAIN

- Satoshi Nakamoto, a Japanese-American man is the father of Bitcoin and the first one to receive a Bitcoin transaction was his neighbour, Hal Finney.
- Switzerland, Gibraltar and Malta are the countries in the world that are blockchain and crypto-friendly and Malta is known as the Blockchain Island and is considered the Hub of Blockchain development.
- Increasing use of blockchain technology is expected to boost the use of IoT through vehicles, household devices, etc.
- As per a survey, around 40 million population around the world are now using blockchain development, and as per the market survey, the number will spike up to 80 per cent in the next ten years.
- Nowadays, cryptos are becoming a valid currency for payment and all, and even charities and NGOs are accepting cryptos for donations.
- The first-ever world's largest forum dedicated to Bitcoin is BitcoinTalk.
- A Chinese company that manufactures integrated circuit chips for crypto mining is considered as largest blockchain organization in the world.
- There are some social networks that run on Blockchain development.
- As per the reports, around 15% of IT professionals have invested in cryptocurrency, which leads them the largest group of investors.

- SAMPADA VERMA
(BCA 2nd Year 2nd Shift)

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