14-07-2025
Monday

⊙ Statistics for Data

- Why statistics
  - A/B testing
  - Feasibility of the solution

- Types of Statistics
  1. Descriptive statistics
  2. Inferential statistics

1. Descriptive statistics

A descriptive value for a population is called a Parameter & a descriptive value for a sample is called a statistics

Collect data
eg. Survey

Reset data
eg. Tables and graphs

Summarize data
eg. Sample mean: $\frac{\sum x_i}{n}$

2. Inferential Statistics

Inferential statistics are methods for using sample data to make general conclusions (inferences) about populations.

- Because a sample is typically only a part of the whole population, sample data provide only limited information about the population. As a result, sample statistics are usually imperfect representatives of the corresponding population parameters

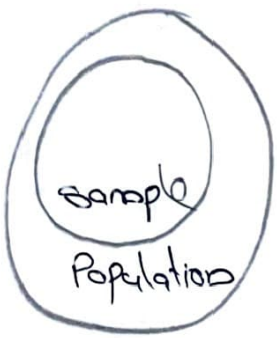
. Estimation

Eg: Estimating the population mean weight using the sample mean weight

. Hypothesis testing

Eg. Test the claim that the population mean weight is 70kg

- Basic terms



. Sample: A subset of the population

Population: A collection, or set, of individuals or objects or events whose properties are to be analyzed

- Example

•Statistical Population.

A collection of all probable observations of all Probable observations of a specific characteristic of interest

Ex. All learners taking this course

•Sample

A subset of population

Ex. A group of 20 learners selected for a quiz

•Variable

An item of interest that can acquire various numerical values

Ex: The number of defective items manufactured in a factory

•Parameter

A population characteristics of interest

Ex. The average income of a class of people

- Types of Data.