MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY

MAIT

उद्यमेन हि सिध्यन्ति
कार्याणि न मनोरथैः

अन्वेषण

Exploring Digital World

Inventions by Women

VOLUME 4 JULY 2021

Maharaja Agrasen Institute of Technology

Department of Computer Science & Engineering

VISION

To be centre of excellence in education, research and technology transfer in the field of computer engineering and promote entrepreneurship and ethical values.

MISSION

To foster an open, multidisciplinary and highly collaborative research environment for producing world-class engineers capable of providing innovative solutions to real-life problems and fulfil societal needs.

TECHNICAL MAGAZINE COMMITTEE

MESSAGE FROM FOUNDER & CHIEF ADVISOR'S DESK

I am extremely happy to release the 4th Edition of Technical Magazine of Computer Science and Engineering Department, MAIT for the session between August 2020 - June 2021.

This magazine, I understand has been designed to provide a broad range of information that focuses on application of current technologies, research, developments through latest technology innovations through the existing students and faculty members, and their practical explanations through industry experts.

I acknowledge the efforts of Prof. Namita Gupta, Head of the Department, CSE and her Editorial Board Members in getting the magazine published.

I wish all the faculty members success and having zeal to continuously work for the betterment of the society.

Dr. Nand Kishore Garg

Founder & Chief Advisor, MATES

MESSAGE FROM CHAIRMAN's DESK

I am gratified to know that Department of Computer Science and Engineering, MAIT has taken an initiative to publish the Technical Magazine in the month of June 2021.

This is productive as well as a great platform for the students, researchers, faculty members and industry experts to disseminate achievements in research and developments in computer science and technology.

I acknowledge the efforts of Prof. Namita Gupta, HOD, CSE, the Editorial Team, faculty members and the students of the departments for their efforts in publishing the Technical Magazine.

I also applaud the coordination and efforts by the editorial team to bring up the issue.

I wish them all a great success.

Sh. Vineet Kumar Gupta

Chairman, MATES

MESSAGE FROM VICE CHAIRMAN

I am very happy that Department of Computer Science and Engineering, MAIT is releasing its Technical Magazine to commemorate technical publications and articles of faculties, Industry experts, alumni's and students for the academic year 2020-2021.

This Technical Magazine is a forum which could aptly be used for recording the technical articles and research papers published by the students and faculty members. I am sure that this magazine will be informative and resourceful. I owe my hearty appreciations to Prof. (Dr.) Namita Gupta, Head of the Department ,CSE and her team for their sincere efforts to make the release of this magazine a reality. I wish them "The Very Best" in all their future endeavours.

Prof. (Dr.) M.L. Goyal

Vice Chairman(Academics), MATES

MESSAGE FROM DIRECTOR

It gives me immense pleasure to know that a Technical Magazine - 2021 is being published by the Department of Computer Science and Engineering, MAIT. It is a platform to combine the efforts of Faculty, students and the editorial team to publish their technical work going on in the department.

Industrial and productive technical material forming the contents of the magazine will definitely be a developing a tool to the readers.

I applaud the efforts of Prof. Namita Gupta, Editorial team members and Co-ordinators of the team to publish this issue. I wish them success for future publications.

Prof. (Dr.) Neelam Sharma

Director, MAIT

MESSAGE FROM HEAD OF THE DEPARTMENT

On behalf of Computer Science and Engineering Department, Maharaja Agrasen Institute of Technology, I am pleased to announce the launching of the fourth volume of Technical Magazine of Computer Science and Engineering Department and to make it available to everyone.

This Technical Magazine aims to disseminate achievements in research and developments, while featuring new break-through in the field of Computer Science Engineering and Technology.

The entire Editorial team did their best to provide a platform for distinguished faculties, researchers, industry experts and students to share the latest accomplishments with fellow researchers, faculties, Industry experts and students whereby disseminating the knowledge gained from their technical endeavours.

As Editor-in-Chief, I am open to exploring the opportunities for making this Technical Magazine an exciting and definitive forum for attracting and publishing high impact research contributions that are innovative and transformative, and for making this technical magazine serve as a forum for disseminating timely and exciting on-going research that can stimulate innovation.

At the end, I would like to thank editorial board members, faculties, Industry experts, alumni's ,students and hope that our collective efforts stimulate further progress in this domain of activity with strong determination at both national and international levels.

Dr. Namita Gupta

Editor-in- Chief

Technical Magazine

Department of Computer Science and Engineering

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FACULTY CORNER: TECHNICAL ARTICLES

Artificial Intelligence & Deep Learning in Drug Development & Discovery: Its Current Aspects And Future Prospects

Moolchand Sharma

Assistant Professor, Computer Science & Engineering Department, MAIT, Delhi

Artificial intelligence (AI), also referred to as machine intelligence, can transform the pharmaceutical sector. In recent years, data digitization has increased dramatically in the pharmaceutical business. On the other hand, digitalization raises the challenge of obtaining, assessing, and applying such knowledge to solve complex healthcare problems. This stimulates the use of artificial intelligence, which can more efficiently manage large amounts of data. Artificial intelligence (AI) is a technology-based system that simulates human intelligence by utilizing various technological tools and networks.

At the same time, it does not constitute an immediate threat to human life. AI employs systems and software that can read and learn from data to make independent decisions and achieve certain objectives. Its applications in the pharmaceutical business are constantly expanding. AI is predicted to play a role in the development of pharmaceutical goods from the bench to the bedside since it can aid rational drug design, assist in decision making, select the right therapy for a patient, including tailored medicines, and manage clinical data gathered and apply it for future drug development. The huge chemical space, which contains about 1060 compounds, encourages the discovery of numerous medicinal compounds.

The lack of advanced technology, on the other hand, hinders drug development, making it a time-consuming and costly endeavor that can be addressed by applying AI. AI can distinguish hit and lead compounds, allowing for faster validation of the therapeutic target and structure design optimization. Drug design, chemical synthesis, drug screening, polypharmacology, and drug repurposing are just a few of the areas where AI can be useful. Despite its benefits,

AI is confronted with major data issues, such as scale, growth, diversity, and uncertainty. Pharmaceutical businesses' data sets can contain millions of substances, and typical machine learning methods may not handle them. Furthermore, complex and massive data from genomics, proteomics, microarray data, and clinical trials impede the drug development pipeline.

To put it another way, deep learning algorithms and artificial neural networks have changed the game. Deep learning methods have been utilized in the following applications: peptide synthesis, structure-based virtual screening, ligand-based virtual screening, toxicity prediction, drug monitoring and release, pharmacophore modeling, quantitative structure-activity connection, drug repositioning, polypharmacology, and physiochemical activity.

To summarize, breakthroughs in artificial intelligence and deep learning hold tremendous promise for rational medicine design and discovery, ultimately benefiting humankind.

FACULTY CORNER: TECHNICAL ARTICLES

Load Balancing In Cloud Computing

Sudha Narang

Assistant Professor, Computer Science & Engineering Department, MAIT, Delhi

IT industry is growing each day and so is the need for computing and storage resources. Large quantities of data are generated and exchanged over the network which further necessitates the need of more and more computing resources. Organizations, to better capitalize their investment, are opening their infrastructure to new found virtualization technologies like Cloud computing.

Cloud has helped enterprises leverage the benefits of computing resources which are shared over a virtualized environment. A lot of enterprises are already using cloud-based services in one or the other form. This brings us to the concept of load balancing in cloud.

Cloud Load balancing is the process of distributing workloads and computing resources across one or more servers. This kind of distribution ensures maximum throughput in minimum response time. The workload is segregated among two or more servers, hard drives, network interfaces or other computing resources, enabling better resource utilization and system response time. Thus, for a high traffic website, effective use of cloud load balancing can ensure business continuity. The common objectives of using load balancers are:

- To maintain system firmness.
- To improve system performance.
- To protect against system failures.

Cloud providers like Amazon Web Services (AWS), Microsoft Azure and Google offer cloud load balancing to facilitate easy distribution of workloads. For ex: AWS offers Elastic Load balancing (ELB) technology to distribute traffic among EC2 instances. Most of the AWS powered applications have ELBs installed as key architectural component.

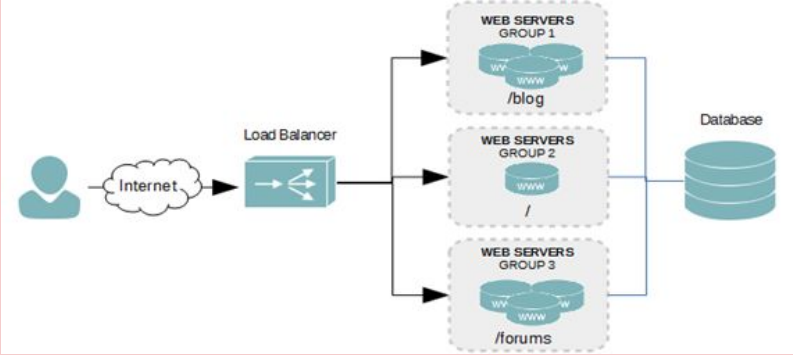
Similarly, Azure's Traffic Manager allocates its cloud servers' traffic across multiple datacenters.

How does load balancing work?

Load refers to not only the website traffic but also includes CPU load, network load and memory capacity of each server. A load balancing technique makes sure that each system in the network has same amount of work at any instant of time. This means neither any of them is excessively over-loaded, nor under-utilized.

The load balancer distributes data depending upon how busy each server or node is. In the absence of a load balancer, the client must wait while his process gets processed, which might be too tiring and demotivating for him.Various information like jobs waiting in queue, CPU processing rate, job arrival rate etc. are exchanged between the processors during the load balancing process. Failure in the right application of load balancers can lead to serious consequences, data getting lost being one of them.

FACULTY CORNER: TECHNICAL ARTICLES



Different companies may use different load balancers and multiple load balancing algorithms like static and dynamic load balancing. One of the most commonly used methods is Round-robin load balancing. It forwards client request to each connected server in turn. On reaching the end, the load balancer loops back and repeats the list again. The major benefit is its ease of implementation. The load balancers check the system heartbeats during set time intervals to verify whether each node is performing well or not.

So, the use of load balancing increases scalability, provide ability to handle sudden traffic spikes and flexibility to business users.

Opinion Summarization

Ruchi Goel

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Online services like Daily news, weather forecasts, banking transactions, shopping, social networking, blogging, and other services became very important in everyone's day-to-day schedule. The rapid advancement of web technologies has resulted in a significant increase in online buying and selling of products. Users' ability to express their satisfaction or criticism in the form of reviews has contributed to the growth of online purchases. Knowing these opinions and their associated sentiments is critical because they have a significant impact on an individual's or an organization's management system's decision-making. Considering the current situation, any product sold online receives thousands of reviews from customers all over the world. Hence going through this large number of reviews is a laborious task. Referring to merely a handful of them, on the other hand, would result in a biased decision. Thus opinion mining, sentiment analysis, and summarization become a serious necessity. Opinion mining is the process of finding phrases that contain an opinion about something, whereas sentiment analysis is the process of identifying the positivity or negativity of that opinion. Summarization is a way of presenting a large amount of information using limited words still maintaining its meaning and relevancy. Similarly, opinion summarization illustrates a summary for a large number of opinionated sentences. Opinion summaries include a well-organized overview of aspects/features, different textual summary formats, and visualization including structured summaries. The main purpose of summarising the opinion is to help users find and assimilate the broad variety of opinions fluently. The multiple methods used in the review of opinions touched on different research areas including text clustering, text mining, sentiment prediction, machine learning, NLP analysis, evolutionary algorithm, and so on.

FACULTY CORNER: TECHNICAL ARTICLES

The main aim in opinion summarization is to create summaries from the huge number of opinions on a product which can help customers to make wiser decisions on different products/things.

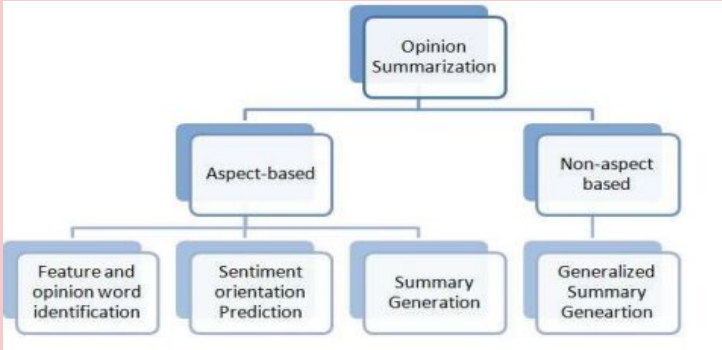
There are two approaches for generating summaries based on the output type. Two main approaches for text summary generation are:

1. Extractive Summarization which uses AI methods and it does not involve rephrasing of text in the original document.in this input is taken from the document and presented in a readable form

2. Abstractive Summarization requires the ability to combine different perspectives in a natural language and it is defined in a single term as when a human is given a collection of text to summarize, he will rewrite the main points in his own words.

Text review techniques can be used in text collection and generation phase for opinion summarization. Opinion summarization is slightly different from old text summarization as the polarity of input opinion plays a significant role in opinion summary. It is not possible to review all opinions due to large data on web and redundancy in data. User review summarization helps the user in decision making for any product and helps him in buying.

Opinion summarization can be of two types: Aspect based and Non-aspect based as shown in Fig.1



One of the opinion summarization strategies is feature-based or aspect-based opinion summarization, which provides brief but essential information comprising a summary of several aspects connected to the target product. Since it focuses on different features instead of giving general details about a product, it has become a more significant and demanded form of summarization. It is a way of generating summaries for a set of aspects or features of a specific product. The non-aspect-based Opinion Summarization technique produces a generalized summary over any target without considering its aspects or features. This summary is not bounded to any particular form or format. Different forms of these opinion summaries available include contrastive, abstractive, multi-lingual, entity-based, etc.

The opinion mining and summarization procedure includes three fundamental steps; Opinion Retrieval, Opinion Classification, and Opinion Summarization. The opinion summarization procedure uses two approaches (Feature-based summarization and Term Frequency-based summarization), in which the review text is preprocessed (sentence segmentation and tokenization), and then each sentence score and relevance is determined.

Opinion summarization can be simply implemented into real-world applications, saving time and effort for users. Politicians, for example, can assess their public image and businesses can assess their clients using Twitter opinions. It also plays an important part in social media semantic analysis and social media analytics. Despite multiple research attempts, existing opinion summary studies still have several shortcomings that need to be addressed.

FACULTY CORNER: TECHNICAL ARTICLES

Emerging IoT Technologies

Neelam Sharma

Assistant Professor, Computer Science & Engineering Department, MAIT, Delhi

The IoT or the internet of things is a large network of physical, typically non-traditional network devices that due to modern advancements have now been connected to the internet. These IoT network nodes are popularly referred to as “smart devices” and are capable of seamlessly sharing and collecting useful data.

Although the concept of smart interconnected things is not a new one, IoT has only very recently become a technology buzzword. This is due to the arrival of cheap computer chips and the recently achieved ubiquity of wireless networks

Since the accessibility of IoT is now tangible and the technology has the significant advantage of elevating customer experience, a multitude of industrial organisations are now looking to adopt this technology in hopes to amalgamate it with their products. If recent trends are any indication, then the technologies and principles of IoT will have a very broad impact on organizations, affecting business strategy, risk management and a wide range of technical areas such as architecture and network design. The top 10 emerging IoT technologies are:

1. IoT Security. Security technologies will be required to protect IoT devices and platforms from both information attacks and physical tampering, to encrypt their communications, and to address new challenges such as impersonating "things" or denial-of-sleep attacks that drain batteries. IoT security will be complicated by the fact that many "things" use simple processors and operating systems that may not support sophisticated security approaches.

2. IoT Analytics. IoT business models will exploit the information collected by "things" in many ways, which will demand new analytic tools and algorithms. As data volumes increase over the next five years, the needs of the IoT may diverge further from traditional analytics.

