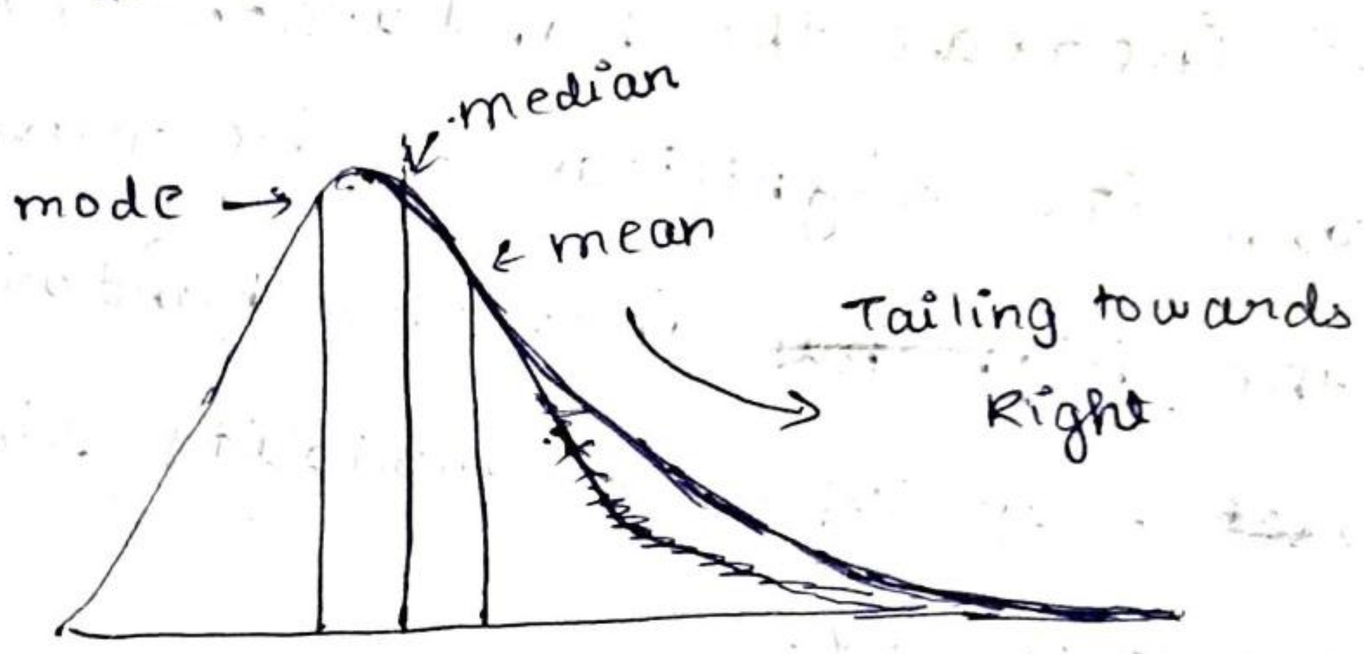
Skewness of data:-

* Skewness is the measure of how much the probability distribution of a random variable deviates from the normal distribution.

* There are 3 types:-

i) Positive skew or Right skew
ii) Negative skew or left skew
iii) NO skew or symmetrical

i) Positive skew or Right skew :-



Example scenerios:-

* wealth distribution of the people in a country.

