

Statistics :- It is the science of collecting, organising & Analysing the data.

Data :- 'Facts / Pieces of information'

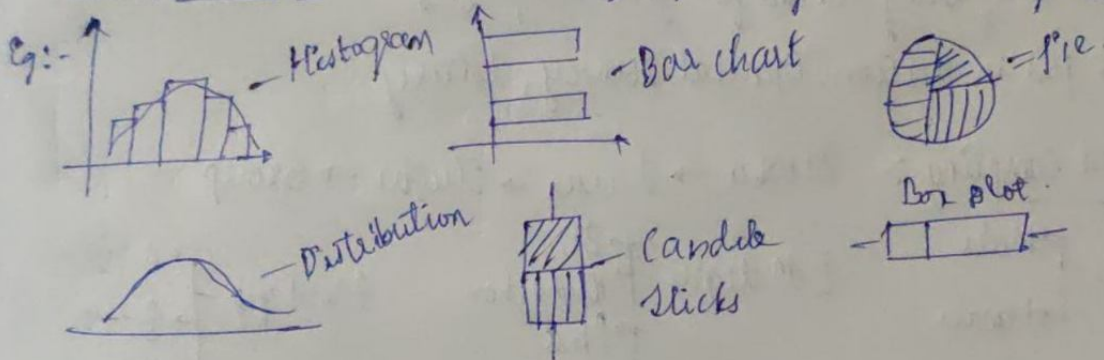
Eg: Age of students in classroom :- {24, 26, 24, 25, 23} - Mean
Median
Mode.

⊗ Wt of students in classroom

Types of Statistics:

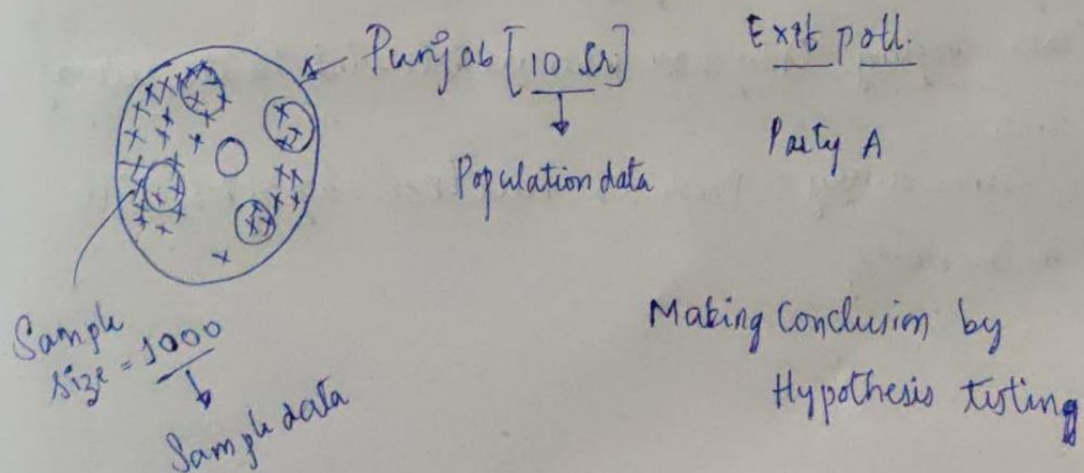
- 1) Descriptive stats [EDA & FE]
- 2) Inferential stats

1) Descriptive stats :- It consists of organising & summarising the data



2) Inferential stats :- It consists of collecting sample data and making conclusion about population data using some experiments

Sample data vs Population data.



Eg:- Lets say there are 20 class room in a university and you have collected the ages of students in 1 class room

Ages = [21, 20, 18, 34, 17, 22, 24, 25, 26, 23, 22]

Weight = [- - - - -]

Description Stat: What is the avg age of students in the class room?
① the Relationship b/w Age and weight?

Inferential stats :- ① Are the avg age of the students in the classroom is less than avg age of the students in the university.

Types of Sampling :- Population [N] > sample [n]

1) Simple Random Technique :- Every member of the population [N] has an equal chance of being selected for your sample [n].

Eg:- Exit poll in election, General survey, Lottery.

2) Stratified Sampling :- Strata \rightarrow Layer \rightarrow Cluster \rightarrow Group.

Gender \rightarrow Male
 \rightarrow Female

Eds degree \rightarrow BE
 \rightarrow High school
 \rightarrow Ph.d.
 \rightarrow Master

Blood grp \rightarrow A +ve
 \rightarrow B -ve
 \rightarrow O +ve

3) Systematic sampling :- \rightarrow Every n^{th} person sampling is selected.

Eg:- In Airport :- CC safe man selecting 5th & 9th person to approach to buy CC.

select every n^{th} individual out of population (N)

4) Convenience sampling :- Only those who are interested in the survey will participate.

Eg:- Data science survey :- People who have knowledge of DS, will participate in the survey.

- Questions:-
- 1) Survey regarding new technology - Convincing Sample.
 - 2) RBI survey for women - Stratifying Sample & Random sampling.
 - 3) Calls from Credit Card - Stratified + Random sampling.

Variable:-

A variable is a property that can take any values.
Eg:- age=14, age=24, age=26.

Type of variables

- 1) Quantitative Variable:- Measured numerically [Math operation]
Eg:- Age, weight, Height, Temp, Pressure, Distance.
- 2) Qualitative Variable / Categorical Variables: [Based on some characteristics]
Eg:- Genders, Type of Flower, Type of Cars.

Quantitative Variable:-

Discrete variable:-

Eg:- Whole number

⊙ No of Banks a/c
= {1, 2, 3, 10}

⊙ No of children in school

Continuous Variable

Eg:- Continuous.

⊗ Height, weight, Ages, Rainfall.

Assignment:-

1) What kind of variable is Marital status - Qualitative Variable.

Ganga River length - Continuous Variable

Movie length - Continuous Variable

Pincode - Discrete Variable

IQ - Continuous Variable.

Gender - Qualitative Variable.