3. IoT Device (Thing) Management. Long-lived nontrivial "things" will require management and monitoring, including device monitoring, firmware and software updates, diagnostics, crash analysis and reporting, physical management, and security management. Tools must be capable of managing and monitoring thousands and perhaps even millions of devices.

4. Low-Power, Short-Range IoT Networks. Low-power, short-range networks will dominate wireless IoT connectivity through 2025, far outnumbering connections using wide-area IoT networks. However, commercial and technical trade-offs mean that many solutions will coexist, with no single dominant winner.

5. Low-Power, Wide-Area Networks. Traditional cellular networks don't deliver a good combination of technical features and operational cost for those IoT applications that need wide-area coverage combined with relatively low

bandwidth, good battery life, low hardware and operating cost, and high connection density. Emerging standards such as narrowband IoT will likely dominate this space.

6. IoT Processors. The processors and architectures used by IoT devices define many of their capabilities, such as whether they are capable of strong security and encryption, power consumption, whether they are sophisticated enough to support an operating system, updatable firmware, and embedded device management agents. Understanding the implications of processor choices will demand deep technical skills.

7. IoT Operating Systems. Traditional operating systems such as Windows and iOS were not designed for IoT applications. They consume too much power, need fast processors, and in some cases, lack features such as guaranteed real-time response. They also have too large a memory footprint for small devices and may not support the chips that IoT developers use. Consequently, a wide range of IoT-specific operating systems has been developed to suit many different hardware footprints and feature needs.

8. Event Stream Processing. Some IoT applications will generate extremely high data rates that must be analyzed in real time. Systems creating tens of thousands of events per second are common, and millions of events per second can occur in some situations. To address such requirements, distributed stream computing platforms have emerged that can process very high-rate data streams and perform tasks such as real-time analytics and pattern identification.

9. IoT Platforms. IoT platforms bundle many of the infrastructure components of an IoT system into a single product. The services provided by such platforms fall into three main categories:

- Low-level device control and operations such as communications, device monitoring and management, security, and firmware updates;
- IoT data acquisition, transformation and management .
- IoT application development, including event-driven logic, application programming, visualization, analytics and adapters to connect to enterprise systems.

10. IoT Standards and Ecosystems. Standards and their associated application programming interfaces (APIs) will be essential because IoT devices will need to interoperate and communicate, and many IoT business models will rely on sharing data between multiple devices and organizations. Many IoT ecosystems will emerge, and organizations creating products may have to develop variants to support multiple standards or ecosystems and be prepared to update products during their life span as the standards evolve and new standards and APIs emerge.

IoT devices are expected to continue changing the way users interact with the world. In the long term, the embrace of IoT will lead to the creation of smart cities, smart buildings and smart manufacturing. Major industries like logistics, energy, farming and transportation are expected to continue adopting IoT devices at an incredibly rapid pace. IoT's ambitious future paints a colourful picture filled with constant connectivity, vast amounts of data and real-time communication — anytime, anywhere.

STUDENT'S CORNER: TECHNICAL ARTICLES

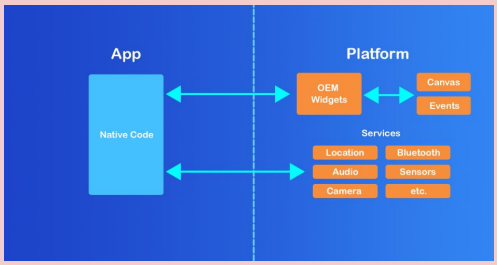
Is FLUTTER the future of Mobile Development?

Sarvesh Nath Tiwari (42814802718) , CSE Department

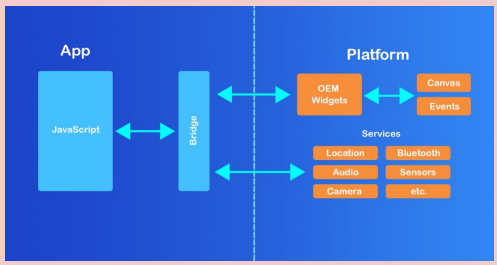
Flutter is a free and open-source mobile UI framework created by Google and released in May 2017. In a few words, it allows us to create a native mobile application with only one codebase. This means that we can use one programming language and one codebase to create two different apps (for iOS and Android). Flutter requires fewer efforts, lesser time, and smaller investments for app development

Why to choose FLUTTER over native Android / native iOS / React Native?

- **Architecture**: The biggest advantage that Flutter gives in comparison to native Android is the cross-platform support, i.e., you can use the same codebase for different platforms like Android, iOS, Web, Desktop, etc.React Native apps are written in JavaScript, so to access the OEM widgets it has to use a bridge to talk to the Platform. This is where the bottleneck of this Framework lies. Flutter solves the most challenging part of the other cross-platform frameworks, i.e., getting rid of the BRIDGE. Flutter does not use the OEM widgets, it provides its own widgets. Flutter moves the widgets and the renderer from the Platform into the app, which allows them to be customizable and extensible.



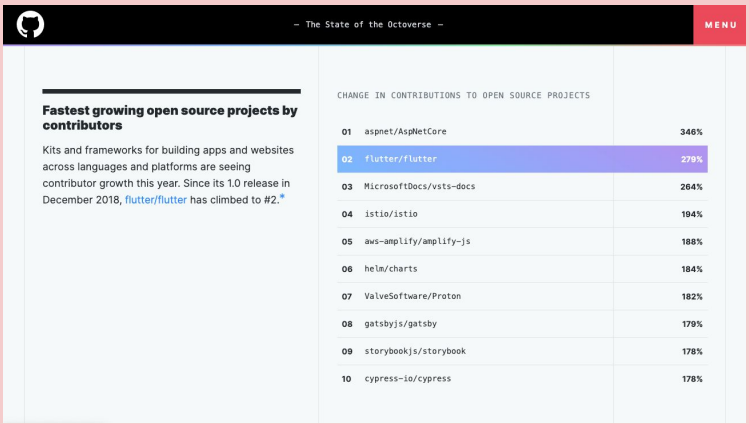
FLUTTER



REACT NATIVE

- **Hot Reload:** In the native Android app development, if we even make very simple changes like changing the colour of a button, we have to wait for at least 2-3 minutes for it. Flutter's Hot Reload allows the developers to only send the incremental changes of the source code to the running Dart VM, rather than running the whole code after each change. Flutter's hot reload feature helps you quickly and easily experiment, build UIs, add features, and fix bugs.
- **Increased Time-to- Market Speed:** Flutter development framework functions quicker than its alternatives. In most cases, you can expect a Flutter app to require at least two times fewer man-hours compared to the same app developed separately for Android and iOS.
- **Similar to Native App Performance**: Application performance is crucial for good UX. While it's hard to tell the exact figures, it's safe to say that Flutter application performance in most cases will be indistinguishable from the native app and even better in complex UI animation scenarios.
- **Own Rendering Engine**: Flutter allows you to do so much stuff with your apps that aren't available on other platforms. Obviously, it requires the framework to be pretty powerful. In fact, most of the points presented above wouldn't be possible without a high-performance cross-platform rendering engine.
- **Add-to-app:** Flutter can also be integrated to your existing Android apps as a library or module. That module can then be imported into your Android app to render a part of your apps' UI in Flutter.

STUDENT'S CORNER: TECHNICAL ARTICLES



According to the GitHub's OCTOVERSE report of 2019, Flutter is one of the fastest growing open-source projects and it has climbed to the 2nd position.

- **The Potential Ability to go beyond Mobile:** With Flutter, you can go far beyond Flutter app development on mobile. There's also Flutter for Web, Flutter Desktop and Linux too. Fuchsia is an open-source operating system currently being developed by Google.
- **Community Support**: As Flutter is totally an open-source project, the developer community plays an important role in its success. There are a number of awesome Flutter plugins that came from this community and developers are experimenting with new things in Flutter every day, pushing its limits.

Can Flutter dominate over native Android?

Flutter is full of features and it promises a good performance, but it still not production ready for certain applications. It lacks in availability of certain plugins.

Some of the important plugins that are available, are still buggy and are not usable in large scale production application.

But this highly depends on the kind of app you or your company would be working on, if you get good plugins and it satisfies your app's feature needs, then Flutter might be the best choice for you.

Conclusion

There were a lot of hybrid (cross-platform) technologies like: PhoneGap, Sencha, Cordova, Ionic, Xamarin and many more.

Most of them are dead or it is their endgame now, mostly because they were limited and needed knowledge from many areas including framework itself and platforms natively.

Currently, only React Native and Flutter are in the game for most of new hybrid projects.

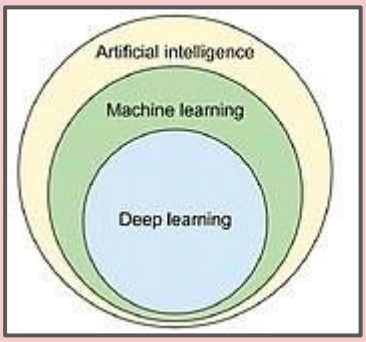
Hence, we may conclude that Flutter has entered the industry very strongly and currently should be the first choice for cross-platform solutions.

It becomes clear that there is a lot on the horizon for the Flutter framework and its popularity is all set to reach the pinnacle in the coming years.

STUDENT'S CORNER : TECHNICAL ARTICLES

MACHINE LEARNING

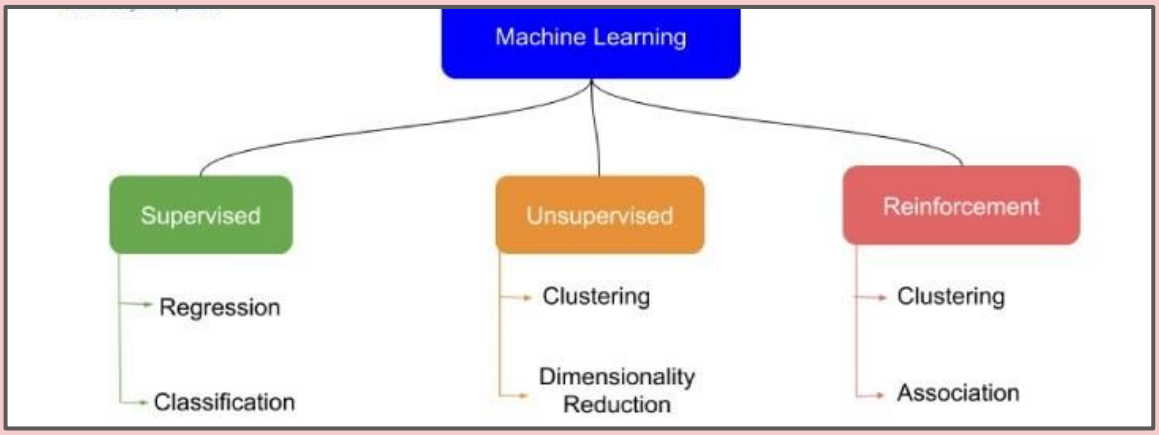
Pranjal Gupta(01896402719), 2nd year



Artificial intelligence refers to the simulation of human intelligence in machines. Machine learning is a branch of artificial intelligence (AI) focused on building applications that learn from data and improve their accuracy over time without being programmed to do so. Machine learning is basically a process that computer systems follow to achieve artificial intelligence.

It uses algorithms to identify patterns within data and those patterns are then used to create a data model that can make predictions. It can also be understood as a method of teaching machines to learn things and improve predictions/behaviour based on their own.

Machine learning is divided into three categories:

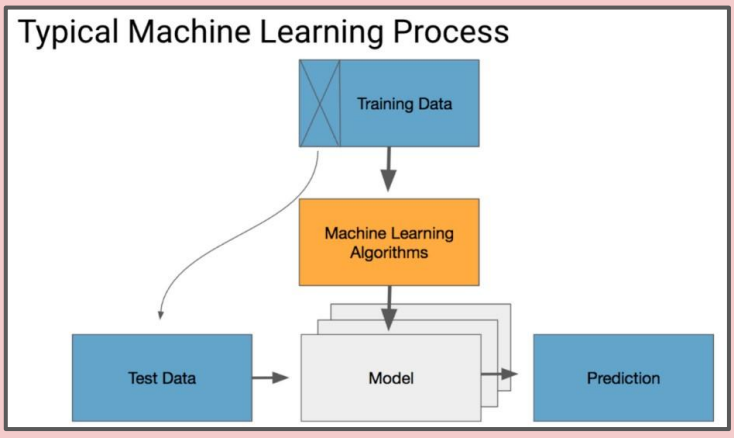


SUPERVISED LEARNING: labeled data is given (input as well as output).

UNSUPERVISED LEARNING: machine uses unlabeled data and learns on itself without any supervision.

REINFORCEMENT: Interact with the environment by producing actions and then analyse the errors.

In a nutshell, a machine learning project has three main parts: Data Understanding, Data Gathering & Cleaning, And Finally Model Implementation and Tuning. Usually, Data Understanding, Gathering And Cleaning Takes 60–70% Of The Time. Tagging people and objects, Google search, picture identification all are examples of Machine Learning.\



Data is the key to unlock Machine Learning and Machine Learning is the key to unlock hidden insights of data.

STUDENT'S CORNER : TECHNICAL ARTICLES

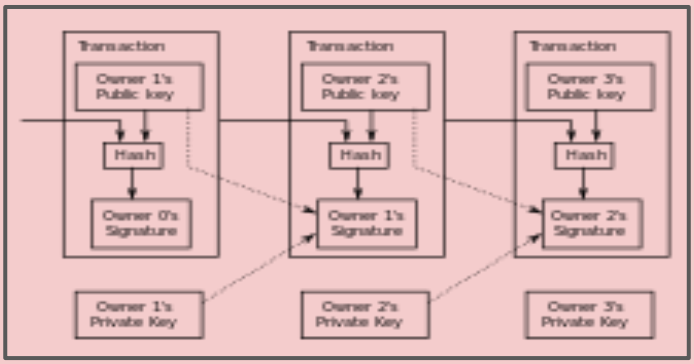
Bitcoin: A Cryptocurrency

Prashansa Chadha(35496402718), CSE

Bitcoin is a cryptocurrency invented in 2008 by an unknown person or group of people using the name Satoshi Nakamoto. The currency began use in 2009 when its implementation was released as open-source software.

Each Bitcoin is basically a computer file which is stored in a 'digital **wallet**' app on a smartphone or computer. People can send Bitcoins (or part of one) to your digital **wallet**, and you can send Bitcoins to other people. Every single transaction is recorded in a public list called the **blockchain**.

Ownership



In the blockchain, bitcoins are registered to bitcoin addresses. Creating a bitcoin address requires nothing more than picking a random valid private key and computing the corresponding bitcoin address. This computation can be done in a split second. But the reverse, computing the private key of a given bitcoin address, is practically unfeasible.

Physical wallets

Physical wallets store the credentials necessary to spend bitcoins offline and can be as simple as a paper printout of the private key: a *paper wallet*. A paper wallet is created with a keypair generated on a computer with no internet connection; the private key is written or printed onto the paper and then erased from the computer. The paper wallet can then be stored in a safe physical location for later retrieval. Bitcoins stored using a paper wallet are said to be in *cold storage.*

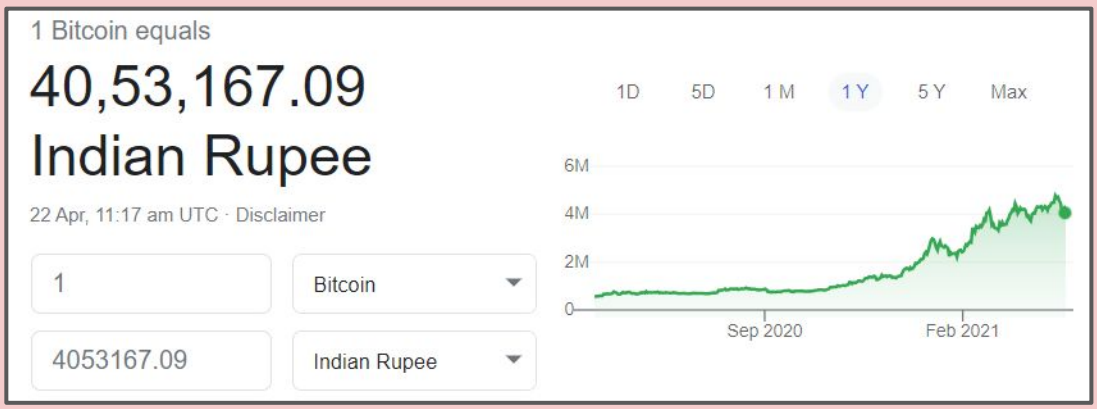
Bitcoin's rules were designed by engineers with no apparent influence from lawyers or regulators. Bitcoin is built on a transaction log that is distributed across a network of participating computers.

