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Techniz



COMPUTER DEPARTMENT

SIES Graduate School Of Technology

NBA Accredited 2021-2024



This is the annual magazine of the "Department Of Computer Engineering", SIES Graduate School Of Technology.

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Vision

To be a centre of Excellence in Computer Engineering to fulfill the rapidly growing needs of the Society.

Mission

- To Impart quality education to meet the professional challenges in the area of Computer Engineering.
- To create an environment for research, innovation, professional and social development.
- To nurture lifelong learning skills for achieving professional growth.
- To strengthen the alumni and industrial interaction for overall development of students.

PEO

- Practise Computer engineering in core and multi-disciplinary domains.
- Exhibit leadership skills for professional growth.
- Pursue higher Studies for career advancement.

PSO

- To apply computational and logical skills to solve computer engineering problems
- To develop interdisciplinary skills and acquaint with cutting edge technologies in software industries

EDITORIAL BOARD



Anindita K.
(Faculty Incharge)



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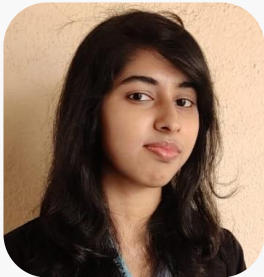
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Message from HOD's desk

Dr. Aparna Bannore



Dear Reader,

I am delighted and congratulate the TECHNIZ team for their brilliant and original efforts. I sincerely thank everyone for submitting articles and contributing to the success of TECHNIZ. Without innovation, there would be no progress, and we would be forever repeating the same patterns.

This is an opportunity to appreciate the role of science, technology and innovation in the development of the country. I sincerely hope that all the articles will significantly contribute to the long term dream and to ensure that it benefits the development and improving quality of life.

I am happy to share with all the readers that the Department of Computer Engineering is Accredited from AY 2021-24. My sincere thanks to all the stakeholders for their involving cooperation during the accreditation committee visit.

I wish all the readers Best of Luck & a bright future ahead, filled with joy and success.

HOD-CE



Message from Faculty Incharge

Prof. Anindita A Khade

We are glad to introduce Issue 5 of the departmental magazine of Computer Engineering Department of SIES GST, Techniz. Techniz is all about technology that inspires students to do something, that leaves an everlasting mark in the world of technology. Thus, it is our job to ensure inspiring technological developments are being brought to the students of SIES GST, by the students and faculty members of SIES GST itself.

We retained most of the members from the previous issue team. Everything right from the collection of articles up to the final edits was quite smooth. We worked closely as a team to ensure that everything was done according to the deadlines. The magazine was compiled and edited in a professional manner. Thanks to the team of Techniz for their commendable efforts.

I would also like to thank each member of Techniz without whose support this would not have been possible. I hope that you all enjoy reading this magazine.

Bitcoin: Is The Hype Real?



Pritam Negi
Batch 2015-19

Bitcoin is a type of money that is completely virtual. The reason it is called virtual is that it only exists as a balance in one's bitcoin wallet. Now you might be thinking if something is completely virtual how people earn it. People buy bitcoin using real money, or by selling things online in return of which they get bitcoins, or by mining bitcoin using the computer's processing power.

The peculiar feature of bitcoin is that it is an electronic or digital currency that works on a peer-to-peer basis. This means that it is decentralised and has no central authority controlling it. Like currency notes, it can be sent from one person to another, but without a central bank or the government attempting to track it.

Origin of Bitcoin

The idea behind Bitcoin was introduced to the world on Oct. 31, 2008 by a pseudonymous person called Satoshi Nakamoto. Nakamoto posted a message on a cryptography mailing list titled, "Bitcoin P2P e-cash paper." In it was a link to a white paper called "Bitcoin: A Peer-to-Peer Electronic Cash System." Both of these are still available online.

In these papers, Nakamoto laid out the concept for Bitcoin as a decentralized, digital currency. Being decentralized means there is no single administrator but rather a public ledger of transactions that anyone can store on their computer. Coins can be sent from user to user on the peer-to-peer Bitcoin network without the need for intermediaries.

How are new Bitcoins created?

In order for the Bitcoin system to work, people can make their computer process transactions for everybody. The computers are made to work out incredibly difficult sums. Occasionally they are rewarded with a Bitcoin for the owner to keep. People set up powerful computers just to try and get Bitcoins. This is called mining.

But the sums are becoming more and more difficult to stop too many Bitcoins being generated. If you started mining now it could be years before you got a single Bitcoin. You could end up spending more money on electricity for your computer than the Bitcoin would be worth.

What is Blockchain?

The blockchain is a shared public ledger on which the entire Bitcoin network relies. All confirmed transactions are included in the blockchain. It allows Bitcoin wallets to calculate their spendable balance so that new transactions can be verified thereby ensuring they're actually owned by the spender. The integrity and the chronological order of the block chain are enforced with cryptography.

Blockchain is a specific type of database. One key difference between a typical database and a blockchain is the way the data is structured. A blockchain collects information together in groups, also known as blocks, that hold sets of information. Blocks have certain storage capacities and, when filled, are chained onto the previously filled block, forming a chain of data known as the "blockchain." All new information that follows that freshly added block is compiled into a newly formed block that will then also be added to the chain once filled.

Advantages of Bitcoin

1. User Autonomy

The primary draw of bitcoin for many users, and indeed one of the central tenets of cryptocurrencies more generally, is autonomy. Digital currencies allow users more autonomy over their own money than fiat currencies do, at least in theory. Users are able to control how they spend their money without dealing with an intermediary authority like a bank or government.

2. Discretion

Bitcoin purchases are discreet. Unless a user voluntarily publishes his Bitcoin transactions, his purchases are never associated with his personal identity, much like cash-only purchases, and cannot easily be traced back to him. In fact, the anonymous bitcoin address that is generated for user purchases changes with each transaction. This is not to say that bitcoin transactions are truly anonymous or entirely untraceable, but they are much less readily linked to personal identity than some traditional forms of payment.

3. Peer-to-Peer Focus

The bitcoin payment system is purely peer-to-peer, meaning that users are able to send and receive payments to or from anyone on the network around the world without requiring approval from any external source or authority.

4. Elimination of Banking Fees

While it is considered standard among cryptocurrency exchanges to charge so-called "maker" and "taker" fees, as well as occasional deposit and withdrawal fees, bitcoin users are not subject to the litany of traditional banking fees associated with fiat currencies. This means no account maintenance or minimum balance fees, no overdraft charges and no returned deposit fees, among many others.

7. Accessibility

Because users are able to send and receive bitcoins with only a smartphone or computer, bitcoin is theoretically available to populations of users without access to traditional banking systems, credit cards and other methods of payment.

Disadvantages of Bitcoin

1. Bitcoins Are Not Widely Accepted

Bitcoins are still only accepted by a very small group of online merchants. This makes it infeasible to completely rely on Bitcoins as a currency. There is also a possibility that governments might force merchants to not use Bitcoins to ensure that users' transactions can be tracked.

