

NOVEMBER 2021, ISSUE 3

Gbyte 2.3

Department of Computer Science and
Engineering



DATA



SCIENCE



**GOEL
Institute of
Technology & Management
Lucknow**

Approved by AICTE, New Delhi
Affiliated to Dr. APJ Abdul Kalam Technical University



GOEL INSTITUTE OF TECHNOLOGY AND MANAGEMENT, LUCKNOW

AFFILIATED FROM Dr. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW, U.P

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Campus:

Established in 2008
Approved by AICTE, New Delhi
Affiliated to Dr. APJ Abdul Kalam Technical University Lucknow

Department:

Quality Focused & Global Standard academic system
Highly qualified & well experienced faculty members
Faculty participation in research & Phd Programs
Excellent placement record
Departmental club CompuNerds
Department E-Magazine Gbyte 2.3
Alliance with NPTEL, CSI, EICT Academy, Spoken Tutorial

Laboratories:

- DBMS Lab
- Computer Network Lab
- JAVA Programming Lab
- C/C++ Programming Lab
- R & D Lab
- Algorithms Lab
- Computer Graphics Lab
- Project Lab
- MATLAB Lab

Placement (2020-21):

Major Recruiters: Capgemini, TCS, Accenture, Cedcross, Svayam Infoware Pvt Ltd, Mentor Infotech Solutions etc.

Highest Package: 3.80 Lakhs
Students Placed: 85% (2020-21)
Companies Visited in Campus: 4
Entrepreneur - 2
Higher Studies- 4



Industry MOU:

- 1) Softpro India Pvt. Ltd.
- 2) E&ICT Academy IIT (Kanpur)
- 3) Infoseek Pvt. Ltd.



STUDENT ACHIEVEMENTS & AWARDS:

- Student participation & paper Presentation in various National & International Conferences.
- Students awarded in various National Level Technical Project Competitions.
- HACKATHON -2021 Screening.
- Active participation in Sports Up to Zonal & State Level.

Innovation & Entrepreneurship:

- Students innovative projects.
- Demonstration in TECHNOVATION HACKATHON -(SIH-2021).
- Regular interaction with Alumni Entrepreneur

DEAR READERS

It gives us immense pleasure to issue a "G-Byte e-magazine" for the month of November, 2021. This is a quarterly e-magazine issued by the Department of Computer Science and Engineering for displaying the activities and initiatives taken by the Department. This edition of the magazine includes a glance at all the activities, accomplishments, and initiatives taken by the Department in the second quarter of the year 2021.

INSTITUTE VISION

Bring together rural and urban students providing them quality education to become complete professionals

INSTITUTE MISSION

- ❖ To inculcate professional excellence in students with ethical and moral values.*
- ❖ To arrange and maintain state of the art infrastructure to excel in studies.*
- ❖ To nurture academic atmosphere to cater the needs of academics fraternity.*
- ❖ To enhance industry institute interaction with close relationship with alumnus.*

DEPARTMENT VISION

To provide a congenial environment for learning in discipline of Computer Science and Engineering, and to mobilize students towards serving a globalized technological society

DEPARTMENT MISSION:

- To ensure that every engineering student is proficient with necessary computer skills.*
- To familiarize students with latest developments in Computer Science and Information Technology and motivate them to embrace all challenges and be future ready.*
- To inculcate strong ethical values, research capabilities, professional behavior and leadership abilities so as to work with commitment for progress of the nation.*

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: The Students graduating from the department shall be made proficient in all the necessary computer skills to make them job ready for national and multi-national companies.

PEO2: The Students graduating from the department shall be made familiarize with the latest development in computer science so that they can pursue their carrier in higher studies.

PEO3: The Students graduating from the department shall inculcate professional behaviour and leadership capabilities in their character to start up their own business or develop as entrepreneur.

PEO4: The Students graduating from the department shall be fed with strong ethical values so that they can become the boon for society.

PROGRAM SPECIFIC OUTCOMES (PSOS)

PSO1: *To provide relevant knowledge of mathematical and algorithmic skills with core subjects of computer science engineering elevated with standard tools and technologies along powered by ethical and behavioural attitude in practice to have perfect suitability for industry, academia and research interfaces.*

PSO2: *To inculcate the ability of using abstractions and modelling techniques for formulating real world engineering problems of various domains and design solutions.
ne learning, computer vision and etc.*

PSO3: *To enhance knowledge and skills of understanding, analysing and developing strategies utilizing the advancement of computer science engineering in upcoming area like data science, cloud computing, machi-*

Chairman's MESSAGE



Protect Your Community
I wash my hands & avoid large crowds
#COVID19

Er. Mahesh Goel
Chairman/Trustee

With the grace of god and blessings of our visionary grandparents Sri Roop Chand Agarwal and our father Shri Ramji Lal Agarwal, we formed a Trust Sri Roop Chand Ramji Lal Educational Trust (RCRL) with a vision to educate youth from all walks of life.

I am glad to say that in 10 years of this service to the nation, Goel group of Institutions under RCRL Trust have been delivering education to all age of young minds in almost all fields of education.

Our emphasis is that even though students come from different backgrounds but when they go out, they are perfect professional and worthy citizen of this great country India.

I assure that Trust would fulfill the requirement of all the institutes to make its student successful professional to serve the society and country at large & I can proudly say that you send your toddler to the group and it may come out as a matured professional.

I welcome you to be a part of our journey to acquire knowledge that provides benefits to both self and mankind.

Vice Chairman's MESSAGE



Mr. Murari Lal Goel
Vice Chairman

In an era of globalization, a well planned infrastructure and faculty is a must for a Conducive teaching-learning process in the campus and a good connectivity to the countries at large. I hope that my thirty years experience of construction marvelous buildings will fulfill a dream of my ancestors, my father Late Sri Ramji Lal Agarwal and grandfather, Late Sri Roop Chand Agarwal, to provide grand building and world class infrastructure which enhances the moral and confidence of our students to face the challenges in corporate and professional world. I hope that will also create the landscape of my campus which is lush green, sprawling and eco friendly. In the end I would like to say that excellence is never an accident, it is the result of commitment, meticulous planning, firm determination and ceaseless effort. I hope that we nurture sense of excellence in all our students and staffs.

Director's MESSAGE



Dr. Rishi Asthana
Director

Goel Institute of Technology and Management is on a fascinating path of growth and development. As it has completed 13 years of its establishment, it has evolved itself as one of the top technological institutes of the state.

Starting with, B.Tech. courses only, it has expanded in post graduate program in MBA, Mechanical Electronics and Computer science and Engineering also. It has also facilitated the students to enter at diploma level in Mechanical, Civil and Electrical engineering disciplines.

The faculty at the institute is a good blend of young and experienced academicians and dedicated supporting staffs who work hard to develop students not only technically but also develop their intrinsic skills for overall personality development.

Institute has excellent infrastructure, latest technology labs and - 50 Mbps internet facility round the clock helps the students to excel in their chosen field.

Institute is also having a Training and Placement cell which is continuously working hard to fill the gap between industry and institute by arranging various seminars and workshops and thus enhancing their scope not only in campus placement but also in jobs of their choice at large.

I welcome all the students entering in 2020-21. We look forward to build a long lasting and mutually beneficial relationship with you.

Head of department (HOD) MESSAGE



Prof. Dr. Devendra Agarwal
Head of Department (CSE)

Dear Students,

Since 2008 (inception year), we are providing quality education. Our sole mission is helping students to become “competent technocrats and business managers who are also principled value-based leaders”. We have succeeded in our mission by embracing a 100% interactive educational philosophy, which is practiced, organization students and faculty. GITM is a center of learning where young talent is nurtured in different fields of engineering and management. The major emphasis is on imparting technical training to encourage curiosity and innovativeness among the students and the foundation from where they can acquire quick learning ability and adaptively with the fast-changing needs of the industry. I am sure you will enjoy your time here and it will be a great learning experience for you. We will work, learn, and grow together and take the institute the new heights in the academic field and maintain the highest standards with diverse cultural heritage. Our faculty members are excellent in teaching and research, with frequent publications in top journals. They bring innovation and diversity to the classroom, which helps us deliver memorable learning experiences to students. In addition to that, students also get a chance to interact with industry specialists and alumni, who help broaden their understanding of various concepts through their own experiences, Tam confident that our students would be an asset to any organization through their technical and managerial capabilities.



Deputy Head of department (Dy. HOD) **MESSAGE**

Er. Brijesh Pandey

Deputy Head of Department (CSE)

Learning is a continuous process and does not end with the acquisition of a degree specially because steady and rapid advances in computing technologies shorten the life of tools and techniques prevalent today.

Therefore we do not aim to make our students walking manuals of any language or package. Instead they are given a strong foundation in computer science and problem solving techniques, and are made adaptable to changes. We believe that this approach to teaching-learning, coupled with practical experience gain during industrial training in reputed organizations, equips our students to handle the challenges posed by the software industry.

I am confident that you will find yourself worthy to show your talent in any organization globally.

EDITORIAL BOARD



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Chief Editor



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CSE- 3rd Year



Nishant Pandey
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Anudeep Verma
CSE- 3rd Year

MESSAGE FROM EDITORIAL DESK

It is our greatest pleasure to present this edition of "G-Byte" to you. It showcases the literary talent, innovative ideas, creative work of our students and teachers, and proud accomplishments of the Department of Computer science and engineering. The magazine started its journey as a mere thought, fighting all the obstacles coming in its way and, has finally reached our readers' hands. We express our gratitude to all those who contributed to this dream to come true, especially to our authors. The generous efforts from the contributors to this magazine are the reasons for its possible existence. We hope you enjoy reading it.

Thank you all!

FACULTY OF DEPARTMENT COMPUTER SCIENCE AND ENGINEERING



Dr. Devendra Agarwal



Mr. Brijesh Pandey



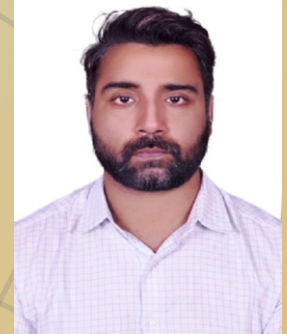
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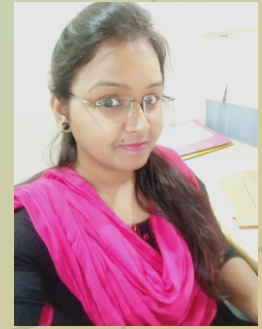
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EDITORIAL





Dr. Satya Bhushan
Associate Professor
GITM, CSE

TOOLS FOR DATA SCIENCE

Introduction

Data science is an inter-disciplinary field that adopts data collection, pre-processing, meaning/useful feature extraction methods, data exploration methods, and predictive models to extract knowledge from a wide range of structured and unstructured data. Given the structure, size, heterogeneity, and complexity of the data sets, a wide range of data science tools and techniques have been developed. Among them, statistical machine learning is a prominent class of methods that are used and adopted for many data science task. Next, we will review three widely used subclass of ML methods.

Supervised learning

It is used to model the functional relationship between the output variables and one or more independent input variables. Typically, the original function relationship is unknown and/or hard to derive in an analytical form. The approach starts with a set of training data given as a large set of input-output pair. The goal is to find a surrogate function for original function relationship such that the difference between

prediction from the surrogate function and the observed value is minimal for all input-output pair in the training data and the unseen testing data. Several supervised learning algorithms exist in the ML literature. Based on the functionality, one can group them as follows: regularization, instance-based methods, recursive partitioning, kernel-based methods, artificial neural networks, bagging, and boosting methods. Often, the best method depends on the data and type of the modeling task, such as volume of data, variety of data, and speed required for training and inference. Here, we cover several widely adopted algorithms to cover different groups. We will review them from regression perspective (predicting a scalar value). Without loss of generality, most of these methods also handle classification (predicting a class).

Multivariate linear regression is one of the simplest methods for modelling the functional relationship between inputs and output. It models the functional relationship using a linear equation. This is given by the sum of product of each input with a scaling factor. A bias factor is also added to the equation. The multivariate linear regression involves finding the scaling factors and the bias. It is one of the well understood method and often preferred for interpretability and simplicity. It is important that data science practitioners try and adopt this method as a baseline and comparison to other methods.