STUDENT'S CORNER : TECHNICAL ARTICLES

It includes mechanisms to reward honest participation, to bootstrap acceptance by early adopters, and to guard against concentrations of power. Bitcoin's design allows for irreversible transactions, a prescribed path of money creation over time, and a public transaction history. Anyone can create a Bitcoin account, without charge and without any centralized vetting procedure—or even a requirement to provide a real name.

Bitcoin wallet

Bitcoins are stored in a "digital wallet," which exists either in the cloud or on a user's computer.



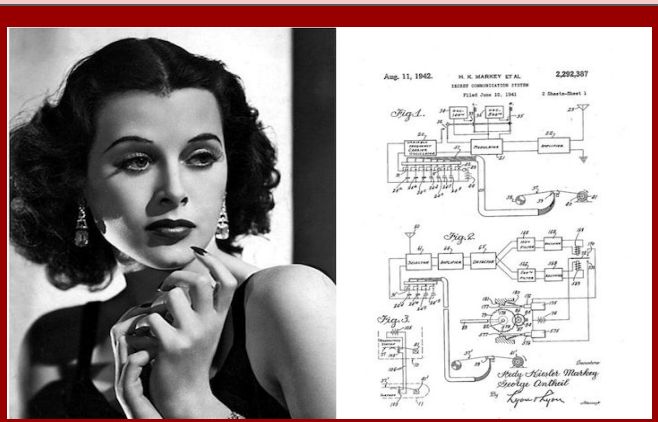
Wallet is a kind of virtual bank account that allows users to send or receive bitcoins, pay for goods or save their money. Unlike bank accounts, bitcoin wallets are not insured by the FDIC.

Processing – mining

Mining is a distributed consensus system that is used to *confirm* pending transactions by including them in the block chain. It enforces a chronological order in the blockchain, protects the neutrality of the network, and allows different computers to agree on the state of the system. To be confirmed, transactions must be packed in a *block* that fits very strict cryptographic rules that will be verified by the network. These rules prevent previous blocks from being modified because doing so would invalidate all the subsequent blocks.

Secret Communication System

Hedy Lamarr, a world famous film star, invented a secret communications system during **World War II** for radio-controlling torpedoes. This Technology also paved the way for everything from **Wi-Fi to GPS.**



Women Inventors

STUDENT'S CORNER : TECHNICAL ARTICLES

Why should a CS and Non-CS student practice Competitive-Programming ?

Nidhi Chaurasia (00714807220), 2nd year

In this Hi-Tech Booming World it is really very necessary to stay updated with the information.Coding utilizes a creative process in which computers are "TOLD" how to execute different actions.This is done through code,or a set of instructions a computer needs to wrap your head around coding a little bit.You can start asking yourself what changes you might make to a device if you had the knowledge of implementing to do so. CP makes an individual more disciplined, faster and focused critical thinker . It boosts one's ability of grasping real-world problems rather than a thought of more as hype than anything else. At the time it was a novel idea to the education system and one which wasn't exactly taken as seriously as it now is. Over time, the thought went from being "coding is pretty cool, so try it out" to "coding is cool, and you can make a very good living from it!".

There are a lot of well-paying jobs to be had out there if your have the right skillset overtime with the demand for STEM (Science, Technology, Engineering, and Mathematics) jobs projected to grow over the next few decades.Competitive programming is a logic-based activity, but it can also be a creative outlet at the same time.Many programmers live for the challenge of creating something and the reward of seeing the results.So, don't be scared off by the terminology involved or the thought that coding is too complicated. Given the right instructions, learning to code can be fun and easier. Be industry-ready or how to effectively work together, as one must work with others in a team to complete the same task.CP develops the sense of how to assess your team members' strength and weaknesses and effectively divide responsibilities between each other to make the job done with perfect conclusions.

Gradually CP provides you the indispensable skills like problem-solving approach ,work in stressful situations, manage time and deadlines and minimize errors . To kickstart your career in big five fortune companies learn to put yourself in challenging situation and combine different parts and pieces of codes come together to bring something to life. Being a Programmer you expand your target firms and apply for the position that you believe you can fill and do an excellent job to land your dream earnings. It not only tests one's patience, dedication, and consistency but very importantly it pushes you to think out of the box and reach to an optimized solution to any problem

According to the survey to dive into competitive programming one can follow an approach of project-based learning in which, once an individual knows the syntax of the language and basic fundamentals, he/she can create multiple challenging projects and after making a lot of projects they will realize how logics work in development and that will help to increase their programming ability. After that, you can move to competitive programming and you will realize handling those questions of competitive programming is easier now and now you can do very well.Close to 35% of developers consider themselves to be self-taught .

1 in 3 developers code for more than an hour a day outside of work or school. Most of the tech recruitment platforms, like Codeforces ,CodinGame for Work, etc are paving the way for skill-based hiring.

High paying jobs for good programmers – no matter their educational, professional or social background. Once you have the fundamental basics under your belts, it's time to move onto bigger and better things.

Keep in mind you wouldn't be shooting for the stars quite yet, but you're ready to take the next step in the journey. "In some ways, programming is like painting. You start with a blank canvas and certain basic raw materials. You use a combination of science, art, and craft to determine what to do with them." - Andrew Hun

STUDENT'S CORNER : TECHNICAL ARTICLES

Backups: A Desperate Requirement in IT

Piyush Dhall, 00796407220

Have you ever lost important data in a phone theft, system hard drive crash or by computer virus? Feels bad, right? That is why now most of us store our important documents and even some media on Cloud solutions like GDrive or alternatives. But what about the REAL IT equipment? Servers on which websites and applications are hosted, either onsite or offsite, shall they also do backups?

The answer is yes, although the enterprise hardware is more reliable than normal desktops and laptops. However, disasters do happen sometimes. Like recently, on 10th March 2021, a whole datacenter building of OVHCloud caught fire in Strasbourg, France, taking down approx 3.6 million websites and applications, and the client's data on it. Some even belonged to Banks, Election Commissions and Governments.Because ultimately the cloud that we think is in the air and just a click away from us, is somehow also running on physical servers like these. And a 100% uptime cannot be guaranteed due to any reasons. Think of it like you have a VPS (a DigitalOcean droplet, or an AWS EC2 instance in a single region), and somehow the whole datacenter becomes unavailable due to any unforeseen circumstances, think of what impact that could do on a business project. The production databases, or an e-commerce website's data, can all be gone with a single point of failure.Therefore, to prevent that, we make a "Disaster Recovery Plan", that if something of this sort happens to us, how will we circumvent this and ensure least possible downtime of the services. Following are a bunch of technologies used to avoid downtime and ensure high availability of data.

RAID / Mirroring : Redundant Array of Independent Disks. It can be used to mirror the contents of the hard disk in real time. This prevents downtime in the case of mechanical failures (HDD crashes).

On-Site Backups : On site backup is useful to keep local backups so in case if something goes wrong, a rollback can be quickly done.So far these techniques are good for internal small failures, but they don't help in disaster recovery, for that we need :

Off-Site Backups : Off-site backups are called so, because, in it the data is backed up outside the company's premises, in a separate remote data center. Suppose if someone has infrastructure in France, the remote location can be considered to be Germany.

Incremental Backups : An incremental backup is a backup type that only copies data elements that have been changed or created since the previous backup activity was conducted. This type of backup saves an enormous amount of storage space compared to making redundant archives of data of mostly the same size.

Bulletproof Vests

This life-saving material that is 5 times stronger than steel and used to make bulletproof vests was invented in 1965 by Stephanie Kwolek.

Women Inventors

STUDENT'S CORNER : TECHNICAL ARTICLES

How AI,robots,smart glasses are changing healthcare.

Shobhit Kumar(07614802719), II year, CSE

Medical Technology is the future of healthcare. It will provide a whole new world of job opportunities for techies in the health sector and in patient care. AI, machine learning, nanotech, IoT, robotics, 3D printing are just a few examples of technologies that are playing an important role in healthcare.

Recently, a complex cancer surgery was successfully performed by Dr. Shafii Ahmed in London along with the help of Dr Shailesh Shrikhande, deputy director of TATA Memorial hospital in Mumbai, who assisted him virtually. They used a Microsoft Hololens to get connected remotely. The Hololens smart glasses use sensors, advanced optics and holographic processing to display information and blend with the real world. Dr Srikhande could virtually enter the London operating room. He accessed the test reports and scans of the patient and was standing and speaking to other doctors as if they were together in the room.In healthcare, new age digital technologies are enabling doctors to connect across the world, arrive at faster diagnosis, and improve robotic performances and performances in surgeries. AI-guided clinical care has the potential to play an important role in reducing health disparities. AI and ML is being explored by health professionals in the field of pathology to improve prognostication and prediction, like response assessment post chemotherapy. The idea is to scan tonnes and tonnes of slides to develop an AI-based algorithm that will be able to predict which tumours respond to which treatment.Robotic surgeries improve precision and reduce the chances of human error. These are being used in prostate,rectal,kidney,neck and head cancer surgeries. A robot is an untiring assistant.Under the guidance of a surgeon, robotic surgery allows doctors to perform many types of complex procedures with more precision, flexibility and control than is possible with conventional techniques

Electric Refrigerator

The electric refrigerator was invented by Florence Parpart in 1914 (Florence also invented an improved street cleaning machine in addition to the refrigerator)

Women Inventors

STUDENT'S CORNER : TECHNICAL ARTICLES

CYBERSECURITY

AASTHA AGGARWAL(20214802719),2ND YEAR

Cybersecurity is the art of protecting networks, devices, and data from unauthorized access or criminal use and the practice of ensuring confidentiality, integrity, and availability of information. It seems that everything relies on computers and the internet now—communication, entertainment, transportation, shopping, medicine, and the list goes on.

What are the risks to having poor cybersecurity?

There are many risks, some more serious than others. Among these dangers is malware erasing your entire system, an attacker breaking into your system and altering files, an attacker using your computer to attack others, or an attacker stealing your credit card information and making unauthorized purchases. There is no guarantee that even with the best precautions some of these things won't happen to you, but there are steps you can take to minimize the chances.

What is cybersecurity all about?

A successful cybersecurity approach has multiple layers of protection spread across the computers, networks, programs, or data that one intends to keep safe. In an organization, the people, processes, and technology must all complement one another to create an effective defense from cyber attacks. A unified threat management system can automate integrations across select Cisco Security products and accelerate key security operations functions: detection, investigation, and remediation.

To minimize the risks of cyberattacks, these basic cybersecurity best practices can be followed:

- **Keep software up to date.** Install software patches so that attackers cannot take advantage of known problems or vulnerabilities. Many operating systems offer automatic updates. If this option is available, you should enable it.

STUDENT'S CORNER : TECHNICAL ARTICLES

- **Run up-to-date antivirus software.** A reputable antivirus software application is an important protective measure against known malicious threats. It can automatically detect, quarantine, and remove various types of malware. Be sure to enable automatic virus definition updates to ensure maximum protection against the latest threats.

Note: Because detection relies on signatures—known patterns that can identify code as malware—even the best antivirus will not provide adequate protection against new and advanced threats, such as zero-day exploits and polymorphic viruses.

- **Use strong passwords.** Select passwords that will be difficult for attackers to guess, and use different passwords for different programs and devices. It is best to use long, strong passphrases or passwords that consist of at least 16 characters.
- **Change default usernames and passwords.** Default usernames and passwords are readily available to malicious actors. Change default passwords, as soon as possible, to a sufficiently strong and unique password.
- **Install a firewall.** Firewalls may be able to prevent some types of attack vectors by blocking malicious traffic before it can enter a computer system, and by restricting unnecessary outbound communications. Some device operating systems include a firewall. Enable and properly configure the firewall as specified in the device or system owner's manual.
- **Be suspicious of unexpected emails.** Phishing emails are currently one of the most prevalent risks to the average user. The goal of a phishing email is to gain information about you, steal money from you, or install malware on your device. Be suspicious of all unexpected emails.

The Modern Paper Bag

Women Inventors

Margaret Knight invented a machine that makes square bottomed paper bags in 1871. She almost didn't get credit when Charles Anan tried to steal her work claiming that it wasn't possible for a woman to create this brilliant invention. (Margaret also invented a safety device for cotton mills when she was 12) that invention is still being used today).


Students corner: Projects

Name: Manik Taneja (42814802717)
Project Name: Ai construct

Abstract:
Speech is the general and widely accepted correspondence mode for communication and information transfer amongst the individuals. People use speech to communicate without lifting a finger with the help of speech recognition applications. Speech recognition in a nutshell, interfaces in local lingo which helps the people connect and use the advancement to a more imperative degree without the data, by operating with a machine. The increase in digitization has corresponded to more research in the field of human-computer interaction. Therefore, there is scope to further develop speech recognition algorithms and tools that help utilize the optimum potential of the machine. This project focuses on generating data charts using large amounts of monolingual data obtained through voice input. It is an approach that uses bi-directional recurrent neural network to summarize using a combination of encoder and decoder, and then extract constraints using aspect identification for the data charts. Additionally, Bahdanau et al., attention layer model is to be introduced to compensate for the loss of data in longer inputs when using a fixed-size vector in a bi-directional recurrent neural network. Using the output of the decoder the aspects are identified and mapped with the descriptions. These valid descriptions are used for constructing the data charts. Through the research conducted during the minor, a proposal for an end-to-end project is being communicated.

Names: Abdul Waheed (00196407218)
Muskan Goyal (35496402717)
Nimisha Mittal (41696402717)
Project Name: Domain Controlled Title Generation with Human Evaluation

Abstract:
We study automatic title generation and present a method for generating domain-controlled titles for scientific articles. A good title allows you to get the attention that your research deserves. A title can be interpreted as a high-compression description of a document containing information on the implemented process. For domain-controlled titles, we used the pre-trained text-to-text transformer model and the additional token technique. Title tokens are sampled from a local distribution (which is a subset of global vocabulary) of the domain-specific vocabulary and not global vocabulary, thereby generating a catchy title and closely linking it to its corresponding abstract. Generated titles looked realistic, convincing, and very close to the ground truth. We have performed automated evaluation and human evaluation to make a comparison between human and machine-generated titles. The titles produced were considered acceptable in human evaluation, thus we concluded that our research proposes a promising method for domain-controlled title generation.

Names: Barbie Sehgal (90114802717),
Shivam Bhardwaj (65114802717),
Raghav Gandhi (90514802717)
Project Name: An explainable AI Approach for Agriculture Using IoT.

Abstract:
Agriculture has progressed significantly throughout the centuries in numerous aspects and today we cultivate crops with advanced technologies & equipments. The proliferation of the IoT gadgets and the extant issue of Grain shortage has offered an ascend to various IoT uses in agriculture.
For such general applications, they somehow involve a bunch of sensors which are introduced in open field and measure using different factors, for example temperature, humidity which is utilized for water system controlled frameworks. ill control the crop yield and will sense the conditions and accordingly inform the farmer about it. Hence preventing soil erosion, crop loss, overuse of fertilizers etc. The most important factor used is the soil and we have utilized it very efficiently. So In this way our model has more efficiency. In this paper, we have introduced an essential framework that utilizes IoT gadgets to screen sensor estimations of fields and robotize water system. Fundamental coordinates a bunch of IoT gadgets (sensors) with the cheap establishment & support costs, just as a powerful disseminated information the executives' framework.

