

# Proway Academy

Data Science and Data  
Analytics

# Meet the Trainer



**Uzzair possesses 15 years of extensive experience in the fintech, e-commerce, and retail industries. He is an expert in overseeing large-scale operations and driving business growth for cutting-edge technology-driven startups, such as Paytm.**

**Co- Founder Proway Academy  
IIM | Fintech | E-commerce**

# Know Proway Academy



#startupindia

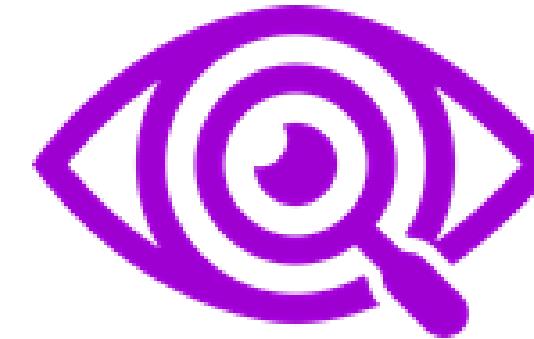


**Empowering individuals with the skills and knowledge they need for a successful future in a rapidly evolving world.**

# Proway Academy's Mission and Vision



To **bridge** the gap between education and industry by providing accessible, **high-quality** technical courses, enabling individuals to acquire the skills they need for fulfilling careers, while fostering innovation and **personal growth**.



Our vision is to become a **global leader** in technical education, **empowering** people worldwide to excel in their careers, adapt to changing industry needs, and contribute to the **advancement of society** through lifelong learning and innovation.

