

(4) The Mean Deviation

It is also known as average deviation. It is the average difference between the items in a distribution and the median or mean of that series.

Theoretically there is an advantage in taking the deviations from median because the sum of deviations of items from median is minimum when signs are ignored, but in practice, the arithmetic mean is more common to use for calculating M.D / A.D.

Computation of Mean Deviation - Individual observations - If x_1, x_2, x_3 , and x_n are N given observations then the deviation about an average A is -

$$M.D = \frac{1}{n} \sum |X - A|$$

$$= \frac{1}{n} \sum |D| \text{ or } \frac{\sum |D|}{n}$$

The coefficient of mean deviation is obtained by dividing mean deviation by the particular average used in computing mean deviation. So if M.D. has been computed from median, then

$$\text{Coefficient of M.D.} = \frac{\text{M.D.}}{\text{Median}}$$

Mean Deviation for Discrete Series -

$$\text{M.D.} = \frac{\sum f |D|}{N}$$

The above formula for M.D. is same for Continuous series.