Ridge regression is a regularization algorithm that is designed to reduce the model complexity so that the model does not overfit the training data. This overfitting occurs in supervised learning when the model learns small variations and/or noise in the training set and consequently loses prediction accuracy on the testing data. To do so, in addition to minimizing the error between predicted and actual observations, the method penalizes the training objective with respect to input coefficients and achieves tradeoff between minimizing the error and minimizing the sum of the square of the coefficients.

k-nearest-neighbor regression belongs to the class of instance based methods, where the training data is stored in memory and the model is built only during testing. Given a testing point, the method first finds k nearest input points in the training data and returns the prediction as the average of k outputs. Typically, k and the nearest distance metric are user defined hyperparameters.

Support vector machine is a widely-used kernel-based method. It uses a kernel function to project the input space onto a higher-dimensional feature space; a linear regression is performed in the transformed space. The training is formulated as a convex quadratic optimization problem, for which efficient optimization algorithms are utilized. The effectiveness of this method depends on a good choice of kernel type and their hyperparameters.

Decision tree regression belongs to the class of recursive partitioning methods. It recursively splits the multidimensional input space of training points into regions such that inputs with similar outputs fall within the same region. The splits give rise to a set of if-else rules. For each region, an average over the output values is computed and stored at the end of each rule. Given a new testing point, the decision tree employs the if-else rule to return the stored value as the predicted value.

Random forest is a bagging approach that considers random subsamples of the training dataset and builds a decision tree on each subsample. Given a new test data point, the prediction from each tree is averaged to obtain the predicted value.

Gradient boosting regression is similar to random forest but the trees are constructed sequentially on each random subsample. The key idea is to build each tree to minimize the error of the previous tree.

Deep neural networks belong to the class of artificial neural networks. They are characterized by stacked layers, where each layer is composed of a number of units. Each unit receives inputs from units from previous layers, which are combined in a weighted linear fashion and passed through a nonlinear function. The first layer receives the training points and the predictions are obtained from the last layer of the stack. The training phase consists of modifying the weights of the stacked layers to minimize the prediction error on the training data set. This is typically done by stochastic gradient descent optimization method that computes the gradients of the objective function with respect to all the weights in the network and uses them to update the weights.

Unsupervised learning

Traditionally, unsupervised learning methods were used for exploratory analysis. Notably, clustering and dimension reduction methods were adopted for a wide range of data science tasks. The former computes the distances between the points in the given data using a distance metric, which is then used to group similar points. The latter is often employed to project the high dimensional data into low dimensional embedding space for visualization. In recent years, auto encoders, a class of deep neural networks, have received significant attention for dimension reduction method due to their ability to perform effective nonlinear dimension reduction and handle large amount of data. Another key advancement in the area of unsupervised learning is generative modelling, which has potential to understand and explain the underlying structure of the input data when there are few–or even no–labels. A promising generative modelling approach that has received much recent attention is generative adversarial network (GAN). The basic idea in GAN is to train two deep neural networks simultaneously and capture the domain-specific features and representations from the unlabelled data and deploy them as labelled

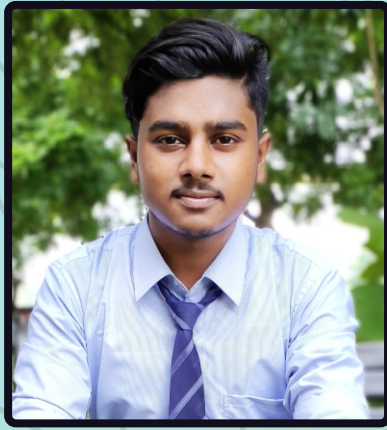
data becomes available. For example, GANs can produce high quality synthetic images of real-world objects without having any explicit labels of what those objects are. By automatically extracting the underlying structure of the inputs without labels, GANs can empower supervised learning methods to understand the context of the domain in which they operate.

Reinforcement learning

It is an approach that is concerned with training agents for autonomous design and control. The agents interact within an environment, receive rewards, and use them to improve the actions iteratively using training settings. The agents once trained can be deployed for control in test settings.

The data science software ecosystem is quite vibrant has a wide range of software tools and many of them are open-source. Scikit-learn is one of the widely used package for numerous data science tasks. It has implementation of pre-processing, unsupervised, and supervised learning methods that are integral part of many data science pipelines. Similarly, R project for statistical computing provides a number of libraries to build data science pipelines with minimal effort.

Jupyter notebook and R studio are productivity centric integrated development editors for interactive data science code development. TensorFlow and PyTorch are packages for differentiable computing and are widely used for the design and development of deep neural network models. Python and R ecosystem provides a number of libraries for data visualization for example, Matplotlib and ggplot2 RapidMiner, Weka, and KNIME software tools designed for users with minimal programming experience. They provide easy to use interfaces to build data science pipelines but do not provide flexibility and configurability as programming-intensive software stack.



Sandeep Prajapati

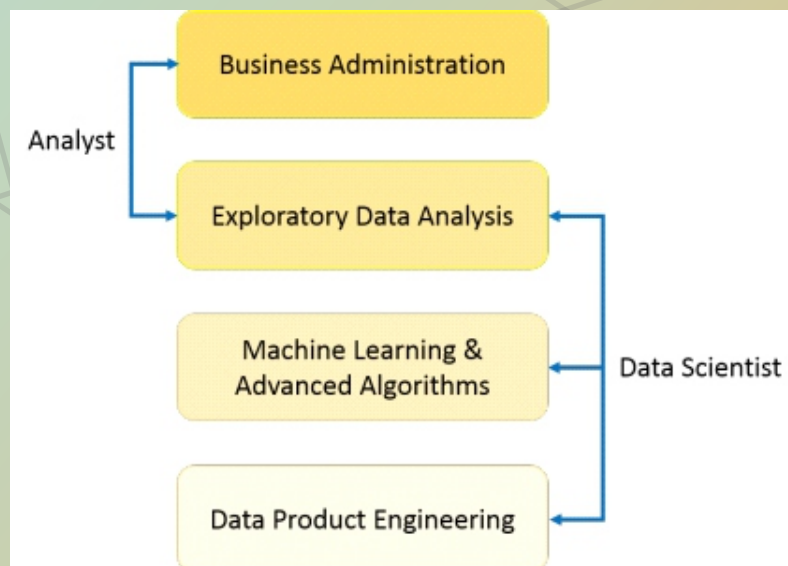
CS-3rd Year

GITM, CSE

DATA SCIENCE

Data Science is a blend of various tools, algorithms, and machine learning principles with the goal to discover hidden patterns from the raw data. But how is this different from what statisticians have been doing for years?

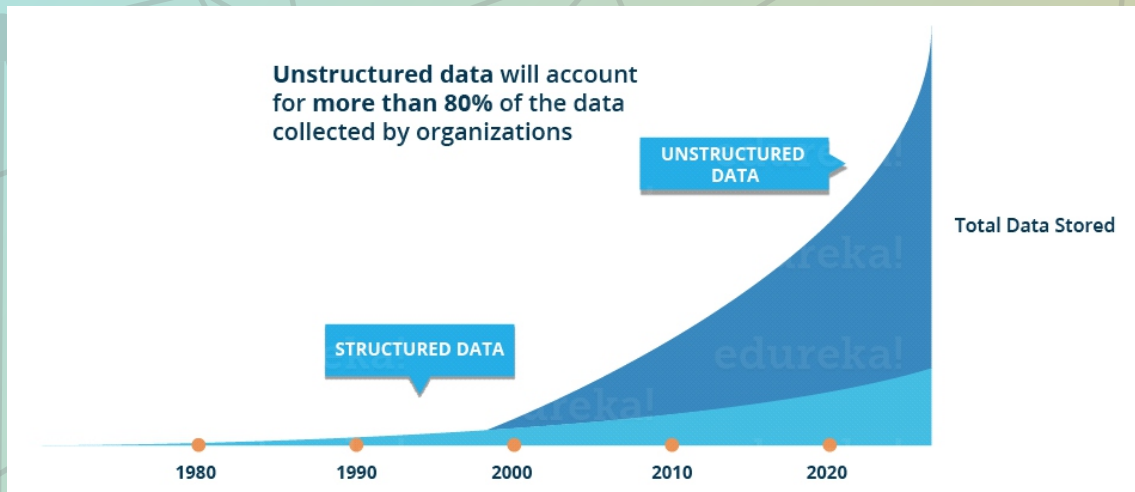
The answer lies in the difference between explaining and predicting.



As you can see from the above image, a Data Analyst usually explains what is going on by processing history of the data. On the other hand, Data Scientist not only does the exploratory analysis to discover insights from it, but also uses various advanced machine learning algorithms to identify the occurrence of a particular event in the future. A Data Scientist will look at the data from many angles, sometimes angles not known earlier.

Why Data Science?

Traditionally, the data that we had was mostly structured and small in size, which could be analyzed by using simple BI tools. Unlike data in the traditional systems which was mostly structured, today most of the data is unstructured or semi-structured. Let's have a look at the data trends in the image given below which shows that by 2020, more than 80 % of the data will be unstructured.



This data is generated from different sources like financial logs, text files, multimedia forms, sensors, and instruments. Simple BI tools are not capable of processing this huge volume and variety of data. This is why we need more complex and advanced analytical tools and algorithms for processing, analyzing and drawing meaningful insights out of it.

This is not the only reason why Data Science has become so popular. Let's dig deeper and see how Data Science is being used in various domains.

- How about if you could understand the precise requirements of your customers from the existing data like the customer's past browsing history, purchase history, age and income. No doubt you had all this data earlier too, but now with the vast amount and variety of data, you can train models more effectively and recommend the product to your customers with more precision. Wouldn't it be amazing as it will bring more business to your organization?

- Let's take a different scenario to understand the role of Data Science in decision making. How about if your car had the intelligence to drive you home? The self-driving cars collect live data from sensors, including radars, cameras, and lasers to create a map of its surroundings. Based on this data, it takes decisions like when to speed up, when to speed down, when to overtake, where to take a turn – making use of advanced machine learning algorithms.
- Let's see how Data Science can be used in predictive analytics. Let's take weather forecasting as an example. Data from ships, aircraft, radars, satellites can be collected and analyzed to build models. These models will not only forecast the weather but also help in predicting the occurrence of any natural calamities. It will help you to take appropriate measures beforehand and save many precious lives.

What does a Data Scientist do?

Data scientists are those who crack complex data problems with their strong expertise in certain scientific disciplines. They work with several elements related to mathematics, statistics, computer science, etc (though they may not be an expert in all these fields). They make a lot of use of the latest technologies in finding solutions and reaching conclusions that are crucial for an organization's growth and development. Data Scientists present the data in a much more useful form as compared to the raw data available to them from structured as well as unstructured forms.

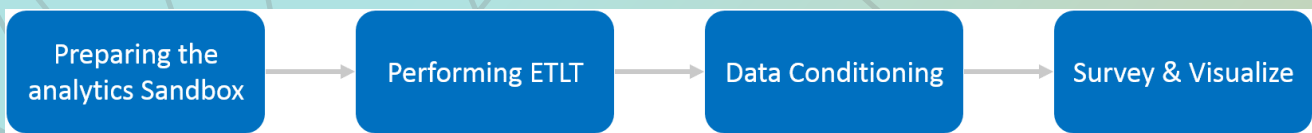
Lifecycle of Data Science

Here is a brief overview of the main phases of the Data Science Lifecycle:



Phase 1—Discovery: Before you begin the project, it is important to understand the various specifications, requirements, priorities and required budget. You must possess the ability to ask the right questions. Here, you assess if you have the required resources present in terms of people, technology, time and data to support the project. In this phase, you also need to frame the business problem and formulate initial hypotheses (IH) to test.

