**Population vs. Sample**

Statistics often involve analyzing data from a group to gain insights. It is crucial to understand the distinction between **population** and **sample** in statistical studies.

### **1. Population**

A **population** includes all members of a defined group that is being studied. It represents the entire dataset from which conclusions are drawn.

#### **Example:**

* All students in a university.
* Every citizen in a country.
* All employees in a company.

### **2. Sample**

A **sample** is a subset of the population selected for analysis. It is used when studying the entire population is impractical or impossible.

#### **Example:**

* A survey conducted on 200 students from a university.
* A poll of 1,000 citizens to determine election trends.
* Performance evaluation of 50 employees out of 1,000.

### **Key Differences**

| **Feature** | **Population** | **Sample** |
| --- | --- | --- |
| Definition | Entire group being studied | Subset selected for study |
| Size | Large or complete | Smaller, manageable |
| Purpose | Represents whole dataset | Estimates characteristics of the population |
| Example | All customers of a store | 100 randomly selected customers |

### **Conclusion**

Understanding population and sample is essential in research and data analysis. A **population** represents the complete set, while a **sample** is a manageable portion used to infer insights about the whole group.