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Subject : ..... موضوع الدرس :

## Descriptive Statistics :-

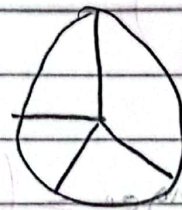
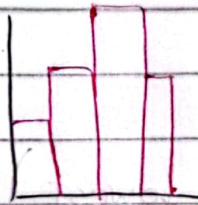
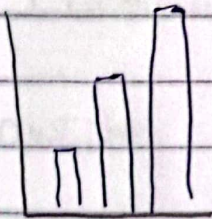
1) organizing data using numbers and graphs

2) Data summary :-

1) bar graph

2) Histogram

3) pie charts



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

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

## Inferential Statistics :-

1) Take our sample 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)

↓  
 $20 \pm 2\%$



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$(\bar{x})$  Mean: =  $\frac{\text{Sum}}{n}$  (average)

Median:  $\rightarrow n \rightarrow \text{odd}$   $\frac{n+1}{n}$   $\rightarrow$  بعد الترتيب  
(middle num)  $\rightarrow n \rightarrow \text{even}$   $\frac{\frac{n}{2} + \frac{n}{2} + 1}{2}$

Mode:  $\rightarrow$  الأكثر تكراراً  $\rightarrow$  can be None  
(most Freq)

Range = (Highest - lowest)

Variance ( $s^2$ )  $s^2 = \frac{\sum (x_i - \bar{x})^2}{n-1}$

$\hookrightarrow$  measure of spread in data

Standard deviation

$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}} = \sqrt{s^2}$

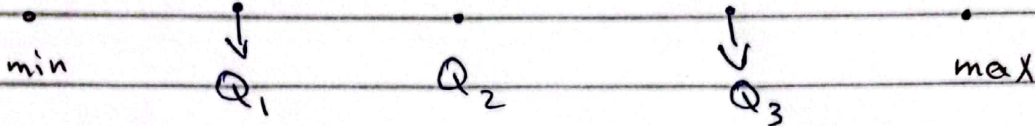
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after sort asc

middle ( median )



IQR → represent The middle 50% of data

$$IQR = Q_3 - Q_1$$

Outliers →  $[ Q_1 - 1.5 IQR , Q_3 + 1.5 IQR ]$   
↓  
out of This Range is outlier

$Q_2$  → median of all data

$Q_1$  → median of 1st <sup>Range</sup> ~~Quarter~~

$Q_3$  → median of 2nd Range