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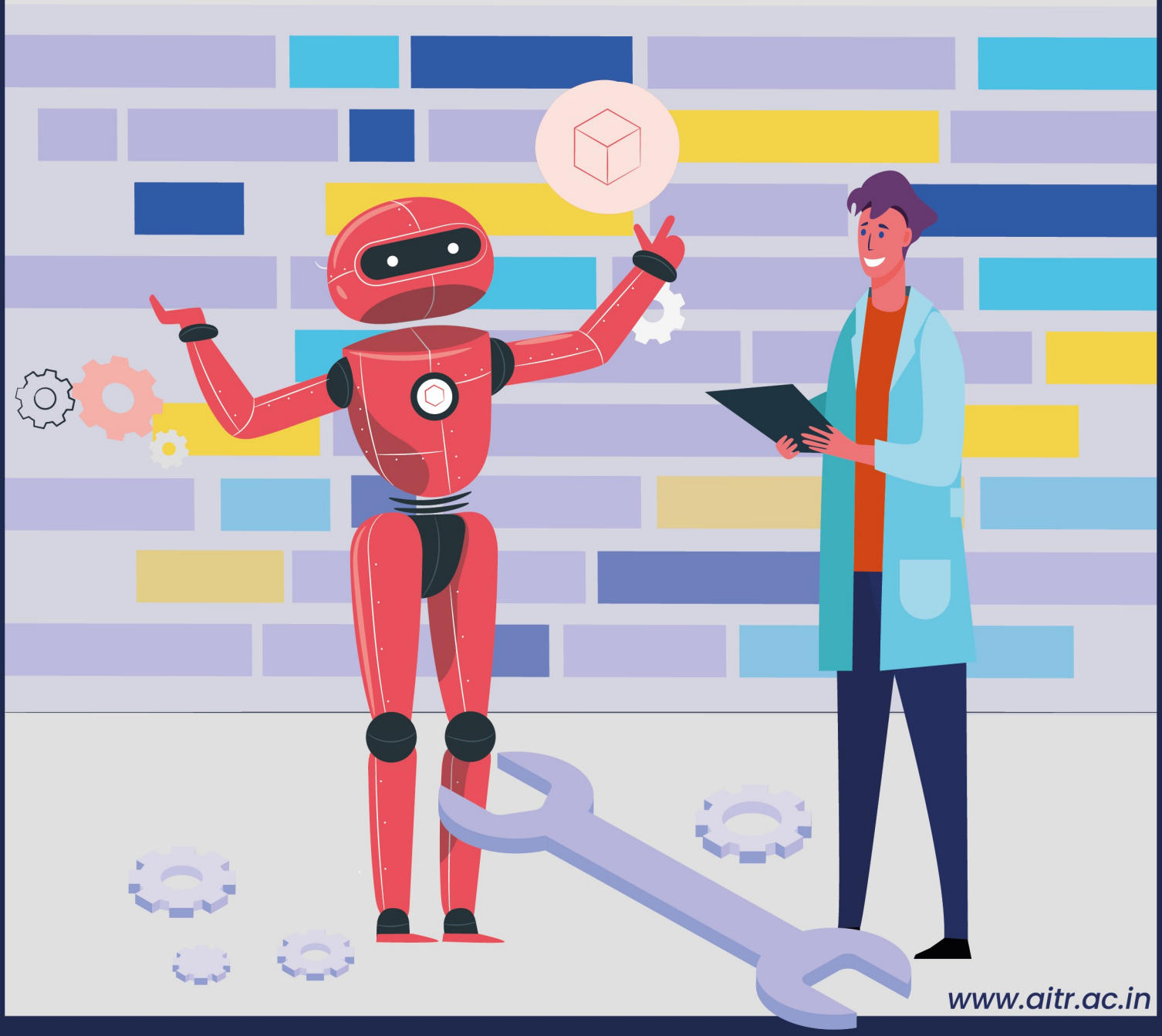
WISSEN

Knowledge Insight

CSE Department Newsletter
Nov 2021



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VISION AND MISSION

VISION OF THE INSTITUTE

To be an academic leader for the development of human potential so as to meet the global challenges.

MISSION OF THE INSTITUTE

1. To create an intellectually stimulating learning environment.
2. To impart value based, innovative and research-oriented education.
3. To develop positive attitude with communication skills.
4. To increase employability and entrepreneurship through collaboration with industries and professional organizations.

VISION OF CSE DEPARTMENT

The department strives to produce competent and qualified computer professionals and researchers to serve the community and profession with moral values and ethics.

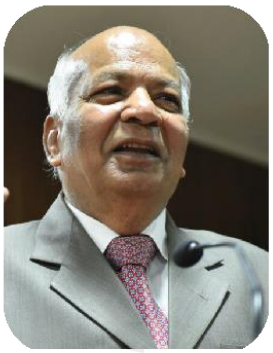
MISSION OF CSE DEPARTMENT

1. To impart professional education emphasizing intellectual ability creation.
2. To provide learning ambience for enhancing innovations, research and values among the students.
3. To collaborate with industries for giving opportunities to students to develop their employability and entrepreneurship skills.
4. To inculcate professional behaviour, positive attitude and communication skills.

From Chairman BOG's Desk

Dear reader,

It is the proud moment for the Institute and CSE Department that they are reconfiguring the departmental newsletter. The newly branded newsletter 'Wissen' shall be designed, drafted, and edited in-house by students piloted by expert faculties, which is mirror reflection of the department's combine efforts and achievements.



I believe that the newsletter will serve as a window through which the complete profile of the academic and co-curricular activities, achievements, progress, artistic and literary work made during the stipulated period can be viewed along with outstanding achievements and ongoing endeavours.

I commend the Editorial board behind this newsletter for their diligent efforts in putting his collection triumphs together. I would like to congratulate Head of the Department for doing a remarkable job.

Ashok Sojatia
Chairman BOG

From Vice Chairman's Desk

Dear reader,

It's a matter of pleasure for me to know that the department of Computer Science and Engineering has come up with departmental newsletter with a new name 'Wissen' where the activities and achievements of the department, its ideas and creations related to academics as well as art will be showcased.

The newsletter is a student led publication under the supervision of the professors of the department. It revolves around the thoughts of the students and faculty members, and their creativity. In this publication, you'll come across many technical articles, art and literary masterpieces in different forms like sketches, poetry, etc.

As you go through the newsletter it will be a journey that will teach, inspire and make you aware of academic activities and amazing artists of the department.

I congratulate the whole team of 'Wissen' for the endeavour.

Prof. M.K. Dube
Vice Chairman

Important Proclamation!!!

Change is inevitable and if it is for betterment, one should welcome it.
Department newsletter CS Connect is rejuvenated and retitled with the name **Wissen**, a German word which means "To know a fact, know when / how". This name perfectly reflects the content of newsletter that is full of knowledge, intellect and talent.

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From Director's Desk

"We cannot always build the future for our youth, but we can build our youth for the future."

-Franklin D. Roosevelt

Excellence is a continuous process and to achieve this excellence incessant efforts blended with hard and smart work are utmost needed. In this era of liberalization, privatization and globalization, students need to be groomed and nurtured in a way that they get equipped with the tools of leadership, interpersonal skills, managerial qualities and above all with a mind replete with a vision and farsightedness to attain it. I am confident that this newsletter will prove to be one of the important strides of the department in this direction.

I am sure the articles and other literary contributions of faculty members and students in this departmental e-newsletter will provide a wide spectrum of useful information to all the readers. The variety of content can also help the students to further explore their respective areas of interests and to prepare themselves to combat the professional and personal challenges with confidence and ethics.

I congratulate the entire editorial team for their sincere efforts on the release of the latest edition of such an insightful newsletter.

Dr. S. C. Sharma
Director, AITR

From HOD's Desk

Persistence is the key to success, and achievements are the results of hard work and sincere efforts. In the journey to your goal, it is not counted how many times you have fallen; important is how rapidly and strongly you cope up which determine your destiny. It is a matter of pride to bring before our readers the first issue of rejuvenated department newsletter "Wissen" which means to know or to be familiar with. Here we are relating the word Wissen to bring in notice or to tell the readers about all the activities happened in the department. It showcases amazing contribution made by all the students of CSE Department in their field of expertise. The Wissen will be circulated among all the students, alumni and faculty members to ignite zeal to attain the department vision and individual goal.

Congratulations to all the final year students who have got selected in placement drives and better luck to the students who are still striving for their chance. They will certainly turn the table. As opportunities are waiting for you, start participating in Competitive Programming (CP) and get world-class exposure right now, right here. If you dream to be a part of the world's best IT companies, master CP, start solving atleast one problem daily.

I would like to extend my sincere gratitude to our Chairman BOG Shri Ashok Sojatia, Vice Chairman Prof. M.K. Dube, and Director Dr. S.C. Sharma for their ongoing support and well wishes in this endeavour. I would like to congratulate and thank entire department faculty members for their sincere efforts in uplifting the students and taking the department to the pinnacle of excellence.

Dr. Kamal K Sethi
Editor in Chief & HOD, CSE

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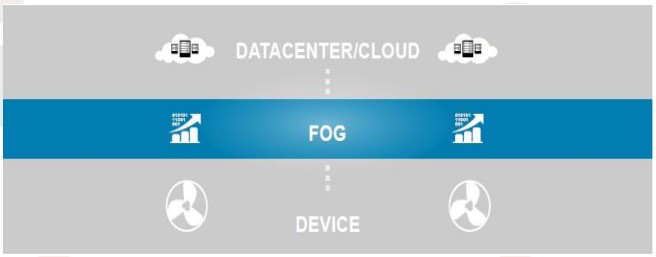
Fog Computing: Extend the Cloud to the Things

- Dr. Santosh Varshney, Professor

The fog extends the cloud to be closer to the things that produce and act on IoT data (Figure 1). These devices, called fog nodes, can be deployed anywhere with a network connection: on a factory floor, on top of a power pole, alongside a railway track, in a vehicle, or on an oil rig. Any device with computing, storage and network connectivity can be a fog node. Examples include industrial controllers, switches, routers, embedded servers and video surveillance cameras.

IDC FutureScape in a worldwide Internet of Things predictions estimates that the amount of data analysed on devices that are physically close to the Internet of Things is approaching more than 40 percent. There is good reason, analysing IoT data close to where it is collected minimizes latency.

It offloads gigabytes of network traffic from the core network, and it keeps sensitive data inside the network. Analysing IoT data close to where it is collected minimizes latency. It offloads gigabytes of network traffic from the core network. And it keeps sensitive data inside the network.



Examples of Fog Applications:

Fog applications are as diverse as the Internet of Things itself. What they have in common is monitoring or analysing real-time data from network-connected things and then initiating an action. The action can involve machine-to-machine (M2M) communications or human-machine interaction (HMI). Examples include locking a door, changing equipment settings, applying the brakes on a train, zooming a video camera, opening a valve in response to a pressure reading, creating a bar chart or sending an alert to a technician to make a preventive repair. The possibilities are unlimited.

Production fog applications are rapidly proliferating in manufacturing, oil and gas, utilities, transportation, mining and public sector.

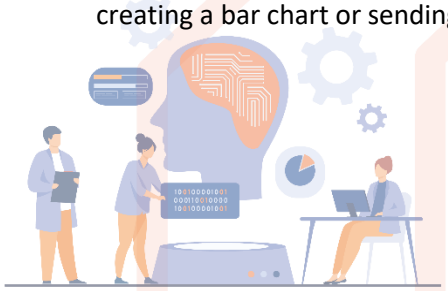
When to Consider Fog Computing:

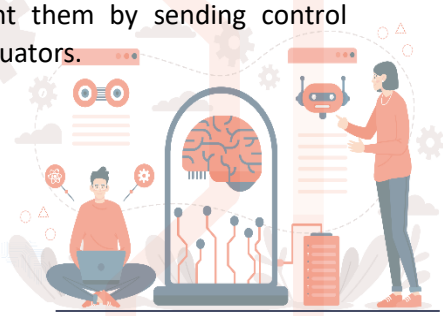
- Data is collected at the extreme edge: vehicles, ships, factory floors, roadways, railways etc.
- Thousands or millions of things across a large geographic area are generating data.
- It is necessary to analyse and act on the data in less than a second.

How Does Fog Work?

Developers either port or write IoT applications for fog nodes at the network edge. The fog nodes closest to the network edge ingest the data from IoT devices. Then—and this is crucial—the fog IoT application directs different types of data to the optimal place for analysis.

- The most time-sensitive data is analysed on the fog node closest to the things generating the data. In a Cisco Smart Grid distribution network, for example, the most time-sensitive requirement is to verify that protection and control loops are operating properly. Therefore, the fog nodes closest to the grid sensors can look for signs of problems and then prevent them by sending control commands to actuators.





- Data that can wait seconds or minutes for action is passed along to an aggregation node for analysis and action. In the Smart Grid example, each substation might have its own aggregation node that reports the operational status of each downstream feeder and lateral.
- Data that is less time sensitive is sent to the cloud for historical analysis, big data analytics and long-term storage. For example, each of thousands or hundreds of thousands of fog nodes might send periodic summaries of grid data to the cloud for historical analysis and storage.

What Happens in the Fog and the Cloud?

Fog nodes:

- Receive feeds from IoT devices using any protocol, in real time.
- Run IoT-enabled applications for real-time control and analytics, with millisecond response time.
- Provide transient storage, often 1–2 hours.
- Send periodic data summaries to the cloud.

The cloud platform:

- Receives and aggregates data summaries from many fog nodes.
- Performs analysis on the IoT data and data from other sources to gain business insight.
- Can send new application rules to the fog nodes based on these insights.

Benefits of Fog Computing:

Extending the cloud closer to the things that generate and act on data benefits the business in the following ways:

- **Greater business agility:** With the right tools, developers can quickly develop fog applications and deploy them where needed. Machine manufacturers can offer MaaS to their customers. Fog applications program the machine to operate in the way each customer needs.
- **Better security:** Protect your fog nodes using the same policy, controls and procedures you use in other parts of your IT environment. Use the same physical security and cybersecurity solutions.
- **Deeper insights, with privacy control:** Analyse sensitive data locally instead of sending it to the cloud for analysis. Your IT team can monitor and control the devices that collect, analyse and store data.
- **Lower operating expense:** Conserve network bandwidth by processing selected data locally instead of sending it to the cloud for analysis.

Conclusion:

Fog computing gives the cloud a companion to handle the two Exabytes of data generated daily from the Internet of Things. Processing data closer to where it is produced and needed solves the challenges of exploding data volume, variety and velocity.

