

DATA SCIENCE COURSE TUTORIAL # 07

2.3 Numerical, Categorical, Ordinal, and Time Series Data

1: Numerical Data

Numerical data means data that is represented in numbers. It can either be measured (like weight or height) or counted (like number of students). The most important thing about numerical data is that we can apply mathematical operations on it (addition, subtraction, average, etc.).

Examples:

- Income (in rupees or dollars)
 - Temperature (in Celsius or Fahrenheit)
 - Distance (in kilometers or miles)
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2: Categorical Data

Categorical data means data that represents names, labels, or categories. It does not have any mathematical meaning. We cannot add or subtract categories, they are only used for classification or grouping.

Examples:

- Type of smartphone (Android, iOS)
 - Country name (USA, Pakistan)
 - Gender (Male, Female)
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3: Ordinal Data

Ordinal data is a special type of categorical data where the categories have an order or ranking. But, the difference between these categories is not equal or measurable. For example, "High" and "Medium" are different levels, but we cannot say exactly how much higher one is compared to the other.

Examples:

- Education level (High School, Bachelor's, Master's)
 - Customer satisfaction (Low, Medium, High)
 - Movie ratings (1 star, 2 stars, 3 stars, etc.)
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4: Time Series Data

Time series data is data that is collected over time in a sequence. Each piece of data is connected with a specific time or date. The main purpose of time series data is to observe how something changes over time, like trends, patterns, or seasonality.

Examples:

- Daily stock prices of a company
- Monthly rainfall in a city
- Hourly website traffic on an online store