2. Wallets Can Be Lost

If a hard drive crashes, or a virus corrupts data, and the wallet file is corrupted, Bitcoins have essentially been “lost”. There is nothing that can be done to recover it. These coins will be forever orphaned in the system. This can bankrupt a wealthy Bitcoin investor within seconds with no way to recover. The coins the investor owned will also be permanently orphaned.

3.No Buyer Protection

When goods are bought using Bitcoins, and the seller doesn't send the promised goods, nothing can be done to reverse the transaction. This problem can be solved using a third party escrow service like ClearCoin, but then, escrow services would assume the role of banks, which would cause Bitcoins to be similar to a more traditional currency.

4. Bitcoin Valuation Fluctuates

The value of Bitcoins is constantly fluctuating according to demand. As of June 2nd 2011, one Bitcoin was valued at \$9.9 on a popular bitcoin exchange site. It was valued to be less than \$1 just 6 months ago. This constant fluctuation will cause Bitcoin accepting sites to continually change prices. It will also cause a lot of confusion if a refund for a product is being made. For example, if a t-shirt was initially bought for 1.5 BTC, and returned a week later, should 1.5 BTC be returned, even though the valuation has gone up, or should the new amount (calculated according to current valuation) be sent? Which currency should BTC be tied to when comparing valuation? These are still important questions that the Bitcoin community still has no consensus over.

5. Risk of Unknown Technical Flaws

The Bitcoin system could contain unexploited flaws. As this is a fairly new system, if Bitcoins were adopted widely, and a flaw was found, it could give tremendous wealth to the exploiter at the expense of destroying the Bitcoin economy.

6. Built in Deflation

Since the total number of bitcoins is capped at 21 million, it will cause deflation. Each bitcoin will be worth more and more as the total number of Bitcoins maxes out. This system is designed to reward early adopters. Since each bitcoin will be valued higher with each passing day, the question of when to spend becomes important. This might cause spending surges which will cause the Bitcoin economy to fluctuate very rapidly, and unpredictably.

7. No Physical Form

Since Bitcoins do not have a physical form, it cannot be used in physical stores. It would always have to be converted to other currencies. Cards with Bitcoin wallet information stored in them have been proposed, but there is no consensus on a particular system. Since there would be multiple competing systems, merchants would find it infeasible to support all Bitcoin cards, and therefore users would be forced to convert Bitcoins anyway, unless a universal system is proposed and implemented.

8. No Valuation Guarantee

Since there is no central authority governing Bitcoins, no one can guarantee its minimum valuation. If a large group of merchants decide to “dump” Bitcoins and leave the system, its valuation will decrease greatly which will immensely hurt users who have a large amount of wealth invested in Bitcoins. The decentralized nature of bitcoin is both a curse and blessing.

- Pritam Negi
Batch 2015-19

Web Development in Python at a glance



G. Saiprasad

Batch: 2016-2020

All of us in the programming field are aware of the importance and rapid rise of web development domain whereas the count of people familiar with web development frameworks in Python language is pretty less in comparison. To our surprise, there are a lot of frameworks or software for web development in Python. However, in this article, I would like to give a brief introduction and shed some light on the most popular ones (at least to my knowledge) amongst all of them, namely **Django & Flask**.

Django

Django is a well-known high level web development framework in Python language and the one that was developed before its counterpart; i.e. Flask. In Django, applications can be designed in a clean manner and developed pretty fast from scratch. My first experience of Web development in Python language was using Django and even though I primarily dealt with the task of file uploading and fetching from Django to MySQL Database and vice-versa, I can say with utmost certainty that it was definitely hassle free as compared to my experience in Java language. Here, the best part was the compatibility of Django with multiple Python IDEs and one single integrated environment to develop the entire application. The transition between multiple components of the application is so seamless that one doesn't even feel the isolation of front-end, back-end and database codes at the same time providing enough distinction as compared to the obvious discretion while using Java, where we have the typical combination of HTML, CSS, PHP, JS, Database and so on.

Python in itself being an advanced language reflected on all of its packages and tools and Django is no different. It comes fully loaded with dozens of extras you can use to handle common Web development tasks. Django takes care of user authentication, content administration, site maps, RSS feeds, and many more tasks. With inbuilt features and provision to ensure heavy security of application, Django has proven to be a pretty robust platform as it helps developers avoid many common security mistakes, such as SQL injection, cross-site scripting, cross-site request forgery and clickjacking. Its user authentication system provides a secure way to manage user accounts and password.

High degree of scalability is another advantage of Django and some of the busiest sites use Django's ability to quickly and flexibly scale to meet the heaviest traffic demands. Its versatility is what makes it even more popular as many companies, organizations and governments have used Django to build all sorts of things, from content management systems to social networks to scientific computing platforms.

Some famous sites that we use every day or are familiar with, run on Django. For e.g. Instagram, Mozilla, National Geographic, Pinterest, Open Stack and the list goes on.

Flask

Flask is another Python web framework but is rather built with a small core that can be expanded. In common situations, a Flask web application is more explicit as compared to its equivalent one built using the Django web framework.

For a beginner it is easier to begin web development in Python using Flask because repetitive codes is reduced drastically here to run a simple app. For e.g. a simple code to print "Hello World" would be complicated in Django as compared to Flask.

Amongst the two (Flask & Django), I personally feel that Flask can be called a much improved framework because of the sheer fact that it was developed much later than Django and learned from the feedback of the community as the framework evolved. It became wildly popular as an alternative to Django projects with its monolithic (single-tiered) structure and dependencies.

Although, Flask codes are definitely compact and seem simple than their counterparts, it also has few disadvantages. application becomes really difficult due to intricate dependencies. Even in my personal experience, it took me a while to understand where which file is being

fetches, imports or which module is being used before I could even think of expanding the application i.e. creating more modules. Flask also has a wide range of libraries for extensions which complicates the project setup.

One of the big pluses of Flask is the feature to integrate web APIs with its code which is really handy and useful to build more extensive functionalities. There are multiple Database languages compatible with Flask such as MySQL, SQLite and MongoDB etc. with readymade libraries for the same. In my experience, I found it very easy to integrate HTML, CSS files and codes with Python in Flask and these features are built-in. It is extremely easy to deploy a simple application on the web using localhost and one can see the output of the codes in the form an HTML page. Implementing basic functionalities such as Hashing for storing and retrieving passwords is also very easy in Flask.

Although deploying a code may not seem to be a “feature” at first, but it can get really time consuming and convoluted as the application expands. This is where Flask has the “dynamic” deployment feature wherein the code need not be run explicitly each time a change is made as the changes get dynamically reflected in the output.

I would recommend Flask for web development in Python because of its simplicity in deploying, greater compatibility, modularity and less boilerplate coding i.e. repetition of standard code.

Flask has a large presence on the internet in terms of forums and communities and many famous companies use it. For e.g. Red Hat, Airbnb, Netflix, Reddit, Uber, Samsung and so on.

Some other noteworthy Python frameworks are CherryPy, Pylons Project etc. In the end, I would like to say that this article is only a brief glance into the world of web development using Python. There is lots more left to explore and learn and that process is never-ending unless one decides to put the full stop on it.