Students corner: Projects

Names: Abhishek goel (00414802717)
Deepali bindal (02114802717)
Yash chaudhary (40114802717)
Project Name: Virtual classroom

Abstract:
Due to the looming uncertainty around the Covid-19 crisis in our country and all over the world, physical classrooms of students have shifted online to virtual classrooms. Teachers and Professors of various backgrounds and fields are doing their level best to cope with the new system. They try to ensure that students get classroom like experience. Using deep learning CNN and RNN as well as MERN stack development we will build this application. We will be integrating the following functionalities in our application –
1) If a student is away from the screen for a significant amount of time, it will be detected and reported to the professor, we can get the analysis of data for each students and present it to the professor in the form of time away from screen. Teacher can mark the student accordingly on the basis of attention and involvement during the class.
2) All that the teacher is speaking and explaining during the online classes will be converted from speech to text so that a transcript is formed of the class for students to refer later on.
3) A summary of the class will be formed using the transcript so that there will be a record of the topics covered until that time.
4) If a student's microphone is causing disturbance or has a lot of background noise while speaking or is not able to write his/her doubt they can use speech to text feature or text to speech feature.

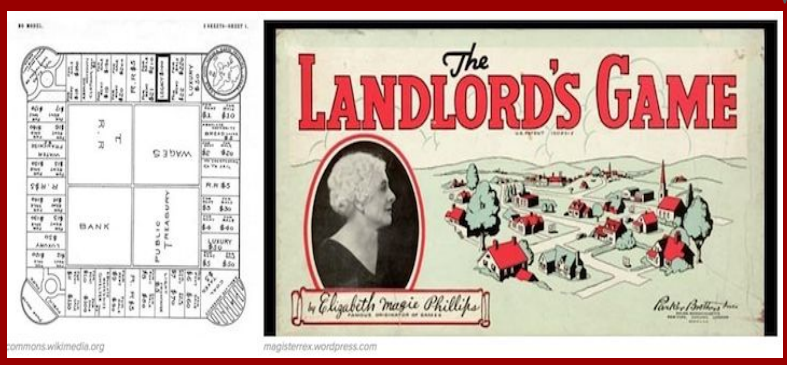
Names : Rohan Garg (36614802717)
Pulkit Jhanji (36314802717
Gaurav Kumar (40914802717)
Project Name: VizEx (Software Based Solution)

Abstract:
Managing visitors at a manufacturing facility is one of the major problems faced by the administration. Visitor management is right now manual which consumes a lot of time of the visitors and the wait time increases even more during the rush hours. For the concerned administrators it is very discomfortable to acknowledge the authenticity of the visit by attending calls and therefore distracting him/her from actual work. During the rush hours the manual process may also lead to inaccuracy in data collection and authentication. And after all this hassle comes the hassle of guiding the visitor through huge complexes and providing them appropriate information to familiarize them with the campus. We built a platform that can be used by industries to address the above issues. A platform that brings together security, convenience and control. Task management module allows the admin to create their organization structure and add the employees of the organization to assign tasks and track them. It also allows employees and managers to assign and track tasks among different teams.

Landlord's Game

This **popular board game** was designed by Elizabeth Magie in 1904, originally called the **Landlord's Game**. The purpose of this game was to expose the injustices of unchecked capitalism. Her game was ripped off by Charles Darrow who sold it to Parker Brothers 30 years later. However Parker Brothers later paid Elizabeth $500 for her game.

Women Inventors



Students corner: Projects

Names : Mohammad Zeeshaan Alam (40114807218)
Md Arsalan Khan (40314807218)

Project Name: AUTOMOTIVE CAR MODELLING USING AUGMENTED REALITY.

Abstract:
Automotive Modelling using Augmented Reality is a project that aims to build a showroom like car experience anywhere in our surrounding (it can be roads, pathways of park or your society) the only thing we will require is our smartphone. Using our smartphone camera we can take the whole immersive experience of the car that we want to buy and that too without visiting the showroom. Anyone will definitely enjoy this AR experience more than the original experience of visiting the showroom.

We are using Unity with Vuforia SDK for developing this AR experience. You are only required to scan a plane surface through your smartphone camera and choose from a list of available cars and the car will start showing up and you can view each and every detail of the car and also drive that car. We can extend our project if some automobile companies agree to give their car blueprints or their 3d model then we can implement that as well in our application.

Unity is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005. As of now, the engine had been extended to support more than 25 platforms. The engine can be used to create three-dimensional, two-dimensional, virtual reality, and augmented reality games, as well as simulations and other experiences. The engine has been adopted by industries outside video gaming, such as film, automotive, architecture, engineering and construction. Several major versions of Unity have been released since its launch. The latest stable version, 2020.1.2, was released in December 2020.

Names: Ansh Jain (00914802717)
Abhishek Chauhan (00314802717)
Anurag Shastri (01114802717)

Project Name: HANDWRITTEN ALPHABETS AND NUMERIC DIGITS RECOGNITION.

Abstract:
With the advancement in technology, machine learning and deep learning are playing a crucial role in present times. Now, machine learning and deep learning techniques are being employed in handwriting recognition, robotics, artificial intelligence, and many more fields. Developing such systems requires training our machines with data, making it capable to learn and make required predictions. This project presents handwritten character recognition and extending this functionality to solving handwritten mathematical equations, by using the fundamentals of Machine Learning and Artificial Intelligence.

Handwritten character recognition is a field of research in artificial intelligence, computer vision, and pattern recognition. A computer performing handwriting recognition is said to be able to acquire and detect characters in paper documents, pictures, touch-screen devices and other sources and convert them into machine-encoded form.

Now, as an extension to this project , a web based application is also developed which uses the trained ML model to identify and extract alphabets and digits from live images.

Students corner: Projects

Names : Rajat Jain-20414802717
Mili Tyagi-20114802717
Sanskriti Jain-36714802717
Kashish Makkar-41614802717

Project Name: Drowsiness Detection for Online Courses

Abstract:
Online learning has become more centric in people's lives today with COVID-19 acting as a catalyst for the growth of this industry. It is believed that this will bring about an educational revolution in the way knowledge is disseminated and become an integral component of the education system. But one should not forget the challenges it brings along with it. The monotony of staring at our screens for so long crepts in disengagement in the form of drowsiness and results in decrease of attention or vigilance on part of the learners.

Therefore, with the power vested in our hands through the capabilities of Machine Learning algorithms, we propose an algorithm to detect drowsiness in an individual measured during the online courses using Eye Aspect Ratio(EAR), Mouth Aspect Ratio(MAR), PERCLOS(Percentage of Eyelid Closure over Pupil).

Proposed algorithm produces very good results as detailed in this research. It produces an accuracy of approximately 94% and outperforms various other algorithms on the given dataset. Comparative study has also been done in which we have compared proposed algorithm accuracy to other machine learning algorithms' accuracy. We have also tried to improve the formula for Eye Aspect Ratio (EAR).In the few existing proposed algorithms, EAR was calculated using 6 reference points only. The new formula is derived by using 8 reference points.

Names: Aman Kumar (20914802717)
Anmol Mehta (35114802717)
Ishita Goyal (35414802717)

Project Name :SPEECH SYNTHESIS WITH DEEP NEURAL NETWORK AND EEG -SIGNALS

Abstract:
Humans rely on speech to communicate their ideas and thoughts effectively among each other. It is the primary form of communication among humans. However, due to some degenerative neural diseases or vocal cord damage individuals can lose their ability to speak; therefore, are unable to express themself in a gathering as freely as they would have. Past studies have attempted to show that this neuronal disorder can be overcome using electroencephalogram (EEG) - signals that are generated in our brain while performing activities like speaking, watching television or reading books etc.

This study focuses on EEG signals and the complete end-to end process of collecting them and predicting features from them. Here speech is used as a reference which can be substituted by any activity one wants to extract from it. This study essentially centers around the acquisition, pre-processing, feature extraction and conversion of Electroencephalogram (EEG) signals into spectrograms so that they can be used in any image classification/deep learning model easily. In our study, we worked on detecting speech but this methodology can be extended for different types of human conduct such as eye movement, lip movement, remembrance, attention, hand clenching, etc.

Students corner: Projects

Names: Uday Verma (07814802717)
Kunal Gupta, Roll No (75314802717)

Project name: Ocular Disease Recognition By Fundus Image analysis using Deep Neural Networks

Abstract:
Several ocular pathologies have an improved sickness rate within the world. Their prevalence is moving to extend because of population ageing and the unbalanced diet. Many of them cause the blindness and visual disorder like the Diabetic Retinopathy (DR), glaucoma, the Aged- macular degeneration (AMD), etc. Moreover, some late stages are irreversible chronic pathology, whatever may be the ocular therapy. Thus, the ophthalmologists invite patients to sporadically screen with the aim of observe associate degree ultimate sickness.
During this context, many analysis works have associate degree interest among the automated detection of ocular pathologies. Machine learning-based ways offered higher performance detection, particularly those supported deep learning. In fact, the Fundus Image pictures illustrate many retinal elements just like the vessel tree, the second cranial nerve head, the macula, etc. that have affine shapes and morphologies. The ocular pathologies lead either to reform retinal elements or/and look of lesions. Those lesions take issue in terms of size, shape, contrast, etc. Moreover, their forever have similar characteristics than different retinal elements or different pathological lesions. Therefore, the ocular diseases designation appears to be tough task, that needs taking into consideration many parameters, associate degreed therefore the Deep Learning (DL) represents an adequate approach to resolve such issues. During this study we have a tendency to specialize in coming up with a Deep Learning model using Convolutional Neural Networks ready to acknowledge totally different eye diseases from eye Fundus pictures utilizing Tensorflow library.

Names: : Siddhant Sehgal (07014802717)
Siddhant Tripathi (07114802717)

Project Name : Security Analysis for LoRa OTAA Join Procedure & Implementation of Intrusion

Abstract:
IoT is that ability to create digital awareness of the physical world we live in and deployments increasingly incorporate long range communication technologies. To support this transition, wide area IoT deployments are employing LoRa as their communication technology of choice due to its low power consumption and long range. Although being a popular technology, several works in the literature have revealed vulnerabilities and risks regarding the security of LoRaWAN especially in Join Procedure (OTAA). In OTAA, a join request message is sent by LoRa end node and if this join request is valid, join accept message is generated by the network server. This join request message has three components: (1) AppEUI (8 Bytes); (2) DevEUI (8 Bytes); and (3) DevNonce (2 Bytes). DevNonce is a 16-bit random number and it is generated by N read operations of the least significant bit of the register RegRssiWideband and the corresponding address of this register is 0x2c.

The LoRa end nodes from the LoRaWAN network can be compromised due to Denial of Service attack (DoS) by using a jammer.Different methods can be used to detect intrusions which make a number of assumptions that are specific only to the particular method.. We propose two LIDS algorithms based on Kullback Leibler Divergence (KLD) and Jensen-Shannon divergence (JSD). The algorithms are extensively tested on real world dataset. Receiver Operating Characteristic (ROC) based performance evaluations show that KLD and JSD can achieve detection rates as high as 92% and 96% respectively with 5% false positive rate.

STUDENT'S CORNER : SUMMER INTERNSHIPS

Intrusion detection

Tarun Aggarwal | 8C13 | 41396402717

Technology: Computer Vision

Company: Sun Mentors Pvt. Ltd.

Project Description:

Security alarms are used in residential, commercial, industrial, and military properties for protection against burglary (theft) or property damage, as well as personal protection against intruders. It is a system designed to detect intrusion-unauthorized entry into a building or other area such as a home or school. These systems may include closed-circuit television surveillance (CCTV) systems along with sound detection systems to automatically record the activities of intruders. Our system comprising motion detection, and weapons/arms detection aims to provide the best possible security against any attempted burglary or home invasion.

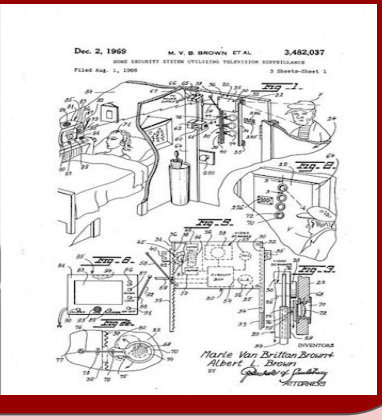
Computer vision is an interdisciplinary field that deals with how computers can be made to gain high-level understanding from digital images or videos. It seeks to automate tasks that the human visual system can do. It is concerned with the automatic extraction, analysis and understanding of useful information from a single image or a sequence of images. It involves the development of a theoretical and algorithmic basis to achieve automatic visual understanding. Computer vision is concerned with the theory behind artificial systems that extract information from images. The image data can take many forms, such as video sequences, views from multiple cameras, or multidimensional data from a medical scanner.

In the first part of the project we designed the module 1 which is the motion detection module. It's functionality is to detect if there is any motion or movement at the designated spot. In the second part, we designed the module 2 which is the weapons/arms detection module. It's functionality is to detect if there is any possible weapon (gun) present. We tested both the modules and integrated them into one unit. Therefore, our system aims to provide a much more reliable and efficient method of home security by providing video surveillance through motion detection and also protection against dangerous elements like arms and weapons.

Women Inventors

CCTV

Marie Van Brittan Brown invented CCTV because of the slow response of police officers in 1969 to help people ensure their own security. This invention influenced modern CCTV systems used for home security and police work today.



STUDENT'S CORNER : SUMMER INTERNSHIPS

Stock Pricing Model and Visualisation

Manthan Keim | 8C3 | 03714802717

Technology: Data visualisation, cleansing and modifying using Python 3 and JPMorgan API

Company: JPMorgan Chase & Co.

Project Description:

One possible option for addressing the above stated challenges is to adopt a model in which the solutions to be developed and deployed can adopt to any network topology, make use of a reusable middleware (which can impose some standardization). So we will start by collecting the data from maximum sites which can provide us data in anyways and work on the collected data by cleaning and further process.

Project Overview

PART 1 - ESTABLISHING FINANCIAL DATA FEEDS

1. Set up your system by downloading the necessary repository, files, tools and dependencies
2. Fix the broken client data-feed script in the repository by making the required adjustments to it.
3. Generate a patch file of the changes you made
4. Bonus task: Add unit tests in the test script in the repository.

PART 2 - FRONTEND WEB DEVELOPMENT

1. Set up your system by downloading the necessary files, tools and dependencies.
2. Fix the broken typescript files in repository to make the web application output correctly
3. Generate a patch file of the changes you made.

PART 3 - DATA VISUALISATION

1. Set up your system by downloading the necessary files, tools and dependencies.
2. Modify the typescript files in repository to make the web application behave in the expected manner
3. Generate a patch file of the changes you made.

PART 4 - OPEN SOURCE CONTRIBUTION

1. Log any patch files and link any pull requests that you may have done in the submission area below. Alternatively, simply tell us (text/audio/video formats are fine) about any plans or ideas for future contributions.

Baja Music & Radio

Ankit Gupta | 8C1 | 00114807218

Technology: Kotlin & XML

Company: Turiyatita Technologies Pvt. Ltd.

Project Description:

Baja, the unique app, gives free access to all your folk and traditional music and audio content. Baja is rich in content, ranging from more than 50 genres such as, Nakta, Sohar, Chaiti, Kajari, Kavita, Qawwali, Ghazal etc, that is not covered by any other music app. Music in different dialects such as Awadhi, Braj Bhasha, Maithili, Bhojpuri, Bagheli, Bagri etc. Baja Music App brings to you songs that are primarily regional, traditional, folk and indigenous to the users. These songs have stood the test of time and are here to stay. Baja app primarily focuses on Indian traditional songs and aims to provide entertainment to all the music lovers.