Fog computing accelerates awareness and response to events by eliminating a round trip to the cloud for analysis. It avoids the need for costly bandwidth additions by offloading gigabytes of network traffic from the core network. It also protects sensitive IoT data by analysing it inside company walls. Ultimately, organizations that adopt fog computing gain deeper and faster insights, leading to increased business agility, higher service levels and improved safety.

The Presence of Massive Open Online Courses

- Dr. Praveen Bhanodia, Professor

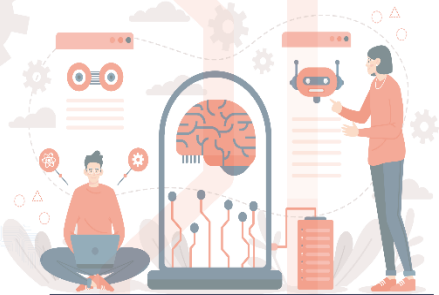
With the advent of technology and internet outreach education has moved to the next generation in recent years. Massive open online courses (Moocs) are one of the major trends amongst one of the tools that has brought change in the trends particularly in higher education. MOOCS represents open access, global, free, video-based, web-based instructional content exchange online platform catering a large volume of participants aiming to top up their education qualification by taking up courses of their interest. The unique feature of MOOCS courses is it provides learning and certifications with time and flexibility irrespective of the demographic limitations. There are various platforms where relevant courses are available such as NPTEL, Coursera, Edx, Udamy, LinkedIn and many more. NPTEL (National Program for Technology Enhancement Learning) offers online certification programs in a spectrum of technical courses endorsed by IITs and IISc Bangalore.

Many moocs provide virtual classroom platforms where thousands of peer students can participate in live interaction with the real instructors also.

Students may take up courses of their choice and interest offered by a lot of universities. The most popular ones are listed here.

1. NPTEL
2. edX
3. Udemy
4. Udacity
5. Futurelearn
6. Sawayam
7. Kadenze

Without an age barrier, learners can look forward to MOOCs to top up and boost their knowledge in a variety of areas like a mechanical engineer who also wants to become a data scientist, he can do this without sacrificing his or her routine jobs. It also caters to students who due to any economical bottleneck may not have access to educational institutions or otherwise. MOOCS are not the replacement of traditional degree programs in fact these courses can complement the traditional university teaching learning practices.



How to Write SEO Friendly Blog

- Ms. Shaifali Shrivastav, Asst. Professor

SEO (Search Engine Optimization) is one of the important factors which directly affect the ranking of any blog in search engines. Many bloggers basically don't care about SEO, they just go with the flow and choose a search engine responsive theme and publish their article.

Higher search engine ranking not only depends on the blog theme, but majorly on the title of the blog post. It may happen that some of your articles get popular and some not.

Have you ever noticed why only a few articles are well liked in your blog? It's because with or without knowledge, you might have kept a search engine friendly post title for those articles.

One thumb rule is that you should include keywords in the post title and most of the writers make mistakes by just adding keywords and not optimizing it further.

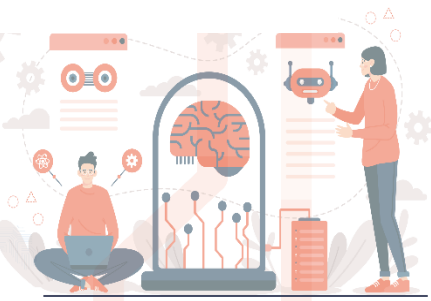
Now we are going to see the exact steps that you need to follow when writing an article to make an optimized blog post.

No doubt SEO friendly titles are important for better search engine ranking, but your article should be attractive enough, otherwise nobody will open it from the search engine.

In this article, I am going to discuss "How to write an SEO friendly blog", and you will come to know how to get more blog traffic.

Analyzing the keywords of the article

Analyzing the keywords is basically the first step to write SEO friendly titles. You can think about titles by yourself or find them online from the data that is available for making this task easier and smoother. When you use any of the tools, and probably check the competition, the number of results appear, on analyzing this you will come to know what should be the keyword for getting more blog traffic.



Think before you write

The content should be attractive and relatable enough so that the readers can directly link their needs with your article. The purpose of the article should be clear and don't forget to mention the learnings that the reader's going to receive at the end of the article. The complete gist of your article should be clear in one shot so that the whole article is read with interest.

Structure of your blog

You should create a proper structure like a powerful introduction, a descriptive body and a brief conclusion. The structure is something you must keep in mind after keyword selection.

Make use of paragraph

Every paragraph must have a different motive. You must avoid the ones that have similar content because newness is what makes the blog fascinating. Analyze the main idea of each paragraph before writing and put your thoughts in a nutshell using crisp content.

Make use of headings

Headings are the most important part because of readability and at the same time SEO heading helps any search engine to grasp the long content and thus increase your ranking. If you want individuals to find their way in your blog you can also add subheadings. These will help individuals to scan your article and make the entire structure cleaner. Make sure that the keywords which I have described in the beginning should be the part of subheading.

Make use of signal words

Signal words help to grasp the idea of any article in a quick shot. No one can get the main idea by the word itself. Signal words should be promising for the reader to get engrossed in the article.

Knowledge gathering

Let some people read your post before publishing, discuss it and work on it based on the feedback received.

Length of the article should be compact

Your article should be qualitative not quantitative, it means it should not be too long to scare the readers. Also use the search term 3 to 6 times in your article.

Add the content on daily basis

Adding regular content in your blog might help you to sustain your page ranking to a great extent.

Writing is a skill; you just need to know how to present it!!!!!!!!!!!!

Artificial Intelligence for Big Data

- Kajal Sunhare, CSE, III year

"Predicting the future isn't magic, it's artificial intelligence." -Dev Waters

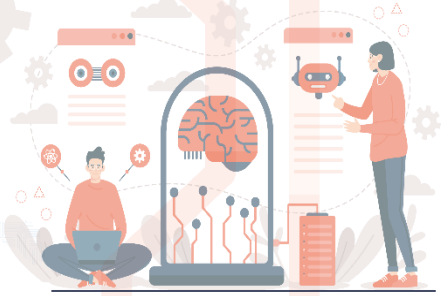
Artificial intelligence (AI) is a broad field of computer science that involves building intelligent machines that can perform tasks that normally require human intelligence. AI is a technology that is changing every aspect of life and is a comprehensive tool that lets people rethink how to integrate information, analyze data, and use the insights gained to improve decision making. Now when, where, and how was AI introduced?

"Artificial Intelligence" was first introduced by "John McCarthy" at the Dartmouth Conference in 1956, decades ago. He defined AI as a science and technology used in the manufacture of intelligent machines. More importantly, AI is a technology that makes machines work and behave like humans. However, many AI applications are not rated as AI because they are often seen only as robots. But the truth is different. AI has found a way into our daily lives and has become so common that we are not even aware that we are always using it.

Now let us try to understand what big data actually is. Today, everyone uses smartphones 24/7, around the world. But have you ever wondered how much data is generated in the form of text, video, email, search, music, phone, etc.? One smartphone user around the world generates about 40 EB (exabytes) of data every month. By multiplying this huge amount of data by the total population of the world, we get 40 exabytes x 7,000,000,000 (current world population), which is an unimaginable amount of data. In fact, this vast amount of data is too large to be processed by traditional computer systems. And so, this massive quantity of data is termed "Big Data". Around 3.8 million search queries have been made per minute on google and 188 million emails have been sent/received, all over the internet. Big data is most undoubtedly here to stay at this point and AI will surely be in high demand for the foreseeable future.

Data and AI are merging into a synergistic relationship where AI is useless without data and understanding data is invincible without AI. By merging the two disciplines, we can begin to predict upcoming trends in business, technology, commerce, entertainment, social networks and everything in between. Because we all know the power of the Internet. That is, it provides a level of concrete information about your habits, likes and dislikes, activities, and personal preferences that was almost impossible 10 years ago. Social media accounts and online profiles, social activities, and customer relationship management (CRM) systems add potentially insightful data to big data pools. One of the greatest strengths of AI is its ability to learn. The ability to identify data trends is only useful if you can adapt to changes and fluctuations in data trends. The ability of AI to work well with data analytics is the main reason why Artificial Intelligence and Big Data seem inseparable today. According to Forbes, the combination of AI and Big Data can automate nearly 80% of all physical tasks, 70% of data processing tasks, and 64% of data collection tasks, according to the latest research. This is very important in today's scenario. This shows that this powerful combination of AI and Big Data can have a significant impact on the workplace, in addition to contributing to marketing and business.

Artificial intelligence and Big Data can work together to achieve more in the near future. First, feed the data to the AI engine to make it smarter. Second, it requires less human intervention for AI to properly complete its execution. And finally, the fewer AI people need to manipulate it, the closer society is to maximize the potential of this ongoing AI / Big Data cycle. This evolution of AI for Big Data certainly requires the involvement of people trained in data analysis and AI algorithm programming.



New Era of Design with Vector Graphics

- Alankar Jamle, CSE, III year

Over the past decade, web applications have grown in popularity as the standards for high-quality UX (user experience) and UI (user interface) are raised. We collectively call it as Front-end of an Application. When we say Front-end what comes to our mind is HTML, CSS and JavaScript, because these are the building blocks of every page. If we further take a look into the frameworks and libraries we would find a lot of them like Vue.Js, Angular, React, etc. and they make it efficient to structure and manipulate the elements created using HTML and CSS.

Designing with these languages goes well but up to a certain limit. As the complexity of these designs increases the difficulty also increases exponentially, and it's not possible to put every complex design as a result of one's creativity into a webpage using just the codes.

Today, we see a number of web applications using dynamic designs, 3D elements and animations which look so magical and extremely difficult to create with just code. Well, the magician behind this is 'Scalable vector graphics' or 'SVG'. Unlike Raster graphics like jpg, png, etc., which are made up of a fixed number of pixels, vector graphics are actually made up of mathematical commands or code. But what's so great about it?

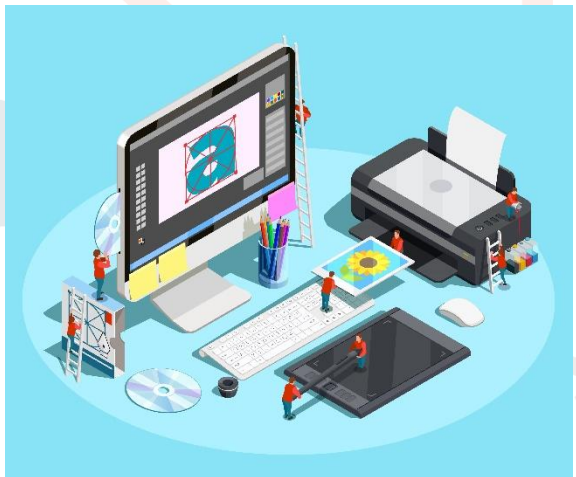
As the name suggests, it is scalable, that is, no matter how much it is enlarged, it will not lose its quality, unlike the raster graphics which become pixelated on zooming. It's made up of code, so the size of an SVG file is very small and thus it loads faster on the web page. But these are all small perks, do you know what is the biggest benefit of SVG for a Front-End developer?

Suppose you want to make a complex logo on a webpage. You can use HTML, CSS and JS to do that but it's not at all practical and efficient. Here you can easily create this image using any SVG editing software such as Adobe Illustrator or Inkscape and save it as an SVG file. Now that your file is made up of code, you can easily open and edit it in any IDE or text editor.

It is made of easy-to-understand code and guess what? You can access and edit this code using HTML, CSS, and JavaScript!

So, if your layout contains multiple elements, unlike a JPG or PNG file, this is where you can change colors, shapes, transitions, animations, and everything possible for each of the elements, just like normal HTML and CSS elements.

Simply paste your SVG file code as inline HTML and create extraordinary designs, logos, animations, 3D models and a lot more.



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Not Every Artificial Thing Is Bad

- Dhruv Soni, CSE, II year

"Hey, Siri" are you an AI?

No, everyone has the false idea that Siri is an Artificial Intelligence or AI. So what is Siri? And if Siri is not Artificial Intelligence, then what is artificial intelligence? Siri is a system that uses Artificial Intelligence rather than pure AI. Many systems use Artificial Intelligence such as Siri, Google Assistant, Alexa (conversational AI) and many more. Now, what is artificial intelligence?

Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind. In artificial intelligence we humans make a system act and think like us.

Artificial intelligence (AI) makes it possible for machines to learn from experience, adapt to new inputs, and perform human-like tasks. From chess computers to self-driving cars, most of the AI examples we hear today rely heavily on deep learning and natural language processing.

These technologies can be used to train computers to perform specific tasks by processing large amounts of data and recognizing patterns in the data.

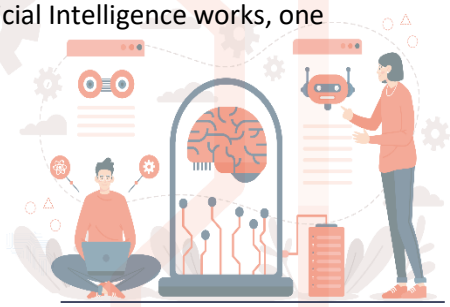
There are two forms of AI:

1. Weak AI (also known as narrow AI or artificial intelligence (ANI)) is an AI trained with a focus on performing specific tasks. Weak AI powers most of the AI that surrounds us today. "Narrow" could be a more accurate description of this type of AI. This is because it is far from weak. This enables highly robust applications such as Apple's Siri, Amazon's Alexa, IBM Watson, and self-driving cars.

2. Powerful AI consists of Artificial General Intelligence (AGI) and Artificial Super Intelligence (ASI). Artificial general intelligence (AGI), or general AI, is a theoretical form of AI in which machines have human-like intelligence; it would have a self-aware consciousness that can solve problems, learn, and plan for the future. Artificial Super Intelligence (ASI) (also known as super-intelligence) surpasses the intelligence and function of the human brain. While strong AI is still entirely theoretical with no practical examples in use today, that doesn't mean that AI researchers aren't even studying its development. On the other hand, the best example of ASI could come from science fiction like HAL, a superhuman and rogue computer assistant in 2001: A Space Odyssey.

How does the AI work?

To understand how Artificial Intelligence works, one



needs to dig deeper into the different sub-domains of Artificial Intelligence and understand how those domains could be applied to the various fields of the industry.

These domains include Machine learning, Deep Learning, Neural Networks, Natural Language Processing, Computer Vision, Cognitive Computing.