-By G. Saiprasad

Batch: 2016-2020

EDGE COMPUTING



In the world of data centres, where all sorts of computing intensive services like AI, Image Processing, Big Data, Web Application etc are processed over the internet, there is some opportunity to process all the above application/compute intensive tasks near to our device or in our on premise machine. In this article we will explore - Edge Computing.

What is “Edge Computing”?

Currently, most of the people use centralized storage systems to store the incoming data and process it. Now, to store this data over the cloud one should ensure that they have high network latency and should always be connected to the internet.

With edge computing, one can store and process data near to the source. There is no need to send data to the cloud, the edge device itself acts as a cloud.

So the basic definition is

“Edge computing is a method of optimizing cloud computing systems by performing data processing at the edge of the network i.e. near the source of the data.”

Why Edge Computing?

It is believed that the number of IoT devices is expected to reach 8 billion by 2022, these devices will generate massive amounts of data which will be used to generate business insights, automating production processes etc. This real time data should be stored somewhere to produce the expected outcome, cloud is one option but to use cloud the main disadvantage of using cloud is all the IoT devices should be connected to the cloud network and should have low latency so that no data is lost during the transmission.

With Edge computing this problem can be addressed by storing and processing the data near to the source. A major benefit of Edge Computing is the reduction of data needing to be transferred to the cloud.

Terms related to Edge Computing

1. Edge device :- Anything that produces data
2. Edge :- Edge refers to where the data origination for mobile network companies normal people's mobile phone can act as an edge.
3. Edge gateway :- Entry point to communicate with devices/cloud outside the closed network.

Edge Computing Benefits

1. Closed network puts all connected device's data at one place and makes it easier to process and create analysis/automation.
2. Many may think, edge as a cloud killer but in reality it is part of cloud computing.
3. Because of closed networks, low latency is achieved and data can be captured and processed faster compared to cloud.
4. Security is improved, as data is not shared with the public cloud, every data is processed inside a closed network.
5. This helps to save a lot of money by avoiding cloud for business applications.

Edge computing around the world

Autonomous Vehicles :- Edge computing architecture makes it possible for autonomous vehicles to collect, process, and share data between vehicles and to broader networks in real time with almost no latency. Augmented Reality Devices :- AR/VR can support remote workers conduct maintenance and repair tasks in the field. A AR/VR solution would provide an overlay of rich information related to a particular asset they are repairing on the field force worker's display on a headset or mobile devices. Today, 3D models are too heavy to render on the end-devices and cannot be done in the cloud, as the latency is too high. AR/VR allows processing of data and potential rendering of 3D models off the device, which allows digital twin models to be augmented on the view of the worker, as well as enable a remote expert to annotate the image/video being streamed from the headset or mobile devices in real-time, as well.

**- By Venkatesh Arunachalan
Batch-2016-20**

TYPES OF CRYPTOCURRENCY

ASSET OF BLOCKCHAIN NETWORK

DR. RIZWANA SHAIKH



A cryptocurrency, crypto currency, or crypto is a digital asset designed to work as medium of exchange wherein individual coin ownership records are stored in a ledger existing in a form of a computerized database using strong cryptography to secure transaction records, to control the creation of additional coins, and to verify the transfer of coin ownership. It typically does not exist in physical form (like paper money) and is typically not issued by a central authority. Cryptocurrencies typically use decentralized control as opposed to centralized digital currency and central banking systems. When a cryptocurrency is minted or created prior to issuance or issued by a single issuer, it is generally considered centralized. When implemented with decentralized control, each



cryptocurrency works through distributed ledger technology, typically a blockchain that serves as a public financial transaction database.

There are many different types of cryptocurrency, some of the more well-known currencies are:

Bitcoin (BTC)

One of the most commonly known currencies, Bitcoin is considered an original cryptocurrency. It was created in 2009 as open-source software. The author of the whitepaper that established this digital currency was under the pseudonym, Satoshi Nakamoto.

Litecoin (LTC)

Litecoin was launched in 2011 as an alternative to Bitcoin. Like other cryptocurrencies, Litecoin is an open-source, global payment

network that is completely decentralized, meaning there are no central authorities. Litecoin transaction are faster than Bitcoin.

Ethereum (ETH)

Created in 2015, Ethereum is a type of cryptocurrency that is an open-source platform based on blockchain technology. While tracking ownership of digital currency transactions, Ethereum blockchain also focuses on running the programming code of any decentralized application, allowing it to be used by application developers to pay for transaction fees and services on the Ethereum network.

A cryptocurrency is a form of digital asset based on a network that is distributed across a large number of computers. This decentralized structure allows them to exist outside

the control of governments and central authorities.

The word “cryptocurrency” is derived from the encryption techniques which are used to secure the network. Blockchain, which are organizational methods for ensuring transactional data integrity, is an essential component of many cryptocurrencies. Many experts believe that blockchain and related technology will disrupt many industries, including finance and law.



Cryptocurrencies face criticism for several reasons, including their use for illegal activities, exchange rate volatility, and vulnerabilities of the

infrastructure underlying them. However, they also have been praised for their portability, divisibility, inflation resistance, and transparency.



Bitcoin



Ethereum



Litecoin

Spearheading Intelligent Kidney Care in India



Prof. Anindita A Khade

Abstract: In a recent report from the International Society of Nephrology's Kidney disease data centre study, 17% of Indian population suffers from Chronic Kidney Diseases, also known as End stage Renal disease. However, people are not aware of it unless they reach stage 3. Also the number of nephrologists in India are less (approx. 1800) for the growing number of cases. This is due to the high prevalence of diabetes and high blood pressure, which are common diseases within Indian Population. The global burden of disease data 2009-2019 indicates that kidney disease has grown from 12th rank to 8th rank as a cause of death in India. Procedures for dialysis are costly. As a result predicting the disease at a very early stage (stage 1 and 2) becomes mandatory. The need for devising an intelligent technique for detecting Chronic Kidney Disease(CKD) at a very early stage(Stage 1 or 2) becomes prevalent from the above claims. This chapter aims at introducing the various AI techniques that can be considered as decision support system for the doctors. This may help the doctors to make predictions earlier and hence subsequently reducing the mortality rate due to CKD.

Keywords: Chronic Kidney Disease(CKD), Artificial Intelligence (AI), Internet of Medical Things(IOMT)

Introduction :Chronic kidney disease (CKD) is one of the most critical health problems due to its increasing prevalence. It is a chronic condition associated with increased morbidity and mortality, a high risk of many other diseases including cardiovascular disease, and high health care cost. The majority of the 2 million people who receive treatment for kidney diseases is very low which represents roughly 15% of global population. As a result there is a significant need for early detection, controlling and managing chronic kidney disease . It is necessary to predict progression of CKD with good amount of accuracy. The main difficulty arises because there are no specific symptoms shown in the early stages of CKD.

