

## Numerical Methods in Descriptive Statistics

Following are the Numerical Methods in Descriptive Statistics

1. **Measures of central tendency:** Describes the central position of a frequency distribution for a group of data.
  - a) **Mean:** Mean is average of the dataset.
    - i) Disadvantage of Mean is Outliers. If we have outliers, then go to Median or remove the outliers and calculate the Mean
  - b) **Median:** Median is middle number after sorting the dataset.
    - i) If the number of records is Odd number, consider middle number as Median
    - ii) If the number of records is Even number, consider average of 2 middle numbers as Median
  - c) **Mode:** Mode is most occurrence values
    - i) Bi model Mode: If 2 numbers of occurring high frequency as same number of times
    - ii) Multi model Mode: If more than 2 numbers occurring high frequency as same number of times
2. **Measures of spread:** How far out from the center, does the data extend? You can use the range or standard deviation to measure the dispersion. A low dispersion indicates that the data points are more tightly around the center. Higher dispersion signifies that data points fall further away from the center.
  - a) **Variance:** square of difference between Mean with all data points.
  - b) **Standard Deviation:** square root of Variance.
  - c) **Range:** Maximum number – Minimum number of the data set
  - d) **Skewness:** This measure tells us whether the distribution of the data points is symmetric or skewed. Skewness gives us information about whether the data points are closed to center or spread across (tailed).
    - i) If the right tailed skewness means, most of the data distribution is in left side and it is positive skewed
    - ii) If the left tailed skewness means, most of the data distribution is in right side and it is negative skewed
    - iii) Skewness of the normal distribution is zero.
  - e) **Kurtosis:** It gives us the information as how peak your distribution is?
    - i) If it is high peak means all the data points are very close to each other.
    - ii) If it is flattened means all the data points are spread across.