DATA SCIENCE COURSE TUTORIAL # 06

2.2 Qualitative vs Quantitative Data

1: Qualitative Data

Qualitative data (also called categorical data) describes qualities or characteristics.
It cannot be measured in numbers but can be observed.
It is often used to describe things like opinions, colors, names, labels, or categories.
This type of data focuses on **descriptions** rather than numbers.

Examples of qualitative data:

- Colors of cars (red, blue, white)
- Customer feedback (satisfied, not satisfied)
- Gender (male, female)

> Note: Qualitative data is useful when you want to understand patterns, trends, or categories rather than exact measurements.

2: Quantitative Data

Quantitative data is data that can be measured and expressed in numbers.
It represents **quantities, counts, or amounts** and can be used for **mathematical calculations** and **statistical analysis**.
This type of data answers questions like **"How much?"**, **"How many?"**, or **"How often?"**.

Examples of quantitative data:

- Age (25 years)
- Height (170 cm)
- Number of products sold (50)

Quantitative data is further divided into two types:

1: Discrete Data

Discrete data can only take specific values (whole numbers) and cannot be divided into smaller parts.
For example:

- Number of students in a class (cannot be 25.5 students).

2: Continuous Data

Continuous data can take any value within a range, including decimals.
For example:

- Weight (65.8 kg)
- Temperature (36.5°C)

> Note: Quantitative data is best when you need exact measurements and want to perform numerical analysis.