Hence, defining the disease stage is quite crucial as it gives several indications that support the determination of required intervention and treatments. A blood test measures creatinine, urea and other waste products in the blood to see how well the kidneys work. This is known as the estimated Glomerular filtration rate(eGFR). This is usually 100mL/min in a non CKD patient. There are total 5 stages for any CKD patient.

Stage	Description	GFR	Percent kidney function
1	Normal to highly functioning kidney	>90mL/min	>90%
2	Mild decrease in kidney function	60-89mL/min	60-89%
3A	Moderate decrease in kidney function	45-59 mL/min	45-59%
3B	Moderate decrease in kidney function	30-44 mL/min	30-44%
4	Severe decrease in kidney function	15-29 ml/min	15-29%
5	Kidney Failure	<15 ml/min	<15%

Table 1:CKD stages

The above table describes the various stages of CKD. This clarifies that till stage 3, there are no significant symptoms shown in any patient. As a result, early prediction of the disease becomes a challenge. Early detection of CKD in its initial stages can help patient get effective treatment and then prohibit the progression to End Stage Renal Disease(ESRD). So the main aim can be to provide an effective model to predict the CKD by least no. of predictors.



Fig 1:Figure Depicting amount of kidney failure

1. Artificial Intelligence

Various intelligent techniques have been used up to now for detection of CKD in its early stages. Artificial intelligence in healthcare is an overwhelming term used to describe the use of machine learning algorithms and software, or artificial intelligence (AI) to mimic human cognition in the analysis, presentation, and comprehension of complex medical and health care data. In the year 2019, J. Xiao *et al* in their study established and compared nine ML models including Logistic regression, Random Forest, SVM, XGBoost, KNN and Neural networks to predict the progression of CKD. They used available clinical features from 551 CKD patients. They concluded that the linear models provide better accuracy. In another research, two fuzzy classifiers are known as fuzzy rule-building expert system (FuRES) and fuzzy optimal Associative Memory (FOAM) are presented for the identification of CKD. FuRES generates a classification tree which comprises a minimal NN. It creates the classification rules to determine the weight vector with the least fuzzy entropy. The two fuzzy classifiers are employed for the identification of 386 CKD patients. In another research, another fuzzy-based method is presented to identify the CKD. The author designed an Improved Hybrid Fuzzy C-Means (IHFCM), an improved version of FCM with Euclidean distance for the detection of CKD. The study revealed that the probab

ility based methods are unsuitable for CKD prediction because of the necessity of proper output. Statistical methods, Bayesian classification or association rule based prediction methods are infeasible to use as it leads to inaccurate results. In ,the authors have used neural networks and case based reasoning for the Colombian population. This paper concluded that neural networks have better accuracy. Also case based reasoning can be used to find explanatory examples instead of performing the classification task. In ,Fuzzy C means have been applied to predict the chronic kidney disease. This study also concludes that Deep Belief Networks are capable of selecting more relevant attributes for feature selection. In , the authors have used XGBoost model for analysis. They created a minimized model with reduced number of features but still were able to achieve the accuracy of approximately 97%. Naganna Chetty *et al*. presented a wrapper method for CKD identification by following 3 steps.(1) a framework is generated from data mining.(2) Wrapper subset attribute evaluator and best first search approach are employed to select attributes.3 Classification algorithms are employed.

2. IoMT

The Internet of Medical Things (IoMT) is an amalgamation of medical devices and applications that can connect to health care information technology systems using networking technologies. It can reduce unnecessary hospital visits and the burden on health care systems by connecting patients to their physicians and allowing the transfer of medical data over a secure network. According to Frost & Sullivan analysis, the global IoMT market was worth \$22.5 billion in 2016; it is expected to reach \$72.02 billion by 2021, at a compound annual growth rate of 26.2%. WBAN(Wireless Body Area Networks) is a fast developing technology. Here either sensor network on a band or any other device is worn by a patient which monitors various physiological signals. This can be transmitted to the concerned system at healthcare centres. It can be then monitored by the specialist.

There may be few design considerations which need to be taken care when we are designing any WBAN

- 1) Should be using smaller and lightweight sensors because it is a non invasive and non obstructive method.
- 2) System should be robust.
- 3) System should be reliable since it contains patients' sensitive data.
- 4) Minimal power dissipation and energy efficient.

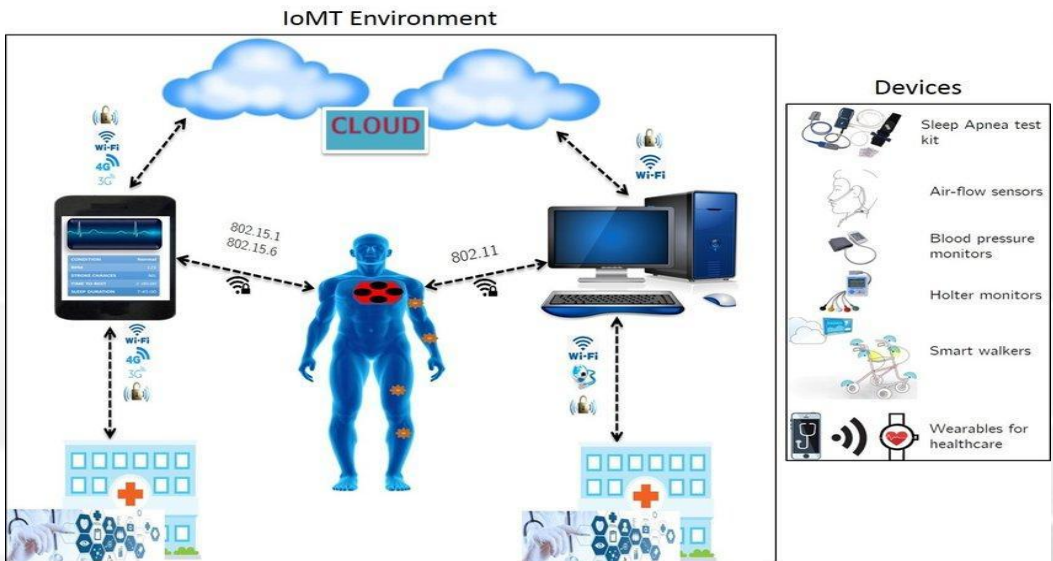


Fig 2:IoMT Environment

Security and privacy requirements in IoMT

- 1) Data confidentiality- It denotes exposure of a person's confidential data.
- 2) Data Integrity-It refers to the measures taken to protect the content of a message, its accuracy and consistency.
- 3) Data Authentication- Medical and non-medical applications may require data authentication. Thus, nodes within a WBAN must be capable to verify that the information is sent from a known trust centre and not an imposter.
- 4) Dependability-The system must be reliable and dependable

Challenges and expected solution

Considering the gravity of CKD in India, Intelligent systems which can detect a disease at an exceedingly early stage is needed. The challenges here are that the symptoms are not evident till stage 3. Moreover, research is being carried out on different biomarkers which can ease the task. Also, it is expected that noninvasive techniques with the help of IOMT devices would be helpful to detect the symptoms at a very early stage. The main objective should be to ensure the detection and subsequent recommendations to patients at an early stage to avoid any deterioration in health.

