Summarizing Quantitative data:

- Frequency distribution (frequency tables).

- Measures of Variability (Range, Variance, Standard Deviation, Standard Error, Coefficient of Variation)

- Central Tendency (Mean, Median, Mode), gives an idea of what is common value for a given variables

Class intervals: There must be no overlapping between these intervals, like **0-5, 5-10, 10-15, 20-25, 25-30, 35-40 ---------**

few & many intervals are undesirable, because few intervals is losing information while many intervals is cancelling the objective of summarization.

The appropriate No. of class intervals is **6-15**.

Number of class intervals
Sturge's rule:

Sturge's rule (formula): **K= 1+3.322 (log n)**

K = No. of class intervals. n = sample size.

Note: can increase or decrease the No. of class intervals for convenience and clear presentation.

Width of class intervals; Width (W) of class interval, in general, is equal, but some times this is not possible.

W = R/K

K = No. of class intervals

R = Range (difference between smallest and largest observation).

For convenience, a width of **5** units or **10** units is used.

Data ; may be grouped or Ungrouped

Ungrouped Data :

3 , 5 ,7 , 2 , 3 , 7 ,10 , 4 , 3 , 5 ,7 , 4 , 2 , 2 , 5 ,4 , 10 , 8 , 5, 18 , 10 , 20 ,10 , 15 , 11 , 15 , 10 , 18 , 10 , 20 ,10 , 15 , 10 , 20 ,10 , 15 , 11 , 15 , 10 , 18 ,11 , 8

1. Ordered array ; ordered data quickly arrange data from smallest values to biggest values :

2 , 2 , 2 , 3 , 3 , 3 , 4 , 4 , 4 ,5 , 5, 5 , 5, 7 , 7 , 7 , 8 , 8 , 10 , 10 , 10 , 10 , 10 , 10 , 10 , 10 ,11 , 11 , 11 , 15 , 15 , 15 , 15 , 15 , 18 , 18 , 18 , 20 , 20 , 20

2. Frequency distribution;

2	**-**	**3**
3	**-**	**3**
4	**-**	**3**
5	**-**	**4**
7	**-**	**3**
8	**-**	**2**
10	**-**	**9**
11	**-**	**3**
15	**-**	**5**
18	**-**	**3**
20	**-**	**3**

3. Number of class intervals

Sturge's rule (formula):

K= 1+3.322 (log n)

K= 1+3.322 (log 41) = 1+3.322 × 1.623 = 1+5.391 = 6.391˜ 7

4. Width of class intervals

W = R / K

W = 18/7= 2.571 ˜ 3

5. Frequency Distribution :

Age class	Frequency	Relative Frequency	%	Cumulative Relative Frequency
50-59	8	0.123	12.3	12.3
60- 69	10	0.154	15.4	27.7
70- 79	16	0.246	24.6	52.3
80-89	14	0.215	21.5	73.8
90-99	10	0.154	15.4	89.2
100-109	5	0.077	7.7	96.9
110-119	2	0.031	3.1	100
	65			