Find your favorite songs, listen to your favorite local artists, or play online radio for any mood, genre, or artist. Baja delivers the perfect music, personalized according to your taste. More you use the app, more intelligently Baja creates your music station. If you are an artist, musician, singer get yourself listed on Baja and share your work with the world. Gain fans and get listeners.

STUDENT'S CORNER : SUMMER INTERNSHIPS

Web application development

Anushka Verma | 8C1 | 01214802717

Technology: MERN stack (MongoDB, ExpressJS, ReactJS, NodeJS)
Company: Edneed Technology
Project Description:
Edneed is a free global learning platform that empowers students, educators, and institutions of higher learning to create greater opportunities for connectivity and networking within the field of education.
As a full stack web development intern, my responsibilities at EdNeed consisted of working on a live project under the guidance of a mentor. I was assigned numerous tasks and modules throughout the course of the internship. This called for core knowledge of both the client side and server side technologies including but not limited to ReactJS, NodeJS, MongoDB, etc.
Some responsibilities assigned for completion of this project:

- Designing and developing the UI/UX of the modules using ReactJS and Redux.
- Writing code for the client side as well as the server side for the modules.
- Timely submission of the assigned task within a stipulated time frame.

Working on Android App for Patients and Doctors (Both)

Abhishek Jain | 8C12 | 35196402717

Technology: Android
Company: BigOHealth
Project Description:
Healthcare mobile apps are becoming a reality for users interested in keeping their daily activities under control. In the last years, several researchers have investigated the effect of healthcare mobile apps on the life of their users as well as the positive/negative impact they have on the quality of life. Nonetheless, it remains still unclear how users' approach and interact with the developers of those apps. Understanding whether healthcare mobile app users request different features with respect to other applications is important to estimate the alignment between the development process of healthcare apps and the requests of their users.
BigOHealth has made an Android app and Website which sets up online communication between a doctor and a patient. This app is helpful to patients to ask questions and state their concerns to doctors regarding their health condition. This app will facilitate the patients to interact with doctors with a feature for making any physical appointments, the patients have unrestricted access to all doctors. If the patient gets a response from the corresponding doctor, the patient is allowed to send another message. In addition, using this app, the patient can make an appointment to meet the doctor in clinic/hospital.

BigOHealth app also facilitates the patient's pharmacy selection to pick up the medication. Similarly, this app is beneficial to doctors by providing the following functionalities: patient interaction through messaging, sending prescriptions to pharmacies, confirming appointments, information sharing with other doctors, and patient referrals. Unlike other similar kinds of apps in the android play store, BigOHealth has features such as issuing online prescriptions to patients, referring patients to a specialist, sending health tips to patients, and effectively, reducing the cost of customer service and providing a vital communication link between doctors and patients.

STUDENT'S CORNER : SUMMER INTERNSHIPS

Mattress ordering app for dealers

Divyansh Gupta | 8C11 | 00996402717

Technology: Android Studio
Company: KINGKOIL Corporation India
Project Description:
The app is a system for the distributors and individual dealers of the Premium Mattress brand to submit their orders albeit, specifying the custom dimensions of their customers' requirements. On the other end of the spectrum, the company's employees can efficiently pass on these orders without error directly to the production department. Working on the frontend, I was tasked with a number of elements to update as per the company's requirement. Android Studio version 3.6.2 was used to carry out these tasks.
This application allows the user to code either in Java or in Kotlin. However, the work entirely was done in Java. I also learned a number of new ways to layout the elements on the panel which help ease the work in different scenarios. By the time the update of the application was completed, it became an efficient and user-friendly way of putting in orders for the company's distributors, dealers and a hassle-free & error prone technique to collect orders for the company's employees.

FullCircle

Ishita Jindal | 8C12 | 35396402717

Technology: Androids
Company: FullCircle LLC, Atlanta (Online)
Project Description:
Life isn't always easy, there are tons of highs and lows. Sometimes the lows hit hard, but you're not alone.

As many of us have heard and read, the mental health state of millennials and Gen Z is challenged, and many are facing more anxiety, depression, and other mental health issues than previous generations. But millennials are also changing the discussion about mental health as well.

For instance, in a 2015 study conducted by America University, findings revealed that millennials are more likely to discuss mental health than their parents or grandparents. And as more people speak out, the stigma surrounding mental illness is beginning to lessen.

FullCircle aims to build a platform for Gen-Z or for the University Students where making asking for help is easier. The iOS and Android App that is being built currently is under the testing phase. It has been a project started with real-time problems, where students were actually interviewed and user insights were found. Based upon that the User Interface is being built and is supported by universities like Georgia Tech, University of Warwick, and many more. Here's to making asking for help easy!

STUDENT'S CORNER : SUMMER INTERNSHIPS

Gym Management System

Prateek Aggarwal | 8C3 | 04714802717

Technology: Django,HTML/CSS
Company: Espoirsoft PVT. LTD
Project Description:
This project was aimed to solve the current problem of managing gym with less competent staff and delay in several processes. India's fitness industry is growing rapidly since the last few years where health-conscious people are following fitness programs, Gym, Yoga, etc. It's become a trend now. The gym is being a priority for almost all age people which shows their health consciousness. With the huge crowd, many famous Gyms are overloaded with members of all ages. Just like each and every field, technology is a must to manage the business. "Customers are God" & business owners don't want to lose any single customer just for a single small mistake. So, following traditional paperwork seems old fashioned & not sufficient to manage the big number of members.

Small to big Gym owners required best gym management software which is equipped with a plethora of features. The Espo Gym management software seems perfect one solution & first choice of all Gym owners which offers below listed features:

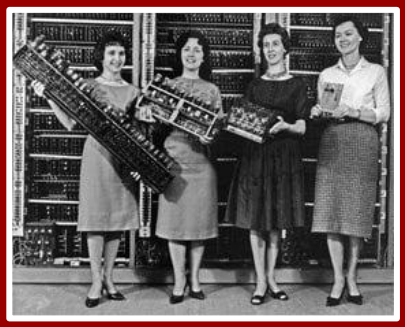
- Members' details
- Instructor details
- Online Payment
- Managing Staff
- Keeping Records of all Machines Instructors
- Daily tips for specific gym member

A lot of responsibilities are there for running an efficient & smooth Gym. Managing staff & members, gym classes, invoices, feedback, online tutoring requires a lot of time & utterly sincere hard work.The Espo Gym management software helps you to deal with all routine challenges. Techy to a non-techy person can easily manage the gym management system at his/her place. If you are a gym owner & don't want to get stuck with numerous tasks at the gym then you must have to find the best fitness management software for your Gym. Make a list of your requirements & find the most effective gym management system.

Computer

The six 'ENIAC Women', Fran Bilas, Jean Bartik, Ruth Lichterman, Kay McNulty, Betty Snyder, and Marlyn Wescoff, programmed the first all-electronic, programmable computer, the ENIAC (Electronic Numerical Integrator and Computer). The women, who were helped to join the field by the labor shortage at the time, had to learn how to program using only logical diagrams, as no programming languages yet existed.

Women Inventors



STUDENT'S CORNER : SUMMER INTERNSHIPS

SaviFi

Anjali Joshi | 8C11 | 00296402717

Technology: Blockchain
Company: Matic Network
Project Description:

We want to address the painstaking job of an investor to research for platforms offering the best interest rates and to be constantly updated with APR volatility for his account holdings on various Defi platforms. Validating the authenticity of these umpteen Defi platforms is another herculean job for a user. This not only requires technical knowledge but also the efforts to keep a track of returns on various lending platforms.

At SaviFi we offer a "One Stop Smart Savings Account" platform that provides the facility to a user to let SaviFi do the job of managing his fund's hassle-free. The objective of SaviFi is to ensure the users get the best returns on their savings. We plan to enable this by automatically toggling the users' funds from one platform to another basis the interest rates being offered across various Defi platforms. All the automatic funds' transfer will be meta-transactions and will not require any interaction with the user. Savifi will act as fund manager of the users' fund and will charge a small fee on the returns made by the end-user

We aim to also incorporate trending methods like Yield farming to leverage on Defi protocols and generate the highest returns for our users. We intend to integrate with all popular Defi platforms on our portal like compound, Aave, Dydx, maker, etc. Basis the interest rate on these platforms we shall shift the users' deposits on the highest return offering platform

For further details please refer our white paper
at-https://drive.google.com/file/d/1VeQa-g64T1_vmTa8CJuYMTsgeGXC26ND/view
Data Dash Infographics

JGames

Garima Arora | 6C7 | 40914802718

Technology: Java-Data structures and Algorithms, Swing and AWT
Company: Coding Blocks
Project Description:

JGames is a mini project which is based on data structures and algorithms. It consists of two games "Block Breaker" and "Tic Tac Toe". They have been developed on eclipse ide using basic java language.

Block Breaker is a game which consists of blocks which are to be destroyed by hitting them with the ball. The player also has to protect his balls from falling by moving the paddle so that ball can bounce back. To make it more enjoyable power boosters have also been added. The power boosters can be used only when it has been caught by moving the paddle to the place where it is falling. The GUI of the game has been made using Swing and the balls, blocks and paddle have been added as image objects, the blocks are visible until they are not destroyed by the ball. ArrayList is the major data structure that has been used to make it, all the objects have been added using the array list by including the java.util.ArrayList class in the code of the game. Tic Tac Toe is a game which everybody is familiar with. It has been developed using Array and ArrayList data structures. The Game Board for tic tac toe has been made using a 2D array. Array is an easy to use data structure and the value can be updated in array in O(1) time complexity as the direct updating is possible by using the index values of the array. The board blocks have been numbered from 1-9 internally and the position at which the player wants to put his mark is taken as an integer input and the X mark is placed at that place.

STUDENT'S CORNER : SUMMER INTERNSHIPS

Data Dash Infographics

Mili Tyagi | 20114802717

Technology: HTML5, CSS, Javascript (ES6), DOM, Scalable Vector Graphics(SVG), Data Driven Documents(D3), GeoJSON, TopoJSON

Company: Online course from Udemy (Advanced Web Developer Bootcamp)

Project Description:

Data Dash Infographics is a dashboard created from scratch using code as a thread between the data and the visualization. It's a graphic visual representation of information, data and knowledge to present information clearly and to improve the human cognition by utilizing graphics to enhance human visual system's ability to see patterns and trends.

It is a platform which makes assessment easier by providing a visual representation of the statistical databases provided by the UN. It includes detailed global systematic assessment of the population for health and social policy and India's standings upto year 2014. It is responsive and dynamic in the way the data updates for a change in the parameter as provided by the user. It makes use of a local http-server. And everything has been coded from a grid line, scale on the axis to the final display of data using animation.

It makes use of the statistical databases provided by data.un.org

The following databases have been used and converted into JSON or CSV files for use:

- country_data.csv – It included the data from 223 countries across the globe
- birthData2011.js – It is a huge dataset as it contains the birthdata of the various countries across the globe
- birthData.js – It also includes the birth data of India from January – December for the years from 1967 to 2014 which makes it a huge dataset.

It makes use of a map which is an advanced type of graph using Mercator projection and gives information about the following parameters for comparison across the globe:

- Population
- Population Density
- Median Age
- Fertility Rate

The dashboard uses different colours to display the value of these different parameters and shows gradient change from a lighter tone to a darker tone for greater values.

It also makes use of a bar graph to display the birthdata for India from year 1967 to year 2014.

It uses a scatter plot and displays the birthdata of various countries across the globe in 2014

STUDENT'S CORNER : SUMMER INTERNSHIPS

Coughing Sound Recognition

Divyam Sinha | 6C3 | 03614802718

Technology: Artificial Intelligence

Company: B-Aegis Life Sciences & Research Private Limited

Project Description:

In the one-month internship programme on Artificial Intelligence Algorithm Development in the Department of Computational Biology at B-Aegis Life Sciences & Research Private Limited, we developed an AI based coughing sound recognition model which can detect Coughing sound in real time.

First: Coughing sound dataset was created by silence removal and segmenting the coughing sound data into 5 second intervals. Unwanted sounds were removed to get a clean dataset.

Second: Coughing sound and noise data, both were mixed to create the final dataset for coughing sound which was capable enough to detect coughing sound even in background noise.

Third: By extracting mfccs features, training a binary classifier with convolutional neural network **(CNN)** and long short-term memory **(LSTM)** with dense layers, the Coughing Sound model was made.

At the end of the project, the model was able to detect coughing sound in real time.

Tech Stack:Google Colab , Pandas, Librosa, Numpy, Keras, python_speech_features

Polling App

Amaan Saifi | 6C1 | 01014802718

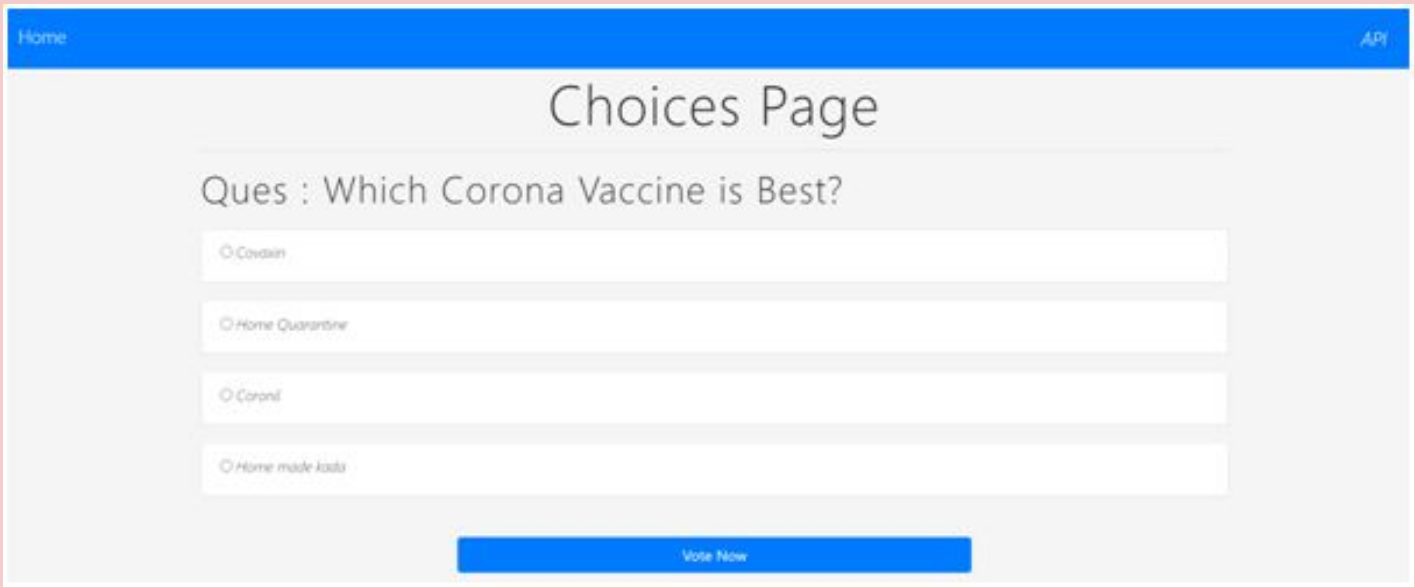
Technology: Django framework

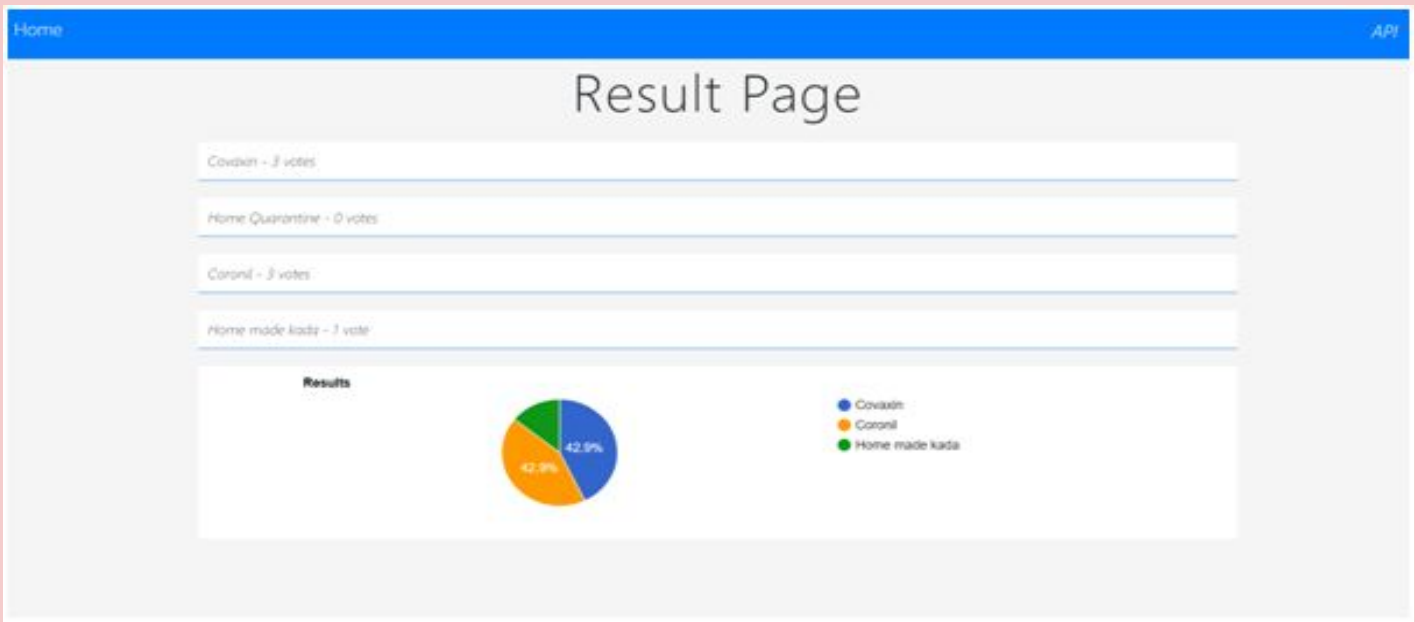
Company: Unique Touch Solutions Pvt. Ltd.