Student Articles

Do you want to be happy for the rest of your life?

What is Happiness?

Happiness is the ability to do what you want when you want with who you want for as long as you want. But in today's world, this is not possible without one thing that is Money. Many people ask me if happiness is in being Financially Independent then how we can get there? Is there any easy way to get rich? Everyone must understand first that there is no get rich quick formula but there is one power called the Power of compounding.



Swapnil Satish Shinde
BE CE

“Compound Interest is the eighth wonder of the world. He who understands it earns it and he who doesn't pay it.”

- By Albert Einstein



What is the Power of Compounding?

Compounding takes place when the returns or interest generated on the principal amount in the first period is added back to the principal amount in order to calculate the interest for the following periods. I know you didn't understand anything from the definition. Let's look at one example: If let's say you invested 10000 at 10% interest.

Interest rate: 10% per annum

	Simple Interest earned	Compound Interest earned
Initial deposit	\$10,000	\$10,000.00
Year 1	\$1,000	\$1,000.00
Year 2	\$1,000	\$1,100.00
Year 3	\$1,000	\$1,210.00
Year 4	\$1,000	\$1,331.00
Year 5	\$1,000	\$1,464.10
Year 6	\$1,000	\$1,610.51
Year 7	\$1,000	\$1,771.56
Year 8	\$1,000	\$1,948.72
Year 9	\$1,000	\$2,143.59
Year 10	\$1,000	\$2,357.95
Total interest earned	\$10,000	\$15,937

When using **compound interest** the interest earned was **59% bigger** than simple interest.

Parameters that determine the power of Compounding

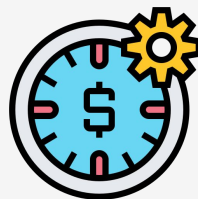
1. Rate of Return: The interest rate you earn on your investment. Suppose you invest an initial capital of ₹1 lakh for 10 years in different investment avenues at different compounding rates as shown in the table.

Investment Avenues	Rate of Interest	Maturity Amount
Saving Account	4%	₹7,38,703
Debt Funds	8%	₹9,20,828
Equity Funds	12%	₹11,61,695
Shares	16%	₹14,82,385



2. Time Duration: The longer your money can remain uninterrupted, the more your wealth can grow with the help of compounding. Suppose you invest ₹5000 per month in Equity Mutual Fund @ 12% compounding rate for different time duration as shown in the table.

Years	Maturity Amount
10	₹11,61,695
20	₹49,95,740
30	₹1,76,49,569
40	₹5,94,12,101



This means with just **5000** per month if you started at age **20 years till 60 years** for your retirement you will be having around **6 Crores**.

How can you best use the Power of Compounding?

We plan our day, a trip with our friends, studies but why not our Finances.

Financial planning is a step-by-step approach to meet one's life goals. A financial plan acts as a guide as you go through life's journey. Essentially, it helps you be in control of your income, expenses and investments such that you can manage your money and achieve your goals.

For Financial Planning one must visit their financial advisor as they help you assess your risk tolerance, financial strength, asset allocation, etc.

But, Deciding What not To Do is As Important As Deciding What To Do.

Financial Planning Mistakes One Must Avoid

1. Investing Without a Goal & Understanding your Risk Profile
2. Not Reviewing Financial Plan Regularly
3. Doing Financial Planning Yourself
4. Insufficient Insurance Protection
5. No or Little Emergency Fund
6. Not Saving for Retirement
7. Not Saving Enough

I personally help people become financially independent. But, If you want to take one lesson home from this article it should be to start investing early and have a financial advisor you trust.

I give such wonderful information every week on my **Instagram handle (swapnilsh26)** and in my **WhatsApp status (9833394430)**.

Happy Investing!

- Swapnil Satish Shinde
(Batch 2017-21)

Our Wonderful Journey of BE Project

Start of the journey

Our journey initiated at the end of the 2nd Year, where all the students were instructed to start-off with the project planning process, which had to be submitted at the end of the 6th semester.



Eventually, our team started investing the time, thinking on different ideas, & during this process we came across a fascinating yet challenging idea, named as DISKLESS BOOTING. But you might wonder why this Idea...?

Why this idea?

During the idea digging process, we thought, what if we could design a system, where the Client Machines could BOOT UP into their relevant OS via the NETBOOT configuration using the Server Machines; without the existence of any primary storage device (HDD / SSD), & yet executing all its applications and programs locally. Our curiosity gradually increased, but, before proceeding ahead with this idea, we ensured to give our thoughts on the below two points i.e.

- Where Can Be Used
- Advantage over the current system



Where can it be used?

This architectural system can be implemented or used in any IT organizations having Full Powered Workstation (to behave as a Server) & large number of Client Stations consisting of only CPU & RAM for program execution tasks.



Advantages

- Cutdowns infrastructure costs &, enhances the productivity as well as resource utilization.
- Reduced power and cooling requirements.
- Reduced complexity and risk.
- Backup & security maintenance made comfortable.

After analyzing the above points & other relevant documentations, we made up our mind to squeeze up our brains to achieve our end goal successfully.

How did we plan?

To get hold of the fruitful results, at first, we had to work on our Plan of Execution. So, we grabbed a notepad and noted the bullet points, which are as under:

- Referring the research papers closely related with our idea.
- Selection of relevant OS.
- Software for virtually testing the idea.
- Studying the appropriate modules satisfying our needs & its configuration details.

Brushing up through the selective research papers & other available online open source information, we accomplished our first success, in deriving the answers for the above bullets.

Our team decided to utilize the LINUX OS, as it offers a good support, for a wide range of PC hardware. But amongst the whole bunch of distributions, we decided to pick-up the CentOS Distro, due to the fact that it is a replica of RHEL (Red Hat Enterprise Linux), which is considered to be the most widely used OS in the IT World.

For virtual testing purpose, we chose the VirtualBox software, the reason being that it was really convenient to use. Last but not the least, we got hold of the relevant modules aligning to our requirements i.e. DHCP, TFTP, NIS & NFS. Now, finally the time came, to get our hands dirty by practically implementing the idea.

Project implementation

We began, by creating a powerful virtual machine which behaved as a Server & two average powered virtual machines, which behaved as clients. We made necessary configurations to the Server Package Modules to meet our needs. A brief functionality of each module are as follows:



- DHCP: Assigns dynamic IP address to client stations.
- TFTP: Stores boot image files of respective OS.
- NFS: Stores root file system of all users.
- NIS: Used for authentication purposes.

Once we achieved the results via the VirtualBox, we proceeded further by implementing the idea in reality using 8 Port Switch, RJ45 LAN Cables. To our surprise, we successfully booted up 2 machines (Behaving as Client), using 1 powerful machine (Dual Booted with CentOS-7, behaving as Server). That one span of moment justified our hard work that we put into this project.

Backbone of our project

Our profound thanks to our project mentor, Prof.Anindita Khade Mam, who supported & guided us throughout the entire project. She energized us with lot of motivation, & directed us to publish our research & findings on International Journal of Scientific Research in Computer Science, Engineering and Information Technology (March-April 2020 Issue).

