

# DATA SCIENCE COURSE TUTORIAL # 01

---

## Chapter # 1: Introduction to Data Science

---

### 1.1 What is Data Science?

Data Science is a field that focuses on extracting useful knowledge from data. It combines different skills like statistics, computer programming, and domain knowledge to understand and solve real-world problems using data.

In simple words, Data Science is about:

- Collecting data
- Cleaning it
- Analyzing it
- Finding patterns
- Making predictions or decisions based on data

Data Science is used in many areas such as healthcare, marketing, finance, social media, sports, and more.

### 1.2 Importance of Data Science in Real-World Applications

Data Science plays a big role in solving modern problems. Today, companies and organizations generate a lot of data. Without Data Science, this data would be useless. Data Science helps turn this raw data into useful insights.

Some examples:

- E-commerce companies use it to recommend products
- Banks use it to detect fraud
- Hospitals use it to predict diseases
- Governments use it for policy decisions

It helps in making better, faster, and data-driven decisions.

### 1.3 Components of Data Science (Statistics, Programming, Business)

There are three main parts in Data Science:

1. **Statistics**

Helps understand the data and identify patterns and relationships.

2. **Programming**

Used to write code (mostly in Python or R) to manage and analyze data.

3. **Business or Domain Knowledge**

Understanding the area where data is used so we can ask the right questions and get useful insights.

All three components are important for a successful Data Science project.