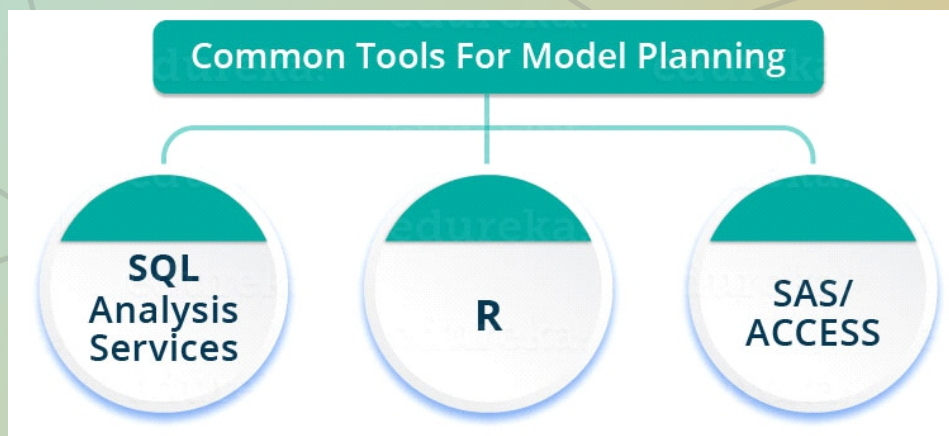
Phase 2—Data preparation: In this phase, you require analytical sandbox in which you can perform analytics for the entire duration of the project. You need to explore, preprocess and condition data prior to modeling. Further, you will perform ETLT (extract, transform, load and transform) to get data into the sandbox. Let's have a look at the Statistical Analysis flow below.



You can use R for data cleaning, transformation, and visualization. This will help you to spot the outliers and establish a relationship between the variables. Once you have cleaned and prepared the data, it's time to do exploratory analytics on it. Let's see how you can achieve that.

Phase 3—Model planning: Data Science model planning - you will determine the methods and techniques to draw the relationships between variables. These relationships will set the base for the algorithms which you will implement in the next phase. You will apply Exploratory Data Analytics (EDA) using various statistical formulas and visualization tools.

Let's have a look at various model planning tools.



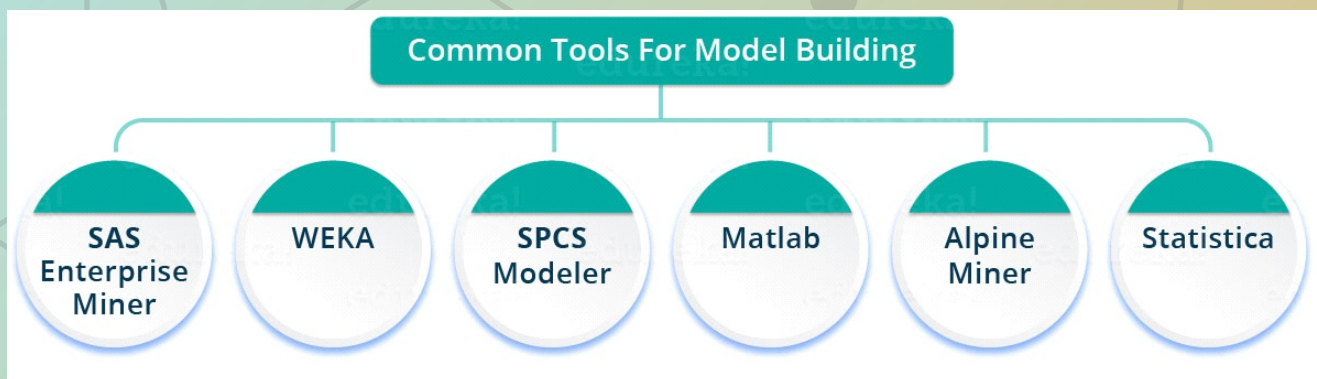
- R has a complete set of modeling capabilities and provides a good environment for building interpretive models.
- SQL Analysis services can perform in-database analytics using common data mining functions and basic predictive models.
- SAS/ACCESS can be used to access data from Hadoop and is used for creating repeatable and reusable model flow diagrams.

Although, many tools are present in the market but R is the most commonly used tool.

Now that you have got insights into the nature of your data and have decided the algorithms to be used. In the next stage, you will apply the algorithm and build up a model.

Phase 4—Model building: In this phase, you will develop datasets for training and testing purposes. Here you need to consider whether your existing tools will suffice for running the models or it will need a more robust environment (like fast and parallel processing). You will analyze various learning techniques like classification, association and clustering to build the model.

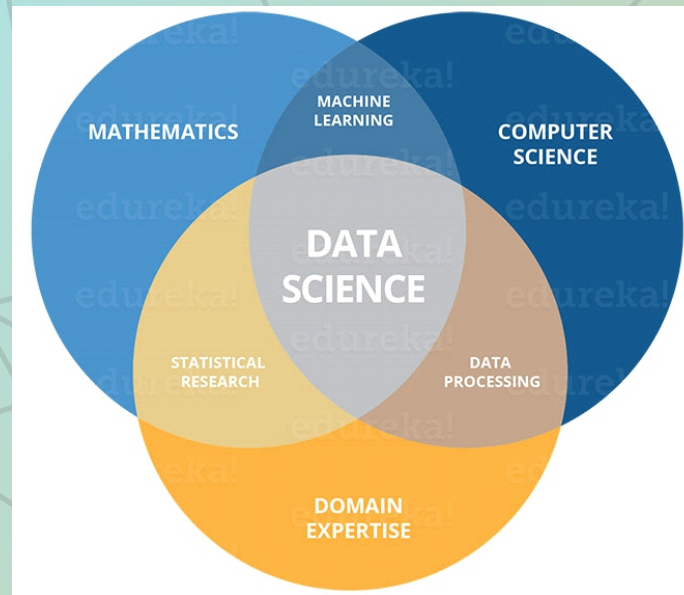
You can achieve model building through the following tools.



Phase 5—Operationalize: Data Science operationalize - you deliver final reports, briefings, code and technical documents. In addition, sometimes a pilot project is also implemented in a real-time production environment. This will provide you a clear picture of the performance and other related constraints on a small scale before full deployment.

Phase 6—Communicate results: Now it is important to evaluate if you have been able to achieve your goal that you had planned in the first phase. So, in the last phase, you identify all the key findings, communicate to the stakeholders and determine if the results of the project are a success or a failure based on the criteria developed in Phase 1.

Being a Data Scientist is easier said than done. So, let's see what all you need to be a Data Scientist. A Data Scientist requires skills basically from three major areas as shown below.



As you can see in the above image, you need to acquire various hard skills and soft skills. You need to be good at statistics and mathematics to analyze and visualize data. Needless to say, Machine Learning forms the heart of Data Science and requires you to be good at it. Also, you need to have a solid understanding of the domain you are working in to understand the business problems clearly. Your task does not end here. You should be capable of implementing various algorithms which require good coding skills. Finally, once you have made certain key decisions, it is important for you to deliver them to the stakeholders. So, good communication will definitely add brownie points to your skills.

In the end, it won't be wrong to say that the future belongs to the Data Scientists. It is predicted that by the end of the year 2021, there will be a need of around millions of Data Scientists. More and more data will provide opportunities to drive key business decisions. It is soon going to change the way we look at the world deluged with data around us. Therefore, a Data Scientist should be highly skilled and motivated to solve the most complex problems.



Aditya Kumar Verma

CS-2nd Year

GITM, CSE

DATA SCIENCE

What is Data Science ?

Data science is the field of study that combines domain expertise, programming skills, and knowledge of mathematics and statistics to extract meaningful insights from data. Data science practitioners apply machine learning algorithms to numbers, text, images, video, audio, and more to produce artificial intelligence (AI) systems to perform tasks that ordinarily require human intelligence. In turn, these systems generate insights which analysts and business users can translate into tangible business value.

A groundbreaking study in 2013 reported 90% of the entirety of the world's data has been created within the previous two years. Let that sink in. In just two years, we've collected and processed 9x the amount of information than the previous 92,000 years of



humankind combined. And it isn't slowing down. It's projected we've already created 2.7 zettabytes of data, and by 2020, that number will balloon to an astounding 44 zettabytes.

As a result, data scientists (as data science practitioners are called) require computer science and pure science skills beyond those of a typical data analyst. A data scientist must be able to do the following:

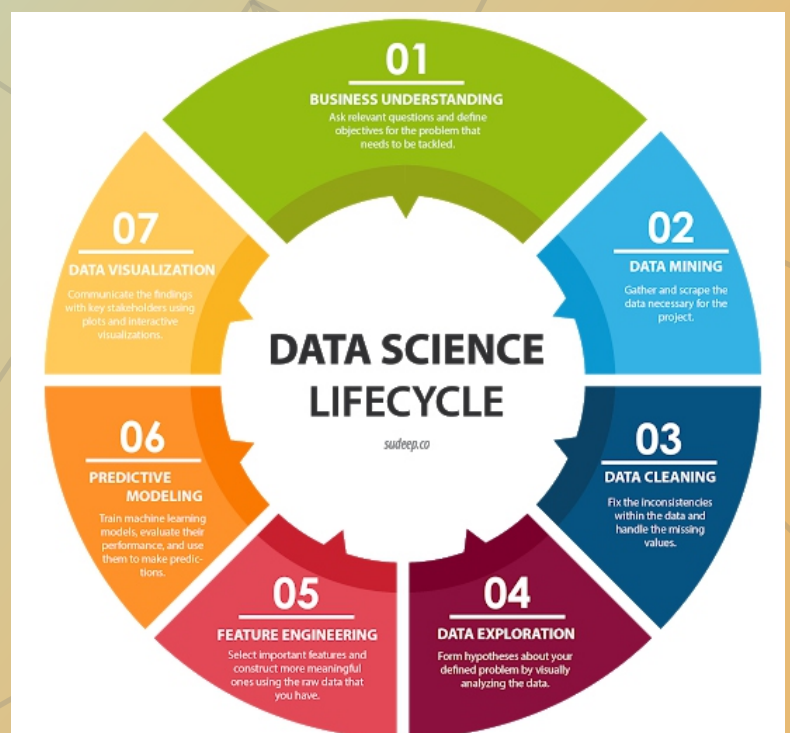
- Apply mathematics, statistics, and the scientific method.
- Use a wide range of tools and techniques for evaluating and preparing data—everything from SQL to data mining to data integration methods.
- Extract insights from data using predictive analytics and artificial intelligence (AI), including 'machine learning and deep learning models.
- Write applications that automate data processing and calculations.
- Tell—and illustrate—stories that clearly convey the meaning of results to decision-makers and stakeholders at every level of technical knowledge and understanding.
- Explain how these results can be used to solve business problems.

The Data Science lifecycle

The data science life cycle also called the data science pipeline includes anywhere from five to sixteen (depending on whom you ask) overlapping, continuing processes. The processes common to just about everyone's definition of the life cycle include the following:

- **Capture**: This is the gathering of raw structured and unstructured data from all relevant sources via just about any method from manual entry and web scraping to capturing data from systems and devices in real time.

- **Prepare and maintain:** This involves putting the raw data into a consistent format for analytics or machine learning or deep learning models. This can include everything from cleansing, deduplicating, and reformatting the data, to using ETL (extract, transform, load) or other data integration technologies to combine the data into a data warehouse, data lake, or other unified store for analysis.
- **Pre-process or process:** Here, data scientists examine biases, patterns, ranges, and distributions of values within the data to determine the data's suitability for use with predictive analytics, machine learning, and/or deep learning algorithms (or other analytical methods).
- **Analyze:** This is where the discovery happens where data scientists perform statistical analysis, predictive analytics, regression, machine learning and deep learning algorithms, and more to extract insights from the prepared data.
- **Communicate:** Finally, the insights are presented as reports, charts, and other data visualizations that make the insights and their impact on the business easier for decision-makers to understand. A data science programming language such as R or Python (see below) includes components for generating visualizations; alternatively, data scientists can use dedicated visualization tools.



Why Data Science is Important ?