Project Description:

An app made using Django framework which also utilizes HTML and CSS for the betterment of the web page which is shown.
It is a simple app in which the admin can ask for opinions of people on different topics by asking them questions. Each question can have multiple choices. And the answer is recorded at the backend to provide statistics/graph to the user or the admin to find out the percentages of answers provided by the people.
You can also download/reach the api of the data for the page by clicking on the api button.

STUDENT'S CORNER : SUMMER INTERNSHIPS





STUDENT'S CORNER : SUMMER INTERNSHIPS

Data Science with Python

Mihir Sood (06414802718) 6C4

Technology: Python

Company: Coding Blocks

Project Description:

Online course offered by CODING BLOCKS on DATA SCIENCE WITH PYTHON. The technology used was Python.Frameworks: Numpy, Pandas, Sci-kit, Keras, Matplotlib, Scrapy, BeautifulSoup etc.Data science is an interdisciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from many structural and unstructured data. Data science is related to data mining, deep learning and big data.

In this course I learned using Python and the Machine Learning Algorithms and implementing them in real life problems.The Course included the following topics :

Python Introduction:Course contained with basic understanding of logic Flowcharts, Pseudo Code - Python Basics,Python Overview, Control Flow, Data Structures, OOPS and File Handling in Python.

Mathematical Concepts and Data Visualisation:Data visualization is about the presentation of data in a pictorial or graphical format.- Linear Algebra, Probability Distribution & Statistics, Data Visualisation using MATPLOTLIB ,Numpy, Scipy, and Scientific computation with Python,Data Analysis using Pandas, Data Scraping, Handling, Cleaning,Data Acquisition - Web Scraping, Web APIs.

Machine Learning Algorithms - Simple to Advanced Machine Learning Algorithms. Includes all useful traditional supervised and unsupervised algorithms. K-Nearest Neighbour search,K-means clustering,Linear & Logistic Regression, Decision trees and Naive Bayes, Random Forests, Bagging, Vector Machines.

Segmentation and Time Series:Time series analysis comprises methods for analyzing time series data in order to extract meaningful statistics and other characteristics of the data. Subjective Vs Objective, Heuristic Vs. Statistical,Heuristic, Behavioral Segmentation Techniques,Hierarchical Clustering vs Spectral Clustering, Time Series - Components, Time Series - Averages, Smoothening, AR Models.

Deep Learning:Machine Learning topics and algorithms which help you in solving and optimising solutions of lots of real world problems. It included Neural Architectures and Training, Convolutions and the GoogLe Net, Deep learning methods, Recurrent and Combined Architectures, Transfer Learning.

STUDENT'S CORNER : SUMMER INTERNSHIPS

The battle of the neighborhoods: Using K-means clustering for social insights

Harshita Chadha | 6C6 | 35314802718

Technology: Machine learning

Company: IBM via Coursera

Project Description:

Machine learning is a subsection of the artificial intelligence domain that may be defined as the use of algorithms and computational statistics to learn from data without being explicitly programmed. The training and the associated project were completed under the guidelines and timelines associated with the course titled "Machine learning with python" as offered on the online platform Coursera. The course is offered by the multinational corporation IBM and focuses on the accusation of hands-on skills to practically apply complex machine learning concepts to real-world problems. The course material and projects are spread over a duration of six weeks and teach all the relevant skills that one needs to equip themselves with to gain industry-level insights and experience into the field of machine learning. As a conclusion to the training received, a project titled "The battle of the Neighbourhoods" was developed. The project focused on a very common problem: when faced by the possibility of a move, one of the main concerns people have is to find a neighbourhood that meets their standards and is somewhat similar to the area they live in currently so as to have the smoothest transition possible. Although there exist web applications that help find suitable apartments, most of them pay little to no attention to the neighbourhood the rentals are situated in. Thus, the need of the hour is to develop an application that helps users find similar neighbourhoods by using machine learning techniques.

Given the appropriate dataset, the project segmented and clustered similar neighbourhoods in the city of Toronto into groups or clusters of identical properties. Given the location coordinates of the centre of each neighbourhood, the Foursquare API was contacted to collect a list of popular venues from that neighbourhood. Following this machine learning and data science techniques, namely K-means clustering, were applied to arrive at an appropriately grouped data set with cluster labels assigned to each area so that the data can be queried to obtain similar neighbourhoods to a desired one.

The technology stack used comprised of three main components: the Foursquare API, IBM's Watson Studio environment, and python programming language's data science and machine learning package suite. Foursquare is the API service used to obtain the nearby venue data for each neighbourhood given geographical coordinates. Watson studio is an online integrated environment provided via IBM cloud that helps to centrally store all the data relevant to one's data science projects. Python is a multipurpose programming language that is used in its statistical capability for the present project. The use of machine learning oriented computational libraries such as scikit-learn, pandas, seaborn, NumPy, etc was done to obtain insights from the data obtained. In addition to the above technologies, the use of web scraping packages such as beautiful soup was also done to curate the dataset central to the project functioning.

The final finished product is designed to solve the problem of people who faced the prospect of a house move. Using the machine learning utility designed, they can just enter the name of the neighbourhood that they currently live in and a list of top 5 most similar neighbourhoods shall be output by the system.

STUDENT'S CORNER : SUMMER INTERNSHIPS

Hepatitis Mortality Prediction

AMAN OSAN | 6C6 | 35214802718

Technology: Applied Data Science with Python.
Company: Coursera
Project Description:

To predict the mortality rate of Hepatitis C using Machine Learning Algorithms such as KNN,

RandomForest, Logistic Regression.

Frameworks and Libraries used: Scikit-Learn, Pandas, Numpy, Streamlit(for building the application), SQlite3.

The First Part of the Web Application is to have a deeper look at the Data. To do this I have used Matplotlib and Seaborn to plot the data, for example plotting the frequency of mortality, the age group which has been affected the most and the symptoms.

The Second Part of the Web Application is to predict the Mortality rate of the disease which takes into account the symptoms of the person. I have done this by applying all the major machine learning algorithms like KNN, RandomForest, Logistic Regression and other ensemble techniques to get the best result possible.

The Third part was to deploy the project on the WEB, to do this I used the lesser known open-source framework for Machine Learning and Data Science projects.

After building the Applications, I pushed it to github and then Deployed it using heroku CLI on Heroku: https://hepatitis-mortality-pred.herokuapp.com/

Next Steps to improve: The next steps that we can take to improve is to use services like MongoDB (no-SQL database) to store the data and logging the information for further details.

We can also use Apache Kafka for data streaming and making a high performance data pipeline as the data we have grows.

We can also dig a little deeper into machine learning and build Artificial Neural Networks for better accuracies.

STUDENT'S CORNER : SUMMER INTERNSHIPS

Client Website Development

Ishita Arora | 6C6 | 35514802718

Technology: HTML5, CSS, jQuery, JavaScript, Bootstrap 4

Company: Maverick Digital

Project Description:

Designed the UI of a client website.

Responsibilities included client requirements gathering, analysis and design of the website.

The tenure of the internship was for one month. The initial one week, I was trained on web technologies related to the tech stack I would be working on including but not limited to HTML5, CSS3, Bootstrap4, jQuery, JavaScript. During the time of training, mini projects were made to test our skills and teach us version control namely Git.

The major project was allotted at the beginning of the third week which was an online business website for the client, DityaInfracon. My role was to handle the front end. Gathering client requirements, formulating design, holding design meetings, choosing templates and finally building the website from scratch were on my to do list. The front end of the project was completed at the end of the fourth week thus successfully completing my internship.

Live Project Link: https://dityainfracon.com/

Computer Software Women Inventors

Dr Grace Murray Hopper was a computer scientist that invented COBOL which is the first user-friendly business computer software system in the 1940's. She was also a rear admiral in the U.S. navy and the first person to use the term bug in reference to a glitch in a computer system when she literally found a bug (moth) causing problems with her computer.

ALUMNI CORNER : TECHNICAL ARTICLES

How can blockchain technology revolutionise the e-commerce industry?

Niviya Dahiya(06514802715)CSE 2015 BATCH
Kushagr Aggarwal(04914802715)CSE 2015 BATCH

Blockchain technology has become one of the most talked-about technologies in the past few years. Blockchain technology was introduced by an unknown group of persons under the pseudonym Satoshi Nakamoto around ten years ago to develop the cryptocurrency Bitcoin. Blockchain technology has since then seen implementation is not just in the cryptocurrency industry but every other industry worldwide. IT companies like Apple, Facebook, Google, Baidu, Tencent, Logistics companies like Maersk, UPS, FedEx and even conglomerates like Nestle, Walmart, AIA Group, Alibaba group have implemented blockchain technology to optimise their business. The e-commerce industry is a new sale mechanism that has seen tremendous growth in the past two decades. E-commerce has not only provided a massive market to consumer, retail and wholesale conglomerates, but it has also proven to be profitable, easy to establish, maintainable and easy to handle the marketing and sales channel for small scale and medium scale businesses. The development of the e-commerce industry can be judged by the size of companies like Amazon, Flipkart, Walmart, Jio Mart etc., in India as well as all over the world.

Blockchain technology is a system of decentralising the storage of information in such a way that it is virtually impossible to change, hack or cheat the system. Blockchain technology was created by an unknown group of persons under the pseudonym Satoshi Nakamoto around ten years ago to develop the online cryptocurrency Bitcoin. Bitcoin has since then grown to be one of the most expensive currencies and shown tremendous growth, with 1 Bitcoin being worth almost $50,000 during its maximum rise. The numerous applications of Blockchain technology and the popularity of Bitcoin have made other industries realise the importance of blockchain technology and made them realise how blockchain can be helpful against the conventional methods that make use of servers and data warehouses to store data. Companies like Walmart have implemented blockchain technology for their day-to-day operations, which has opened up a new possibility to implement blockchain technology in the retail and e-commerce industry.

Blockchain technology was introduced in the year 2008 with a digital currency, Bitcoin. Its decentralised storage mechanism gives us distributed, immutable, timestamped, secure and programmable data that can be used for any purpose. It gives us higher transparency, enhanced security and easier traceability of any amount of data.

Blockchain can help any industry with its features in the following ways:

- Increased Transparency: Since the data is immutable, i.e. once data is stored in the blockchain, it cannot be changed; it is easier for the companies to make all the transactions public. Making the transactions public adds an added layer of accountability for all the players to act with integrity towards the company's growth.

- Increased Efficiency: Since all the data in Blockchain is decentralised, it removes the need for middlemen, making the system more efficient and less prone to human errors.
- Better Security: Blockchain is far more secure than any other software or technology because any new transaction is encrypted and linked to the previous transaction. The data is then stored in the blocks that are linked or chained to each other through an entry in the ledger. Because of the system of block and chain with encrypted data, the data which goes inside the blockchain is immutable, i.e. cannot be altered and incorruptible, i.e. cannot be lost. Hence all the data is safe from falsifying and hacks.
- Improved Traceability: The ledger maintains a record of all the transactions being recorded and the source of the transactions. Thus any particular transaction can be traced back to its roots. This not only helps in improving security but also helps to verify the authenticity of traded assets.

With the advent of so many e-commerce companies, the competition in this sector is immense. Customers have a wide range of websites or sellers to choose from, who can provide them features like one day-delivery. With competition so high, e-commerce companies face a lot of challenges to stay relevant. Some challenges include:

- Cost of transactions - Many e-commerce companies are based on the old business model, which includes many middlemen for things like transactions. These middlemen charge a high percentage of their earnings as a processing fee, which leaves very little profit for the company.
- Data security - In today's day and age, it has become crucial for e-commerce companies to collect their customers' personal details to provide them with a personalised experience. Along with that, companies also collect the financial details of customers for payment. In the process of data collection, there is a security risk. Therefore, companies have to invest heavily in data encryption and security.
- Intermediary Management - The complete selling process is very complicated for e-commerce companies, and it involves a range of different departments, like - operations, logistics, payment facilitation, supply chain, inventory etc. Maintaining efficient communication among these departments and the intermediaries is also challenging.
- Lack of infrastructure - Many companies don't have sufficient infrastructure for inventory management. To solve this issue, nowadays, companies have to invest in warehouse management systems that help the company optimise their warehouse to be visible, flexible and mobile.

With these various challenges that the e-commerce industry faces along with the increasing competition, exploiting blockchain technology offerings can help any e-commerce platform gain an edge over its competitors. Some of the ways in which implementation of blockchain technology can help an e-commerce platform are as follows:

- Cost-Effective
  One of the challenges discussed above in the e-commerce industry is the added cost companies pay to the payment facilitators as a processing fee. But with blockchain technology led by bitcoin and other cryptocurrencies, companies can transform their payment processes into much more cost-effective digital processes.
- Better Inventory Management
  Among the primary challenges this industry is facing currently is inventory management. Blockchain technology can help solve this issue in the future. Sellers can easily implement it to understand their stock storage and refilling requirements and use them to plan ahead. This way, the e-commerce marketplace will never run out of an item, and the cost of storing an unnecessarily high amount of products will also be minimised.

ALUMNI CORNER : TECHNICAL ARTICLES

- Transparency
  Most e-commerce companies store data from customers like reviews, photos, ratings and so on. This data is only stored with the e-commerce platform, and the individual sellers do not have any access to it. With the use of blockchain, this can be changed, and such helpful data can be made accessible to sellers as well. This will give them real-time feedback on their products, and they can improve their performance using this data.

- Personalised Offerings
  As it has become increasingly important to store personal data on the preferences of customers, it will become easier to do so using blockchain technology. By using this technology, platforms will be able to provide personalised offers like reward points and loyalty discounts to customers.

- Data security
  The daily transactions happening online are increasing exponentially. And this has caused people to leave an unimaginable amount of digital footprints of their transactions. This leaves a major security risk to their personal details like bank account number etc. With the use of blockchain technology, this risk can be mitigated through encryption and digital identities.