# Few Old Students





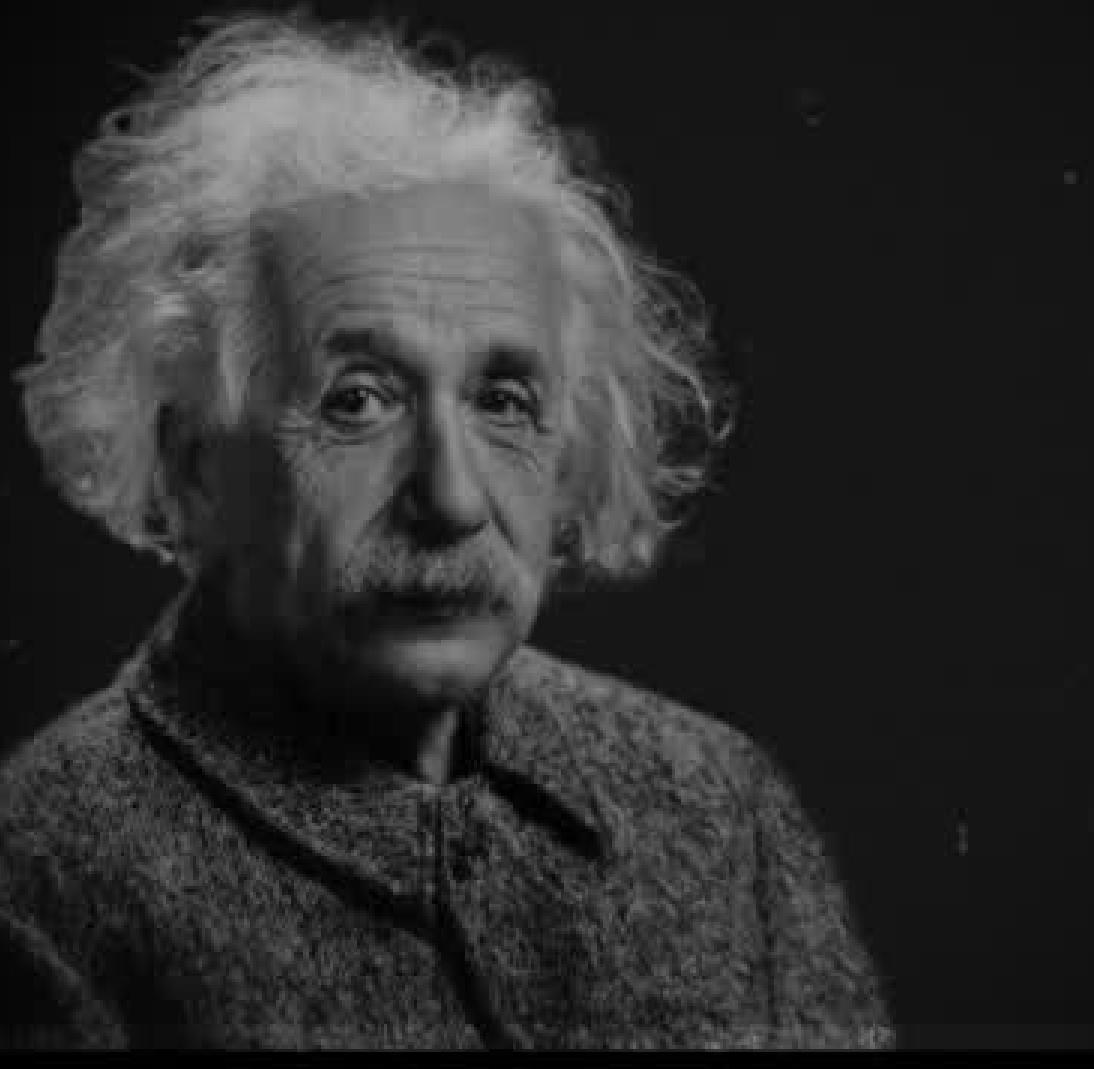
# Masterclasses held at Proway Academy



# Activity held at Aryabhatta College



# AI: A Journey of Innovation



1905 - Albert Einstein

Einstein's special relativity with its invariant laws of physics for non-accelerating observers, revolutionized our space-time understanding underpinned by mathematical equations.

## 🚀 From Einstein to AI: A Journey of Innovation 🤖

Albert Einstein once said, "Imagination is more important than knowledge." Today, we're witnessing the fusion of imagination and knowledge in the form of Artificial Intelligence (AI). ⭐

Einstein's groundbreaking theories reshaped our understanding of the universe. Now, AI is reshaping our world, one algorithm at a time. 🌐

🧠 AI learns, adapts, and innovates just like the human mind. It's the bridge between human creativity and machine intelligence.



From solving complex problems to driving innovation across industries, AI is our modern-day Einstein. ⚡

Join the revolution. Embrace AI. 💪

[Source](#)