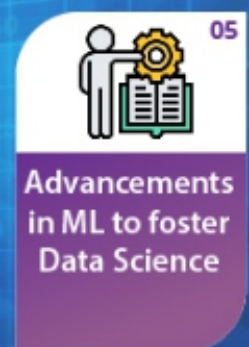
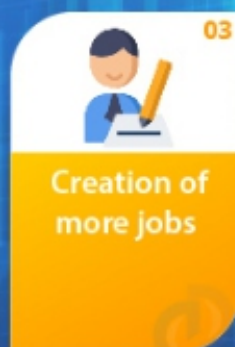
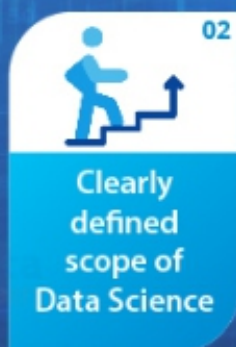
By 2020, there will be around 40 zettabytes of data that's 40 trillion gigabytes. The amount of data that exists grows exponentially. At any time, about 90 percent of this huge amount of data gets generated in the most recent two years, according to sources like IBM and SINTEF.

In fact, internet users generate about 2.5 quintillion bytes of data every day. By 2020, every person on Earth will be generating about 146,880 GB of data every day, and by 2025, that will be 165 zettabytes every year.

This means there is a huge amount of work in data science much left to uncover. According to The Guardian, in 2012 only about 0.5 percent of all data was analyzed.

Simple data analysis can interpret data from a single source, or a limited amount of data. However, data science tools are critical to understanding big data and data from multiple sources in a meaningful way. A look at some of the specific data science applications in business illustrate this point and provide a compelling introduction to data science.

Future of Data Science



What do Data Scientists do ?

Using various statistical tools, a Data Scientist has to develop models. With the help of these models, they help their clients in the decision making process. Furthermore, these models support demand generation initiatives.

Analytic objectives and approaches are planned and defined by the Data Scientists who collaborate with the internal consulting team.

Data Scientists also formulate work plans to provide support programming as well as analytical to internal consulting. There is also a provision of statistical procedures that utilize Microsoft Office and SAS suite.

It is also mandatory for the aspiring data scientists to possess strong communication skills which is the most sought non-technical skill required by many jobs. Furthermore, based on the domain of expertise of the company, the specific requirements for the job will vary accordingly.

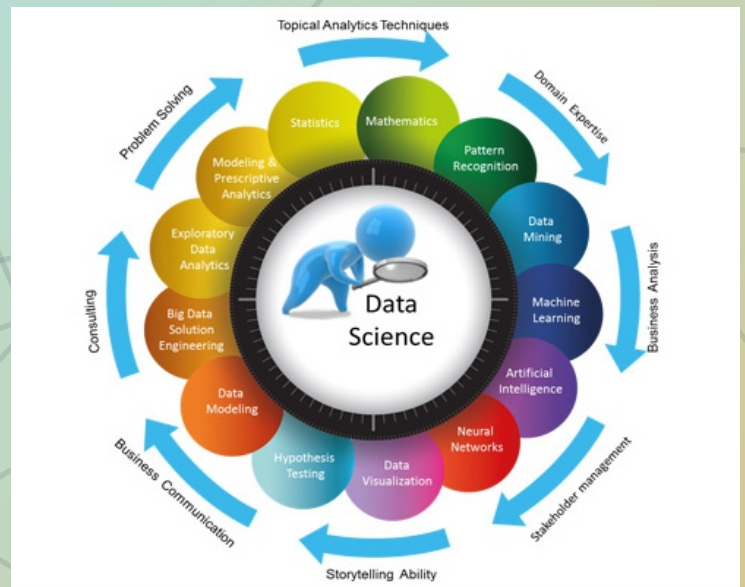
Future of Data Science

Data Science is a colossal pool of multiple data operations. These data operations also involve machine learning and statistics. Machine Learning algorithms are very much dependent on data. This data is fed to our model in the form of training set and test set which is eventually used for fine-tuning our model with various algorithmic parameters.

By all means, advancement in Machine Learning is the key contributor towards the future of data science.

In particular, Data Science also covers:

- Data Integration.
- Distributed Architecture.
- Automating Machine learning.
- Data Visualisation.
- Dashboards and BI.
- Data Engineering.
- Deployment in production mode
- Automated, data-driven decisions.



- Data Science currently does not have a fixed definition due to its vast number of data operations. These data operations will only increase in the future. However, the definition of data science will become more specific and constrained as it will only incorporate essential areas that define the core data science.
- In the near future, Data Scientists will have the ability to take on areas that are business-critical as well as several complex challenges. This will facilitate the businesses to make exponential leaps in the future. Companies in the present are facing a huge shortage of data scientists. However, this is set to change in the future.
- In India alone, there will be an acute shortage of data science professionals until 2020. The main reason for this shortage is India is because of the varied set of skills required for data science operations.

- iv. There are very few existing curricula that address the requirements of data scientists and train them. However, this is gradually changing with the introduction of Data Science degrees and boot camps that can transform a professional from a quantitative background or a software background into a fully-fledged data scientist.

How is Machine Learning the Driving Force behind the Future of Data Science?

Data Science is expanding due to the immense contributions made by machine learning. It has improved the data science scenario in the following ways :-

1. Advanced Personalisation's

Billions of users around the world are using smart phones, watches as well as other electronic devices. Customers generate such a colossal amount of data creating a huge potential for the industry to have a better understanding.

Therefore, companies are able to maximize value for themselves as well as improve the understanding of their user-base thoroughly.

2. Giving Advanced Search Engine Results to the User

Machine Learning algorithms are capable of making search results much more appealing to the user. Using Goggle advanced machine learning algorithms; we can get new content based on previous search history.

These results are predicted to grow much better in the future owing to immense researches that are ongoing in the field of machine learning.

3. Code Free Environments

With the help of Machine Learning Tools, software's are evolving at a rate such that a Ph.D. is no longer required for understanding the depth of these operations.

This is a result of a constant evolution wherein functions like pytorch and TensorFlow can be utilized to perform rapid prototyping of data science solutions.

4. Quantum Computing

The potential for quantum computing and data science is huge in the future. Machine Learning can also process the information much faster with its accelerated learning and advanced capabilities.

Based on this, the time required for solving complex problems is significantly reduced. This will boost the health-care industry massively.

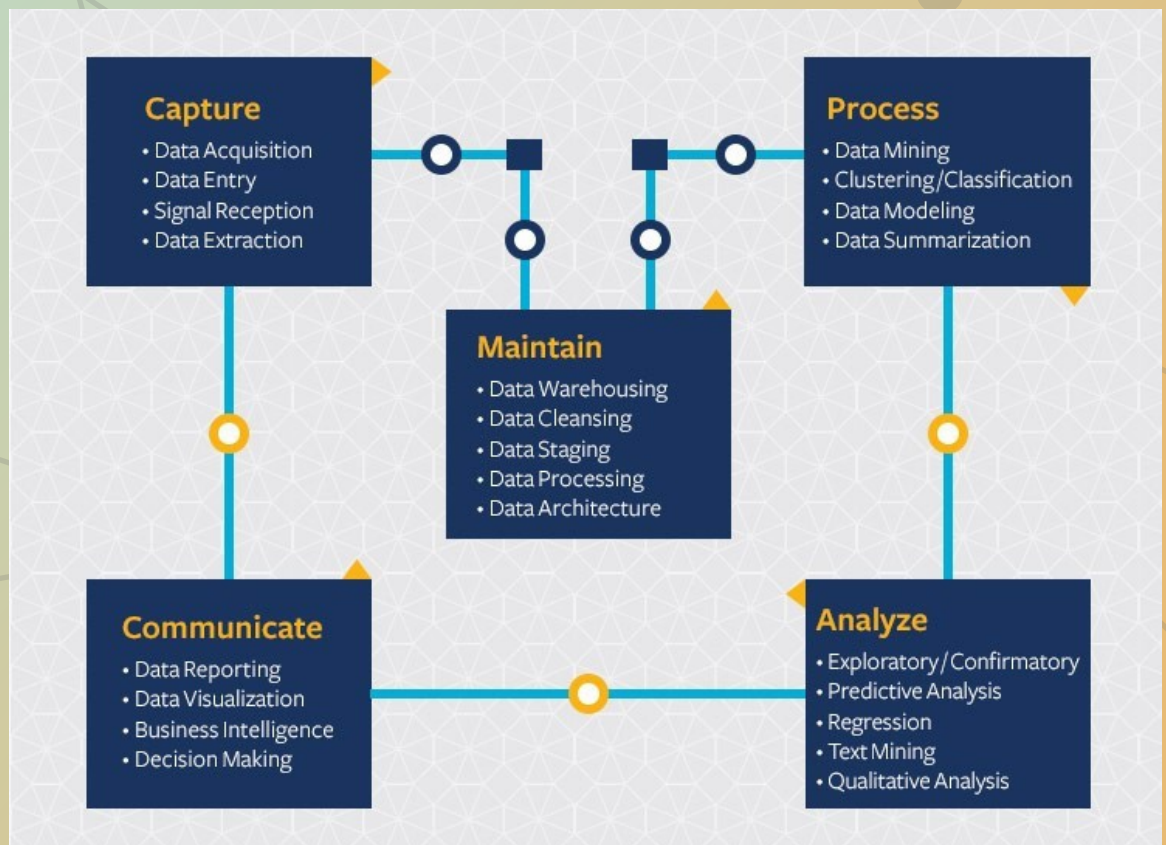


Arav Gupta
CS-2nd Year
GITM, CSE

APPLICATION OF DATA SCIENCE

Data Science Definition

Broadly, Data Science can be defined as the study of data, where it comes from, what it represents, and the ways by which it can be transformed into valuable inputs and resources to create business and IT strategies.



APPLICATION OF DATA SCIENCE

The role of Data Science Applications hasn't evolved overnight. Thanks to faster computing and cheaper storage, we can now predict outcomes in minutes, what could take several human hours to process.

Through this blog, we bring to you, 10 applications that build upon the concepts of Data Science, exploring various domains such as the following:

- **Fraud and Risk Detection** :

The earliest applications of data science were in Finance. Companies were fed up of bad debts and losses every year. However, they had a lot of data which use to get collected during the initial paperwork while sanctioning loans. They decided to bring in data scientists in order to rescue them out of losses.

Over the years, banking companies learned to divide and conquer data via customer profiling, past expenditures, and other essential variables to analyze the probabilities of risk and default. Moreover, it also helped them to push their banking products based on customer's purchasing power.

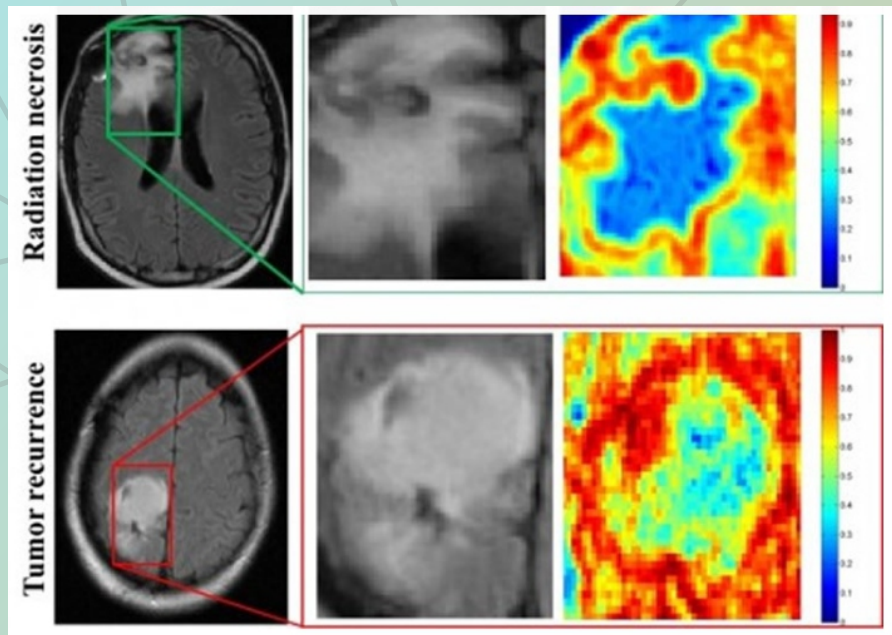
- **Healthcare** :

The healthcare sector, especially, receives great benefits from data science applications.

