

### 1. What is data, and why is it important in the modern world?

Ans: The raw, unorganized facts and details that can be processed and analyzed is called data. It can include numbers, dates, images, sound etc. It is abundant and readily available but it can become overwhelming without any processing.

Data has the ability to drive industries using artificial intelligence, automation and predictive analysis. Businesses use data to understand customer preferences, scientists rely on it for research etc.

For ex: An ecommerce website like Amazon can use data generated by customer purchase history to recommend similar products. They can also use data to analyze current shopping trends to advertise certain products and adapt their inventory accordingly. In the winter season, Amazon may give special discounts on winter clothes. If a customer buys a woolen jacket, they will provide recommendations for woolen gloves, socks etc.

### 2. What is the difference between qualitative and quantitative data?

Ans: Quantitative Data: This is the type of data that can be measured. It includes numerical and statistical data. For ex: Student marks, employees salaries, sales, age, height, weight etc.

Qualitative Data: This is the type of data that can't be measured but it can be ordered, grouped or ranked based on specific criterias. It includes descriptive data like characteristics or qualities. For ex: Colors, names, pincodes, phone numbers, job hierarchy etc.

### 3. What is data analysis, and how does it differ from data science?

Ans: Data Analysis: It deals with examining, cleaning, transforming and visualizing existing data to identify patterns and extract meaningful insights for decision making. Tools used for data analysis are Microsoft Excel, SQL, Power BI, Tableau etc.

Data Science: It involves developing models and algorithms using machine learning techniques to predict future trends. Tools used for data science are Python, R, TensorFlow etc.

4. What are the key steps involved in a typical data analysis process?

Ans: The key steps involved in a data analysis process are:

- I. Collecting Data: Gathering data for a variety of sources like databases, spreadsheets etc.
- II. Cleaning Data: It involves removing errors and redundancies, fixing inconsistencies and handling missing values in the data.
- III. Analysing Data: Applying statistical methods to identify meaningful patterns and trends.
- IV. Visualization: Using various types of charts and graphs to present and communicate insights effectively.

5. What tools and techniques are commonly used in data science?

Ans: Techniques used: Machine Learning, AI.

Tools used: Python, R, TensorFlow, Scikit-Learn etc.

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