- Increased Supply Chain Reliability
  With a significant number of orders being placed, it becomes crucial for retailers to have real-time updates like what items were ordered, when will new stock arrive, etc. Using blockchain can ensure that retailers can easily track their orders and inventory.

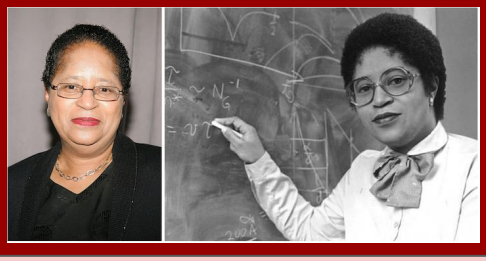
- Easier Warranty Management
  It is very common for sellers to be unable to fulfil warranty coverage requirements because of misplacing the paper receipts of the order. With blockchain technology, all such data like receipts, manufacturer, customer details, order details etc., will be easily accessible online, and there will be no dependence on the paper trail.

Successful technology is one that solves a major real-world problem, and blockchain seems to be doing just that rather successfully since its inception. By solving several significant issues faced by all parties involved in the e-commerce industry, blockchain is breaking ground and is going to change the way one looks at e-commerce. In the years to come, e-commerce would boost economies and provide employment with much ease. But the real question is, with the exponential rate of data increase, will blockchain technology sustain to witness the revolutionization of yet another industry on its account?

Women Inventors

Telecommunications Technology

Dr Shirley Jackson is credited with developing portable fax, touch tone telephone, solar cells, fibre optic cables, and the technology behind caller ID and call waiting.



INDUSTRY EXPERT'S CORNER: TECHNICAL ARTICLES

Emerging Technologies

Kamal Walia
Software Engineer
(VectoScalar)

Technology today is evolving at such a rapid pace, if you look back 30-40 years ago, and people were told about online shopping, social media platforms, self-driving cars, and many more such things – they surely would have made fun of it. But now, as we all know, we're heavily relying upon such technologies like **Amazon, Uber, Facebook, YouTube,** etc.

We've already seen in the last few years that newer technologies like Artificial Intelligence,(AI), Machine Learning(ML), Internet of Things (IoT), etc. have conquered the tech world. This shows how rapidly the technologies are evolving and how important it is to stay aware and updated with the latest technologies that are shaping businesses and careers accordingly. If you are into core programming then you should master at least one of the following languages: JavaScript(ES6 and beyond), Python, Kotlin, Rust, JAVA, and you should have a good grasp of fundamentals of computer programming and Data Structures and Algorithms.

Because these languages are in trend now and if you know these languages then you can excel in technologies like React, React-Native, Django, etc.

If you want to develop skills for ML and AI then you should be really good at maths, believe me if start learning ML and AI directly, then it will be very hard for you to survive in the market because these technologies demands core concepts like Linear Algebra, Multivariate Calculus, Probability Theory. If you are into IoT then let me tell you about the Internet of Behavior also it is extended from the IoT. In simple words, IoB concerns with the **utilization of data and insights to bring a behavioral change.**

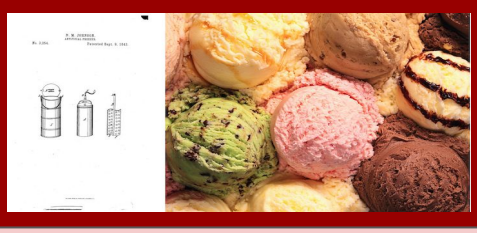
People are increasing their usage of these kinds of devices and there will be a huge amount of data collected every second, with the help of IoB, businesses will be able to monitor consumers & their behaviors and can take advantage of their respective platforms.

For example, a health-tracking application can get the data regarding your physical activity routine, diet, sleep, etc. and this data can be used to bring further behavioral change such as by providing you customized health plans, etc.

The Ice Cream Maker

The ice cream maker was invented by a woman named Nancy Johnson in 1843. Her patented design is still used today!

Women Inventors



INDUSTRY EXPERT'S CORNER: TECHNICAL ARTICLES

Robotics Process Automation

Sumit Kr. Chahal

Deputy Manager, HCL
Noida

RPA (Robotics Process Automation)

In recent years, Organizations are rapidly moving towards technological advancement for their workspace. Industries around the world are turning to automation to become faster and more responsive in the face of increased demand and rapidly changing environments. From handling high volumes of transactional work by digital workforce the increased need in call centres to prepare and allowing a remote workforce, organizations understand the benefits of automating right now.

Remote processing automation solutions give the impression in many business sectors, including financial services, healthcare, human resources, and retail. Robotic process automation tools are widely used for the configuration of task automation.

These tools are essential for automation of the repetitive back-office processes. Employees could get relieved from repetitive tasks and could further add value to organisation.

Main advantage of RPA is that it permits enterprises to automate at low cost and less time compared to previous system. Other than that, it is non-intrusive in nature and controls the existing infrastructure without making disruption to original systems, which would be difficult and costly to replace, which in turn attracts the end users to use RPA systems instead of other systems. It is estimated that more than 50 % of business enterprises have adopted RPA system.

RPA Industry top-performing (Tools) players:

UiPath, Automation Anywhere Inc., NICE, Blue Prism, Celaton Ltd., Pegasystems, Kofax, NTT Advanced Technology Corporation, Redwood Software, Genpact Ltd, Edgeverve, IPsoft Inc, Verint Systems Inc., Xerox Corporation. UiPath, Automation Anywhere Inc., Blue Prism are the market leaders. Power Automate is recently launched by Microsoft with some other bundled application.

Global Market:

The global demand for robotic process automation (RPA) market size in terms of revenue was worth of USD 2715.75 Million in 20-20 and is expected to reach USD 18339.95 Million in 2027, growing at a CAGR of 31.07% from 2020 to 2027. The global robotic process automation industry is expected to grow at significant growth rate due to number of driving beneficial factors.

RPA is a recommended area in Information Technology job market. For any RPA related query feel free to drop me an email at chahal.sumitkumar@Gmail.com

INDUSTRY EXPERT'S CORNER: TECHNICAL ARTICLES

CYBERSECURITY

Amit Bhatia
https://abhatia.net/

The information Technology landscape is now evolving at such a rapid pace that any predictions of the groundbreaking technical trends becomes obsolete within days of publishing it. The evolution of technology itself is fuelling exponential growth which is causing rapid acceleration in new areas and fields which just few years back were assumed to be part of fantasy or fiction.

What we as humans forget or turn a blind eye is towards the inherent security risks comes with the peril of technology. Any of our information which was considered private is not private anymore. Google and facebook would probably know more about us then even our own family members. This is where cybersecurity plays a crucial role in field of IT.

Cybersecurity might not seem like emerging technology, but as new threats are constantly coming up , the field of cybersecurity is also constantly innovation to fight all types of threats evolving The hackers who are trying to illegally access data are not going to give up any time soon, and they will continue to find ways to get through even the toughest security measures. In today's world , its not just for financial gains but political measures as well as national security as well . The latest threat being revealed Cyber-attack on Kudankulam nuclear Power plant in our country

As long as we have threats from hackers having malafide intent, we will have cyber seurcity as an emerging technology because it will constantly evolve to defend against those hackers. However, we're falling short when it comes to filling those jobs. As a result, it's predicted that we will have 3.5 million unfilled cybersecurity jobs by 2021.

There are plenty of options from a beginner to an expert in field of IT if you are interested in cyber security.

Following are some of the Career Paths in Cyber Security

Chief Information Security Officer. Forensic Computer Analyst. Information Security Analyst. Penetration Tester. Security Architect. IT Security Engineer. Security Systems Administrator. IT Security Consultant

Cyber security purpose is to protect the data and integrity of computing assets belonging to or connecting to an organization's network including your iOT based gadgets and smartphones. Its purpose is to defend those assets against all threat actors throughout the entire life cycle.Kill chains, zero-day attacks, ransomware, alert fatigue and budgetary constraints are just a few of the challenges that cyber security professionals face. Cyber security experts need a stronger understanding of these topics and many others, to be able to confront those challenges more effectively.If you are looking to evaluate options as career in field of information technology, then cybersecurity is must to have a look at it.

RESEARCH CORNER: FACULTY PUBLICATIONS

Enhanced Image Restoration by GANs using Game Theory

Anupam Kumar

Publication: Mr. Anupam Kumar," Enhanced Image Restoration by GANs using Game Theory",Procedia Computer Science, June, 2020.

Abstract: We propose a deep learning Generative Adversarial Network (GAN) which has two major components Generator Model in which our network is fed with input data and it attempts to figure out the joint probability distribution of the input data in order to generate more data points using the same distribution. We are using variational autoencoders, class-based generators and other generator models. Second model being Discriminator Model in which the network is a simple classifier model which classifies images produced by generator as either same as target image or different from target image. Throughout the process our aim is to get images from generator closest to target image's probability distribution. This entails a competitive environment between the generator and discriminator. Game theory consists of two important concepts regarding this competition known as Minimax Algorithm and Nash Equilibrium
Using the above two concepts in conjugation with the negative-f divergence loss, we restore images using GANs eliminating the prevalent issue of overfitting among contemporary networks and thereby enhancing the image restoration performance of our GAN network.

Hand Gesture Recognition using Image Processing and Feature Extraction Techniques

Ashish Sharma

Publication: Mr. Ashish Sharma," Hand Gesture Recognition using Image Processing and Feature Extraction Techniques",Procedia Computer Science, July, 2020.

Abstract: Image identification is becoming a crucial step in most of the modern world problem-solving systems. Approaches for image detection, analysis and classification are available in glut, but the difference between such approaches is still arcane. It essential that proper distinctions between such techniques should be interpreted and they should be analyzed. Standard American Sign Language (ASL) images of a person's hand photographed under several different environmental conditions are taken as the dataset. The main aim is to recognize and classify such hand gestures to their correct meaning with the maximum accuracy possible. A novel approach for the same has been proposed and some other widely popular models have compared with it. The different preprocessing techniques used are Histogram of Gradients, Principal Component Analysis, Local Binary Patterns. The novel model is made using canny edge detection, ORB and bag of word technique. The preprocessed data is passed through several classifiers (Random Forests, Support Vector Machines, Naïve Bayes, Logistic Regression, K-Nearest Neighbours, Multilayer Perceptron) to draw effective results. The accuracy of the new models has been found significantly higher than the existing model.

RESEARCH CORNER: FACULTY PUBLICATIONS

Insurance Fraud Identification using Computer Vision and IoT: A Study of Field Fires

Farzil Kidwai

Publication: Mr. Farzil Kidwai," Insurance Fraud Identification using Computer Vision and IoT: A Study of Field Fires",Procedia Computer Science, July, 2020.

Abstract: Insurance fraud detection has always been manual labor relegated to claim agents, who examine the facts and reach on an intuition- based conclusion. The following article proposes an automated solution to regulate the process of fraud detection of field fire-based insurance claims in the agricultural sector. The proposed work is an amalgam of computer vision, deep learning, and Internet of Things and aims to inculcate the positives of each of these technologies. To the best of our knowledge, a combination of the said technologies has never been used for insurance fraud analyses in the field of agriculture, making this a novel approach. The proposed model actively reads the input from the IR and temperature sensors of the IoT device, which further collects images of the field once the sensor values cross their respective thresholds. The collected images are then fed into a fire detection model trained using a variety of classifiers for performance comparisons. The results display that the proposed solution has an accuracy of 97%, which can be further increased with a refined dataset dedicated solely to fraud detection.

QoS-based energy-efficient protocols for wireless sensor network

Neelam Sharma

Publication: Ms. Neelam Sharma,"QoS-based energy-efficient protocols for wireless sensor network",Sustainable Computing: Informatics and Systems, Elsevier, August, 2020.

Abstract: Clustering routing protocols for WSNs have evolved. Indeed, the protocols combine several sensor nodes, and the resultant clusters translate into hierarchical management systems, having integrated the features of different cluster members to the base stations and cluster heads. This study seeks to extend the literature and ensure efficient actions by proposing QoS-based energy-efficient protocols for WSNs, which provide QoS via energy consumption and end-to-end delay. The motivation of the study is to develop a protocol architecture that could extend network lifetimes, balance and reduce the energy consumption of networks, reduce redundancy, and increase information validity and integrity. The MATLAB software is used to perform the simulations. Through multiple time simulations, some of the performance metrics that are analyzed include the percentage of dead nodes, the average energy consumption for each node, the throughput, delay, network lifetime, fraction of alive nodes, and the optimum quantity of CHs in different rounds. Compared to the previous network protocols, it is also evident that the proposed model maintains stability relative to the determination of cluster head optimal values in the respective rounds. Similarly, the protocol outperforms frameworks such as ATEER, EDDEEC, and DEEC relative to the parameters of network throughput and delay, energy efficiency, and network lifetime, proving superior.

RESEARCH CORNER: FACULTY PUBLICATIONS

The Future of the Web

Moolchand Sharma

Abstract: The Web as an interface channel is an ever-changing field. It is a dynamic tech exhibiting transitions all the time in the tech-stack and the technologies. The recent decade has seen tremendous changes and the growing use of web and internet as a communication channel demands for even more changes.This paper describes the current trends in the web development domain and discusses the future scope of the current technologies being used. It explores the web universe, the successes already achieved in the field, and the research that is going on.

Comparison of Various Scale Invariant Crowd Count Analysis Method

Sandeep Tayal

Abstract:A comparison of various scale invariant crowd count analysis methods is conducted. The methods are chosen such that they have the ability to accurately predict crowd count from an arbitrary perspective. An investigation is conducted where their comparison is based on MAE (Mean Absolute Error) and MSE (Mean Squared Error) which are the chosen evaluation metrics and their architecture is discussed. Models are to be assessed based on their performance and subsequent results on the ShanghaiTech Dataset and the UCF-CC-50 Dataset. T. The approach compares a variety of models that utilize Dilated Convolutional Neural Networks, Fully Convolutional Neural Networks and Multi-Scale Convolutional Neural Networks.

Bat-inspired algorithm for feature selection and white blood cell classification

Ashish Khanna

Abstract:We have already seen applications of nature-inspired algorithms to a wide variety of optimization problems. This chapter discusses another field of application which has not quite been explored to great depths yet. . Feature selection, from a bird's eye view, is choosing an optimal subset of features from all features such that it does not hinder the classification accuracy. The chapter concludes with a detailed comparison with other recent nature-inspired algorithms, including the optimized crow search algorithm and the optimized cuttlefish algorithm.

Hybrid computational intelligence for healthcare and disease diagnosis

Deepak Gupta

Abstract:
The word hybrid denotes the combination of two or more methods and computational intelligence refers to the ability of a system to learn a particular module from the given data or experimental observation. As per a real-world scenario, digitalization is moving at an enormous speed in every field of technology. Success is derived from the computational intelligent components such as machine learning, deep neural networks, and artificial intelligence algorithms and techniques. Health care is an accomplished domain, which incorporates advanced decision-making solutions, remote monitoring systems, health care, operational excellence, and recent information systems.

RESEARCH CORNER: STUDENTS PUBLICATIONS

Heart Disease Prediction and Classification Using Machine Learning Algorithms Optimized by Particle Swarm Optimization and Ant Colony Optimization

- Aditya, Lalit, Mantosh Kumar
Undergraduate students, CSE,
Maharaja Agrasen Institute of Technology,Delhi.

Publication: Aditya, Lalit and Mantosh Kumar, "Heart Disease Prediction and Classification Using Machine Learning Algorithms Optimized by Particle Swarm Optimization and Ant Colony Optimization", International Journal for Modern Trends in Science and Technology, 6(12): 426-435, 2020.