A point that arrives every time in our mind is that “AI will displace humans and make contact center work obsolete". So, is it true that AI poses a threat to human employment?

The answer is no. AI is no different from other technological advances in that it helps people become more effective and make their processes more efficient. Artificial Intelligence improves the speed, accuracy, and effectiveness of human efforts.

Today, I won't touch on the usual things about AI that everyone knows, but I'll tell you some unusual facts that you didn't know are unknowingly about AI =)

1. AI pets exist: If you are a pet lover and don't have much time and patience to take care of a real animal, then AI have a solution for you. AI pets are robots that look, feel, and act like real animals, but eliminate the problems their owners face.
2. Most AI bots are female. Many AI bots, such as Siri, Alexa, and Google Assistant, provide output in a comfortable and polite female voice.
3. AI recognizes emotions: manufactured in the late 1990s, a robot named Kismet can recognize emotions through the language and sound of the human body.
4. AI can repair itself: A robot that rebuilt itself after noticing performance sank after losing two of its six legs. The robot didn't know what the problem was, but it was fixed by trial and error.

AI has many applications, such as games, speech recognition, natural language understanding, computer vision and many more.

If a machine can successfully pretend to be a human to a knowledgeable observer, we conclude that you should certainly consider it intelligent. AI systems are routinely used today in a variety of areas such as business, medical, engineering, and military, and are used in many popular home computer software applications, traditional strategy games, and more.

AI is an exciting and rewarding discipline. AI is a branch of computer science that is concerned with the automation of intelligent movements. A revised definition of AI can be-AI is a study of the mechanisms underlying intelligent behaviour through the construction and evaluation of artifacts that seek to activate these mechanisms. From this, it can be concluded that it functions like an artificial human brain with incredible artificial thinking power.

Machine Learning in Cloud Computing

- Vivek Sharma, CSE, II year

Introduction and models

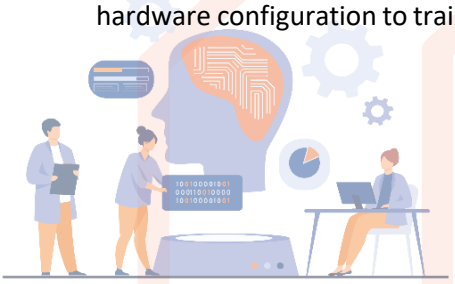
In this article, we're going to learn about machine learning and how it's better in the cloud. But first, let's start with programming. Functions are a fundamental unit of programming. They convert input into the desired output. These things are easy to make and test with just one person on them, but it becomes harder when more people are involved and a larger set of folks rely on what is made. The cloud has made it easier to program these things from shared development with source control, builds, testing, monitoring and automated deployments with DevOps. Now just like regular programming models are the basic unit of machine learning. These models are the result of machine learning. Train models are exactly like functions. They convert input into the desired result. For example, give it a picture and it says horse, give it an audio file and give it an audio file and you might get the text of what was said. However, instead of programming models though we need to train them with existing data. So, let's talk about building and training these models. Making machine learning models can sometimes be more of an art than a science. They're not magically produced. You need to start with a sharp question and data that well in theory could answer that question. Generally, the more data available the better the model can be.

With cloud services like GitHub, managing code has become second nature to developers. These innovations also apply to machine learning practitioners. Your code is safe if you're using GitHub. Let's talk about computer environments. Environments include both the software and the hardware configuration to train these models. The cool thing about Azure Machine Learning is that it stores the notion of environments as an artefact. These named environment scans are shared or reused, this helps a lot again with reproducibility. Environments can then be used to train or even deploy models both locally and in the cloud.

Cloud in machine learning

With cloud-scale computing, the hardware environment can scale both vertically and horizontally to minimize training time and to make it easier for people to use their models in production. Now let's talk about some responsibility here. Part of the responsibility of making models is making sure they are ethical. From a responsible machine learning perspective, there are three things we need to do with models. We need to understand what they're doing, we need to protect people's data and how it is being used by the models and we need to control what's going on. Let's talk about understanding them.

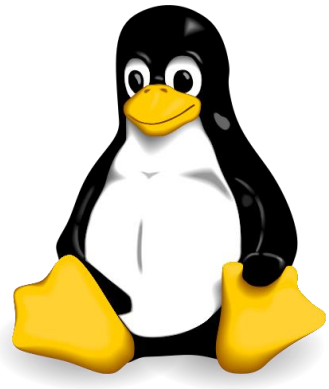
Azure machine learning helps us understand models using built-in model interoperable capabilities as well



as fairness assessment and mitigation capabilities. Azure machine learning supports differential privacy that enables folks to build machine learning models using sensitive data while safeguarding the privacy of an individual. And now managing models or controlling them similar to how we manage binaries is also easy in Azure Machine Learning. Each asset can be individually numbered and tagged to give user a clear idea of what folks are using in production. This includes lineage to the exact training run to the version of the dataset used to generate the model. Inexpensive infrastructure is also available to quickly deploy and test a containerized version of the model. Speaking of deploying, managing how models are deployed can often be difficult process issues, including serving frameworks, availability, scalability and hardware management of machine learning services can be time-consuming. The cloud manages all these concerns as services that are consumed by built-in kubernetes. Server clusters can be deployed and instantiated easily with the click of a button. Deployment of services is handled by the Azure Machine Learning service. Scaling is also built-in with GPU enabled services. Now a word about GPU's, GPU's make model training much faster as well as serving much faster. You should try using them. Monitoring models in production can be thought of from two perspectives: monitoring from serving infrastructure and monitoring of the inference data, looking from the outside and the inside. Now let's get to know about serving. With the cloud, you can monitor things like output data responses, request rates, response times and failure rates and exceptions without any effort. Now on the inside of the model, with machine learning models, it is also useful to monitor the data that is passed into the services to answer important questions regarding some of the model assumptions that are learned from existing data. Once the collection is enabled, you can monitor for data drift, analyze collected data using Power BI or Azure Data bricks and you can make better decisions about when to retrain or optimize your model. And you can even retrain your model with the collected data. Let's talk about the whole end-to-end process and go into a little bit of a summary. At every point in the process of providing value with machine learning, the cloud also adds amazing value. One final area where the cloud excels is in automating the entire end-to-end process with some of the MLOps best practices. With services like GitHub actions or Azure, DevOps practitioners can automate any portion of this entire process to provide a smooth-to-end model training, validation, deployment as well as process to monitor. Simple automation examples include retraining models when the code changes, data drift is detected or simply even on a schedule. If you want your machines to work on Saturdays, they don't care. Machine learning has changed the way we look at complex problems and the cloud has simplified and enhanced the process of increasing the pace of innovation in the space. And that's all for the time being. Today you have seen how machine learning and the cloud are better together, especially with Azure Machine Learning.

7 Things I Love About Linux

- Aditya Pawar, CSE, III year



Hey there! I hope that you all are doing great in your life. I am quite sure that you might be reading this article while on your bed or just lying on your sofa.

So let's get started with the reasons I love Linux:

1. The terminal:- the terminal gives you the ultimate feeling of joy to showcase your typing skills in front of your old grandma (It seems fun until your grandma beats you in the typing test *sigh*).
Using the terminal is so easy that it beats the GUI clicks and presses, want to download python via terminal just type sudo apt install python3.8, wait, it comes with build in python so no worries.

2. It's free:- Yes you heard it right, it's free with no hidden cost and guess what some free software are also included (*cough apple cough*)

3. Run windows applications on Linux :- If you are using the Ubuntu OS then viola you can run the windows
apps and games seamlessly over your Linux kernel. In order to do that, go on to the terminal and type sudo apt purge winehq-stable, it will install the wine in the terminal and guess it's full form, WINE Is Not an Emulator.

4. It can run on almost any hardware:- Linux is very lightweight. It takes much less resources on a PC than Windows. Linux is also known for working well on very old machines. I've personally taken old Windows laptops that were ready for the trash compactor and installed Linux on them, breathing into them new life and functionality. That's not to say Linux is only good for old machines! Most super computers nowadays run Linux because it's lightweight and fast. So next time don't be surprised if you found some random dude running Linux over the Casio Calculator.

5. Lots of Software:- Software is readily available and super easy to install. You can install right from the terminal or most big distrOS have an AppStore-like software manager that allows you to install software from the GUI. There are tons of games, productivity apps, and more. Some of it is great and some of it kinda sucks, but you have the choice!

6. It's Open Source:- Oh yeah! It is open sourced so grab on some code and make your own OS.

7. Security: - Maybe it's because of Linux's small market share or maybe it's because Linux is designed better, but there really aren't any viruses for Linux. Also the way permissions are set up it makes it difficult for a malicious program to do too much.

Atlantis!!!.

- Tanmay Bhamre, CSE, II year

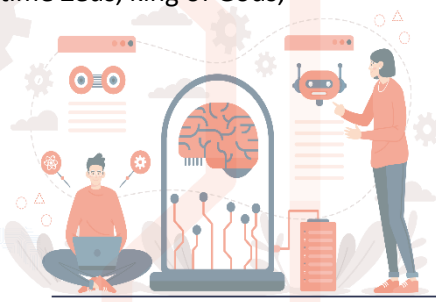
The Lost City of Atlantis was first mentioned by the ancient Greek philosopher Plato more than 2,300 years ago (360 BC) in his dialogues Timaeus and Critias as an allegory on the hubris of nations. So yes, there is a big chance that all of this was just Plato's wildest dreams. Since everyone knew about his "habit" of freely borrowing allegories and metaphors from older traditions which he did a number of times before, scholars did think atlantis was inspired by "The Sea people theory" or the "Trojan War". Even Aristotle, one of his then-students thought he invented the island toWhat's the first thing that comes to your mind when you hear this word? Jason Momoa and his Aquaman movie or Jules Verne (read The Rock) version of Journey 2: the mysterious island? Cool but sadly anything you knew yet was a bit far from the "real thing". Too bad, it could have been a super cool 9000+ year old lost underwater utopian island kingdom that once boasted its strongest naval force as well as the peak of scientific advancements and human culture. Did it actually exist? Was there a time science and human civilization reached its pinnacle? If yes then what was the reason to its fall? Who knows? There were mixed beliefs around his dialogues provided that Critias was left incomplete, both the dialogues when studied together it was all in all 3 things that were highlighted

1 Atlantis was the pinnacle of human civilization, scientifically, economically and culturally (humans closest to God-like beings)

2 Greeks vs Atlanteans; Ancient Athens= Good Good, Atlanteans= Bad Bad; Atlanteans lost; Atlantis sinks (read destroyed) in just 24 hours. Don't ask how...

3 According to modern world, it should have been somewhere near Spain or Western Africa or (low possibility) it could have been the ancient continent of Lemuria or related to super-continent Pangea, that broke into random small continents which makes up the world map. {P.S. No acorn-obsessed saber-toothed squirrel was involved in breaking Pangea *wink* *wink*}.

Despite all of uncertainties around it, Atlantis was always a hot topic among explorers. Atlantis is a prime go-to example for a great civilization brought to ruin by its own hubristic decadence *coughs Rome coughs*. In his dialogues Plato recounts the events of an Athenian (greek) lawgiver/part-time poet Solon (this guy actually existed in the history btw) who visits Egypt in around 580 BC where he translated Egyptian records recounting events that happened 9000 years ago thus finding about Atlantis, according to which this one time 9000 years ago, Athens successfully repelled an invasion from Atlantis. Dialogues laid out that ancient Athenians were pure, virtuous and refrain from luxury (Plato was a Spartan culture fanboy). According to Plato, Luxury was an inherently corruptive influence that drove people to their wicked side. Anyway, the depiction of Atlantis was heavily inspired Greeks even though Plato clearly shows thats these were the Greek translation of Egyptian texts that were translated from some unknown ancient language. Well, there do exist some myths including the one where Greek god Poseidon gets Atlantis and Goddess Athena gets Athens when the gods divided world for ruling. (Though they had a serious fight for who should get Athens). So, Poseidon went on to island where he fell in love with Cleito (human), had kids, divided the island of Atlantis into 10 parts, gave each of them to his 10 children and made his son Atlas the king of Atlantis and went back to Olympus. These 10 divine kings lost their divinity bit-by-bit as their lineage went on, to the point where the luxurious lifestyle of royals made them prone to arrogance and corruption as they were "human" enough. So, the descendants of those kings went to conquer Mediterranean and got defeated by Athens. Around the same time Zeus, king of Gods,



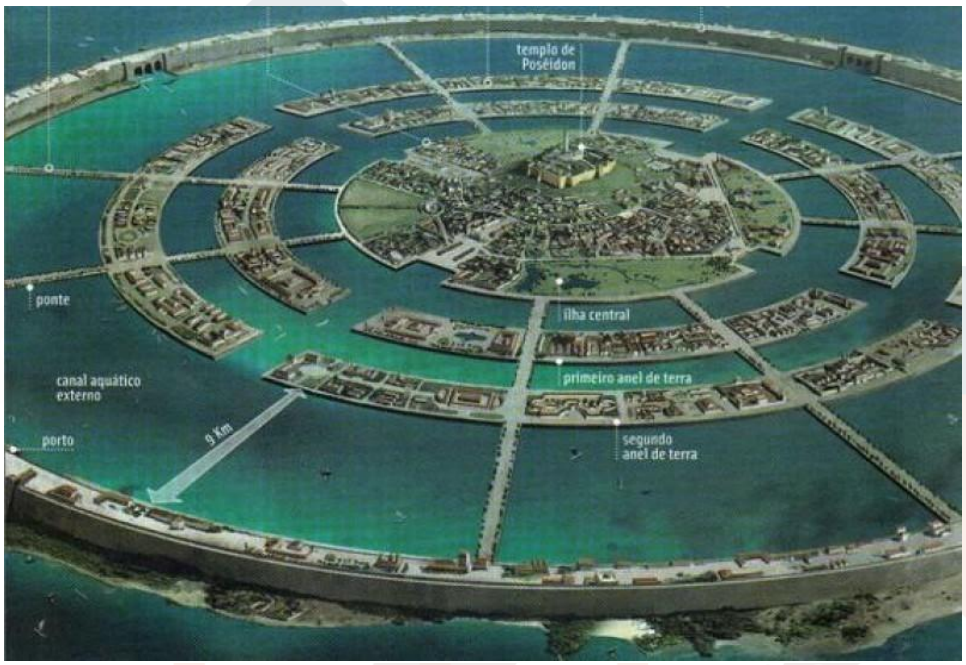
happened to notice their arrogance and told Poseidon to do something. In response, Poseidon sent a devastating earthquake and destroyed the island of Atlantis to the point that it sunk in just a day and a night. {Standard Greek God Moment}

Plato was clearly making an allegory about this, yet he liked to troll his readers. He said that sunken Atlantis formed a mud shoal at west of Strait of Gibraltar that making it impossible to sail out into the Atlantic which was a fluke. Despite clearly showing allegories', there was this event, the Minoan eruption (Super dangerous volcanic eruption happened at island of Santorini, yes, worse than Pompei), comparable to the scale of disaster addressed about Atlantis.This guy literally described every goddamn detail about Atlantis (even the horse stands. Really?) including its location as stated above. And thus, people started the search for Atlantis. The only problem was that it wasn't there where it was supposed to be. Just like El Dorado (golden city) or Avalon or Lemuria or Middle-Earth or Narnia or Neverland or Hogwarts, people went out search it everywhere they can think of. Cuba? Doggerland? Sahara? Indonesia? America? (c'mon). Still, an underwater sunken city full of wonders and magic fish

people! Why not? (Unless you suffer from thalassophobia), but sinking it underwater was supposed to destroy it, not to make it sound cooler. Since, the re-discovery of Ancient city of Machu Picchu in 1911 and discovery of the legendary city of Troy in 1871, the uproar is still going strong as it boosted the confidence of many researchers and explorers around the world. Apart from Atlantis, many more ancient cities like Alexandria (rediscovered in 2001), Port Royal (greatest pirate city in history rediscovered around 1950s) [p.s. it was not Laugh Tale], Yonaguni Monument ruins (found in 1986) and our own Dwarka (not yet discovered), that were once submerged under the ocean for thousands of years, are being analysed and studied in order to find more about these places.

