

27-07-2021

## STATISTICS

### → Population

you are A collection of all the individuals analysing (N).

Finite Infinite

- Finite Population (countable)  
Strength of data
- Infinite Population (uncountable)

### Parameter

The quantity calculated from population is called its parameter.

Example: Average of student which have GPA more than 3.0.

## INFERENCEAL STATISTICS

Draw a conclusion about population on the basis of sample evidence.

- Experiment on samples
- Sample comparison.

Making Comparison

Hypothesis Testing

Determining Cause & Effect

Making Prediction

A

## Class Intervals

### Example

$$\frac{\sum x}{n} = \frac{\text{Sum of all values}}{\text{Total no of values}}$$

Median = central value of given data.

Mod : Most frequent numbers.

### Group Data

	$h$	$x$	$hx$	Mean
5 - 9	2	7	14	<u>18.8</u>
10 - 14	5	12	60	
15 - 19	4	17	68	
20 - 24	5	22	110	
25 - 29	6	27	162	
		414		

$$\text{Mean} = \frac{\sum fx}{\sum f} = \frac{414}{22} = 18.8$$

### Median

$$l + \left[ \frac{n/2}{f} \right] \times h$$

<u>class boundary</u>	<u>class boundary</u>	<u>cumulative frequency</u>
5 - 9	4.5 - 9.5	2
10 - 14	9.5 - 14.5	7
15 - 19	14.5 - 19.5	11
20 - 24	19.5 - 24.5	16
25 - 29	24.5 - 29.5	22

$$n = \sum f$$

$$n = 22$$

$$\left[ \frac{n}{2} = 11 \right]$$

$$l + \left[ \frac{\frac{n}{2} - CF_p}{f} \right] \times h$$

CF = cumulative frequency ~~→~~

$$CF = 14$$

$$f = 4$$

$h$  = difference between class interval

$l$  = lower class boundary

$$= 14.5 + \left[ \frac{11 - 7}{4} \right] \times 5$$

Median = ~~72.5~~ 19.5

27-09-2022 (Dr. Balchatawar) Statistics

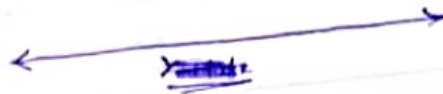
### Descriptive Statistics

- Present our raw data
- Present the data in more
- Central tendency measurement
- Frequency distribution
- Measure of spread.
- Summarizing the our group



## Design Criteria

- 1 - complete
- 2 - plausible (easy to understand)
- 3 - Homogenous



26-09

## Statistics

### BASIC TERMS (Back Bone)

- Population (Parameter)
- Sample
  - Random sample
  - Representation sample
- Statistical Error\*
  - Find the Error
- Data
  - Primary data
  - Secondary data
- Variable
  - Discrete Variable
  - continuous variable

## Statistics

- Organizing Data
- collecting Data
- Analysing Data
- Interpreting data

① Math

② comparisons

③ Tools,