# Meet the Trainer

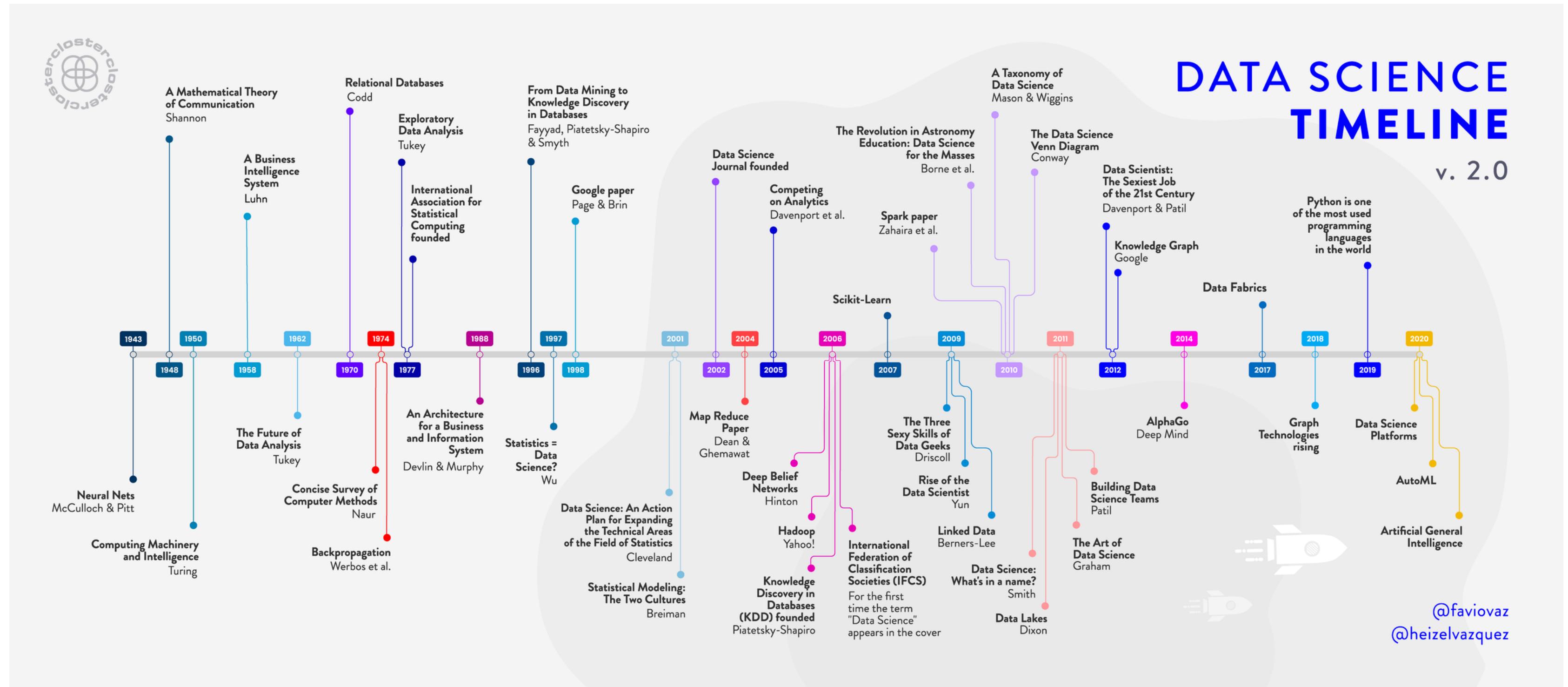


Prince Kumar is a dedicated **data scientist and analyst** with a passion for turning raw data into valuable insights.

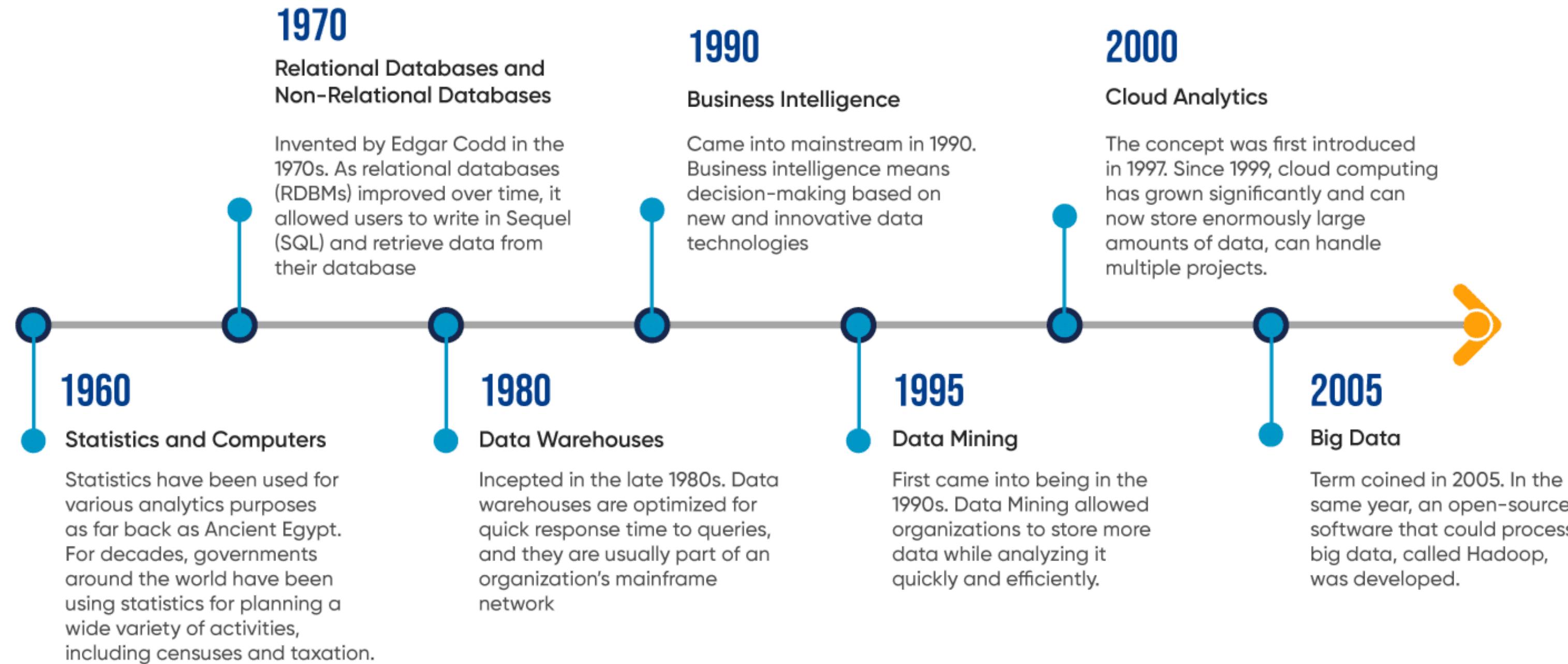
Armed with a **robust academic background**, He is eager to contribute to data-driven **decision-making** and organizational success.

His hands-on experience includes proficiency in **Python, R, SQL, Power BI, Machine Learning, Excel, Tableau, and AWS**, enabling me to excel in **data manipulation, visualization, and predictive modeling**.