Well, since Plato has used all time in the world to describe every fine detail of Atlantis in Timeaus and Critias (incomplete) in around 120+ pages, you are free to go and try reading it.

The greatest surprise and discovery that I came across while writing this article was that Timaeus and Critias (in actual history) were actually Greek philosophers and Athenian politicians related to Socrates and not the legendary knights of Atlantis as told in Yu-Gi-Oh...



Here's a map for your reference about Atlantis' physical appearance according to his records.

Religion And Humanism

- Prachit Kanwar, CSE, II year

Throughout recorded history there have been many people all over the world who have believed that this life is the only one we have, that the universe is a natural phenomenon with no supernatural side, and that we can live a fulfilling life on the basis of humanity. These people stress the importance of human values and dignity. They are solving the problems using scientific method, evidence and reason to discover truths about the universe. Today, people who share these beliefs and values are called humanists and the attitude of this community towards the world is called humanism. The term religion is a set of beliefs concerning the cause, nature and purpose of the universe especially when considered as the creation of superhuman agency, which involves devotional and ritual observances and contains a moral code governing the conduct of human affairs. There are many different types of religions, including the major world religious traditions that are widely known as well as lesser-known belief systems of smaller populations. There are a series of rituals performed by each religion, this is done to please gods of their particular religion. In a country like India, religion creates an emotional factor. The constitution of India is secular. This implies that the people of our country can follow any religion. They have the freedom to choose any religion and worship any god. In general, the religions are classified into two types: Monotheistic and Polytheistic. Monotheistic religions believe in the existence of one god whereas Polytheistic religions are those that believe in the worship of many gods.

Some of the Monotheistic religions are Islam, Christianity and Judaism, whereas polytheistic includes: Hinduism and Buddhism. Religion in many parts of the world has a long history in societies. The oldest religion is considered to be Hinduism with roots and customs dating back more than 4000 years. Today it is the third largest community in the world after Christianity and Islam.

Now In general, humanism evolved from the religion system only, it focuses on the welfare of human beings more than religious beliefs and to avoid conflicts based on religious superiority and to live a peaceful life. Humanism intersects with religion in 3 ways: First: modern humanism is an attempt to lead a satisfactory and ethical life without religion. In its own right it is a well-developed worldview which embodies a set of values such as using reason, supporting human rights, thinking for oneself and being compassionate to others. In general, it's based on one's own rights, what festivals one person wants to celebrate and how he/she wants to live his/her life without the interference of higher society. Humanism belongs to the strand of thinking with a long history, stretching its back to over 2500 years ago of the ancient Greeks. A thinking that has generated a view of the natural world arrived through reason and evidence based on knowledge.

Second: humanists view religion as a human-made set of beliefs and practices that aim to provide a framework for the living of a human being and which provides answers to life's big questions such as: - who are we? Where did we come from? How should we live? and where are we going? While humanists' answers to the same questions are evidence-based,

open ended and sceptical, religious answers are based on an authoritative tenet and certainty. This difference arises because religions came to offer 'the truth' on the big questions. While adherents make this claim by placing the source of religious authority like prophets, messiahs and oracles in another transcendent world which they say exists.

Humanists and many other non-religious people are sceptical and unconvinced by such claims. In doing so humanists don't find it difficult to live among religious people but this does not mean that Humanists are necessarily anti-religion or they convince and inspire people to follow the steps they followed to live a peaceful life, but in fact they consider the beliefs of religion to be made of hopes and wishes. In other words, from a humanist perspective, gods didn't make humans, but it's the humans who made different gods. This insight and others have increasingly influenced people, at least in developed countries like in the U.S, South Korea and many parts of Europe. But when issues of shared concern arise such as on equity, justice and showing care and compassion to those in need, humanists take action along-side religious people for the same issues. For e.g., better treatment of indigenous people and refugees. Third: humanists support freedom of and freedom from religion. What we want to see (we as humanists) is an end to religious power, control and privilege, but we can accept the right of the religion to practice their faith and run the institutions and to make people follow the rituals properly even at the cost of mental and physical health as in some religions. What humanists don't want is religious people and bodies interfering with the rights of others to lead differently chosen lives. The function of religion often used by religious humanists include things satisfying personal quests to discover meaning and purpose in life.

Because their perspective constitutes both the social and personal context in which they seek to reach such goals, they quite naturally and reasonably conclude that their humanism is religious in nature. Hence, called religious humanism. Unfortunately, the functional definitions of religion are not much better than essentialist definitions. These definitions of 'religions' are made to apply absolutely on any belief system or shared cultural practices. These simple definitions will not work if "religion" is to be applied to everything. By insisting on one or the other, the position becomes unnecessarily polarized. Some religious humanists assume that all humanism is religious while some secular humanists assume that no humanism can be religious in nature. Because of these things, we must allow that what we describe as the basis and essence of our religion cannot necessarily comprise the basis and essence of another's religion. For the same reason, a secular humanist cannot define "religion" for a Christian or a religious humanist. At the same time, religious humanists cannot "define" secular humanism as a religion for others. In a nutshell, 'humanists' have an interest in understanding the nature and practice of religion and in tempering its influence in the public sphere.

Know Your Indore

- Tansi Bhandari, CSE, II year

Indore has been crowned the cleanest city in country for fifth time in a row this year. The combined efforts of community and cleaners helped achieve this success.

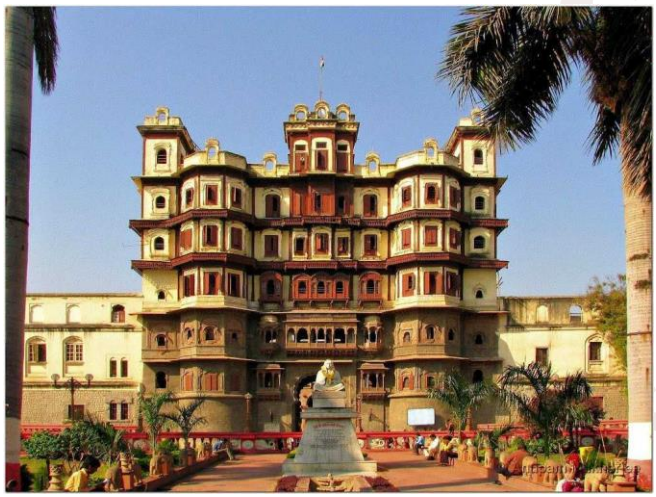
From local to the outskirts of Indore. Each colony/area has its own scent. For example, if we start from the local Indore, there is a taste of street food, a feeling of congestion in traffic, etc.

SARAFA This word has 6 letters, but if we go there, we cannot make a word with 26 whole alphabets. As a foodie, I ate almost everything there. It's like a small package with a big bang, the roads are very slender but the taste of food remains in every gender. Jini dosa, pasta, pizza, potato rings, fire pan, faluda, sweets are just awesome.

It must be said that Indore is developing day by day. Leaving Srafa now, we will reach Khajuri Bazar, a very famous market for stationery, books and everything related to studying.

Next comes a photo from the middle of Indore, such as Palasia, Geeta Bhawan. As we all know, the importance of education. So, in my opinion Geeta Bhawan is Geeta's Bhawan but this Geeta consists of lots of IIT's, NEET's and many other coaching classes. From early in the morning until late at night, students wander here and there, preparing for various exams.

Their minds are still in a state of calculation. Calculation from each question, calculation that how much they score to get college XYZ, etc. The two years of preparation are a crucial period with too many ups and downs. The worst thing about Indore is "TRAFFIC CONTROL". A traffic cop, Ranjit Singh, came up with a new idea of traffic control while walking on the moon. His moonwalk has become a sensation, but Indore's traffic is in the same spot.



Now when we talk about Indore NEXT TI, C21, MANGAL CITY malls, they are just amazing, they all have a very different vibe there, great food, play areas, arcade shopping brand show, cleanliness is just Wow. Indore temples like Khajrana, Bijasan, have a very positive aura. This does not mean that we have to go to the temple every day, faith in God is all that matters.

Indore has extremely high end and dependable hospitals where almost all sort of medicines are available. Apart from these Indore has plethora of business opportunities to set up franchises for business start-ups.

There is much to know about Indore. Indore is a place where we can enjoy, learn and discover everything. As an Indorian I love my Indore, its atmosphere, its nature and everything.

Sometimes I want to be a moving star...

- Ayushanand Choudhary, AIML, II year

Sometimes I want to be a moving star,

Not this world, much more far,

Like the albatross in the sky,

don't want to stay, just wanna fly,

everyone is here in the stress,

I don’t know where I am placed,

just take me away from this crowd,

where I can travel and shout a loud,

Not an aim, not a goal,

Just me and my super soul,

But life is like tears now,

Just fell and got separated somehow,

All the dreams, all the goals,

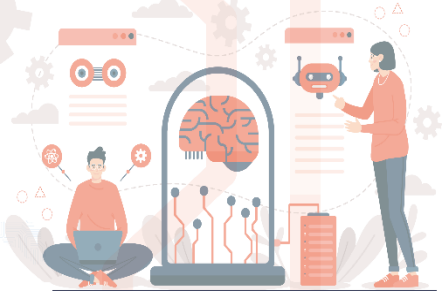
Don’t know where all they fall,

But one day I will be in that sky,

If not in this life, so after I die,

Give you light and be a star,

Not so much close but too far.....



किताबें

Palak Tejwani, CSE, II year

यादों की किताबें खोलें तो
कुछ दोस्त बहुत याद आएंगे ...
साथ बिताए हुए पल बहुत सताएंगे,
पर आंखों में बंद रहकर यादे बन जाएंगे,
ना जाने अब कहा किर मुलाकात होगी
पर कुछ दोस्त बहुत याद आएंगे।
यादों की.....
जिंदगी की दौड़ में सब बिछड़ जाएंगे,
वो दिन वो बाते कभी न भूल पाएंगे,
गुजरे हुए हर पल को सोचे तो
कुछ दोस्त बहुत याद आएंगे ।
यादों की किताबें...
वो जो जाते हैं रास्ते स्कूल तक जुदा हों जाएंगे,
आज हम अपने दोस्तों से जुदा हो जाएंगे,
जिन्हें याद कर के मुस्कुरा देगी ये आंखें
ऐसे प्यारे दोस्त बहुत याद आएंगे।
यादों की किताबें.....
वक्त की धूप तेज होगी या तेज तूफान आएंगे,
दोस्त दूर हो कर भी दूर नही हो पाएंगे,
मिल जाएंगे जिंदगी के किसी मोड़ पर
ये दोस्ती के अनमोल रिश्तें बहुत काम आएंगे।
यादों की किताबें.....

Frequently Asked Interview Questions

- Anonymous

Preparation is important for a successful interview. But if you don't know what questions to expect, it's difficult to prepare. This is a guide to help you prepare some common interview questions that you may come across and how to prepare those questions that you may not expect.

OOPM

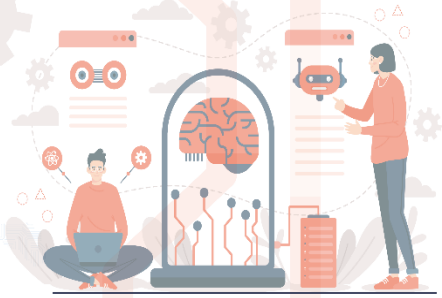
1. What is a class?
2. What is the difference between class and structure?
3. What is inheritance?
4. What are the limitations of inheritance?
5. What is pure virtual function?
6. Can you call the base class method without creating an instance?
7. What are access specifiers? Explain their role in Inheritance.
8. Name seven widely used OOP languages.
9. What is the purpose of using OOPs concepts?
10. What are the limitations of OOPs?

DBMS

1. What do you mean by DBMS and what is its utility?
2. Explain different languages present in DBMS.
3. What is ACID property in DBMS?
4. Are Null values in database are same as blank space or zero?
5. What is meant by data warehousing?
6. Explain different levels of data abstraction in DBMS.
7. Explain the difference between intension and extension in database?
8. Explain difference between DELETE & TRUNCATE commands in DBMS.
9. What is transaction?
10. What is shared lock and exclusive lock during transaction in database?

Data Structure

1. What are the applications of data structure?
2. What is the difference between file structure and storage structure?
3. How linear data structure differ from non-linear data structure?
4. Linked list or array: Which data structure is more efficient and why?
5. Explain the scenarios where you can use linked list and array.
6. How stack differ from queue?
7. Explain a process behind storing a variable in memory.
8. How to implement queue using stack?
9. How to implement stack using queue?
10. Which data structure are used for implementing LRU Cache?



Magic Square

A magic square of order n is an arrangement of n^2 numbers, usually distinct integers, in a square, such that the n numbers in all rows, all columns, and both diagonals sum to the same constant. A magic square contains the integers from 1 to n^2.