Our Team

Research Work:



Suriya Prasath.S



Shwetha Ravikumar



Pradnya Suryawanshi

(Batch 2017-21)



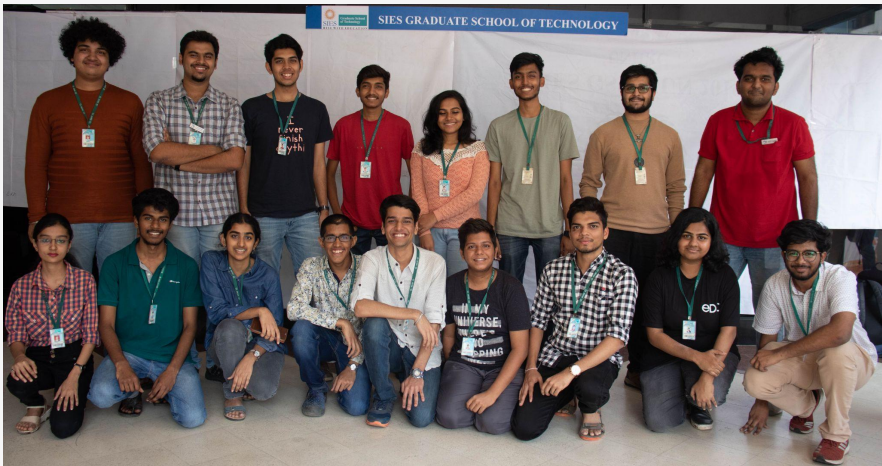
Aaroha ka Safarnama

"When we are singing or playing an instrument, we are trying to find out who we are and we're hoping to get better and better in what we are expecting ourselves to be as musicians"



Mark my words, when we say, we are proud of being a part of this family, "Aaroha", it undoubtedly means to rise and ascend which we derive from the meaning of Aaroha in Sanskrit.

Founded in 2010 and named in the year 2018, Aaroha is a family of amazing musicians, who have excelled over the years as singers and instrumentalists. It is one of the cultural teams of SIESGST which was established under the guidance of our Student Council in-charge, Smt. Sumitra Padmanabhan. Aaroha actively participates in different stage performances like charity concerts, open mics, intercollegiate events, competitions and college events like Independence and Republic Day, Teachers' day, and the college fests- Cognition and TML(Tattva-Moksha-Lakhshya). We believe in encouraging not only our members but also other college students to actively participate in musical events.



When Aarooha was formed, we wanted to do something big. We wanted to get our college known for music. The idea that popped up to our seniors of the 2020 batch, was to organise a concert on a large scale at least on par with the TML stage. After a lot of discussion, we all came to a conclusion of doing the



Concert Eve in association with Dream Run. We had tickets for entry and donated the proceeds to Sunshine School, Vashi for children with Autism Spectrum Disorder and other developmental disabilities. The preparation and rehearsal for this mega event went over 6 whole months! We used to stay back till late in the evening, even come to college on weekends, but still had a lot of fun during the practice sessions. After so much of hard work the only thing that could content our hearts was a grand success of the charity concert, and guess what? It was! And finally the Szechuan Fried Rice after the concert hit all of us sooooo hard, it was a memory for a lifetime.

We took a major step a couple of months back to digitize our musical journey during the lockdown by starting our very own Instagram page (@aarooha_siesgsst). We are currently posting footages of our previous performances which we have grouped in a series called "Aarooha ka Safarnama"

To conclude, We believe, music always comes from a place of love, compassion and dedication. To feel, develop and evolve is the guiding light of any kind of music- it's where all the magic happens and a beautiful song is composed.

Until next time,

Love,

Aarooha.

- Anirudh Belwadi (TE CE)
(Batch 2017-21)

The History of Neural Networks!

As the craze for deep learning is becoming more and more popular among students as well as industries because of the result it is able to achieve and the huge impact on the welfare of the society and businesses, let us today try to explore its roots, how it all started, and why was it even required in the first place.

Understanding history would help us appreciate its being. Here we will try to cover some of the most important events in history and not every event because firstly it is not a history lecture xD, and secondly most of us would lose track, hence I'll try to keep it precise and interesting.



Photo by Andrew Neel on Unsplash

The seed is planted!

Let's start from the very beginning when the idea first came into being. You might be thinking that the Deep Learning technique has recently flourished so it would have begun some 20-30 years ago maybe, but let me tell you that it all started about 78 years ago. Yes, you read that right, the history of Deep Learning is often traced back to 1943 when Walter Pitts and Warren McCulloch created a computer model that supported the neural networks of the human brain. They used a mixture of algorithms and arithmetic they called "threshold logic" to mimic the thought process. Since that point, Deep Learning has evolved steadily, with only two significant breaks in its development. Both were tied to the infamous Artificial Intelligence Winters.

Seed Sprouting is visible!

During the Cold War when the American scientists were trying to translate Russian to English and a lot of research was done on intelligent machines by some of the greatest mathematicians like Alan Turing (often known as the Father of Modern Computing) who created the Turing Test for the testing the intelligence of a machine. Frank Rosenblatt, a mathematician came up with the very first neural network-based model called Perceptron in the year 1958. This is similar to the machine learning model Logistic Regression with a slightly different loss function.

Inspiration: Biological Neuron

It is clear from history that we always get inspired by the nature and this case is no different. This is highly inspired by nature and the biology of our brain. At that time, they had a very basic understanding of the working of neurons in our brains. So let me first introduce to you the biological neuron.

If we touch the surface level of a biological neuron then it consists of mainly 3 parts, Nucleus, Dendrites, and Axons. The electrical signals/impulses are received by these dendrites connected to the nucleus where some processing is done by the nucleus itself and finally it sends out a message in the form of the electrical signal to the rest of the connected neurons through axons. This is the simplest explanation of the working of a biological neuron, the people studying biology would be aware of how massively complex structure it is and exactly how it works.

So those mathematicians and scientists came up with the way to represent this biological neuron mathematically where there are n inputs to a body and each having some weights since all the inputs may not be equally important to produce the

output. This output is nothing but applying a function after taking the sum of the products of these inputs and their respective weights. Since this idea of the perceptron is far from the complex reality of a biological neuron, we can say that it is loosely inspired by biology.

It's a Sapling now!

Now came the era when people asked why we can't create a network of connected neurons which is again inspired by the biological brain of living creatures like human beings, monkeys, ants, etc. basically having a structure of interconnected neurons. A lot of attempts were made from the year 1960s, but this was made successful in a seminal paper in 1986 by a group of mathematicians, one of which was Geoffrey Hinton (he has phenomenal contributions in the field of machine learning and AI).

So they came up with the idea of the Backpropagation algorithm. In a nutshell, we can remember this algorithm as a chain rule of differentiation. This not only made the training of Artificial Neural Network possible but also created an AI Hype where people talked about it all day and thought that in the coming 10

years it would be possible for a machine to think like a human.