Medical Image Analysis

Procedures such as detecting tumors, artery stenosis, organ delineation employ various different methods and frameworks

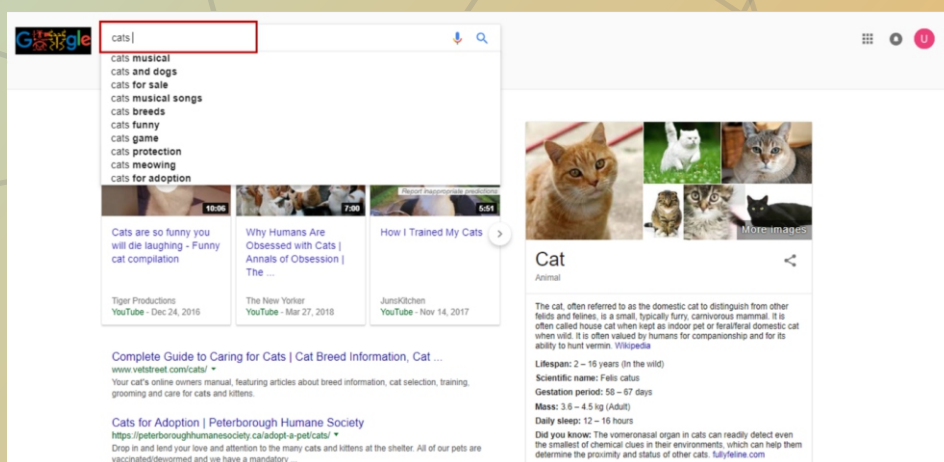
like MapReduce to find optimal parameters for tasks like lung texture classification. It applies machine learning methods, support vector machines (SVM), content-based medical image indexing, and wavelet analysis for solid texture classification.



● Internet Search :

Now, this is probably the first thing that strikes your mind when you think Data Science Applications.

When we speak of search, we think 'Google'. Right? But there are many other search engines like Yahoo, Bing, Ask, AOL, and so on. All these search engines (including Google) make use of data science algorithms to deliver the best result for our searched query in a fraction of seconds. Considering the fact that, Google processes more than 20 petabytes of data every day.

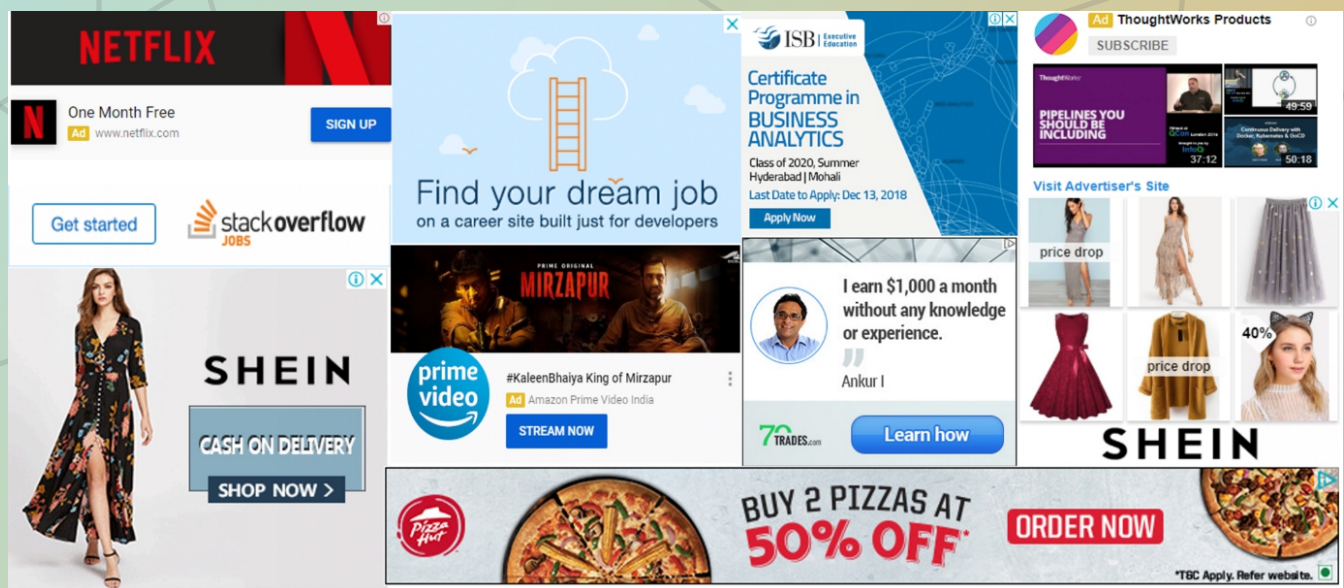


● Targeted Advertising :

If you thought Search would have been the biggest of all data science applications, here is a challenger – the entire digital marketing spectrum. Starting from the display banners on various websites to the digital billboards at the airports – almost all of them are decided by using data science algorithms.

This is the reason why digital ads have been able to get a lot higher CTR (Call-Through Rate) than traditional advertisements. They can be targeted based on a user's past behavior.

This is the reason why you might see ads of Data Science Training Programs while I see an ad of apparels in the same place at the same time.







The image displays a collage of various digital advertisements. At the top left is a Netflix banner for 'One Month Free'. Below it is a Stackoverflow 'Get started' button. In the center is a Shein advertisement featuring a woman in a floral dress and a 'CASH ON DELIVERY' button. To the right is an Amazon Prime Video ad for the movie 'Mirzapur'. Below that is a Pizza Hut advertisement for 'BUY 2 PIZZAS AT 50% OFF'. Other ads include a 'Find your dream job' banner, a 'Certificate Programme in BUSINESS ANALYTICS' from ISB, and a 'ThoughtWorks Products' subscription offer.

● Website Recommendations :

Aren't we all used to the suggestions about similar products on Amazon? They not only help you find relevant products from billions of products available with them but also adds a lot to the user experience.

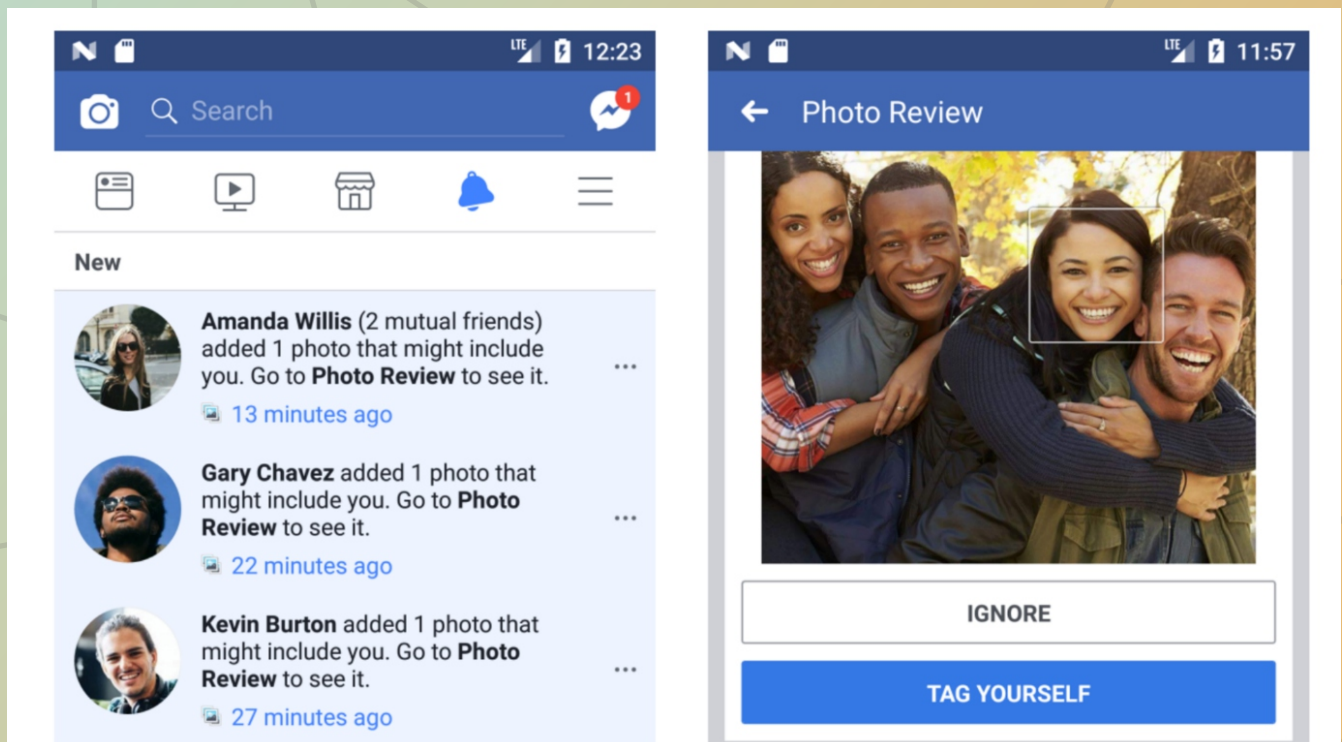
Compare with similar items

				
This item Bose SoundLink Wireless Around-Ear Headphones with Mic (Black)	Sennheiser HD 4.40-BT Bluetooth Headphones (Black)	Bose 741158-0020 SoundLink Wireless Around-Ear Headphones with Mic (White)	Bose 789564-0030 Quiet Comfort 35 Wireless Headphone (Blue)-Special Edition	
Add to Cart	Add to Cart	Add to Cart	Add to Cart	
Customer Rating	★★★★☆ (68)	★★★★☆ (349)	★★★★☆ (22)	★★★★☆ (200)
Price	₹ 19,000.00	₹ 7,490.00	₹ 19,000.00	₹ 29,363.00
Shipping	FREE Shipping	FREE Shipping	FREE Shipping	FREE Shipping
Sold By	Appario Retail Private Ltd	Appario Retail Private Ltd	Appario Retail Private Ltd	Appario Retail Private Ltd
Colour	Black	Black	White	Blue
Connectivity Technology	bluetooth wireless	Bluetooth Wireless	Bluetooth Wireless	Bluetooth Wireless

● Advanced Image Recognition

You upload your image with friends on Facebook and you start getting suggestions to tag your friends. This automatic tag suggestion feature uses face recognition algorithm.

In their latest update, Facebook has outlined the additional progress they've made in this area, making specific note of their advances in image recognition accuracy and capacity.



The image shows two screenshots from the Facebook mobile app. The left screenshot displays a notification feed under the heading "New". It lists three notifications: "Amanda Willis (2 mutual friends) added 1 photo that might include you. Go to Photo Review to see it. 13 minutes ago", "Gary Chavez added 1 photo that might include you. Go to Photo Review to see it. 22 minutes ago", and "Kevin Burton added 1 photo that might include you. Go to Photo Review to see it. 27 minutes ago". The right screenshot shows the "Photo Review" interface, featuring a group photo of four people. A white box highlights a woman's face in the photo. Below the photo are two buttons: "IGNORE" and "TAG YOURSELF".

● Speech Recognition :

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

● Airline Route Planning :

Airline Industry across the world is known to bear heavy losses. Except for a few airline service providers, companies are struggling to maintain their occupancy ratio and operating profits. With high rise in air-fuel prices and need to offer heavy discounts to customers has further made the situation worse. It wasn't for long when airlines companies started using data science to identify the strategic areas of improvements. Now using data science, the airline companies can:

1. Predict flight delay
2. Decide which class of airplanes to buy
3. Whether to directly land at the destination or take a halt in between (For example, A flight can have a direct route from New Delhi to New York. Alternatively, it can also choose to halt in any country.)
4. Effectively drive customer loyalty programs

- **Gaming** :

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

- **Augmented Reality** :

Data Science and Virtual Reality do have a relationship, considering a VR headset contains computing knowledge, algorithms and data to provide you with the best viewing experience. A very small step towards this is the high trending game of Pokemon GO. The ability to walk around things and look at Pokemon on walls, streets, things that aren't really there. The creators of this game used the data from Ingress, the last app from the same company, to choose the locations of the Pokemon and gyms.



Grad's Talk

The background is a vibrant, abstract composition of overlapping organic shapes in shades of pink, magenta, cyan, and purple. A light blue grid pattern is visible behind the title text. The overall aesthetic is modern and artistic.