# Data Science Timeline



# A Timeline of Inventions in Data Analytics



Source

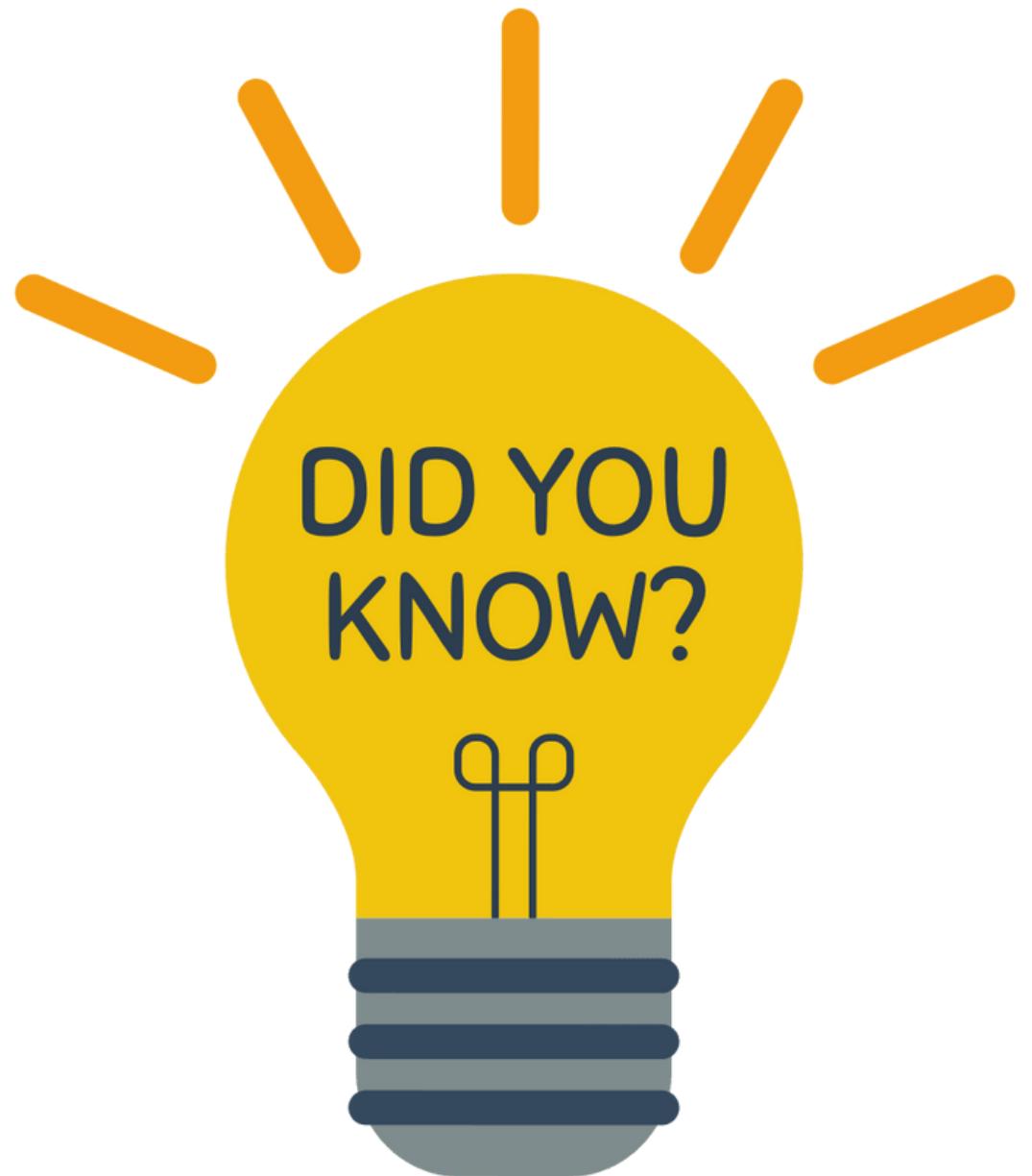
# Introduction of Data science

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.

Data Science has become the most demanding job of the 21st century. Every organization is looking for candidates with knowledge of data science.



How many of you think or  
believe AI will reduce the jobs?



AI is part  
of Data  
Science

# Part of Data Science

**Artificial Intelligence**

**Machine Learning**

SVM, Logistic Regression, KNN,  
Decision Trees, Random Forest,  
Shallow NN...