The constant sum in every row, column and diagonal are called the magic constant or magic sum, M. The magic constant of a normal magic square depends only on n and has the following value:

$M = n(n^2+1)/2$

For normal magic squares of order n = 3, 4, 5, ...,

the magic constants are: 15, 34, 65, 111, 175, 260, ...

You will be given a **3X3** matrix **s** of integers in the inclusive range**[1,9]**. We can convert any digit **a** to any other digit **b** in the range**[1,9]** at cost of **|a-b|**. Given square matrix **s**, convert it into a magic square at minimal cost. Print this cost on a new line. Note: The resulting magic square must contain distinct integers in the inclusive range**[1,9]**.

Function Description

Complete the formingMagicSquare function in the editor below.

formingMagicSquare has the following parameter(s):

- int s[3][3]: a **3X3** array of integers

Returns

- int: the minimal total cost of converting the input square to a magic square

Input Format

Each of the **3** lines contains three space-separated integers of row **s[i]**.

Constraints

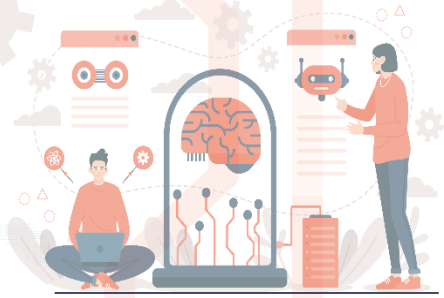
- **s[i][j] ∈ [1,9]**

Sample Input

4 9 2
3 5 7
8 1 5

Sample Output

1



Explanation

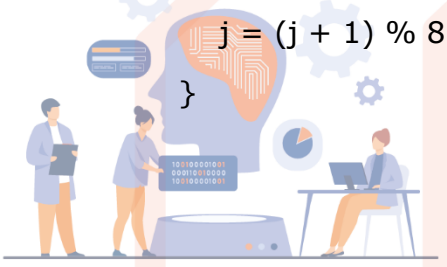
If we change the bottom right value,**s[2][2]** , from **5** to **6** at a cost of **|6-5|=1**, becomes a magic square at the minimum possible cost.

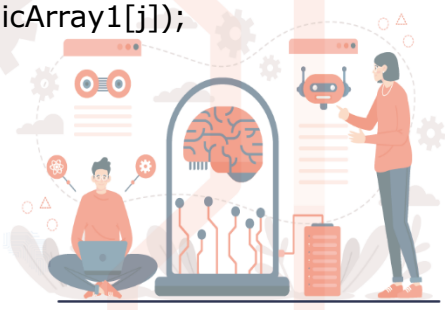
Solution

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    int matrix[3][3];
    int magicArray1[8] = {4,9,2,7,6,1,8,3};
    int magicArray2[8] = {2,9,4,3,8,1,6,7};
    int indexes[8] = {0,1,2,12,22,21,20,10};
    int i, j, shift = 0;
    int costResult = 100, costTmp = 0;
    int found = 0;

    for (i = 0; i < 3; i++) {
        for (j = 0; j < 3; j++) {
            scanf("%d", &matrix[i][j]);
        }
        scanf("\n");
    }

    for (shift = 0; shift < 8 && !found; shift += 2){
        costTmp = 0;
        for (i = 0, j = shift; i < 8 ; i++) {
            costTmp += abs(matrix[indexes[i]/10][indexes[i]%10] - magicArray1[j]);
            j = (j + 1) % 8;
        }
```



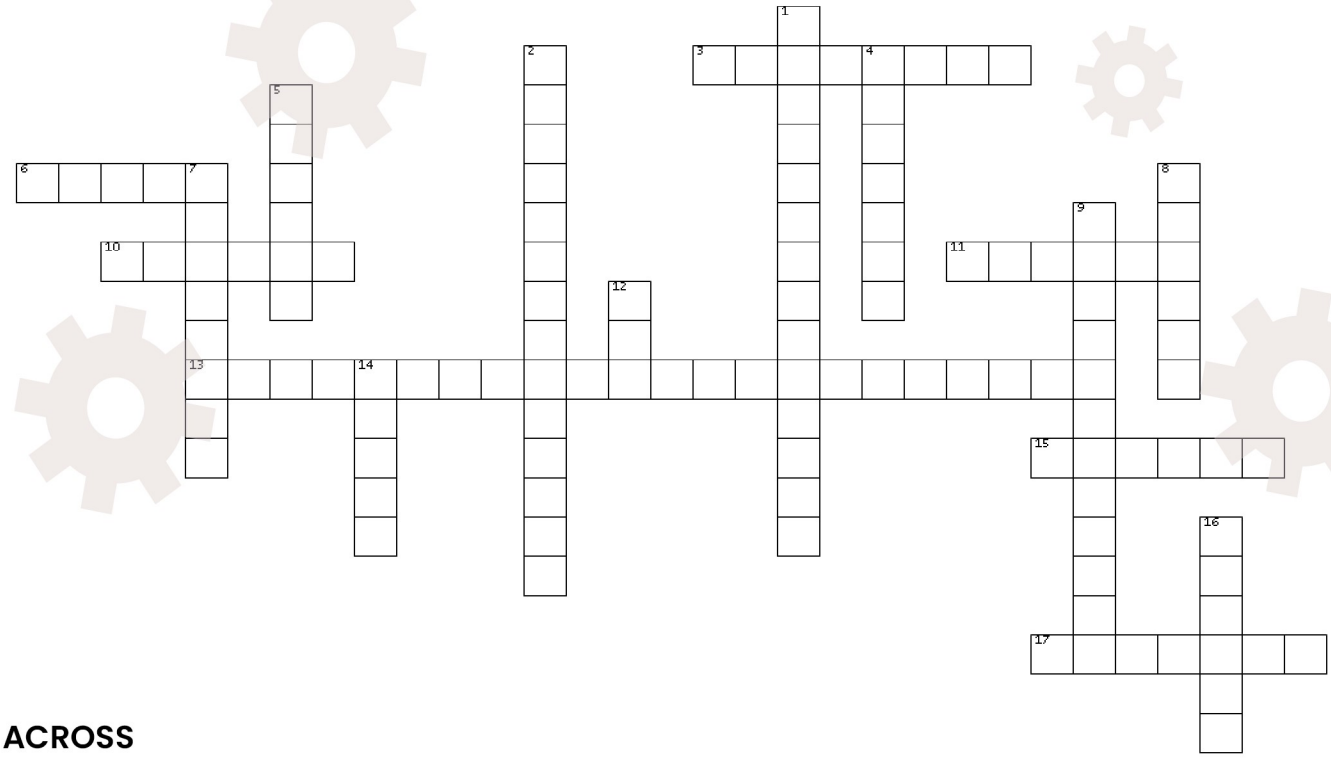


```
        if (costTmp == 0){
            found = 1;
            costResult = 0;
        } else if (costTmp < costResult) {
            costResult = costTmp;
        }
    }

    for (shift = 0; shift < 8 && !found; shift += 2){
        costTmp = 0;
        for (i = 0, j = shift; i < 8 ; i++) {
            costTmp += abs(matrix[indexes[i]/10][indexes[i]%10] - magicArray2[j]);
            j = (j + 1) % 8;
        }
        if (costTmp == 0){
            found = 1;
            costResult = 0;
        } else if (costTmp < costResult) {
            costResult = costTmp;
        }
    }