Even though it created such hype, it got washed away in the 1990s and this came period came to be known as the AI Winter because people hyped so much about it but the actual effect was marginal at that time. What do you think could be the reason for it? Before I disclose to you the reason behind it, I would like you to give it a shot.

Think...

Think...

Okay, here you go.



Photo by Lorenzo Herrera on Unsplash

Powdery Mildew on the plant!

Even though the mathematicians came up with this beautiful algorithm of Backpropagation, due to the lack of computational power in the 1990s and the lack of data, this hype eventually died after the Department of Defense US stopped the funding for AI seeing the marginal impact over the years

after being hyped so much. So the machine learning algorithms like SVM, Random Forest, and GBDT evolved and became extremely popular from 1995 to 2009.

Mature Tree with Flowers!

While everybody moved to the algorithms like SVM and all, Geoffrey Hinton still believed that true intelligence would be achieved only through Neural Networks. So for almost 20 years i.e. from 1986 to 2006, he worked on neural networks. And in 2006 he came up with a phenomenal paper on training a deep neural network. This is the beginning of the era known as Deep Learning. This paper by Geoffrey Hinton did not receive much popularity until 2012.

You might wonder what is it that made deep neural networks extremely popular in 2012. So in 2012, Stanford conducted a competition called ImageNet, one of the hardest problems back then consist of millions of images and the task was to identify the objects from the given image. I would like you to recall that in 2012, people had an enormous amount of data, and also the computation was very powerful compared to what was present in the 1980s. The deep neural

network or Deep Learning for that matter outperformed every machine learning algorithm in this competition.

This was the moment when the big tech giants like Google, Microsoft, Facebook, and others started seeing the potential in Deep Learning and started investing heavily in this technology.



Photo by Bram Van Oost on Unsplash

Mature Tree with Fruits!

Today if I talk about the use cases of Deep Learning then you might know some of the popular voice assistants like Google Assistant, Siri, Alexa are all powered by deep learning. Also, Tesla's self-driving cars are possible because of advances in deep learning. Apart from this it also has its applications in the healthcare sector. I strongly believe there is still a lot of potential in Deep Learning which we would experience in the coming years.

- Swapnil Vishwakarma (TE EXTC)



Swapnil Vishwakarma
(Batch 2018-22)

The article was published on **ANALYTICSVIDHYA Website:**

<https://www.analyticsvidhya.com/blog/2021/04/the-history-of-neural-networks/>

INNOVATIONS 2021

A National level Project Competition

Innovations is a national-level project competition organized annually by the CSI Student Chapter of SIES Graduate School of Technology. It serves as a platform for young minds to take this window of opportunity and bring forward their innovative ideas in the form of projects.

Each year teams from institutes all over Maharashtra as well as other states, participate in Innovations in large numbers.

This year, the 9th edition of INNOVATIONS was conducted on 10th April 2021. This year we received over 80 abstract submissions out of which 36 abstracts were selected for the competition after analyzing each project based on parameters such as novelty, effectiveness, positive impact on society, and scalability. The projects were from various domains such as Computer, IT, Electronics, the Internet of Things, and Mechanics. We had the privilege of having Dr. Ravishankar Dudhe, Associate Professor Senior Grade, Program Coordinator, Ph.D. Coordinator for School of Engineering and IT and Research Coordinator of Manipal Academy of Higher Education, Dubai as the chief guest for the event. The judges across the venues were Mr. Nilesh Shinde, Founder, and CEO at START PRO; Mr. Vivek Yadav, CEO at StringsWay Tech, Mumbai; Prof. Yogesh Karunakar, Head Incubation center MSME and Head EDC at KC College of Engineering; Ms. Ruchi Bhatia Kaggle Datasets Grandmaster; Mr. Debashish Chodhury, Full Stack Developer at L&T Infotech.

This competition provided an opportunity for students to demonstrate their technical prowess and excellence in their respective domains. The participating teams proved that putting quality efforts gives fruitful results.

HARDWARE EDITION WINNERS

Sr. No.	Team Members	Project Title
1	Pramod Baviskar Sakshi Jadhav Aakarsh Verma Neel Suba	SecuroTech - An automated security solution
2	Vaishnavi Garad Saloni Gharge Akshay Savad Soham Lanke	Realtime Indoor positioning and Geofencing using IoT

SOFTWARE EDITION WINNERS

Sr. No.	Team Members	Project Title
1	Arfah Upade Kadir Diwan Rajeev Bandi	Prediction of type of cancer based on gene expression profile using deep learning
2	Vidya Katara Sonal Misal Priyanka Patil Jyotsna Dusane	BrightSide - Creative Learning for Creative Minds

AICTE-ISTE approved STTP on Blockchain Technology



Department of Computer Engineering of SIES GST organized an AICTE-ISTE approved STTP from 04/01/2021 to 09/01/2021

Dr. Aparna Bannore, Vice Principal, HOD CE welcomed Chief Guest, Mr. Chintan Oza, Tech & Scaleup Specialist, Principal Dr. Atul Kemkar and all participants. She addressed the participants and gave overview of the program. She explained the benefits of learning security and blockchain. Also various career opportunities available in the field of security. Principal Dr. Atul Kemkar has motivated participants for enthusiastically attending STTP. Prof. Kalyani Pampattiwar hosted the inaugural ceremony of STTP and introduced the Chief guest to everyone.

25 participants from SIES GST and other colleges attended the STTP. Six days STTP was conducted in morning and afternoon sessions.

The Sessions started with covering basics of Security and need of Blockchain. Various tools were identified and studied along with the demonstration.

The first day session was conducted by Dr.Rizwana Shaikh. She has covered Introduction to Blockchain, Applications and advantages Bitcoin: Introduction Cryptocurrency and applications followed by afternoon session conducted by Prof. Masooda Modak on Smart Contracts, Key Properties of smart Contracts, Language for Smart Contracts-Solidity. Second day session was conducted by Mr. Revanth Kumar showing Implementation of Blockchain Technology with NodeJS. Day 3 session was continued by Mr. Revanth on Creation of Blockchain with NodeJS. Genesis block, creating Nodes to Mine the crypto currency. On Day 4, Mr. Revanth gave hyper ledger fabric introduction and its architecture and implementation. On day 5 , Dr.Rizwana Shaikh demonstrated Creating Blockchain Application using Ganache framework in first half, and in second half Prof. Masooda Modak gave hands on session on Introduction to solidity, Remix IDE framework and Sample contract., Deploying Smart Contracts, using Metamask for transfer of ethers..Day 6 was conducted Mr. Prasad Ghag on Application of Blockchain in IOT. He briefed the participants about

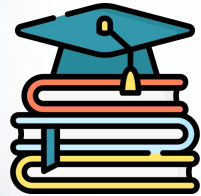
Corda platform. In valedictory note Prof. Kalyani Pampattiwar has welcomed Hon. Advisor Dr. P.V. Parmeswaran, Principal Dr. Atul Kemkar and all participants. Vote of thanks was presented by Vice Principal, HOD CE, Dr. Aparna Bannore. She has congratulated all the participants for attending the SDPwith full enthusiasm.