**Deep  
Learning**

Complex Rules  
/ Imitating  
Algorithms



**How Netflix recommends you  
movies / tv shows etc...**



**How Spotify recommends you  
songs...**

# **NLP (Machine Learning) and ML (Machine Learning)**



# How Google search works?

# NLP (Machine Learning)



**How online shopping sites  
recommends you your products?**

ML  
**(Machine Learning)**

# What is Data Science?

Data science is a deep study of the massive amount of data, which involves extracting meaningful insights from raw, structured, and unstructured data that is processed using the scientific method, different technologies, and algorithms.

Data science uses the most powerful hardware, programming systems, and most efficient algorithms to solve the data related problems. It is the future of artificial intelligence.

# What is Data Science?

In short, we can say that data science is all about:

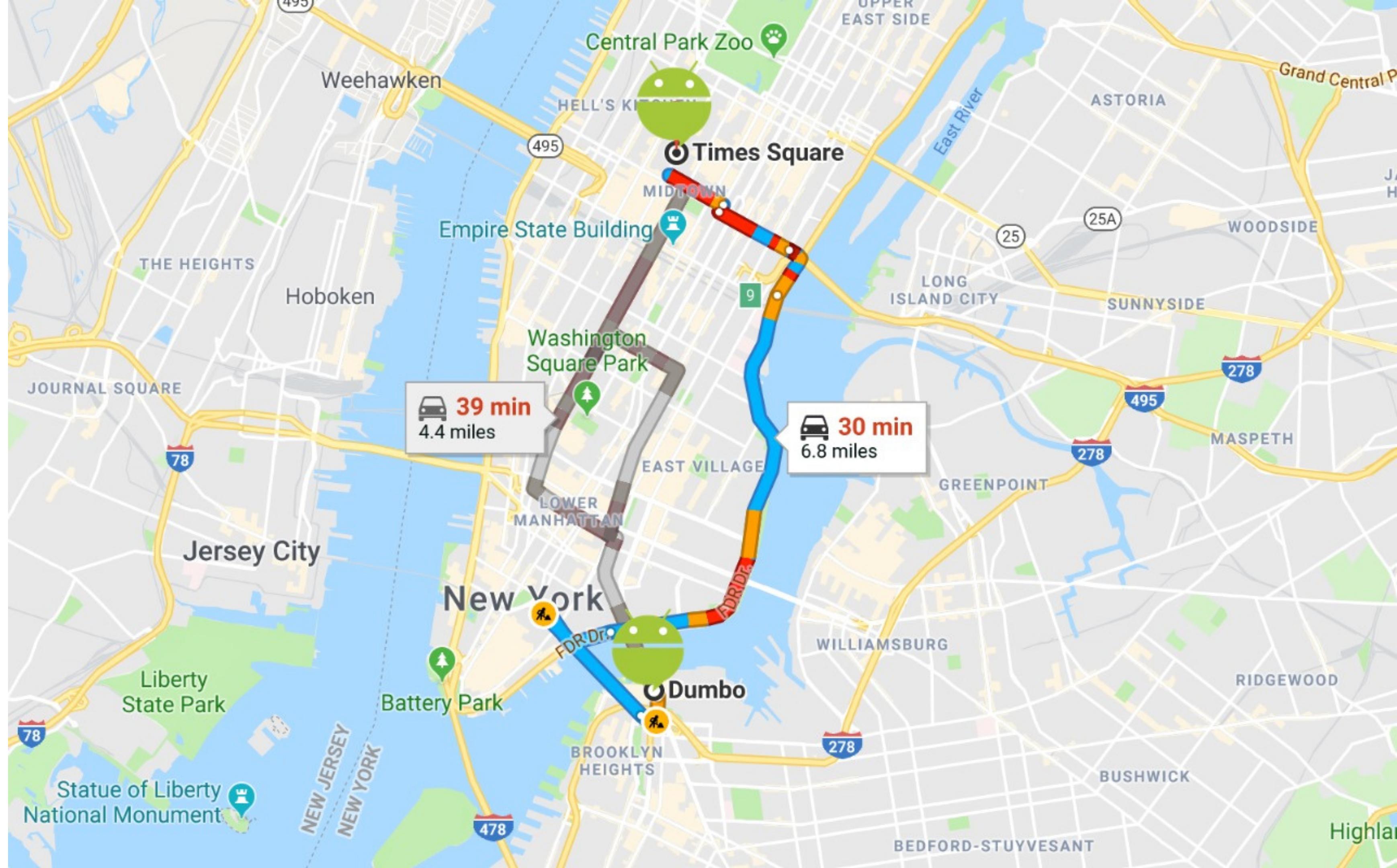
- Asking the **correct questions** and analyzing the raw data.
- Modeling the data using various **complex** and **efficient algorithms**.
- Visualizing the data to get a **better perspective**.
- Understanding the data to make **better decisions** and finding the final result.