    costResult += abs(matrix[1][1] - 5);
    printf("%d", costResult);
    return 0;
}
```

Wordplay on AI

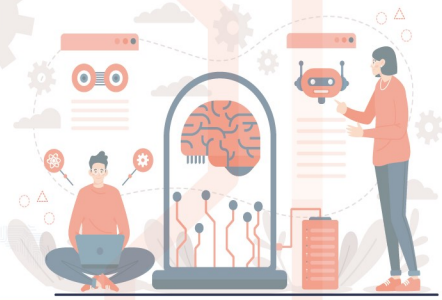


ACROSS

3. Person who created plans for a robot knight, and when tested 500 years later it was found that the plans worked
6 . Using drone photos, images from satellites, and ground surveys, scientists found a hidden monument in
10. The country that was the first to make drones
11. Androids are designed to resemble what creatures
13. AI stands for
15. If a human has an artificial limb, he/she can be considered
17. A male looking robot is an

DOWN

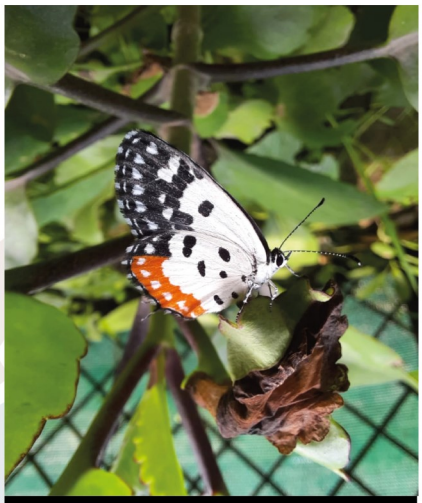
1. First person to be killed by a robot
2. Jobs which are immediately threatened by AI
4. In which country amazon deliver packages by drones
5. Company which is developing tools that will merge the human mind with an AI.
7. In 2014, thing used from researcher of CMU to study hippo dung.
8. The property which differentiate robot from an anroid
9. Person who designed Blendo, a combat robot from Robot Wars that threw pieces of its opponents into the crowd
12. American investigation department, who is using drones for sting operations, causing an uproar over private property
14. A factory in Japan can run unsupervised for nearly 30 days at a time.
16. A female looking robot is a



Photography

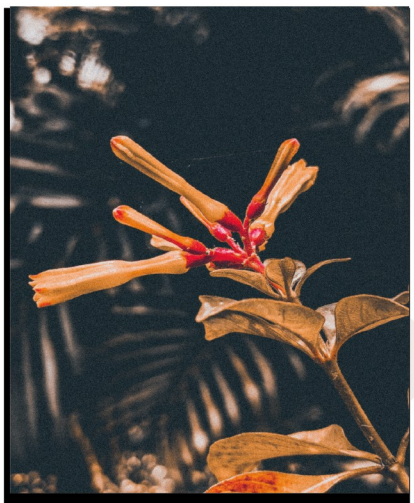
Pramil Beliya, CSE

Prof. Krupi Saraf, CSE



Siddharth Jain, CSE

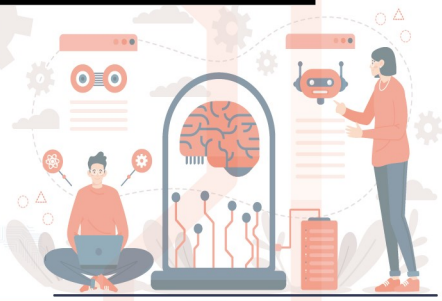
Mukund Khandelwal, CSE



Mukund Khandelwal, CSE

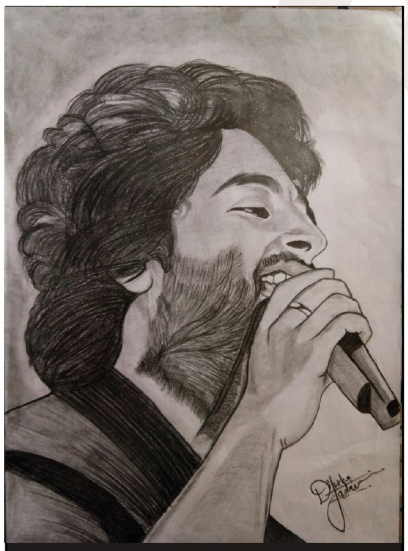
Pramil Beliya, CSE

Pramil Beliya, CSE

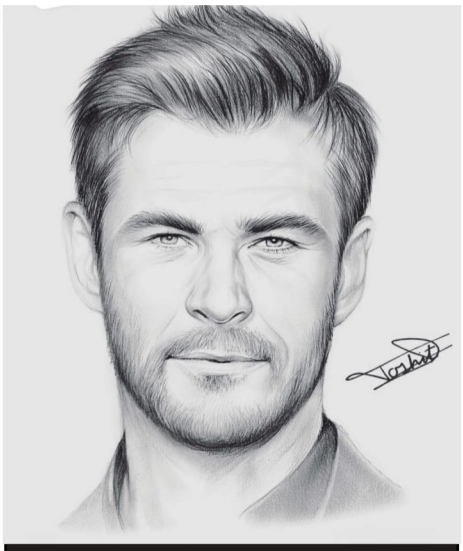


WISSEN
Knowledge Insight

Artwork

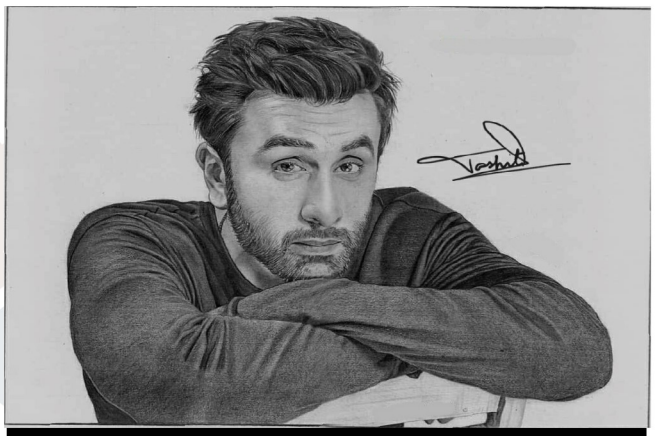


Diksha Yadav, CSE ,2nd Year



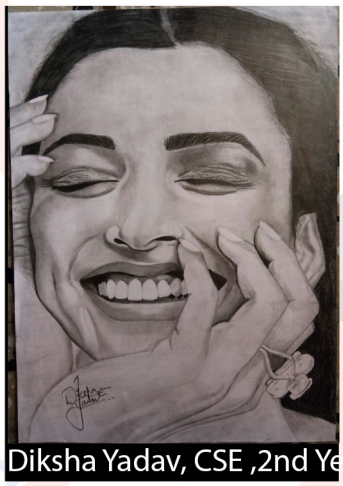
Toshit Kala, AI-ML, 2nd Year

Siddharth Jain, CSE, 2nd Year

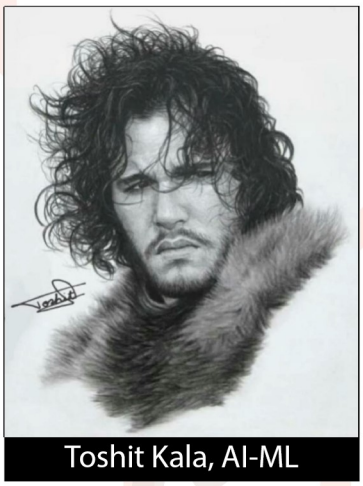


Toshit Kala, AI-ML, 2nd Year

Saloni Gupta, CSE, 2nd Year

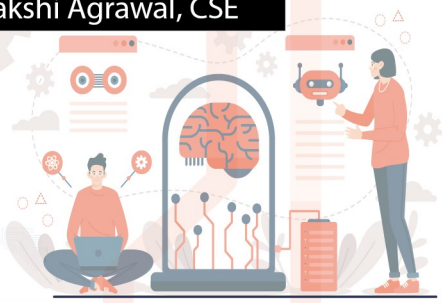


Diksha Yadav, CSE ,2nd Ye



Toshit Kala, AI-ML

Sakshi Agrawal, CSE



WISSEN
Knowledge Insight

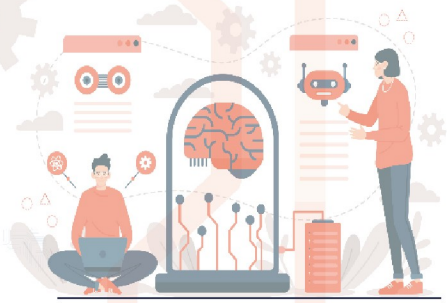
Success Achieved

Department Achievement

The recent extension of accreditation of B.Tech.-CSE Course by National Board of Accreditation (NBA), New Delhi in June 2021 endorses sincere efforts and commitment of CSE Department to impart quality education.

Patents published by CSE Faculty Members

S. No.	Name of the Faculty	Title of Patent	Name of Patent Publisher
1	Dr. Rashid Sheikh	A System for Privacy-Preserving Multi-Party Sum Computation in a Semi Ideal Model and Method Thereof	Govt. of India
2	Dr. Rashid Sheikh	A System and Method for Checking Equality of Data using Privacy-preserving Ideal Model	Govt. of India
3	Mr. Narendra Pal Singh	Quick Response Code-Based Student Academic Record & Certificate Verification Device (SARVD)	Govt. of India
4	Ms. Deepika Jain	System of Personalized Physical and Mental Health Monitoring with using IOT Sensors Network	Govt. of India
5	Ms. Nupur Agrawal	A Light Illuminating Device for Eyesight Impaired Patients Student Achievements	Govt. of India



Students' Achievements

1. ANIRUDHA SUDHIR KHODE has completed online course in Data Base Management System from NPTEL held during Jul-Sep'21 and got Elite certificate.
2. Harshit Rathore has completed online course in Programming, Data Structures and Algorithms Using Python from NPTEL held during Jul-Sep'21 and got Elite+Silver certificate.
3. AAYUSH PANCHAL has successfully completed online course in Data Base Management System from NPTEL held during Jul-Sep'21.
4. Aayush Dubey has completed online course in Data Base Management System from NPTEL held during Jul-Sep'21 and got Elite certificate.
5. Yash Rane has successfully completed online course in Data Base Management System from NPTEL held during Jul-Sep'21.
6. Aryapratap Singh got selected at ISRO for pursuing PGD Course in spatial data science.
7. Tanishq Rawat from CSE-3rd year got paid internship as AI software developer at iPrep learning Solution Pvt Ltd.
8. Aniket Tatte from CSE-4th year got paid internship as Android development intern at AppyHigh Technologies LLP.
9. Aditya Pawar from CSE-3rd year got paid internship as web development intern at CCX News.
10. Sanskar Soni from CSE-4th year got paid internship as web development intern at Technomize.
11. Garima Mehta from CSE-3rd year got paid internship as web development intern at Technomize.
12. Krishan Murari Barnwal from CSE-3rd year got paid internship as web development intern at Technomize.
13. Oshi Jain, has been selected for internship at Goldman Sach as Summer Analyst.
14. Deeksha Kasture, Student of Final Year secure AIR 38 in GATE 2021.
15. Shubham Malviya, won Gold Medal in Unitedcon (United Conference) on Cyber Space.
16. Naman Sukhwani from CSE-4th year got paid internship at Bajaj Health Rx.
17. Yogesh Vishnole from CSE-4th year got paid internship at Bajaj Health Rx.
18. Ajinkya Muley from CSE-4th year got paid internship at Bajaj Health Rx.
19. Sagar Maheshwari from CSE-4th year got paid internship at Bajaj Health Rx.

And many more…

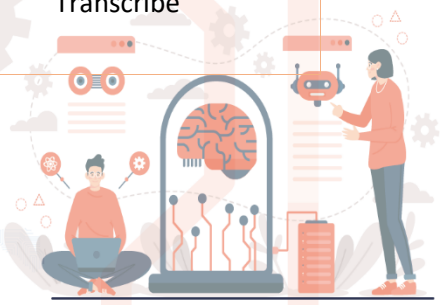
Faculties' Achievements

1. Dr. Rashid Sheikh has been awarded PhD in Computer Science & Engineering on "Design of Secure Multiparty Computation Protocols for Preserving Privacy".
2. Dr. Santosh Varshney has completed AWS solution architect – Associate Program.
3. Prof. Kavita Namdeo has completed AWS advance certification.
4. Prof. Shaifali Shrivastava has completed RPA Citizen Developer Foundation from UiPath.
5. Prof Lakshita Landge has completed course on digital marketing.
6. Prof. Narendra Pal Singh Rathore has completed Advance Developer Certification from UiPath.
7. Prof. Nupur Agrawal has completed cloud computing course.
8. Prof. Krupi Saraf has completed online course in Data Structure using Python from NPTEL held during Jul-Sep'21 and got Elite certificate.
9. Prof. Ambrish Srivastav has completed online course in Theory of Computation from NPTEL held during Jul-Sep'21.

And many more…

Student Paper Publication Details

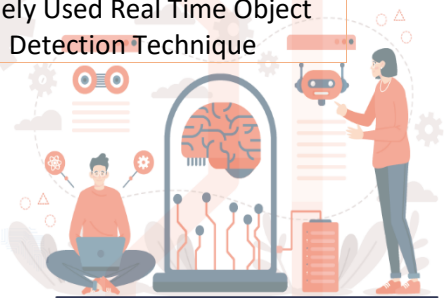
Sr. No.	Students Name	Journal	Title
1	Abhishek Rathore, Aditya Ingle, Aman Rathore	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 7, July 2021	Easy Shop & Bill
2	Anuradha Rathore, Avanish Bhatt	ERPA International Journal of Research & Development, Vol. 6, Issue 7, July 2021	Drowsiness Detection System for Drivers
3	Aditya Gautam, Ananya Nandi, Cherry Agrawal	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	OTT Recommendation Engine
4	Aishwarya Pawar, Astha Jain, Bhakti Jain	International Journal of Innovative Research in Engineering and Management, Vol. 2, Issue 4, June 2021	Sentiment Analysis of Twitter Data
5	Akash Prajapat, Anurag Jain, Chanchal Agrawal	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Sign Language Converter
6	Arun Parmar, Avichal Trivedi, Ayush Shrivastav	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Face Mask Detection
7	Chinmay Geete	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Image Caption Generator
8	Abhishek Choudhary, Anurag Upadhyay, Chayan Barua	ERPA International Journal of Research & Development, Vol. 6, Issue 6, June 2021	We Safe Women Safety Application
9	Anushka Trivedi, Ayushi Lonkar, Ashwini Jain	IJSER, Vol. 12, Issue 6, June 2021	Integrated Monitoring HRMS
10	Anshul Singh Rajput	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Voice Chatbot
11	Aakash Maheshwari, Aman Kumar Thakre, Avi Kadam	ERPA International Journal of Research & Development, Vol. 6, Issue 6, June 2021	A Web Application on Health and Fitness; My Fitness Buddy
12	Anant Jain, Animesh Tayal, Archit Jain	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Transcribe



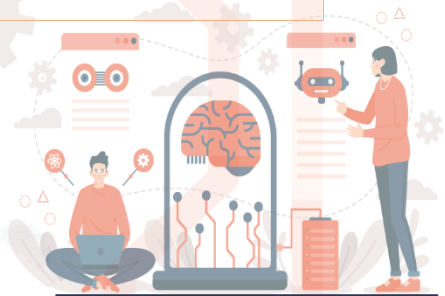
13	Tarun Rajput, Avadhesh Tomar, Vikkey Barpete	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Designing Augmented Reality Services For E-Commers
14	Ajay Kheratiya, Bhawesh Mahato, Arif Patel	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Leaf Disease Prediction Using CNN
15	Kundan Kumar, Lalit Ahuja	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Organic Farming
16	Shubham Malviya, Siddharth Choudhary, Siddharth Jain	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Web Vulnerability Scanner (SPYDER)
