Measure of Dispersion :-

1. Variance
2. Standard deviation
3. Range

1. Variance

Population σ^2

Sample s^2

- $\sigma^2 = \frac{1}{N} \sum_{i=1} (x_i - \mu)^2$

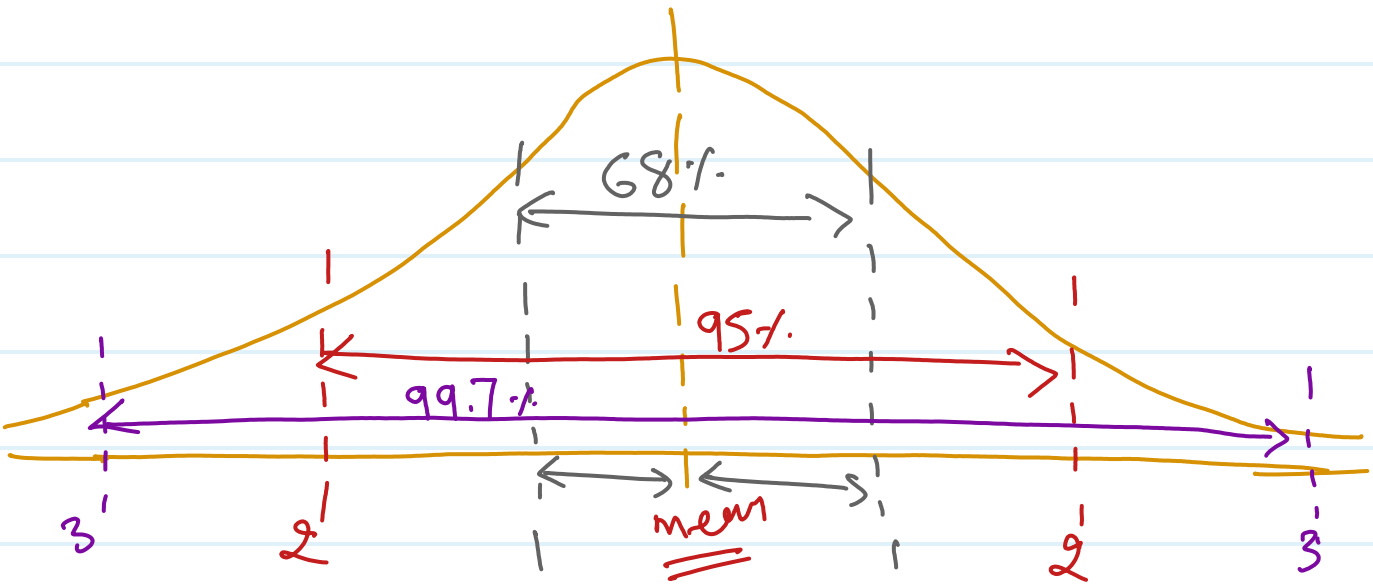
- $s^2 = \frac{1}{n-1} \sum_{i=1} (x_i - \bar{x})^2$

$n-1$ = Degree of freedom

Variance calculate spread of the data from its mean.

② Standard deviation —

It calculat distance from mean about to any particular dataset.



$$\text{population } \sigma = \sqrt{\frac{1}{N}\sum_{i=1}(x_i - \mu)^2}$$

$$\text{Sample } s = \sqrt{\frac{1}{n-1}\sum_{i=1}(x_i - \bar{x})^2}$$

(3) **Range** :-

[1, 2, 5, 9, 12, 13, 16, 19, 23, 27]