# Let's See Live Examples

# Example of Data Science?

Let's suppose,

We want to travel from station A to station B by car. Now, we need to make some decisions such as which route will be the best route to reach faster at the location, in which route there will be no traffic jam, and which will be cost-effective. All these decision factors will act as input data, and we will get an appropriate answer from these decisions, so this analysis of data is called the data analysis, which is a part of data science.



# Data Science Need

- Some years ago, data was less and mostly available in a structured form, which could be easily stored in Excel sheets, and processed using BI tools.
- But in today's world, data is becoming so vast, i.e., approximately 2.5 quintals bytes of data are generated every day, which led to data explosion. It is estimated as per research, that by 2020, 1.7 MB of data will be created at every single second, by a single person on Earth. Every Company requires data to work, grow, and improve their businesses.
- Now, handling of such huge amount of data is a challenging task for every organization. So to handle, process, and analysis of this, we required some complex, powerful, and efficient algorithms and technology, and that technology came into existence as data Science.

# Data Science Need

- Following are some main reasons for using data science technology:
  - With the help of data science technology, we can convert the massive amount of raw and unstructured data into meaningful insights.
  - Data science technology is opted for by various companies, whether it is a big brand or a startup. Google, Amazon, Netflix, etc., which handle huge amounts of data, are using data science algorithms for better customer experience.
  - Data science is working for automating transportation such as creating a self-driving car, which is the future of transportation.
  - Data science can help in different predictions such as various survey, elections, flight ticket confirmation, etc.

# Data Science Jobs

- As per various surveys, the data scientist job is becoming the most demanding job of the 21st century due to increasing demands for data science. Some people also called it "the hottest job title of the 21st century". Data scientists are experts who can use various statistical tools and machine learning algorithms to understand and analyze the data.
- The average salary range for data scientist will be approximately \$95,000 to \$ 165,000 per annum, and as per different researches, about 11.5 millions of job will be created by the year 2026.

# Types of Data Science Jobs

If you learn data science, then you get the opportunity to find various exciting job roles in this domain. The **main job roles** are given below:

- **Data Scientist**
- **Data Analyst**
- **Machine learning expert**
- **Data engineer**
- **Data Architect**
- **Data Administrator**
- **Business Analyst**
- **Business Intelligence Manager**

# Data Analyst

A data analyst is an individual, who performs mining of huge amounts of data, models the data, and looks for patterns, become, trends, and so on. At the end of the day, he comes up with visualization and reporting for analyzing the data for decision making and problem-solving process.

**Skill Required:** To become a data analyst, you must have a good background in mathematics, business intelligence, data mining, and basic knowledge of statistics. You should also be familiar with some computer languages and tools such as MATLAB, Python, SQL, Hive, Pig, Excel, SAS, R, JS, Spark, etc.

# Machine Learning Expert

The machine learning expert is the one who works with various machine learning **algorithms** used in data science such as regression, clustering, classification, **decision tree**, random forest, etc.

**Skill Required:** Computer programming languages such as Python, C++, R, Java, and Hadoop. You should also have an understanding of various algorithms, problem-solving analytical skill, probability, and statistics.

# Data Engineer

A data engineer works with massive amounts of data and responsible for building and maintaining the data architecture of a data science project. Data engineer also works for the creation of data set processes used in modeling, mining, acquisition, and verification.

**Skill Required:** Data engineer must have depth knowledge of SQL, MongoDB, Cassandra, HBase, Apache Spark, MapReduce, with language knowledge of Python, C/C++, Java, Perl, etc.

# Data Scientist

A data scientist is a professional who works with an enormous amount of data to come up with compelling business insights through the deployment of various tools, techniques, methodologies, algorithms, etc.

**Skill Required:** To become a data scientist, one should have technical language skills such as R, SAS, SQL, Python, Hive, Pig, Apache spark, MATLAB. Data scientists must have an understanding of Statistics, Mathematics, visualization, and communication skills.

# Technical Prerequisite

**Machine Learning:** To understand data science, one needs to understand the concept of machine learning. Data science uses machine learning algorithms to solve various problems.

**Mathematical Modeling:** Mathematical modeling is required to make fast mathematical calculations and predictions from the available data.

**Statistics:** Basic understanding of statistics is required, such as mean, median, or standard deviation. It is needed to extract knowledge and obtain better results from the data.