17	Gagandeep Singh Saluja, Himanshu Banwari, Iyengar Vijay	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Improving Speech Enhancement Using Generative Adversarial Networks by Using Multi-Stage Enhancement
18	Divyansh Chouhan, Mansi Gund, Masoom Pophaley	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	5G Wireless Systems, Is It a Future?
19	Diksha Kharche, Disha Sahu, Hardik Goswami	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Survey On Artificial Neural Network
20	Udbhav Dave, Utkarsh Jain, Vaibhav Chouhan	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Smart Doc Search – A Tool to Search Text Inside Media Files
21	Vishal Parmar, Vishal Parmar, Samiksha Yadav	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Go Ride Lets Ride (The Electrical Vehicle Riding App)
22	Serisha Jain, Sanskriti Rathore	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Effectiveness Of Genetic Algorithm in Software Development
23	Damodar Punasiya, Harsh Kushwah, Hitesh Jain	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	An Application for Sales Data Analysis and Visualization Using Python And Django
24	Kaushal Zod, Siddharth Porwa	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Journey Of News Publishing from Traditional Era to Digital Era

25	Kanishk Tantia, Manvendra Singh Bais, Mehul Nakra	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Automated Ground Water Management & Sustainable Usage Support
26	Jigyasa Vaishnav, Khushboo Ahuja	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	An Overview of Speech Recognition and Popular ASR Algorithm
27	Ujjwal Patidar, Vijay Choudhary, Anuj Kushwah	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Web Scrapping with Browser Automation Technique
28	Kajal Thakur, Muskan Joshi	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	A Survey on Machine Learning
29	Mayank Choudhary, Mohini Surveshi, Muskan Solanki	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Audio To Sign Language Converter
30	Gourav Sharma, Gunjan Patidar, Hritik Vishwakarma	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Future Of Cyber Security: A Study on Biometric Scan
31	Harsh Malviya, Kunal Sool, Mayur Rathore	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	A Review Paper on Cloud Computing
32	Yash Nandwal, Dhananjay Malviya, Siddharth Verma	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Chatter Bot: Smart Excel Crawler
33	Nishtha Agrawal, Pritesh Pawar, Ruchir Gavshinde	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Implementing A Voice Activated Desktop Assistant Using Python
34	Mustafa, Nimisha Tiwari, Rohit Gupta	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Crafting Melody Using Bi-Directional LSTM Model
35	Navadha Agrawal, Prakhar Tiwari, Prashant Singh	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Implementing A Real, AI-Based, People Detection and Social Distancing Measuring System for Covid-19
36	Pranjal Bhawsar, Priyansha Tiwari, Rishika Kushwah	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Vehicle Influx Detection System

37	Rhythm Jain, Risha Vijayvargiya, Sakshi Nayak	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Go-Go Downloader
38	Pratiksha Verma, Priya Patni, Priyanshi Chopra	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Chat It – Chat Application with Image and Audio Recognition
39	P Shrikant, Pradeep Patidar, Prajwal Kalne	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Cryptocurrency: A New Normal
40	Prasoon Jain, Purav Parekh, Raghvendra Singh Chauhan, Ritik Solanki	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Banking Fraudulent Analytics Using Machine Learning and Deep Learning Approach
41	Nikhar Batra, Nikhil Bansal, Prakhar Dubey	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Importance of Meditation
42	Prajakta Dixit, Raghavendra Singh Gehlot, Rajat Tambare	International Journal of Science, Engineering and Technology, Vol 9, Issue 3, 2021	Electoblock: A Secure Digital Voting System Based on Blockchain Technology
43	Pushkar Dhakad, Rahul Verma, Ritik Dixit	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Human Disease Detection Using Machine and Deep Learning
44	Ritika Tandon, Sakshee Sahu, Sakshi Singh	International Journal of Advance Research & Technology, Vol. 9, Issue 6, 2021	A Brief on Cryptocurrency
45	Naland Rahtore, Pratyush Vaidhya, Ritvik Seth	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Pneumonia Detection Using CNN
46	Nehal Chourasia, Nihal Sargaiya	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 6, June 2021	Geofencing: Next Level Location Tracking Technology
47	Samraddh Saxena, Sundram Gupta, Suyash Gupta	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Vaayu For Aayu (AQI) - A Study to Assess Air Quality
48	Aman Yadav, Sourav Akhand	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Online Food Ordering System Using Cloud Computing
49	Sameer Ansari, Shubham Chandrol, Tanish Verma	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	YOLO V4 Vs Mask RCNN: A Comparative Study Between Two Widely Used Real Time Object Detection Technique



50	Shreya Jain, Sanjana Patel, Samiksha Dubey	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	Contribution Of Online Goods Delivery System on Growth of Many Industries in India at The Time Of Corona Pandemic
51	Shatakshi Bhatnagar, Yash Malviya	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 6, June 2021	ALEXA! Find My Things Voice Controlled Home Automation, Real Time Object Tracker, YOLO Based, Using Amazon Echo Dot
52	Aanchal Sharma, Alifiyah Shahid, Animesh Sharma	International Journal for Scientific Research & Development, Vol. 9, Issue 3, May 2021	IOT Technology Based Air Quality Monitoring System
53	Anurag Mehta, Ayush Patidar, Ayush Solanki	International Journal for Scientific Research & Development, Vol. 9, Issue 3, May 2021	Face Mask Detection with Deep Learning and Computer Vision
54	Sarthak Parakh, Shivam Goyan, Somya Jain	International Research Journal of Engineering and Technology, Vol. 8, Issue 5, May 2021	Extractive Text Summarization Technique
55	Deeksha Narang, Harsh Gupta, Mahak Shukla	International Research Journal of Engineering and Technology, Vol. 8, Issue 5, May 2021	Medical Chatbot with Human Emotion Analysis: Better Diagnosis
56	Aditya Dilliwal, Akshat Jhabak, Ankit Chimaniya	International Journal for Scientific Research & Development, Vol. 9, Issue 3, May 2021	Anomaly Detection
57	Abhishek Mahawadi, Anand Barhanpurkar, Anshul Dhanotiya	International Journal for Scientific Research & Development, Vol. 9, Issue 3, May 2021	Plant Disease Detection System
58	Akshay Nahar, Aryan Vijayvargiya, Avani Mandloi	IJSER, Vol. 12, Issue 5, May 2021	The Rise and Trends of Food Industry in India
59	Amit Patni, Amitoz Singh Hora, Ayush Singh	IJSER, Vol. 12, Issue 5, May 2021	Alumni Portal
60	Anidhya Gangrade, Atharv Rathore, Chinmay Pacharne	ERPA International Journal of Research & Development, Vol. 6, Issue 5, May 2021	Basics Of Artificial Neural Networks Future Scope and Application
61	Karan Mittal, Kirti Kumar Piplaj, Mohammad Ali Dehlvi	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 5, May 2021	Review On Residual Block of Enhance Deep Residual Network and SR Residual Network for Single Image Super Resolution
62	Deeksha Kasture, Divyansh Sarraf, Diya Chouhan	International Journal for Scientific Research in Engineering and Management, Vol. 5, Issue 5, May 2021	Time Division Algorithm for Density Based Traffic System Using Image Processing
63	Darshana Porwal, Darshika Verma, Isha Joshi	International Research Journal of Modernization in Engineering Technology and Science, Vol. 3, Issue 5, May 2021	Which Agile Method Is Best?



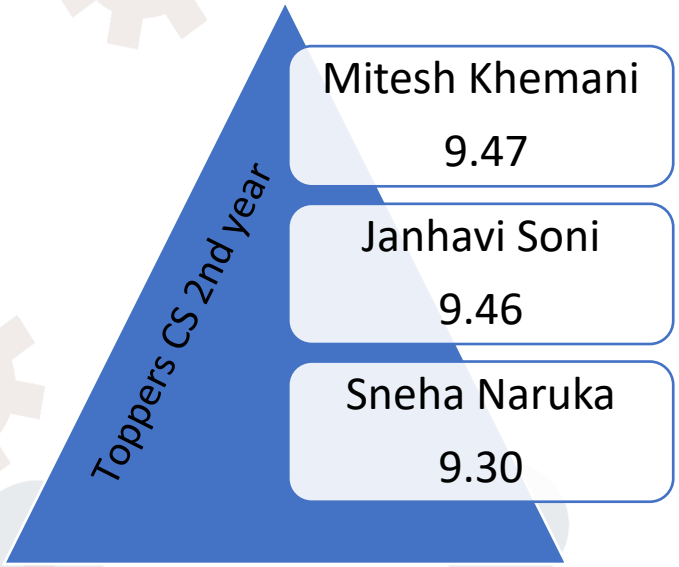
64	Praveen Gupta, Sagar Mandiya, Samay Pashine	International Research Journal of Engineering and Technology, Vol. 8, Issue 5, May 2021	Deep Fake Detection: Survey of Facial Manipulation Detection Solution
65	Garvita Gehlot	International Journal of Engineering Applied Science and Technology, Vol. 5, Issue 12, April 2021	Diet Expert- Android Application for Personal Diet Consultant

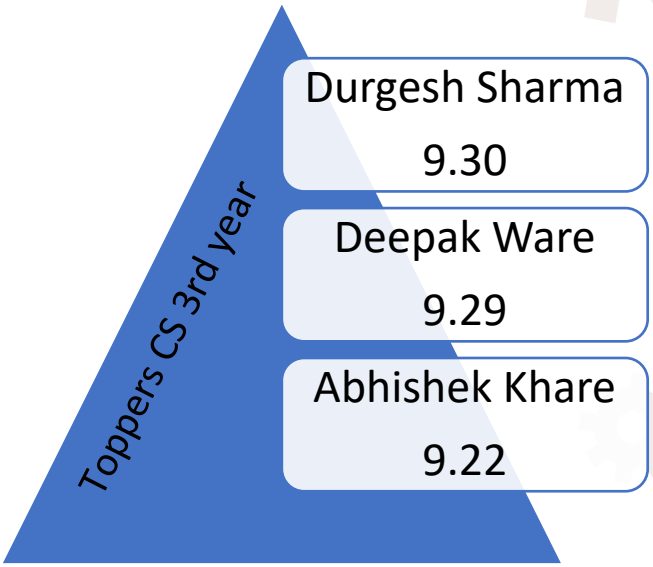
Internships Grabbed by Students:

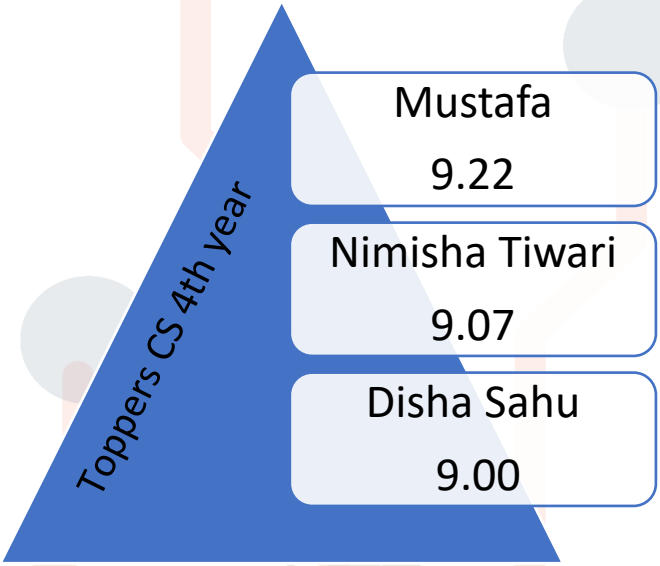
S.No.	Name of Student	Organization
1	Tanishq Rawat	Cerebry
2	Aishly Manglani	The sparks foundation
3	Suhani Jain	NIIT foundation
4	Aditya Pawar	Kaafila.org
5	Sanskar Soni	Technomize
6	Yogesh Vishnole	Bajaj Finserv Health Limited