Parent Articles

SIESGST in the Service of Nation

The task of moulding the student as self-reliant and for the preparation to provide service to the society/country is a great challenge. SIESGST has been performing for the student fraternity for many years which is a pride for the Parents. To ensure the all-round development of the students, the institution had left no stone unturned and few efforts are listed below:

- Student Development Programme (SDP)
- Entrepreneurship Development Cell (EDC)
- National Service Scheme (NSS)
- Alumni Meet
- Internships
- National Level Project Competition



Academic Year 2020-21 was the most challenging one and the entire Nation was undergoing a century old crisis due to COVID-19 Pandemic and even this unprecedented situation was handled by College authorities most effectively by ensuring seamless online classes, so that the student community does not miss their priceless services.

Future is certainly going to be a knowledge-based society and the student of Computer Engineering will have a great responsibility with the Government of India's "Make in India Policy". It is certain that with the wholehearted support of SIES-GST, the students will contribute to augment the country's input capacity and will march towards self-reliant India. Wishing SIES-GST all the very best and appealing to continue with the good work.

Best of luck to the future leaders of the young students.

- T.Subramanian

Parent of Suriya Prasath - Batch 2017-21

Personal Finance for Beginners

Seldom do young people realize the importance of personal finance and even rarely do actually work on it. The Sooner does one starts understanding and working on personal finance, the stronger will be his/her financial freedom.

Let's begin by asking ourselves what the key elements of personal finance are and how they stack up in the pecking order. Most of us are privileged with parents who allow us our share of

pocket money as children. More often than not, we end up spending the same on our likes. Have we not heard and read several times "Little drops of water make a mighty ocean"? If we save even a very small portion of our pocket money we would create a sizable wealth that will come in handy as we start getting into professional courses.



Now that we understand the importance of small savings and the benefits of the same, let's look at various elements of savings. As I would see, life insurance is one of the most important elements of personal finance, but mostly ignored. Most of us take a life insurance policy, usually out of an acquaintance with a relative or a friend who happens to be an insurance agent, and a significant portion of those who do, usually take a money-back policy, with a hope that they would get back the policy amount after a certain age/period. But this in itself defeats the purpose of insurance. A life insurance policy is taken to insure the family in uneventful circumstances. Therefore, one should look at taking a term insurance which is necessarily a pure insurance. This gives the benefit of an extremely low premium for a very high sum assured. Again, if this is started at an early age, one would start with a very low premium due to low age and lock the premium amount for the rest of the entire premium paying period, even with the progress of age. The amount of sum assured should be estimated based on the individual's and his/her family's monthly needs after about 2-3 decades, and not

that of the present period.

Personal Provident Fund is the most important avenue of investment which has one of the highest returns and is generally free from income tax. This also gives an opportunity for set-off against income tax liability.



The next important element of personal finance is to create a sizable kitty to be able to invest in quality real estate. This investment mode has a very high potential for capital appreciation with relatively low risk. About 20-30% of the property value has to be met with own down payment while the remaining portion can be funded by banks. There are instances where the capital has appreciated in excess of 30% per annum in this mode of investment. The interest on the housing loan is also eligible for set-off against the income tax liability thereby enabling a lower interest rate. This, if planned well and early, can result in very significant wealth creation.



Another important avenue of investment is equity. We have all heard of people

Rakesh Jhunjhunwala, who have made a very big name for themselves in this space. Although, equity is a form of investment which is high in risk of capital, it presents with a reward factor which is unseen with most of the other avenues. An indirect method of investment into equity with risk minimization is through mutual funds. Here, an asset management company with finance professionals manages the capital with reasonable returns on investment, minimizing risk. A very important mode one should adopt is SIP (Systematic Investment Plan), wherein one would invest an equal amount of money at a regular interval which brings both discipline and results in higher benefits due to the law of average. Both real estate and equity are good forms of investment that can beat inflation.

Most of the other forms of investments like Fixed Deposits, Savings Bank, Recurring Deposits, though minimize risk, will result in much lower yield, often due to inflation and tax on returns. Health insurance is also an important aspect which should not be ignored as we have seen in the recent pandemic.

- Srinath Belwadi

Parent of Anirudh Belwadi - Batch 2018-22

Student Achievements

Sr. No	Name of the student	Class	Name of Activity	Level (National/ International/ Zonal/District)	Date	Awards
1	KV Ashish	BE CE	ISTE Codathon	National	10 th Aug 2020-10 th Sept 2020	2 nd runner up
2	Ninad Chavan, Gokul G, Rahul S , Shubham T, Venkatesh M, Ashok C, Atharva S, Shambhavi S Rahul Sawantdesai	BE CE	TCS Codevita	Zonal/Inter collegiate	Aug-Sept 2020	Within Top 100 in Mumbai Region 1 st in MU
3	V. Karthikraj (TL) Tejas Shenoy Shardul Doke Yogesh Vishwanathan Shreyas Shridhar Shruti Kiran Tambe	TE CE	SIH 2020	National	1-Aug to 3-Aug	Participated
4	Zainab Bubere Abubakkar Wasim	TE CE	Anveshna 2020-21	Zonal		Selected for semifinals
5	Aakriti Sharma Abhishek Joshi Shabarish Ramaswamy Shlok Vivek	TE CE	Gov Tech Thon	National	30-Oct to 1 st Nov	Participated

6	Kaushik Shridhar Shinit Shetty Nandita N Pournima Pottekat	SE CE	Deep Blue202 0-21	Zonal	Oct 20-Feb 21	Selected for semifinals
7	Sanjana Sharma Anandteertha Rao Varun Sreedhar Sreekrishna Veturi	TE CE	Deep Blue202 0-21	National	Oct 20-Feb 21	Selected for semifinals
8	Aakriti Sharma Abhishekh Joshi Shabarish Ramaswamy Shlok Vivek	TECE	Mindswe eper 24 hour codatho n	IEEE+CSI -Student Chapter(Z ONAL)	27-Feb 2021	1 ^s prize
9	Suriya P Shweta R Pradnya S	BE CE	Innovati ons 2021	CSI-SIESG ST	10-04-2021	Consolatio n
10	Shlok Naik Sabrish R	TE CE	Texter 2021	ISTE-SIES GST	17-04-2021	1 st Runner up
11	Sahil Pradhan	BE CE	Somaiy a Hackath on	K J Somaiya	19-04-2021	Second runner up
12	Karthik Iyer	TE CE	Clash of Codes	CSI-Terna	29-03-2021	Winner

ACKNOWLEDGEMENT

We would like to extend our sincere gratitude to our management for constant support. We would like to thank Hon. Advisor Dr.P.V. Parameswaran for his constant motivation and support. We would also like to thank our Principal, Dr.Atul Kemkar for his constant encouragement. We would also like to thank our HOD Dr.Aparna Bannore , Faculty Incharge, Prof.Anindita Khade for her support and motivations, shaping Techniz and make this magazine a successor. Lastly we would like to thank all the faculty members, students, alumni and all stakeholders for their valuable inputs and contributing for the final shape of the magazine.

The Editorial Board

--- Techniz