# Technical Prerequisite

**Computer programming:** For data science, knowledge of at least one programming language is required. R, Python, and Spark are some required computer programming languages for data science.

**Databases:** The depth understanding of Databases such as SQL, is essential for data science to get the data and to work with data.

# Real-Time uses of Data Science

- **Entertainment:** Data science technologies have taken entertainment to another level, with platforms like Spotify and Netflix.
- **Internet Search:** Data science is used in search engines like Google.
- **Online shopping:** Data science is used to personalize shopping recommendations.
- **Airline planning:** Data science is used to optimize airline routes.
- **Finance Sector:** Data science is used to detect fraud and predict stock prices.
- **Speech Recognition:** Data science is used in speech recognition software.

# Data Analytics

**Data Analytics** is a process of **converting raw data** into useful **insights**. It includes a set of tools and technology that helps in the process of **data collection**, **cleaning**, **transforming**, and **modelling data** to achieve useful information, and with the support of that information, it helps in **decision-making**.



# Process of Data Analytics

**Data analysts, data scientists, and data engineers together create data pipelines which helps to set up the model and do further analysis. Data Analytics can be done in the following steps which are mentioned below:**

- **Data Collection:** It is the first step where raw data needs to be collected for analysis purposes. It consists of two steps in which it can be done. If the data are from different source systems then using data integration routines the data analysts have to combine the different data whereas sometimes the data are the subset of the data set. In this case, the data analyst would perform some steps to extract the useful subset and transfer it to the other compartment in the system.

# Process of Data Analytics

**Data Cleansing:** After collecting the data the next step is to clean the quality of the data as the collected data consists of a lot of quality problems such as **errors**, **duplicate entries** and white spaces which need to be corrected before moving to the next step. By running data profiling and data cleansing tasks these errors can be **corrected**. These data are organised according to the needs of the analytical model by the analysts.

# Process of Data Analytics

**Data Analysis and Data Interpretation:** Analytical models are created using software and other tools that interpret the data and understand it. The tools include Python, Excel, R, Scala and SQL. Lastly this model is tested again and again until the model works as it needs to be then in production mode the data set is run against the model.

# Process of Data Analytics

**Data Visualisation:** It is the process of creating visual representation of data using the plots, charts and graphs which helps to analyse the patterns, trends and get the valuable insights of the data. By comparing the datasets and analysing it data analysts find the useful data from the raw data.

# Data Scientist vs Data Analyst

# Role Description

## Data Analyst

**Data Analyst is the person who understand what happened in the past and why it happened**

## Data Scientist

**Data Scientist is the person who predicts what will happen in the future and what action can be taken**

# Qualification

**Data Analyst**

**Bachelors degree is  
needed**

**Data Scientist**

**Masters or higher is  
preferred**

# Salary Expectations

## Data Analyst

**Entry Level: 2 Lac to 10+ Lac, Average is 4 - 5 Lacs per annum**

## Data Scientist

**Very rare to get entry level job in data science, companies usually prefer at least 1-2 years of experience. Salary for 2-3 years can range from 4 lacs and go up to 20 lacs+ per annum**

# Tools & Skills

## Data Analyst

Excel, Power BI /  
Tableau, SQL, Python /  
R Language, Statistics

## Data Scientist

SQL, Python / R Language,  
NLP, Statistics, Apache Spark,  
SAS / SPSS, Jupyter  
Notebooks, TensorFlow,  
Pytorch, Keras

# Responsibilities - Data Analyst

- Understanding Business Requirements
- Gathering and Cleaning Data
- Processing Data
- Creating Reports for Business Leaders
- Collaborating with People

# Responsibilities - Data Analyst

- Use Current Data to Discover Future Opportunities
- Obtain and Clean Data
- Exploratory Analysis (Understanding Characteristics before Deciding how to Model it)
- Apply Data Science Techniques, such as Machine Learning, Statistical Modeling, and Artificial Intelligence
- Present Findings