7	Krishan Murari Barnwal	Technomize
8	Sanjana Singh	Sanghi Brothers PVT. LTD.
9	Priyanka Raghuvanshi	AVIPL
10	Priyanka Raghuvanshi	IDEADUNES
11	Garima Mehta	Technomize
12	Ayush Atre	Dingg , Pune
13	Anish Parmar	Yardi
14	Avani Saraf	Yardi
15	Deepak Manohar Ware	Yardi
16	Deesha Rawat	Yardi
17	Madhur Sharma	Yardi
18	Mohit Joshi	Yardi
19	Swapnil Kaushal	Yardi
20	Yashwant Patidar	Yardi

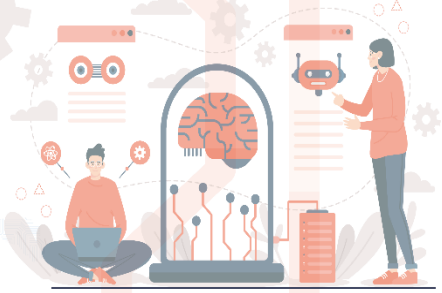
Result Analysis (June 2021)

Year	Students	Passed	Fail	Distinction	Pass %
CS IV Year	247	247	0	148	100%
CS III Year	260	260	0	191	100%
CS II Year	282	282	0	252	100%





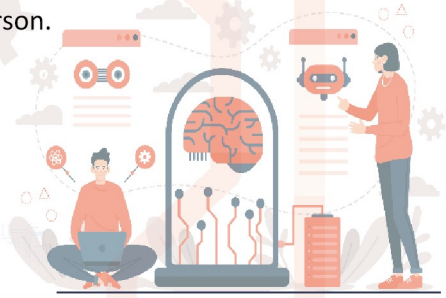




Department Insights

Events Conducted by the Department

1. Webinar on "**A Tour of Git & GitHub**" was organized on 2 October 2021. Mr. Mrinal Jain, Indore Lead – Facebook Developer Circle, was the resource person for the same.
2. Webinar on "**Zenith 2021**" was organized on 4 September 2021.
3. NPTEL awareness e-workshop was conducted on 27 August 2021 for faculties and students by Ms. Vaibhali Bahl, Project Engineer & coordinator, NPTEL, IIT Kanpur.
4. Digital poster making competition was organized on the theme "**A startup on waste management in India**" on 24 August 2021.
5. A webinar was organized on **"Innovation & opportunities for startup in E-waste management" u**nder the aegis of IIC on 22 August 2021.
6. Industrial training on AWS was conducted for 4th year students from 7 June to 11 August 2021 by Prof. Rahul Patel and Prof. Kavita Namdeo.
7. Programing contest **"Challenge 1.0"** was conducted from 30 July to 2 August 2021 for on **HackerRank**.
8. UiPath training was conducted for 3rd year students from 7 June to 31 July 2021 by Prof. Narendra Pal Singh Rathore, Prof. Mahavir Jain and Prof. Yashpal Patel.
9. FDP on UiPath citizen developer foundation was conducted on 28 -29 July 2021 by Mr. Niyaz Ahmad, Program Manager - Learning Alliances and Certification, UiPath.
10. Summer training was conducted on C Programming and HTML from 5 Jun to 19 July 2021.
11. Programming contest **"Beginning 1.0"** was conducted on 16 July 2021 on **HackerRank**.
12. Webinar on "Introduction to machine learning" was organized on 5 June 2021. Mr. Amar Ayoub, technocolabs was the resource person for the same.
13. Virtual Parent-Teacher Meeting was organized 4 June 2021.
14. Webinar on "**A Professional Approach to Java**" was organized on 1 June 2021 in association with IIC & Alumni Cell AITR. Mr. Ankush Kodiwal was the resource person for the same.
15. Webinar on "**Code Refactoring**" was organized on 29 May 2021 in association with Alumni Cell AITR. Ms. Madhuri Agrawal was the resource person for the same.
16. Webinar on "**Latest Trends in Mobile Technologies**" was organized on 29 May. Mr. Ashish Agrawal, Senior Software Engineer, Growindia Pvt. Ltd., was the resource person.
17. Webinar on "**Successful start-up founders**" was organized on 29 May 2021 in association with IIC AITR. Mr. Aman Porwal, Founder & CEO, Momskart was the resource person.

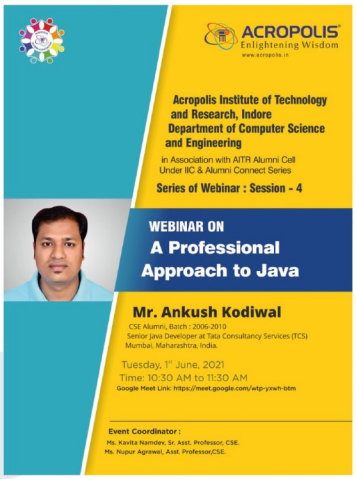


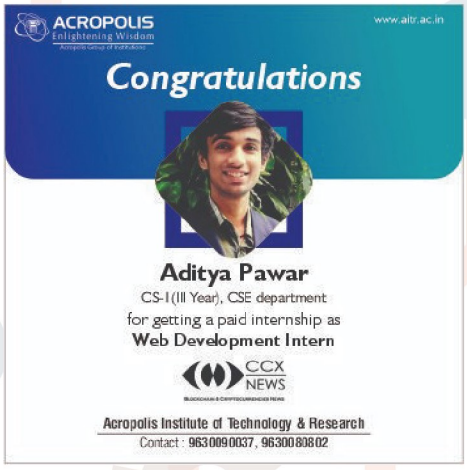
18. Webinar on "**Making a career in Web Development**" was organized on 28 May 2021 in association with IIC & Alumni cell AITR.
19. Webinar on "**Introduction to ML & NLP**" was organized on 22 May 2021 in association with Alumni cell AITR. Mr. Atharva Mungee was the resource person for the same.
20. Webinar on "**Automation Testing**" was organized on 15 May 2021 in association with Alumni cell AITR. Mr. Akhilesh Madmale was the resource person for the same.
21. Webinar on "**Internet of Things**" was organized on 5 May 2021. Mr. K. K. Rathi, Technology Evangelist, Microsoft Technology was the resource person for the same.

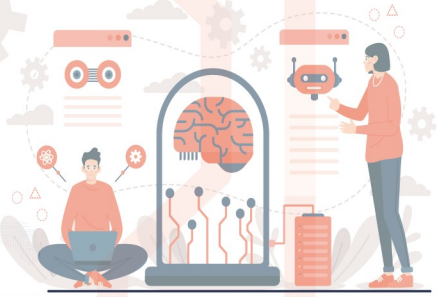
Internal FDP Conducted:

Date	Topic	Resource Person
6 July 2021	Competitive Programming	Prof. Ajay Kharti
7 July 2021	NoSQL & MongoDB	Prof. Yashpal Patel
8 July 2021	Cryptography & RSA algorithm	Dr. Rashid Sheikh
9 July 2021	Tableau	Prof. Narendra Pal Singh Rathore
10 July 2021	ANN	Dr. Amit Khare
10 July 2021	AJAX	Prof. Shaifali Shrivastav
12 July 2021	SQL Injection	Prof. Kavita Namdeo
13 July 2021	NBA CO, PO, PSO, mapping attainment	Prof. Mahavir Jain
14 July 2021	Decision Tree	Prof. Rahul Moriwal
15 July 2021	Git/GitHub	Prof. Shivshankar Rajput
17 July 2021	MS Excel & Data Analytics	Prof. Priyanka Jangde

Glimpses







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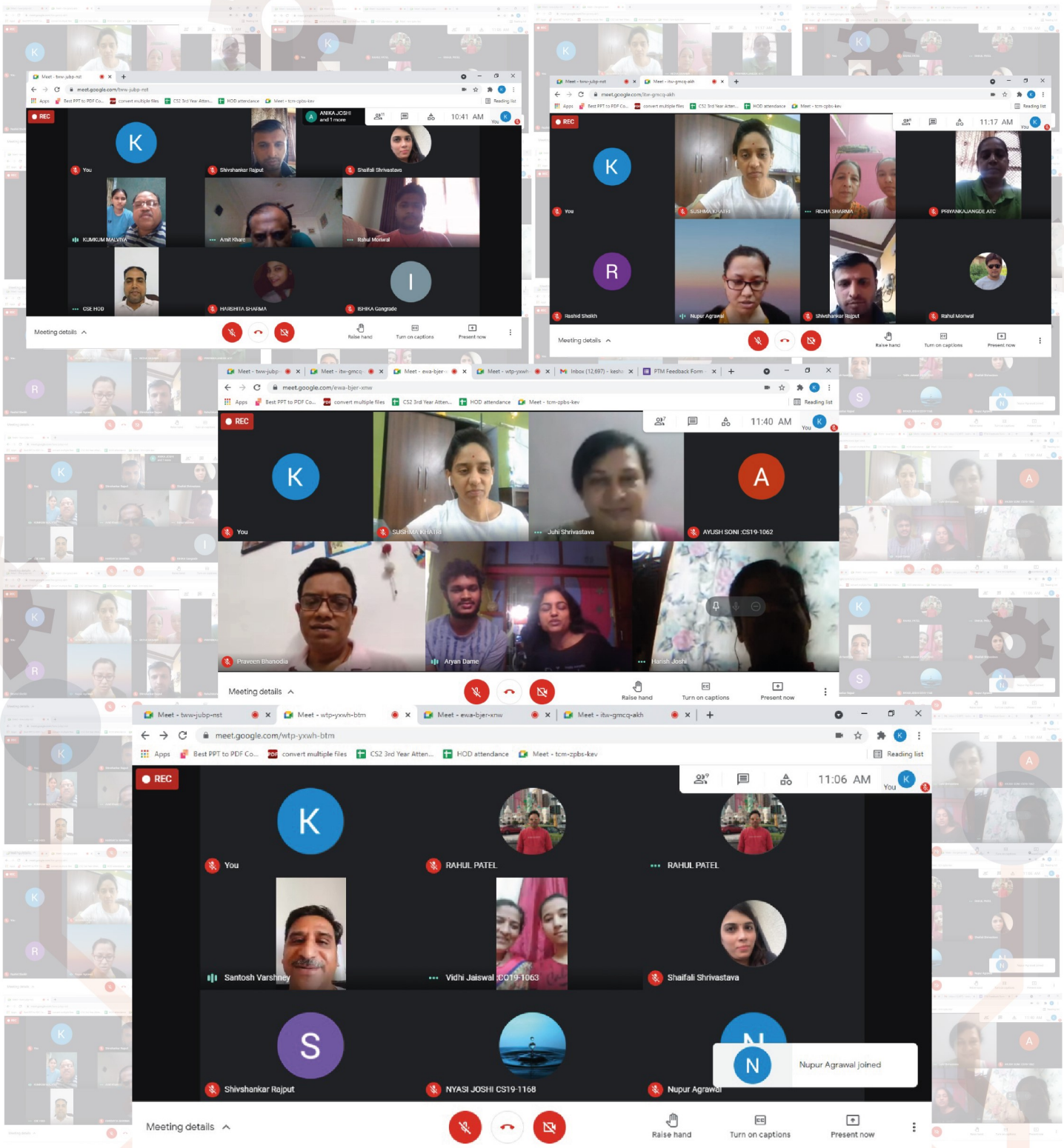
Glimpses-PTM



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Ayush Atre


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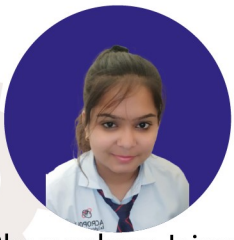
Alina Mirza


Abhishek Khare


Adarsh Rathore


Esha Joshi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Mickey Ashley Menezes


Aditya Purohit


Ajinkya Muley


Avani Saraf


Chaman Modi


Deesha Rawat


Jayesh Manglani


Harsh Tonde


Gracy Parkhe


Sarthak Gupta


Sanchita Jain


Pratik Sharma


Vardhaman Chopra

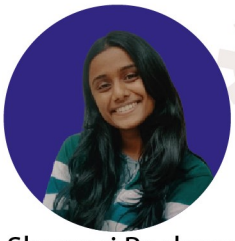

Harshit Goyal

Capgemini


Vanshika Rajput


Siddhi Jain


Shreya Patidar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Ishika Shendge


Amber Sanghvi

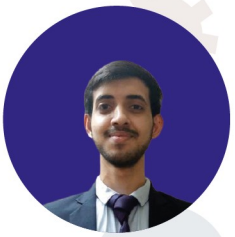

Aman Pratap Singh


Lokesh Verma


Manas Satpute


Vardhaman Chopra


Divakar Mourya

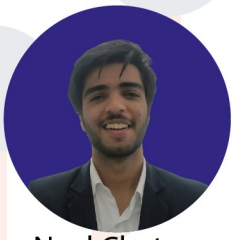

Yogesh Sharma


Vartika Joshi


Shruti Kanungo


Vanshika Rajput


Urvish Bundela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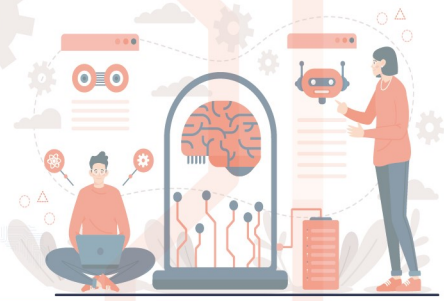

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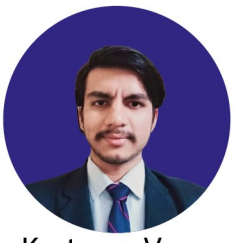
Aayush Gehi


Priyanshi Gupta


Harshala Gaikwad


Harshit Gupta


Yash Kulkarni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Kirti Rathore


Pradhuman Vaidya


Durgesh Sharma

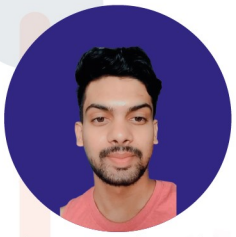

Ayush Solanki


Anurag Bhatt

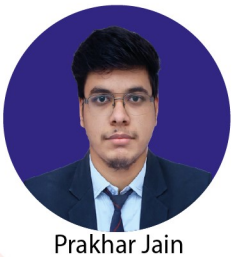

Medha Kasture


Tanisha Singhai


Shivam Mewade


Aditya Deshmukh


Ayush Thakre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Aditya Mandliya


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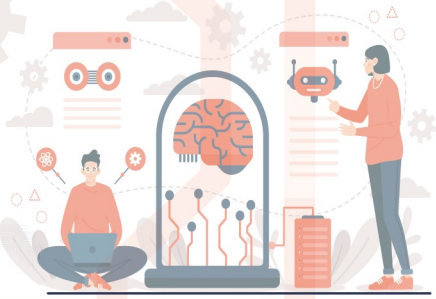

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Anadi Kulkarni


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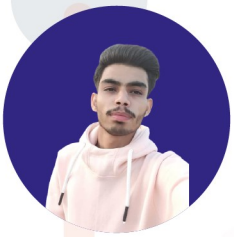
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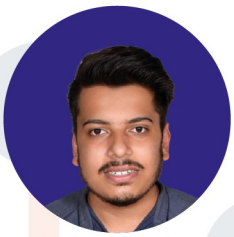
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Pratik Sharma


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Janhavi Thakur


Kartik Garg


Aleena Syed


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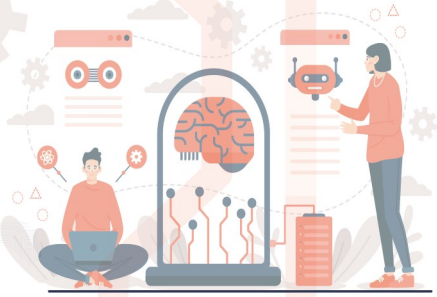

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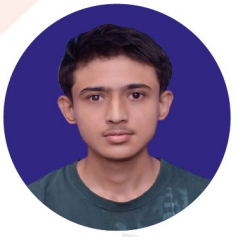
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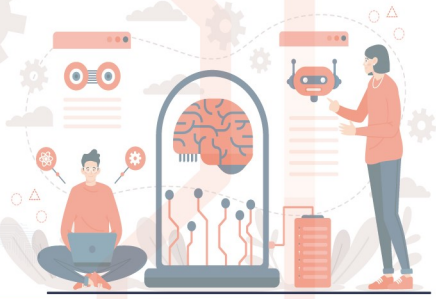
Omansh Kalra



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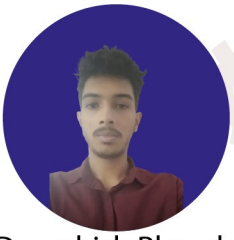
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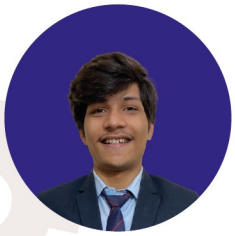
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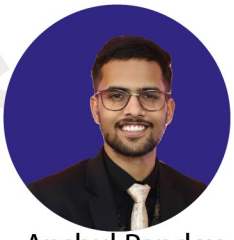
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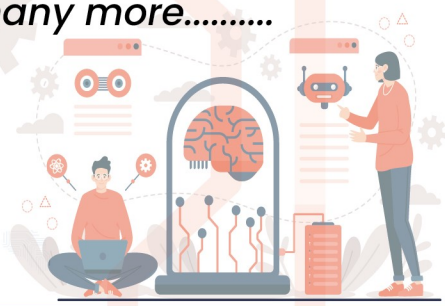

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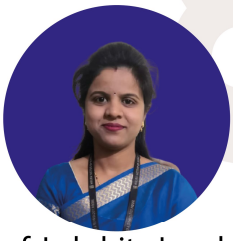

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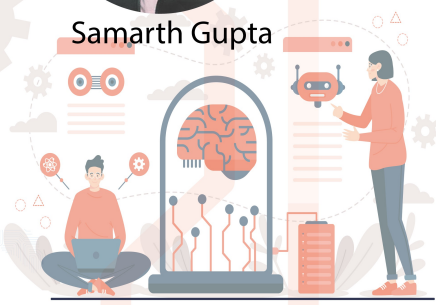

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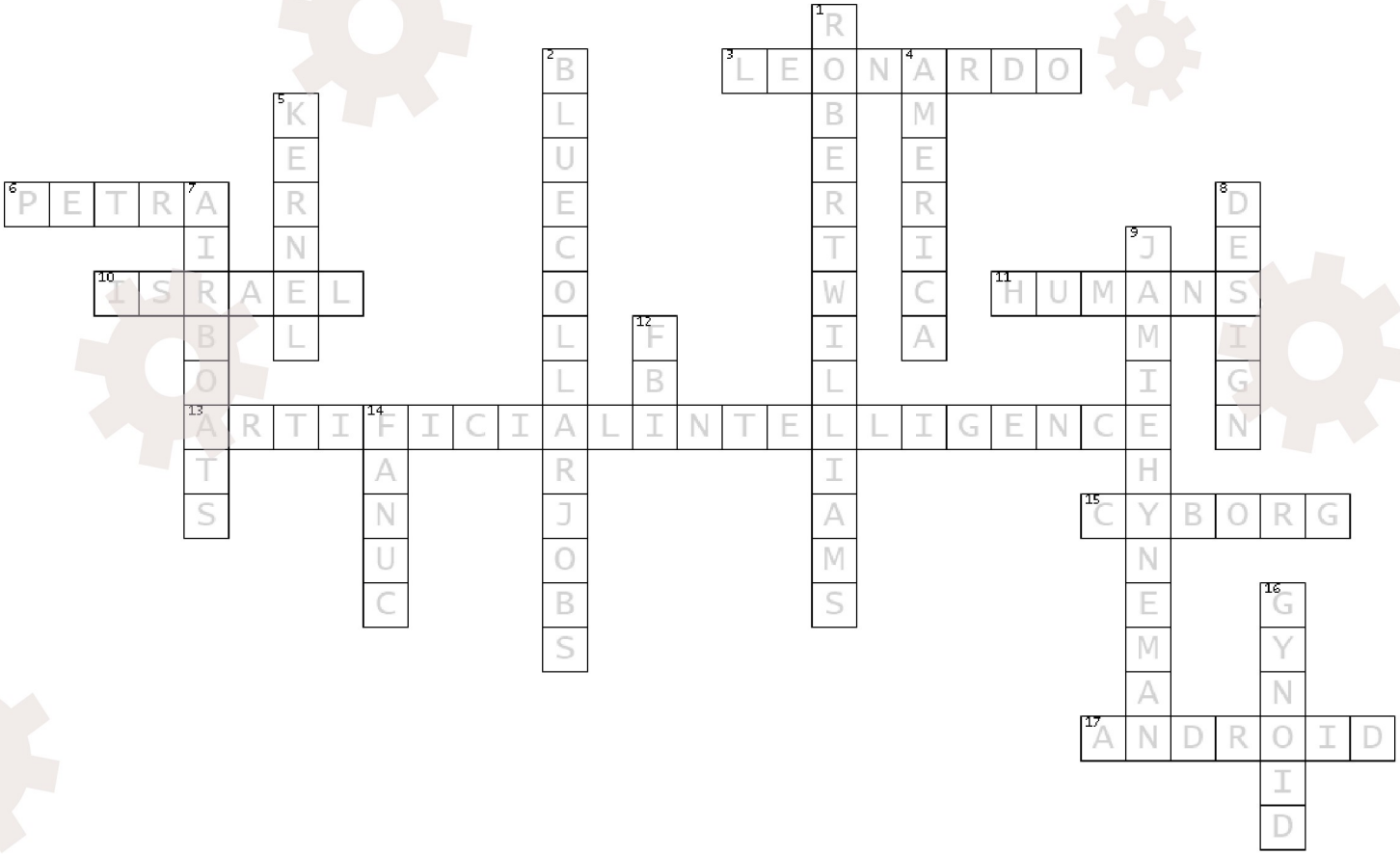

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Computer Science Stream Courses Offered by Acropolis

Courses	Seats
B.Tech (CSE)	240
B.Tech(AI & ML)	60
B.Tech (DS)	60
B.Tech (IOT)	60
B.Tech (IT)	120
B.Tech (CSIT)	180
M.Tech (IOT)	18
M.Tech (AI & DS)	18
MCA	60
MCA (Integrated)	60

Career Path in Computer Science Stream

Software Engineer	SAP Net Weaver Programmer
Software Developer	System Analyst
Software Development Manager	System Engineer
Network Control Specialist	Data Scientist
Distributed Systems Programmer	Network Engineer
Network Security Specialist	Network Auditor
Game Developer	Project Manager
Database Administrator	Software Tester
Data Analyst	Secure Software Engineer
Data Warehouse Specialist	Mobile App Development
Website Developer	Computer Forensics Specialist

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