Abstract: The prediction of heart disease is one of the areas where machine learning can be implemented. Optimization algorithms have the advantage of dealing with complex non-linear problems with a good flexibility and adaptability. In this paper, we exploited the Fast Correlation-Based Feature Selection (FCBF) method to filter redundant features in order to improve the quality of heart disease classification. Then, we perform a classification based on different classification algorithms such as K-Nearest Neighbour, Support Vector Machine, Naïve Bayes, Random Forest and a Multilayer Perception | Artificial Neural Network optimized by Particle Swarm Optimization (PSO) combined with Ant Colony Optimization (ACO) approaches. The proposed mixed approach is applied to heart disease dataset; the results demonstrate the efficacy and robustness of the proposed hybrid method in processing various types of data for heart disease classification. Therefore, this study examines the different machine learning algorithms and compares the results using different performance measures, i.e. accuracy, precision, recall, f1-score, etc. A maximum classification accuracy of 99.65% using the optimized model proposed by FCBF, PSO and ACO. The results show that the performance of the proposed system is superior to that of the classification technique presented above.

Human Face Generation using Deep Convolution Generative Adversarial Network

- [1]Chaudhary Sarimurrab, [1]Ankita Kesari, [1]Naman, [2]Sudha
1.Undergraduate students,CSE
2.Assistant Professor,CSE
Maharaja Agrasen Institute of Technology,Delhi.

Publication: Chaudhary Sarimurrab, Ankita Kesari, Namn, Sudha ,"Human Face Generation using Deep Convolution Generative Adversarial Network", International Journal for Modern Trends in Science and Technology, Vol. 06, Issue 06, January 2021, pp.-09-15.

Abstract: The Generative Models have gained considerable attention in the field of unsupervised learning via a new and practical framework called Generative Adversarial Networks (GAN) due to its outstanding data generation capability. Many models of GAN have proposed, and several practical applications emerged in various domains of computer vision and machine learning. Despite GAN's excellent success, there are still obstacles to stable training. In this model, we aim to generate human faces through unlabelled data via the help of Deep Convolutional Generative Adversarial Networks. The applications for generating faces are vast in the field of image processing, entertainment, and other such industries. Our resulting model is successfully able to generate human faces from the given un-labelled data and random noise.

RESEARCH CORNER: STUDENTS PUBLICATIONS

Performance Enhancement of 4G LTE Network During Rainy Weather by Bit Error Rate (BER) Reduction

- [1]Daksh Paul, [1]Gaurav, [1]Ishita Jindal, [2]Ashish Sharma
1.Undergraduate students,CSE
2.Assistant Professor,CSE
Maharaja Agrasen Institute of Technology,Delhi.

Publication: Daksh Paul, Gaurav, Ishita Jindal and Ashish Sharma, "Performance Enhancement of 4G LTE Network During Rainy Weather by Bit Error (BER) Reduction", International Journal for Modern Trends in Science and Technology, Vol. 12, Issue 07, December 2020.

Abstract: The prediction of heart disease is one of the areas where machine learning can be implemented. Optimization algorithms have the advantage of dealing with complex non-linear problems with a good flexibility and adaptability. In this paper, we exploited the Fast Correlation-Based Feature Selection (FCBF) method to filter redundant features in order to improve the quality of heart disease classification. Then, we perform a classification based on different classification algorithms such as K-Nearest Neighbour, Support Vector Machine, Naïve Bayes, Random Forest and a Multilayer Perception | Artificial Neural Network optimized by Particle Swarm Optimization (PSO) combined with Ant Colony Optimization (ACO) approaches. The proposed mixed approach is applied to heart disease dataset; the results demonstrate the efficacy and robustness of the proposed hybrid method in processing various types of data for heart disease classification. Therefore, this study examines the different machine learning algorithms and compares the results using different performance measures, i.e. accuracy, precision, recall, f1-score, etc. A maximum classification accuracy of 99.65% using the optimized model proposed by FCBF, PSO and ACO. The results show that the performance of the proposed system is superior to that of the classification technique presented above.

Domain Controlled Title Generation with Human Evolution

- Abdul Waheed, Muskan Goyal, Nimisha Mittal, Deepak Gupta
Maharaja Agrasen Institute of Technology

Publication: Abdul Waheed, Muskan Goyal, Nimisha Mittal, Deepak Gupta, "Domain Controlled Title Generation with Human Evolution",EasyChair, Dec 29 2020

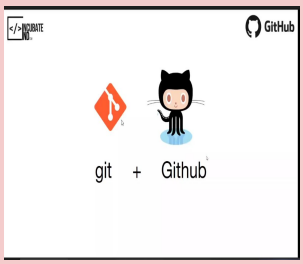
Abstract: We study automatic title generation and present a method for generating domain-controlled titles for scientific articles. A good title allows you to get the attention that your research deserves. A title can be interpreted as a high-compression description of a document containing information on the implemented process. For domain-controlled titles, we used the pre-trained text-to-text transformer model and the additional token technique. Title tokens are sampled from a local distribution (which is a subset of global vocabulary) of the domain-specific vocabulary and not global vocabulary, thereby generating a catchy title and closely linking it to its corresponding abstract. Generated titles looked realistic, convincing, and very close to the ground truth. We have performed automated evaluation and human evaluation to make a comparison between human and machine-generated titles. The titles produced were considered acceptable in human evaluation, thus we concluded that our research proposes a promising method for domain-controlled title generation.

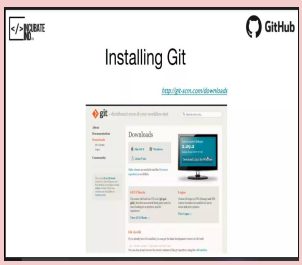
GitHub Workshop and Hackathon (29th - 30th May 2021)

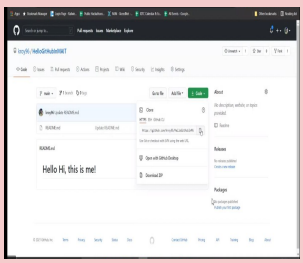
IncubateIND (under Code Innovation Series), in association with **GitHub** and the **CSE department** (Maharaja Agrasen Institute of Technology) conducted a technical session on 28th May, 2021 for the students of the institute. It is followed by a **30-hours hackathon**, beginning from **29th May, 2021** and concluded on **30th May, 2021**. More than **75 teams** (2-4 students per team) attended the session and registered for the hackathon.

The workshop started with words of motivation and wisdom from our esteemed **Director Prof. (Dr) Neelam Sharma**. Speaker of the workshop, **Mr. Kaushik Roy** discussed the importance of using the GitHub platform and how multiple versions can be maintained by the developer on it.

The entire session was very informative and interactive. The IncubateIND team, during the Q & A round, cleared all the queries asked by students and shared some tips regarding the hackathon. More than **200 students** readily participated in the workshop. The workshop ended on a positive note, with the students walking away with an introduction to one of the most versatile and useful platforms on the Internet.







Finally after passing through various levels of rigorous grilling and hard work put in by all the teams the jury came up with the winners as follows (though it was tough to decide the winners):

1. **Winner - Team Galactus**
2. **1st Runner Up - Team Kg Techies**
3. **2nd Runner Up - Team Garuda**

The details of the Winning Team members along with their Project details are as under:

Winner - Team Galactus (Project - HealthVehicle)

Team Members: Shobhit Kumar (Team Leader), Udit Takkar, Sushant Kumar, Uday Mittal

Problem Statement- HealthTech

Motivation of developing this application- They discovered that in the past few weeks when the second wave of the pandemic was at a peak, many patients were unable to reach a hospital in time. They thought about giving them timely help by providing them ambulance facility which will quickly help them to reach a nearby hospital.

GitHub Workshop and Hackathon (29th - 30th May 2021)

Our Project- They developed a web application that works like Uber to connect patients suffering from illness to a nearby ambulance and driver registered on our platform so that they can quickly be taken to the nearest hospital where beds and other resources are available. It also contains a tweets section that will display verified tweets related to various medical resources that can be filtered out using the user's location.

1st Runner Up - Team Kg Techies (Project - CoviChat App)

Team Members: Anuj Dhingra (Team Leader), Arihant Jain, Shivam Singh, Trijal Bhardwaj

Problem Statement- HealthTech

Motivation of developing this application- They found that in the past few weeks when the second wave of the pandemic was at a peak, many patients were unable to find blood and plasma donors. So they thought about giving them timely help by providing them a chat room facility, where the users can join various chat rooms on the CoviChat App to connect with each other and building a great helping community to serve people's needs in these hard times.

Our Project-They developed a full-fledged real-time chat application, CoviChat, based on html, css, js, puppeteer, node.js and socket.io. Firstly, Web Scraping is performed on Tweets sorted using hashtags such as #donor or #covid #need to obtain Twitter userhandles. This scraped data is stored in a json file. Then, each twitter userhandle receives an automated message using puppeteer, containing the joining link to our hosted app. Finally, the user can join various chat rooms on the CoviChat App to connect with each other and building a great helping community to serve people's needs in these hard times.

2nd Runner Up- Team Garuda (Project – Butterfly App)

Team Members: Gauransh Kumar (Team Leader), Satyam Mishra, Aman Kumar

Problem Statement- HealthTech

Motivation of developing this application- They have built Butterfly, a one-stop solution to all Mental Health Problems. Butterfly is an Flutter based android application that helps people live healthy, peaceful, and colorful lives. But most people say that we have a lot of apps like this and they are super cool but still, users don't use them, so to overcome this issue we have created a Feature of Reward System. With this system's help, they will give their users rewards for being more engaged in the community by partnering with companies.

Our Project- All the major features of the App and how they made them are explained as follows:

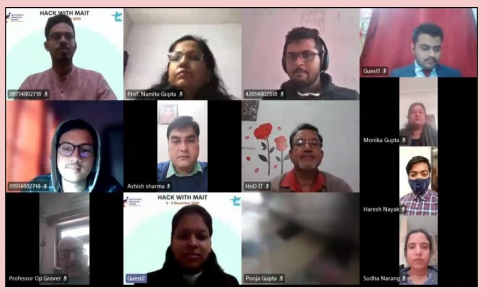
Community: Community is a place where anyone can share their thoughts and we know that this sometimes can be personal so we take privacy as our priority and provides Anonymous Posts. Music: We all know there is nothing better than Music Therapy to get instant calmness, so we have music to soothe your mind.. Appointment: Sometimes people want professional help so to cover them we have included a Doctor's Appointment.. Rewards: For being active in the community and helping others you will get rewards like a free consultation and if wanna share that then that too is just a click away.

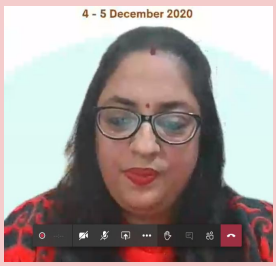
HACK-WITH-MAIT (4th - 5th December 2020)

Hack-with-MAIT, a 24-hour virtual hackathon was organised by **TechCom society**, the official technical society of CSE department of MAIT, in association with IEEE, MAIT.

The hackathon commenced on 4th December, 2020 with the lamp lighting ceremony of which all the dignitaries were a part and an address from **Prof. (Dr.) Neelam Sharma**, Director, MAIT. Respected ma'am encouraged all the participants and guided everyone towards the right direction. The audience also received guidance from **Ms. Ekta Mishra**, Co-founder of Code For Cause, **Ms. Ankita Mishra**, India Community Manager, Progate and from **Mr. Sandeep Singh**, Community Manager, Code Asylum. They gave an insight of the industry and enlightened our audience with the industry-required skills.

Ms. Ankita Mishra, India Community Manager, Progate, also gave an inspiring invited talk on the topic "**Building Brand Community**", after which **Prof. (Dr.) Neelam Sharma** announced the official beginning of the hackathon. As the hackathon phase started, all the qualified participants enthusiastically started working on their projects.





Once 24-hours were up, on 5th December, 2020, the participants were delighted by the invited talk from **Mr. Mohit Uniyal**, Instructor and Product Engineer, Coding Blocks on the topic "**Introduction to ML and Data Science**". Then came the much awaited judging phase. The event witnessed a diverse judge panel where leaders from all the fields put their minds, experiences and knowledge together and scrutinised all the qualified projects. The judges panel included **Mr. Sandeep Nailwal**, Matic Networks, **Mr. Sarthak Jain**, ZS Associates, **Ms. Ankita Mishra**, Progate, **Mr. Sandeep Singh**, Commudle and **Mr. Harshit Singh**, Code Asylum. The judges left no leaf unturned, they cross-questioned and cross-examined the participants on their projects vigorously.

The winners were announced in the prize distribution ceremony held on the same day. Prizes worth **more than Rs. 28,000/-** were won that day. The event concluded with an address from our dignitaries, **Dr. Nand Kishore Garg**, Founder Chairman, MAIT and from Prof. (Dr.) S. S. Deswal, Dean, MAIT.

The event witnessed a staggering virtual footfall of **308 participants**, and every participant walked away with some great memories.

STARTUPS

Ignite Global Ideas LLP

Kamaljot Singh Pannu
35714802716

Ignite Global Ideas LLP is Delhi's premier foreign education consultancy firm. We are a diverse mix of alumni from various foreign universities and experienced educational consultants. This enables us to provide the best possible perspective and advice. We have successfully helped students get into top universities and niche programs across the globe. We specialize in helping students and parents alike make important choices about foreign education and provide a helping hand throughout the application process and beyond. Ignite has helped students to score well in exams like SAT, GRE, GMAT, TOEFL and IELTS

Dineasy

Rohan Srivastava

Dineasy allows its users to quickly lookup crowd status at the Restaurants & Eateries nearby, book not only tables but also food which gives eateries ample time to prepare the orders which means that the user can simply arrive at the restaurant and get served instantly without waiting in that 'hangry' state. Digital menus, order digitally at restaurant etc make the ordering experience quick and easy, Dineasy also dramatically reduces the usage of cash by promoting online and pre-payments for a much smoother and faster experience, the more Dineasy is used the more digital, convenient, hygienic and safe the entire dining process becomes. At present Dineasy is a DPIIT certified startup, recognized by the MCA.

CODES BLACK SERVICES PRIVATE LIMITED

Vaibhav Singhal
41596402716

We are among the fastest growing Digital Marketing Agencies in Delhi. Extending services in almost every Digital Marketing Domain: SEO, SMO, SMM, Website, Web APPS, Applications, Personal Branding.

VISION AND MISSION

- To establish best in class success stories of our clients.
- To work with the top brands in the world.
- Deliver more than expected to our clients.
- Always ADD Uniqueness to every new project we get.

STARTUPS

The Healthy Company

Ackshay Jain
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The Healthy Company is a tech-driven Health & Wellness Brand, looking to enable over 80M Indians & 800M people globally to get fit & fight lifestyle conditions through a combination of AI & bio-science based health foods.

It's end-to-end health plans include a membership to their AI-based Health Coach App + Algae-infused superfoods of the D2C brand. The app platform learns the user's body, lifestyle, problems & taste, devising personal health plans that include meals, workouts & the best curated products from health brands recommended to users as a part of their strategy to lose weight, gain muscle, manage diabetes/thyroid etc. The Healthy Company has helped over 15000 paid users in its first year achieve their health goal (e.g. losing weight, thyroid management etc) through its technology that acts as a personal coach, designing customized goal strategies, diet & workout plans & recommending proprietary products (e.g. The Healthy Company's Lean Bar, Lean Green Tea etc).

Disecto

Manav Mahajan , Aindransushree Ray and Karan Goel

The inspiration behind starting the company is to develop a simplified, fast and secured data anonymization framework. Our aim is to design tools which enable Digital Security without compromising the privacy and confidentiality of the concerned parties. The goal of the company is to help strengthen the security and self-reliability of digital India by enabling responsible and secured use of personal data. Being a bootstrapped startup, they applied for incubation at National Centre of Excellence(NCoE), Govt. of India. They were selected by Data Security Council of India in partnership with Ministry of Electronics & IT, Govt. of India for NCoE. As of January 2021, they are ready with the proof of concept and are currently moving towards development of the minimum viable product (MVP) along with the team expansion.