# Quick Masterclass on Power BI

# What is Power BI

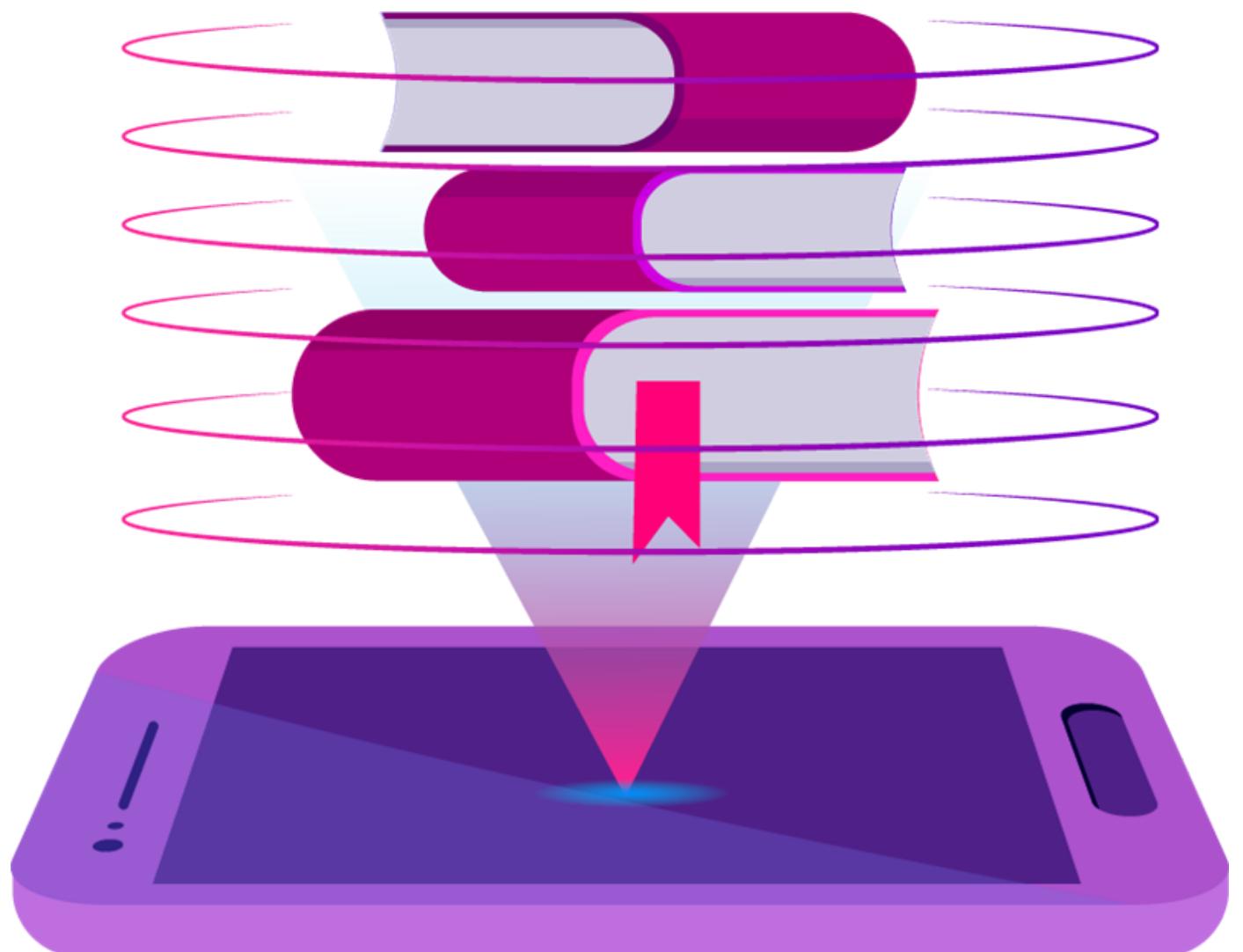


**Power BI is a data visualization and business intelligence tool. It is used to convert data from different data sources into interactive dashboards and analysis reports. Power BI offers cloud-based services for interactive visualizations with a simple interface for end users to create their own reports and dashboards.**

# Let's See Live Examples

# Proway Academy's Program

- **Digital Marketing**
- **Data Science**
- **Data Analytics**
- **Python Programming**
- **Artificial Intelligence**
- **Machine learning**
- **MIS Tools**
- **Programming Languages**
- **Web Designing & Development**
- **Full Stack Development**



# Proway Academy's USP

Hybrid and  
Interactive  
Classes

Hands on  
Experience

Quality  
Education

Technical  
Skill  
Focused  
Courses

Live  
Projects

Internship

Job Ready  
Courses

100%  
Placement  
Assistance

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# How to Claim Scholarship?

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**Phone Number: +91-9311498828**

**Email Id: shivani@prowayacademy.com | contact@prowayacademy.com**

**DO BRING YOUR COLLEGE ID**



**Any Questions in Mind?**

# Questionnaire

- 1. Why Visualization is important for data science?**
- 2. Why is statistics important for Data science?**
- 3. How many types of Data Analysis and Explain.**
- 4. What do you understand with supervised and unsupervised machine learning?**
- 5. How can you become a Data Scientist ?**

# Thank You!