KULDEEP SINGH

COMPANY

**SOFTWARE ANALYST IN
HCL TECHNOLOGIES**

PASSOUT YEAR :- 2021

Studying in this college is a very valuable and a memorable experience. Like any other student, I too had many apprehensions regarding the faculty, facilities, environment, etc. But all these fears vanished with a few days of kick-starting this journey. The friendly and approachable lecturers, well-equipped library and an organized administration made the learning process exiting, convenient & wholesome. The college also encourages students to participate in various activities such as Coding Competitions, Quiz competitions, Sports etc. has provided us with all the conveniences required for the same. My seniors have always supported and helped us with various aspects of course and keep updating the students the various facts of Engineering.

Throughout these four years, one thing I've surely learnt is that achievement is, what you attain in life. It is this institution which encourages me every day to think beyond my abilities. I am so grateful to be part of this institution.



AYUSH GUPTA

COMPANY

**SOFTWARE TRAINEE IN
AIRDIT SOFTWARE**

PASSOUT YEAR :- 2021

It would be difficult to sum up four years of GITM in just few lines. I must say that the learning and exposure which GITM gives is just commendable. The faculty is just amazing and they stand by you from the first day to the end of placement days. Apart from the curriculum, there are a lot of activities for students. The best part of college is that they give you internships and placements in best reputed organisations. During the most crucial time of placements, the faculty and placement team provides students with lot of preparatory sessions so that they come up with their best. I feel GITM is the wholesome basket for one who is looking to pursue Bachelors in Technology and I'll definitely cherish these moments forever.

My experience at GITM has taught me one fundamental thing - life is unpredictable. It might be good, it might be bad, it might be weird, and it might not interest you, but expect anything to happen. College life prepares you for all of this. It is a perfect blend of joy and hardship.



ASHISH KUMAR TRIPATHI

COMPANY

**SOFTWARE TRAINEE IN AIRDIT
SOFTWARE SOLUTION PVT. LTD**

PASSOUT YEAR :- 2021

My engineering journey at GITM is indeed building of dynamic personality. The computer department has given lots of opportunities to explore in different fields. It was never been stick to academics only. I got motivated to participate in various national level competitions like ROBOCON, Smart India Hackathon, Texas Instruments, etc. I got the opportunity to do an internship in android application development at TEC. With curricular practical, College organized various industry lectures related to subjects like CISCO networking, Web security, etc. The college organized the GATE practice tests for students. Also, College provided certification in different technologies like android, iOS, R-programming including hands-on coding with industry experts. As part of placement training college organized aptitude, basic programming, HR guidance, alumni experience sharing sessions. I really feel great and proud to be studied at GITM!!!

Definitely, stronger the foundation, higher the levels you reach , and I am so proud to acknowledge that my foundation was laid out by GITM and I will forever grateful for that.

Poet & Corner



BE YOURSELF!!

Be yourself enough to face the world each day,
Be strong enough to know you can do everything,
Be generous to those who need your help,
Be frugal with what u need yourself,
Be wise enough to accept that you do not know
everthing,
Be foolish to believe in miracles,
Be willing to share your joys with others,
Be a leader when you see the path others have
minded,
Be a follower when you are shrouded in the mindset
of certainty,
Be sure when your next step will fail,
Be sure of your final destination,
Be 'YOU' and accept 'YOU'....

By- Opinder Vishwakarma
B. Tech CSE - 2nd Year

शिक्षा है तो हर घर रोशन ।।

शिक्षा से हैं उच्च आचरण,
शिक्षा से हैं उच्च विचार ।
शिक्षा बहाती ज्ञान की गंगा
शिक्षा ही है ज्ञान का सागर ।।

शिक्षा ही जलाती नव जीवन ज्योति
शिक्षा ही बनती है इंसान ।
शिक्षा बिना सुना विद्यालय,
शिक्षा बिना है जीवन दुर्लभ ।।

हर बच्चे का अधिकार है शिक्षा
बच्चे का सुनहरा भविष्य है शिक्षा ।
शिक्षा है तो सब है उन्नत
शिक्षा है तो सब है सम्भव ।।

शिक्षा है तो हर घर है रोशन ।
शिक्षा है तो हर घर है रोशन ।।

By- Opinder Vishwakarma
B. Tech CSE - 2nd Year

BUZZWORTHY



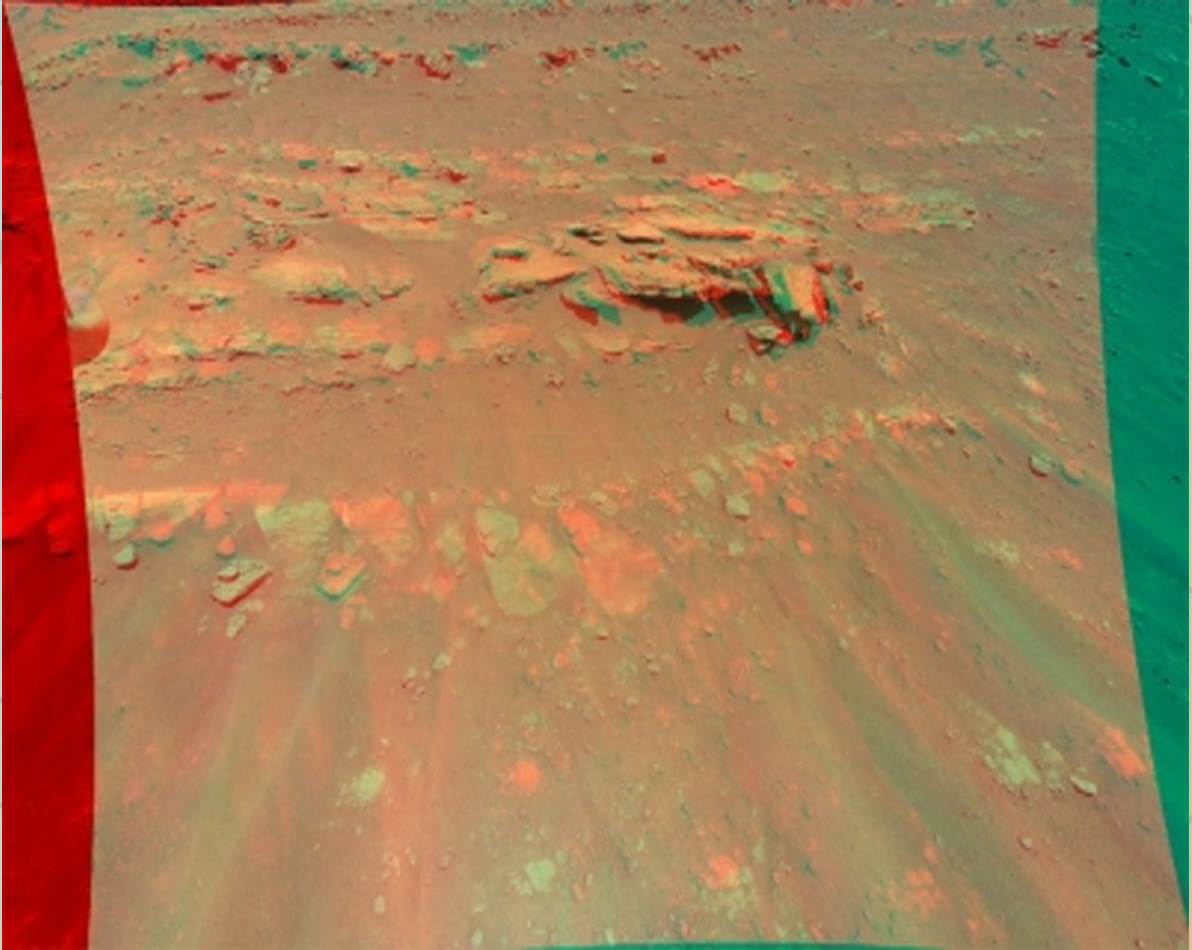
NASA'S INGENUITY CAPTURES MARS ROCK FEATURE IN 3D

NASA's Ingenuity Mars helicopter has provided a 3D view of a rock-covered mound on the red planet during its 13th flight on September 4. The mini-helicopter flew to the red planet on February 18 while being attached to the belly of NASA's Perseverance rover. During its Flight 9, the mini-chopper flew over a rugged region called "Seitah" -- characterised by sandy ripples that is very challenging terrain for rovers and took colour images -- of Mars' Jezero crater.

The mission aimed to capture images of this geologic target -- nicknamed "Faillefeu" (after a medieval abbey in the French Alps) -- and to obtain the color pictures from a lower altitude than ever before -- 8 metres. The 3D image showed that the mound is nearly 10 metres wide and is visible just north of the centre of the image, with some large rocks casting shadows. Stretching across the top of the image is a portion of "Artuby", a ridgeline more than 900 metre wide. At the bottom of the image, and running vertically up into the middle, are a few of the many sand ripples that populate South Seitah, NASA said. Best viewed with red-blue glasses, this stereo or 3D view (also called an anaglyph) was created by combining data from two images taken five metre apart by the color camera aboard Ingenuity.

The Ingenuity Mars helicopter built by NASA's jet propulsion laboratory in southern California has become the first to test power flight in another world and to capture the color image of the Martian surface. The helicopter is a technology demonstration with a planned test flight duration of up to 30 martian days. Its sole mission is to conduct flight tests in the thin atmosphere of Mars; the helicopter carries no science instruments. The Perseverance rover provides support during flight

operations, taking images, collecting environmental data and hosting the base station that enables the helicopter to communicate with mission controllers on Earth.



By: -

Anudeep Verma

B.Tech IT 3rd year



ISRO-NASA JOINT SATELLITE PROJECT NISER

India and the U.S. had agreed upon this mission during then President Barack Obama's visit to India in 2015.

The ISRO-NASA joint mission NISER (NASA-ISRO Synthetic Aperture Radar) satellite, aimed at making global measurement of land surface changes using advanced radar imaging, is proposed to be launched in early 2023.

In Lok Sabha, NISAR is a joint Earth-Observation mission between ISRO and U.S. space agency NASA for global observations over all land masses including the Polar cryosphere and the Indian Ocean region. It is a dual-band (L-band and S-band) radar imaging mission. NASA is developing L-band SAR and associated systems while ISRO is developing S-band SAR, spacecraft bus, the launch vehicle and associated launch services.



By: -

SHWETABH CHANDEL

B.Tech CS 2nd year



INDIAN NAVY SIGNS PACT WITH BHARAT ELECTRONICS LTD.

The Indian Navy inked a pact with premier DPSU Bharat Electronics Limited to develop emerging technologies related to artificial intelligence, quantum computing and robotics. The memorandum of understanding (MoU) provides for the setting up of a technology incubation forum to jointly work on developing new technologies.

"The Technology Incubation Forum (ITF) reflects the joint vision of the Indian Navy and Bharat Electronics Limited towards innovative and creative thinking and fostering the development of emerging technologies," the defence ministry said.

"The broad charter of the TIF includes technology development in the domain of weapons and sensors, information technology and emerging technologies".

The ministry said the TIF will spearhead the mission-mode development of deployable products under the government's "Aatmanirbhar Bharat" (self-reliant India) initiative with the involvement of industry, academia and startups.



By: -

SHWETABH CHANDEL

B.Tech CS 2nd year



GOOGLE'S UPCOMING SEARCH REDESIGN MAY END UP PUSHING MORE TRAFFIC TO GOOGLE PROPERTIES LIKE YOUTUBE

Google is redesigning its dominant search engine, and users may find that future results keep them on Google's own properties for even longer.

At its second annual search event, called Search On, Google showed off its latest batch of advancements to search results. The company touted its artificial intelligence and the ability to answer more specific and complicated queries.

Executives said the new AI technology called Multitask Unified Model, or MUM, is 1,000 times more powerful than the BERT model powering Google Search. Pulling data from texts, images and videos, MUM can supposedly tell a user what's needed for a specific hike on Mt. Fuji.



By: -

Arpita Singh

B.Tech CS 2nd year



SPACE X LAUNCHES 60 STAR LINK BROADBAND SATELLITES

Elon Musk's aerospace company, SpaceX, launched 60 Star link Broadband Satellites with Falcon 9 first stage booster into the orbit. Satellites were launched from Space Launch Complex 40 in Florida. Background This two-stage-to-orbit had also launched Sentinel-6A mission earlier. Highlights It was 13th Star link launch in 2021 for SpaceX.



