



**VIDYABHARTI TRUST COLLEGE OF
BUSINESS, COMPUTER-SCIENCE AND RESEARCH**
Department of Computer Application's Newsletter

VOLUME : 3

FEBRUARY-2023

ISSUE : 2

digital+
Get to know more about **IT**

WHAT IS DATA SCIENCE?

Data science combines math and statistics, specialized programming, advanced analytics, artificial intelligence (AI), and machine learning with specific subject matter expertise to uncover actionable insights hidden in an organization's data. These insights can be used to guide decision making and strategic planning.

The data science lifecycle involves various roles, tools, and processes, which enables analysts to glean actionable insights. Typically, a data science project undergoes the following stages:

- **Data ingestion:**

The lifecycle begins with the data collection--both raw structured and unstructured data from all relevant sources using a variety of methods. These methods can include manual entry, web scraping, and real-time streaming data from systems and devices. Data sources can include structured data, such as customer data, along with unstructured data like log files, video, audio, pictures, the Internet of Things (IoT), social media, and more.

- **Data storage and data processing:**

Since data can have different formats and structures, companies need to consider different storage systems based on the type of data that needs to be captured. Data management teams help to set standards around data storage and structure, which facilitate workflows around analytics, machine learning and deep learning models. This stage includes cleaning data, deduplicating, transforming and combining the data using ETL (extract, transform, load) jobs or other data integration technologies. This data preparation is essential for promoting data quality before loading into a data warehouse, data_lake, or other repository.

- **Data analysis:**

Here, data scientists conduct an exploratory data analysis to examine biases, patterns, ranges, and distributions of values within the data. This data analytics exploration drives hypothesis generation for a/b testing. It also allows analysts to determine the data's relevance for use within modeling efforts for predictive analytics, machine learning, and/or deep learning. Depending on a model's accuracy, organizations can become reliant on these insights for business decision making, allowing them to drive more scalability.

- **Communicate:**

Finally, insights are presented as reports and other data visualizations that make the insights—and their impact on business—easier for business analysts and other decision-makers to understand. A data science programming language such as R or Python includes components for generating visualizations; alternately, data scientists can use dedicated visualization tools



❖ Prerequisites for Data Science

1. Machine Learning

Machine learning is the backbone of data science. Data Scientists need to have a solid grasp of ML in addition to basic knowledge of statistics.

2. Modeling

Mathematical models enable you to make quick calculations and predictions based on what you already know about the data. Modeling is also a part of Machine Learning and involves identifying which algorithm is the most suitable to solve a given problem and how to train these models.

3. Statistics

Statistics are at the core of data science. A sturdy handle on statistics can help you extract more intelligence and obtain more meaningful results.

4. Programming

Some level of programming is required to execute a successful data science project. The most common programming languages are Python, and R. Python is especially popular because it's easy to learn, and it supports multiple libraries for data science and ML.

5. Databases

A capable data scientist needs to understand how databases work, how to manage them, and how to extract data from them.

**MS.MANSI PATEL
MRS.RPYA SHARMA
(TEACHING ASSISTANT)**

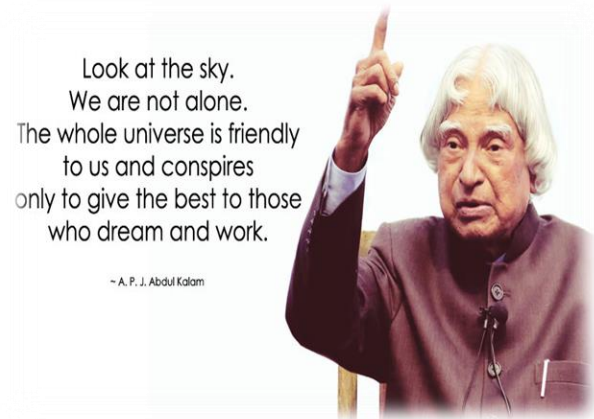
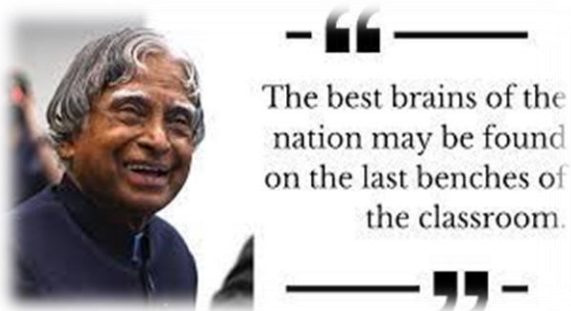
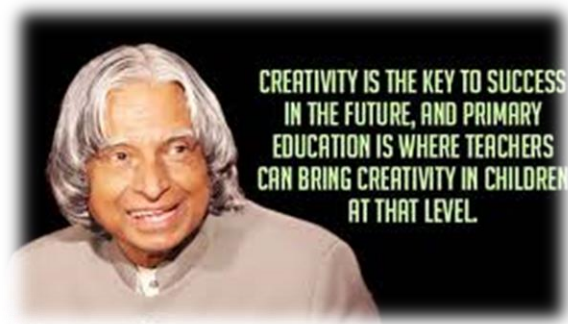
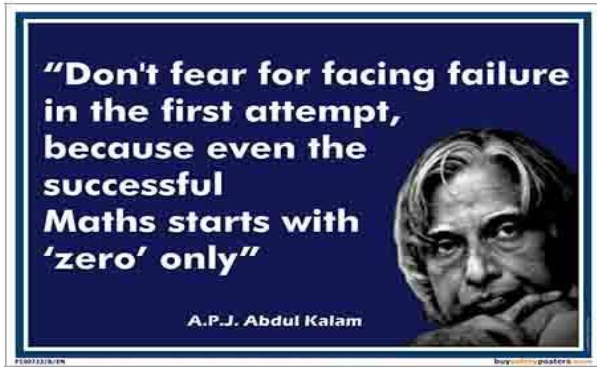


SHAH BRIJESH SHRAVANBHAI
21BCA69



OPPO A55 · ©OPPO A55

SHAH BRIJESH SHRAVANBHAI
21BCA69



**MS MANSI PATEL
MS MOHINI PATEL
TEACHING ASSISTANT**