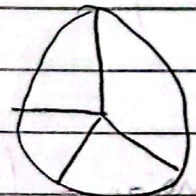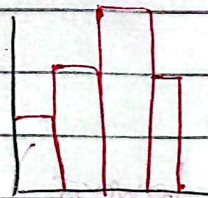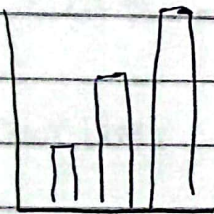## Descriptive Statistics :-

1) Organizing data using numbers and graphs.

2) Data summary :

   i) bar graph   2) Histogram   3) pie charts

3) measure of Central Tendency (mean, mode, median)

$(x - \bar{x})$

4) measure of Variability (range, variance, STD)

Inferential Statistics :-

1) Take our simple data and use it to make inference or draw conclusion.

2) uses probability to check that conclusions are correct
      with (confidence intervals and margin Error)

$$20 \pm 2 \%$$

Types of Data :-

Quantitative (Numbers)   Qualitative (words)

   discrete (counted)   Descriptive
   continous (measured)

Scales of Measurment :-

Nominal Scale Data (Qualitative) , order doesn't matter
Ordinal Scale Data (Ranking)   order matters diff X
Interval Scale Data (can't mesure ratio) order matters diff ✓
Ration Scale Data (can // //) // // // diff ✓

Hypothesis :-

we can creat a hypothesis and if the
data show strong evidence the hyothesis
is wrong we reject it , and if data is
similar but not the same fail to reject it

Null Hypothesis :- There is No difference (data doesn't convince
to reject it) Fail to reject null hypothesis

* Instead of Test large number of hypotheses
  we use   Null Hypothesis to determine if there
  is a difference

* Alternative Hypotheses:
  _____

  opposite of Null Hypotheses if we have 2 groups
  for 3 or more groups we have options

* P values :

  numbers   between   0, 1

  Types:-   one side   — Two side

| We reject hypothesis if |
| P-Value < 0.05 |

P value is composed of:

1) The Probability random chance would result in the observation
2) //   //   //   of   observing something else that is equally rare
3) //   //   //   //   //   rare or extreme

* For continous data we use STATISTICal distribution

For one sided:-   We only calculate the area that
                  in the direction we want to see the change

Confidence Intervals :-

95% Confidence interval covers 95% of The means

- anything outside it is in The 5% so iT occurs
  Less Than 5% aT a Time

- The P value of anything outside iT is < 0.05

if overLap → There is statistically significant difference.
if NOT overLap → " " " Still chance of a significant difference

Regression analysis :

IT'S a Technique ThaT helps us To analyze relationships
between variable for better understand The world around us.

Variables   Categorical / continous

Regression Line :- we can use iT To estimate or model
The relationship between independent and dependent
Variables