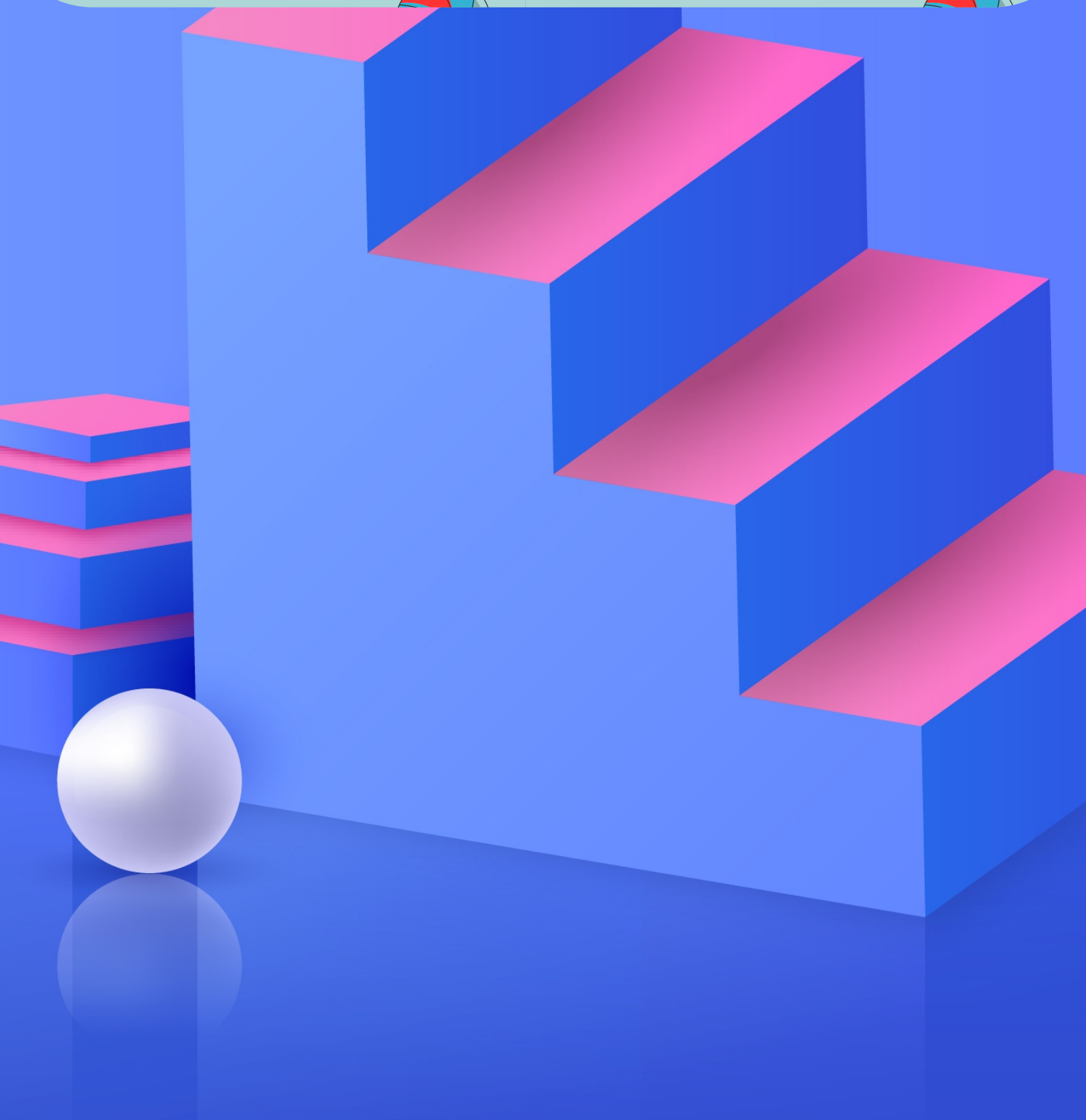
By: -

RISHU VERMA

B.Tech CS 2nd year



Department Chronicles



CHRONICLES OF

DEPARTMENT

Oracle Academy Faculty Day

Department of Computer Science and Engineering, Goel Institute of Technology and Management, Lucknow, felt immense pleasure to celebrate "Oracle Academy Faculty Day" on 10th August 2021, organised by Oracle Academy, USA.

The purpose of the event was firstly to make faculty understand the about the latest advances in the field of Engineering Technology which are not imparted in the existing Course curriculum of University. Secondly how the usage of Oracle Academy technical courses can fill the existing GAP and how it can be aligned with the existing curriculum to make students ready for modern technology equipped industry. The speakers from our fellow institutes graced the occasion by sharing their Experience . Overall, the session was great and motivational for all the faculty of the institute.

DATE: 10 August 2021

MODE: Online

VENUE: Google Meet

IMAGES & Poster



Goel Institute of Technology & Management
Department of Computer Science & Engineering
in Association with
Oracle Academy
Organizes
Oracle Academy Faculty Day
ORACLE ACADEMY VIRTUAL EVENT

ORACLE Academy
Program Member

10 Aug, 2021
Tuesday
11:00AM Onwards

Link for Webinar Registration:
<https://go.oracle.com/LP=1139387elqCampaignId=298531&src1=pp:mar:::GITM>

www.goel.edu.in Open for non institutional Members as well

GOEL CAMPUS: FAIZABAD ROAD, NEAR INDIRA CANAL, LUCKNOW-226028 (U.P.)

Strategies Adopted for Implementing Oracle Academy

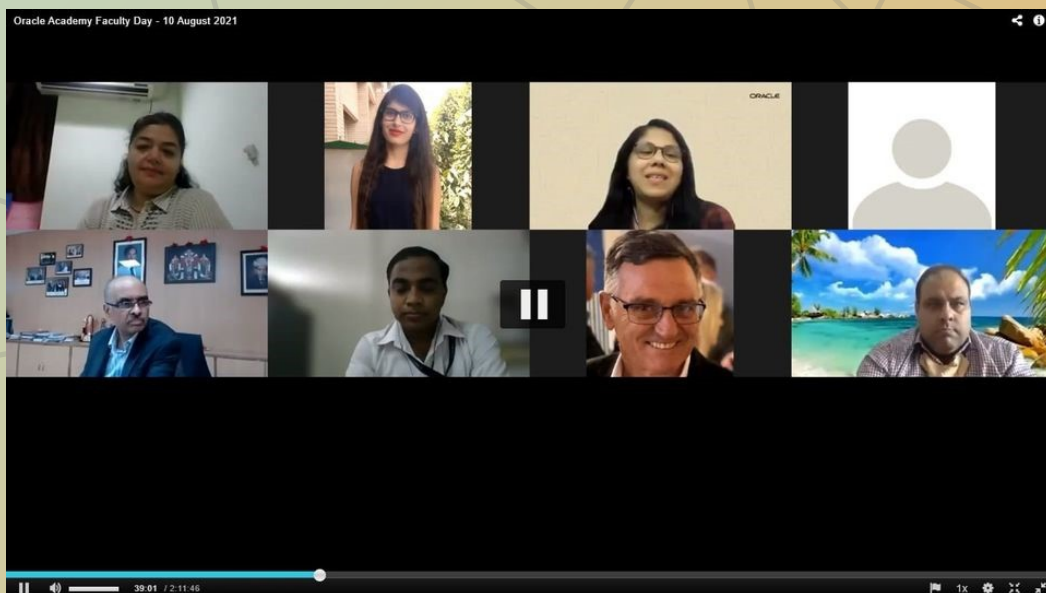
- **Identification of Overall Co-ordinator:** I have been selected as a co-ordinator for Oracle Academy, i single point of contact to oracle academy and I am responsible for co-ordinating all the Oracle Academy our institute.
- **Pilot Project:** I have decided to implement Oracle Academy for only our department for first year.
- **Student Orientation:** Along with me and my HoD took a orientation session to all the classes in (On where we introduced Oracle Academy to our students and its benefits. Informed all available courses also course contents which they may register as per their area of interest. Asked students to submit their course
- **Student Responses :** After receiving the students responses, me and my HoD analysed the students res based on students understanding level and their choices decided the course.
- **Course Counsellor:** I have identified the faculties who are experts in the particular course and asked them channel in their member hub and generate students login credentials depending upon the number of students shown interest in the course and enrol for the course e.g. If faculty is having his expertise in Java Programming then he is the course counsellor for that course and he will create a channel in his member hub and enrol the course Java Programming.

Oracle Academy Faculty Day



ORACLE Academy

6



Oracle Academy Faculty Day - 10 August 2021

39:01 / 2:11:46

1x

IBM SKILL BUILDING PLATFORM

Department of computer science and engineering in association with gitm innovation cell and ibm organized an orientation cum mentorship session on "ibm skill building platform" in 'artificial intelligence for young entrepreneurial mindset'.

On friday, 08th October 2021

The session was conducted by miss swathi kалlesh, employability skills trainer and associate program manager, ibm- india.

Around 100 students and faculty members attended the orientation session in which they learnt about innovative tools and technologies provided by ibm skill-building platform and how to apply them for a startup to become a successful young entrepreneur.

DATE: 08 October 2021

MODE: Online

VENUE: Google Meet

IMAGES & Poster

INSTITUTION'S INNOVATION COUNCIL (Ministry of HRD Initiatives)

GLIM

GOEL INSTITUTE OF TECHNOLOGY & MANAGEMENT

Goel Institute of Technology & Management, Lucknow

COMPUTER SCIENCE & ENGINEERING

DEPARTMENT OF

TRAINING & PLACEMENT CELL

In Association with

IBM

Organizing

Orientation Session On

IBM SKILL BUILDING PLATFORM In

ARTIFICIAL INTELLIGENCE For

YOUNG ENTREPRENEURIAL MINDSET

(FREE COURSES)

Swathi Kallech
Empowerment Skills Specialist
Academics Program Manager

Please note: only those who join this session will get their login IDs activated and only they will be able to use IBM skillbuild platform. So please make sure all of you are available in the session.

08 Oct, 2021
Friday
02:00 PM Onwards

www.goel.edu.in

Link for Session:
<https://bit.ly/3iyc5y>

GOEL CAMPUS: FAIZABAD ROAD, NEAR INDIRA CANAL, LUCKNOW-226028 (U.P.)

Cisco Webex Meetings | Meeting Info | Hide Menu Bar

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

Brijesh Pandey Host, mic @ShaZnk_Agr Dr. SHAWESH KUMAR T. dinesh singh abhishcha Gupta

Participants (7)

Brijesh Pandey Host, mic

dinesh singh

@ShaZnk_Agr

abhishcha Gupta

Abhishek Chaudhary

Aman Singh

Amit Kumar Jaiswal

Anamika Sharma

Anudeep Verma

ANURAG KUMAR JAISWAL

Arun Dubey

Mute all Unmute all

Attacking WEP Encrypted Networks

- The basic attack flow would look like this:
 1. Identify target wireless network.
 2. Passively receive encrypted packets sent between the client and the access point using a sniffer.
 3. Save around 50,000 encrypted packets to a file on the attacking laptop.
 4. Run the aircrack-ng program against the saved encrypted packets to determine WEP key.

Unmute Start video Share Record

Cisco Webex Meetings | Meeting Info | Show Menu Bar

Brijesh Pandey Host, mic Dr Suman Lata Tripathi @ShaZnk_Agr akancha singh Abhay Gupta

Participants (102)

Akhil pratap singh

Dr. Priyanka Jaiswal

prashant pandey

Praveen Tripathi

Prince Kumar Yadav

Priyanka Dait

PRDAmrlesh yadav

Prof. Devendra Agarwal

Shiv pratap pandey

Vindhya vashini Pratap Singh

Mute all Unmute all

Software Tools for Hardware Design

Direct Implementation using suitable hardware element

- Proteus <https://www.labcenter.com/downloads/>
<https://www.malavida.com/en/soft/proteus/>
- DSCH
- Tinker CAD <https://www.tinkercad.com/dashboard?type=circuits&collection=designs>

Programming languages

- Verilog/VHDL in Xilinx for FPGA based implementation
- C++ for Arduino

Unmute Start video Share Record

CYBER SECURITY (Innovative Method To Prevent Cyber Crimes)

Department of Computer science and Engineering in Association with GITM Innovation Cell has organized a webinar on CYBER SECURITY (Innovative Method To Prevent Cyber Crimes) on Monday, 25th October 2021. The session was conducted by Mr Rahul Mishra as Cyber Security Advisor Uttar Pradesh Police. Around 557 students and Faculty members attended the orientation session. They learnt about innovative tools and technologies provided: Gain skills required to succeed in an entry-level IT job. Learn to perform day to day IT support tasks including computer assembly, wireless network, installing the program, and customer service. They also learn about innovative tools and technologies provided Method to Prevent Cyber Crimes.