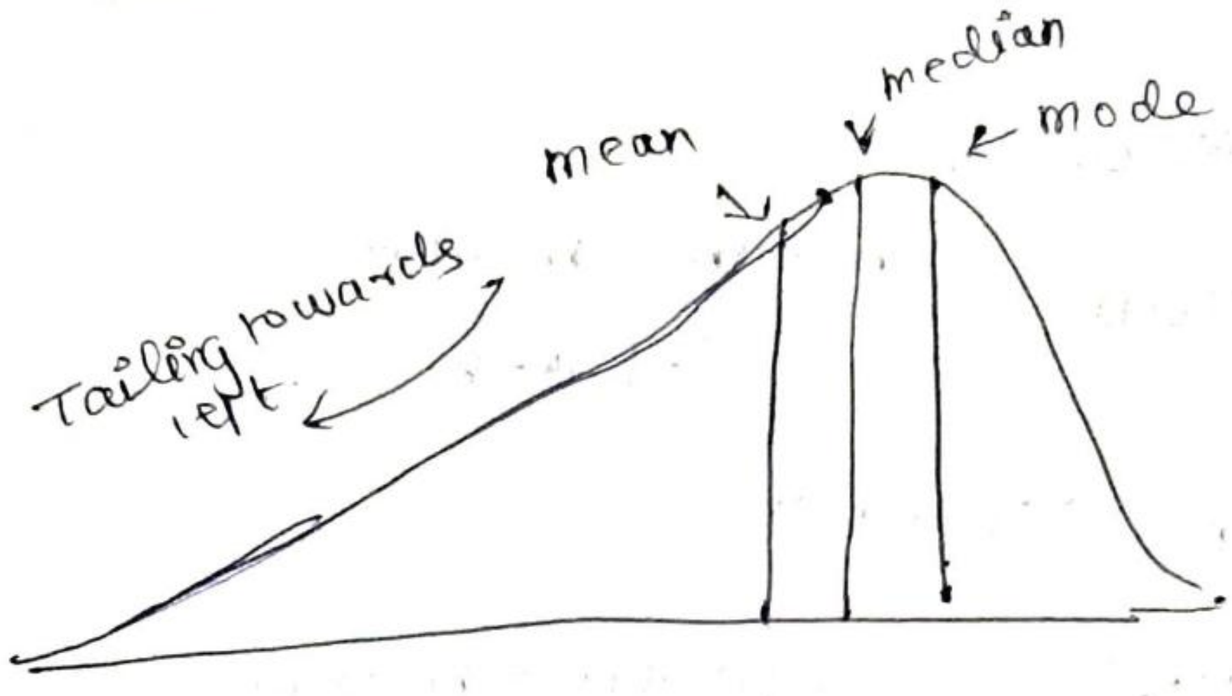
* Wealth status cannot be normal, So it will be positively skewed, means more population will be in some middle class range, Very few will have more wealth.

* Higher the skewness, higher the distance b/w mean, median, mode

* The relationship b/w mean, med and mode

Mean > median > mode

ii) Negative Skew or left Skew :-



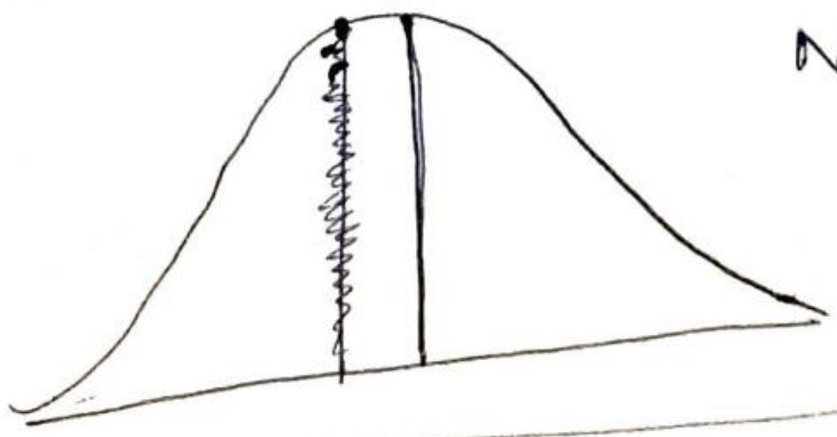
Example Scenerios:-

- Life span of human beings.
- The avg life span of human beings will be around 50 - 70 or more.
- But very few have less life span..

The relationship b/w mean, median, mode

Mode > Median > mean

iii) No Skew



Mean ≈ Median ≈ Mode

Example Scenerios:-

- Age of the people
- Height, weight.

Pearson method to calculate Skew:-

1) mode skewness

$$Skew = \frac{mean - mode}{Std\ dev.}$$

2) median Skewness

$$Skew = \frac{3(mean - median)}{Std\ dev.}$$

Also we can use moments to calculate skew.