DATE: 25 October 2021

MODE: Offline

VENUE: GITM Auditorium

IMAGES & Poster

INSTITUTION'S INNOVATION COUNCIL
(Ministry of IITD Initiative)

GOEL INSTITUTE OF TECHNOLOGY & MANAGEMENT
GITM Innovation Cell
and
Department of Computer Science & Engineering
Organizes
WORKSHOP
ON
CYBER SECURITY
(INNOVATIVE METHODS TO PREVENT CYBER CRIMES)

Mr. Rahul Mishra
Cyber Security Advisor
Uttar Pradesh Police

25 Oct, 2021
10:00 AM Onwards

www.goel.edu.in

Venue: Goelplex Auditorium

GOEL CAMPUS: FAIZABAD ROAD, NEAR INDIRA CANAL, LUCKNOW-226028 (U.P.)



Python With Data Science

Department of Computer science and Engineering in Association with GITM Innovation Cell is organized a Workshop on Python With Data Science for B. Tech 2nd year on 25th October, 2021. The session was conducted by Mr. Mirza Ghazanfar Baig (senior software engineer from Innovitt Global) and Mr. Divyansh Dwivedi (UX Designer and Client Relationship Executive from Innovitt Global).

They learnt about innovative tools and technologies provided by Innovitt Global. The main objective of this session was that students got to know about machine learning, to explore the power and simplicity of python & data science. This workshop was appreciated by all the students as they were able to add another programming language in their technical skill set. The trainer Mr. Mirza Ghazanfar Baig is the team member of organization, has given the mix of theory and practical knowledge of Exception Handling, Multiple Exception Handling, information about Data Science in real life and how python is useful, Sample video based on Data Science which is performed by Mr. Divyansh Dwivedi

DATE: 25 October 2021 **POSTER:**

MODE: Offline

VENUE: GITM Auditorium

IMAGES & Poster

INSTITUTION'S INNOVATION COUNCIL
Goel Institute of Technology & Management
GITM Innovation Cell
and
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Organizes
WORKSHOP
ON
PYTHON WITH DATA SCIENCE
FOR B. TECH. CSE 2ND YEAR
python
27 Oct. 2021
02:00-04:00 PM
Wednesday
www.goel.edu.in
Venue: Mini Auditorium
GOEL CAMPUS: FAIZABAD ROAD, NEAR INDIRA CANAL, LUCKNOW-226028 (U.P.)



Machine Learning With Data Science

Department of Computer science and Engineering in Association with GITM Innovation Cell is organized a Workshop on Machine Learning With Data Science for B. Tech 3rd year on 27th October,2021. The session was conducted by Mr. Mirza Ghazanfar Baig (senior software engineer from Innovitt Global) Mr. Divyansh Dwivedi (UX Designer and Client Relationship Executive from Innovitt Global).

They learnt about innovative tools and technologies provided by Innovitt Global. The main objective of this session was that students got to know about machine learning, AI concepts and data science as one of the fastest growing technologies nowadays. They also understood the current growth rate of data production. Students got aware all career opportunities available in this field.

DATE: 28 October 2021

MODE: Offline

VENUE: Computer Lab

IMAGES & Poster

INSTITUTION'S INNOVATION COUNCIL
UNIVERSITY OF M.C. INDIA

GOEL INSTITUTE OF TECHNOLOGY & MANAGEMENT
GITM Innovation Cell
and
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Organizes
WORKSHOP
ON
MACHINE LEARNING WITH DATA SCIENCE Machine Learning
FOR B.TECH. CSE 3RD YEAR

25 Oct. 2021
02:00-04:00 PM
Monday

www.goel.edu.in Venue: Computer Lab
GOEL CAMPUS: FAIZABAD ROAD, NEAR INDIRA CANAL, LUCKNOW-226028 (U.P.)



Data Science And Technologies

Training and Placement Cell of Computer science and Engineering Department organizes Seminar on Data Science and technologies on 17 and 18 November, 2021 for the 2nd and 3rd year students.

The session was conducted by Mr Zaid Kamil, Data Science Engineer in digipodium.

Around 150 students of 2nd and 3rd year attended the session . They learnt about basic tools and technologies used in Data Science. The main objective of this session was that students got to know about Data Science and its uses, as it is one of the fastest growing technologies nowadays. They also understood the current growth rate of data production. Students got aware all career opportunities available in this field.

DATE: 17 & 18 November 2021 **POSTER:**

MODE: Offline

VENUE: Computer Lab

IMAGES & Poster


Goel Institute of Technology & Management
DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING
&
Training & Placement Cell
Organizes

Data Science
Seminar for B.Tech Students
Goel Institute of Technology & Management
Date : 17 & 18 Nov'21

 Speaker:
Zaid Kamil
GOOGLE, IBM & Microsoft Certified
with 8+ year of experience in
AI/ML & Android Development

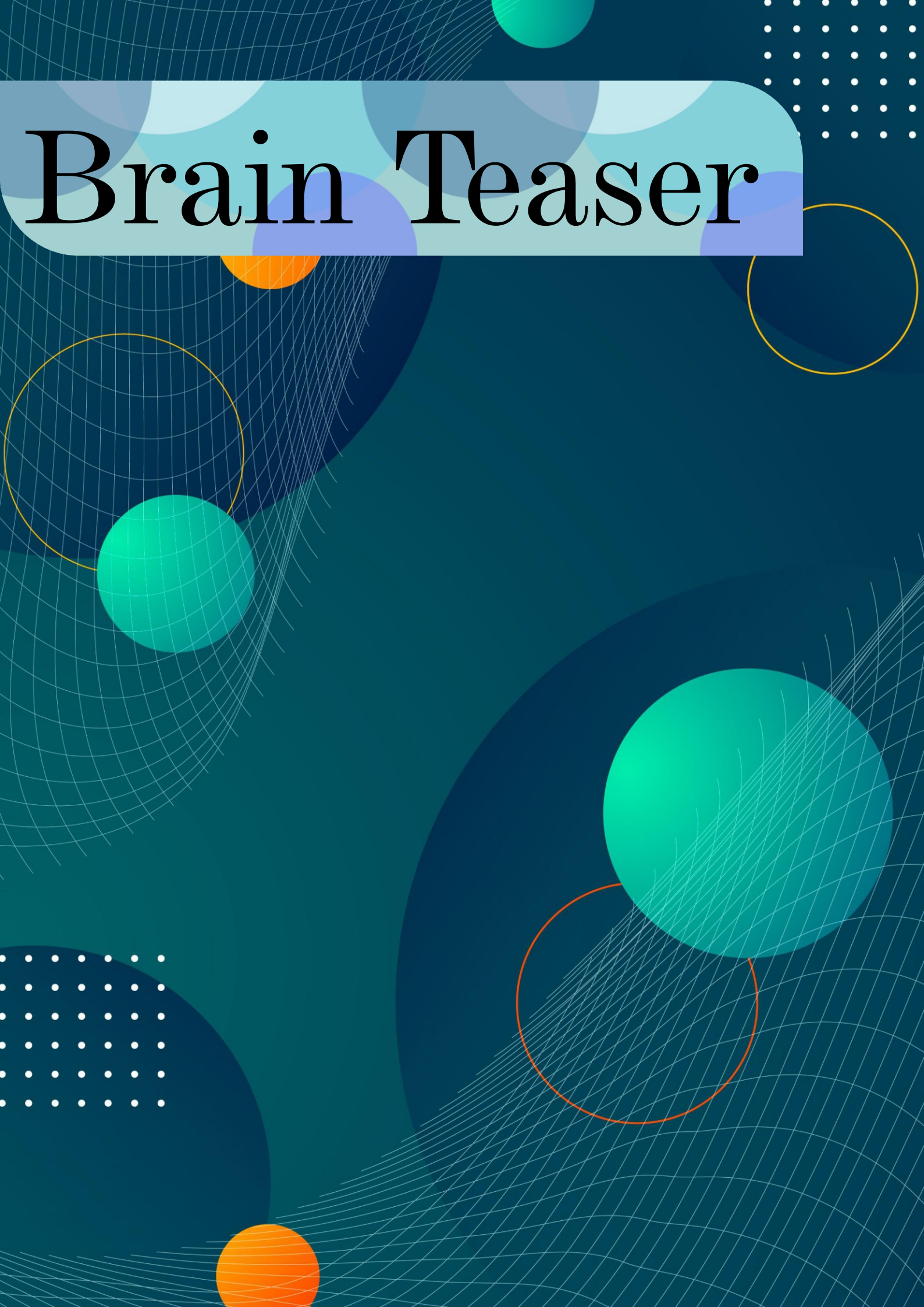
 digipodium

www.goel.edu.in Venue: Computer Center

GOEL CAMPUS: FAIZABAD ROAD, NEAR INDIRA CANAL, LUCKNOW-226028 (U.P.)



Brain Teaser



QUIZ ON DATA SCIENCE

- Q1. Name top four main programming languages for Data Science.
- Q2. Eggy data is also known as?
- Q3. Which package is used for tidy data?
- Q4. Which scientific computing library provides data structure and data analysis tools for Python?
- Q5. Comma Separated Values (CSV) is a commonly used format to store which type of data?
- Q6. How many principles of analytical graphs exist?
- Q7. One of the main Subtype or Subset of Machine Learning is?
- Q8. Which function is used to create a series from a list in Pandas?
- Q9. What is full form of SVM?
- Q10. Which function is used to sort column in a Pandas Data Frame?

ANSWER

- ANS-1. Python, R, JavaScript, Java, C/C++, Matlab (any four)
- ANS-2. Raw data
- ANS-3. tidy package
- ANS-4. Pandas
- ANS-5. Tabular Data
- ANS-6. 6
- ANS-7. Deep Learning
- ANS-8. Series() function
- ANS-9. Support Vector Machine
- ANS-10. sort_values()

PLACEMENT



PLACEMENT

CAMPUS PLACEMENT 2020-21

Student Name	Working Status	Details	Designation	University Roll No
Omkar Verma	Placed	HCL	Assistant	1736000035
Ashish Kumar Tripathi	Placed	Airdit Technologies /SRDT	Software Engineer Trainee / Software Engineer Trainee	1736010011
Hemant kumar sahu	Placed	HCL / Quaere eTechnologies Pvt, Ltd	Assistant	1736010019
Kuldeep Singh	Placed	HCL	Assistant	1736010026
Nazneen Siddiqui	Placed	Airdit Technologies /SRDT	Software Engineer Trainee / Software Engineer Trainee	1736010031
Priyanka Kashyap	Placed	Mentor Infotech Solutions / Svayam Infoware Pvt Ltd	Software Developer Software Engineering	1736010037
SAMDISHA	Placed	Svayam Infoware Pvt Ltd	Software Engineering	1736010042
Satyam Maurya	Placed	HCL	Assistant	1736010043
JAY KUMAR GAUTAM	Self Placed	MAYD Media Pvt Ltd	Trainee	1736010020
Aditya Saptarshi	Placed	Mentor Infotech	Intern	1836010007
Anshuman Singh	Placed	Mentor Infotech	Intern	1836010013
Shashank Agrahari	Placed	Mentor Infotech	Intern	1836010053
Sumit Sachan	Placed	Mentor Infotech	Intern	1836010056

Approved by AICTE, New Delhi
& Affiliated to Dr. A.P.J Abdul Kalam
Technical University, Lucknow



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YOU

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