min = 1

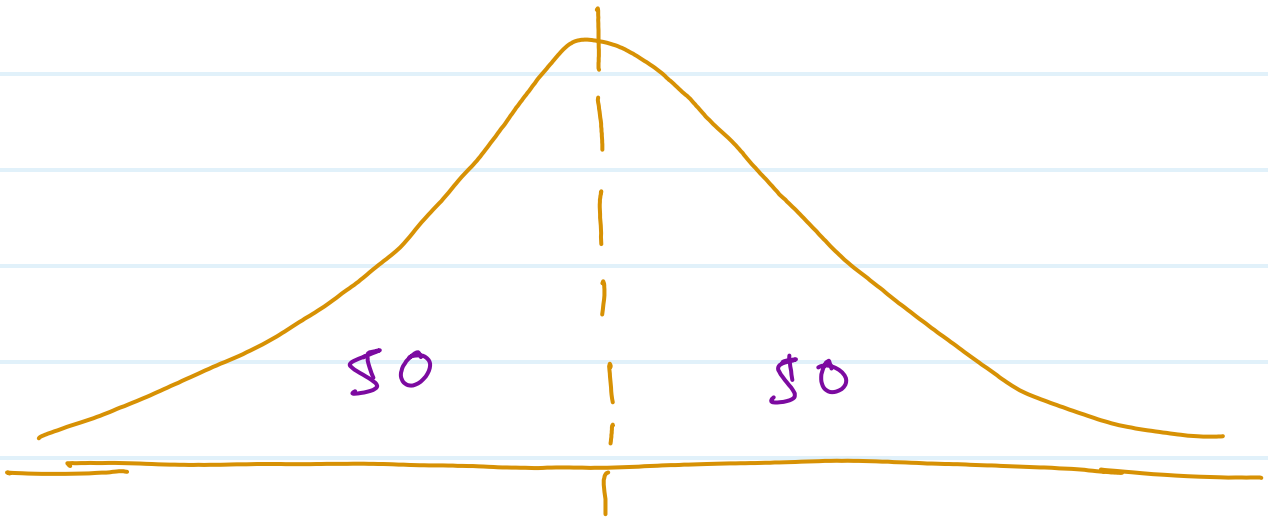
max = 27

Range = max − min

= 26

measure of shape

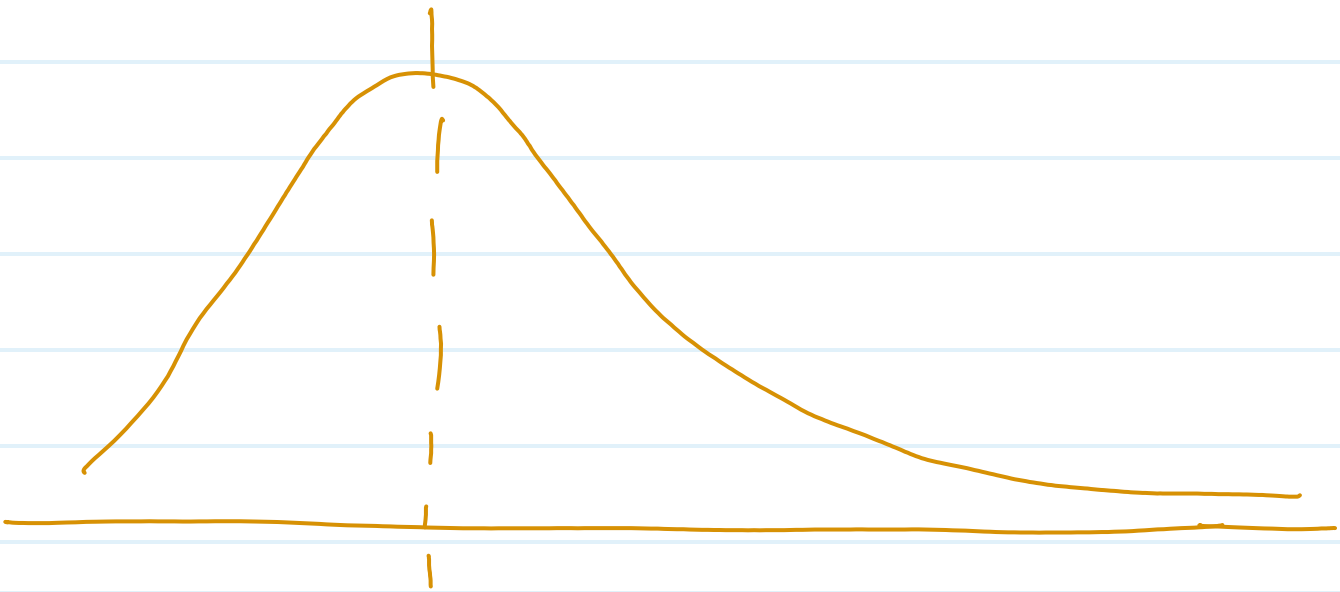
① Distribution curv

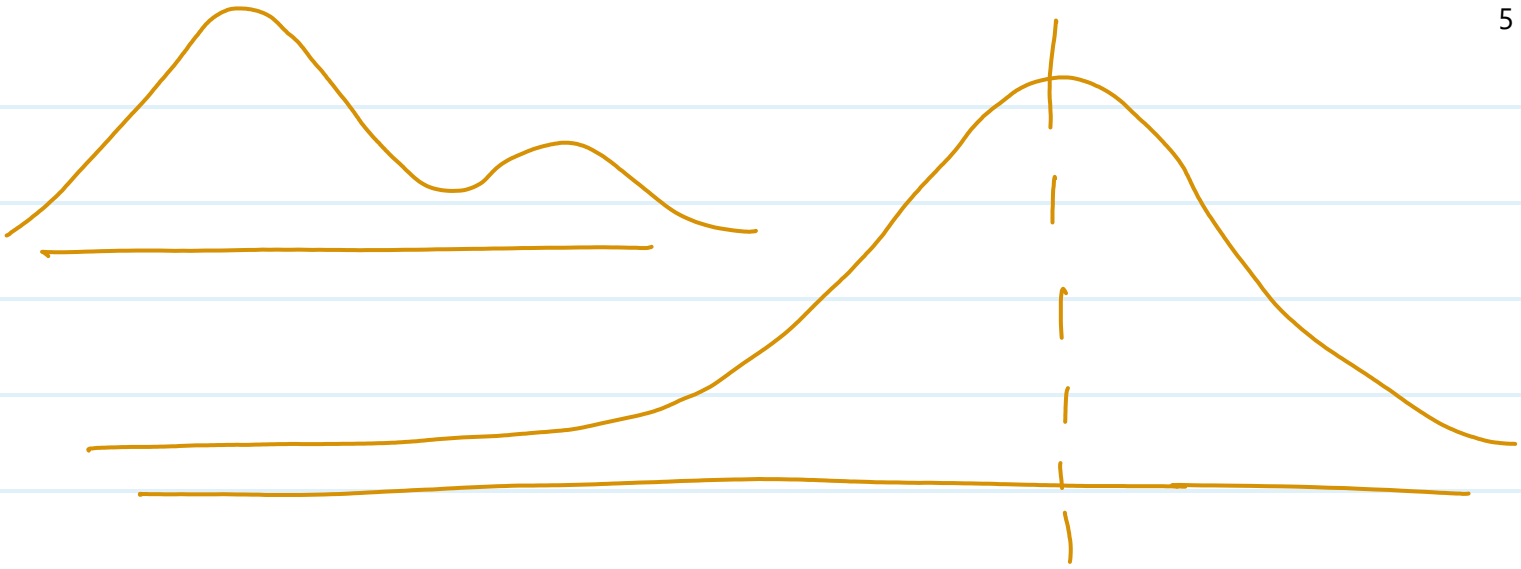


↑ Symmetric

① Symmetric Distribution curv

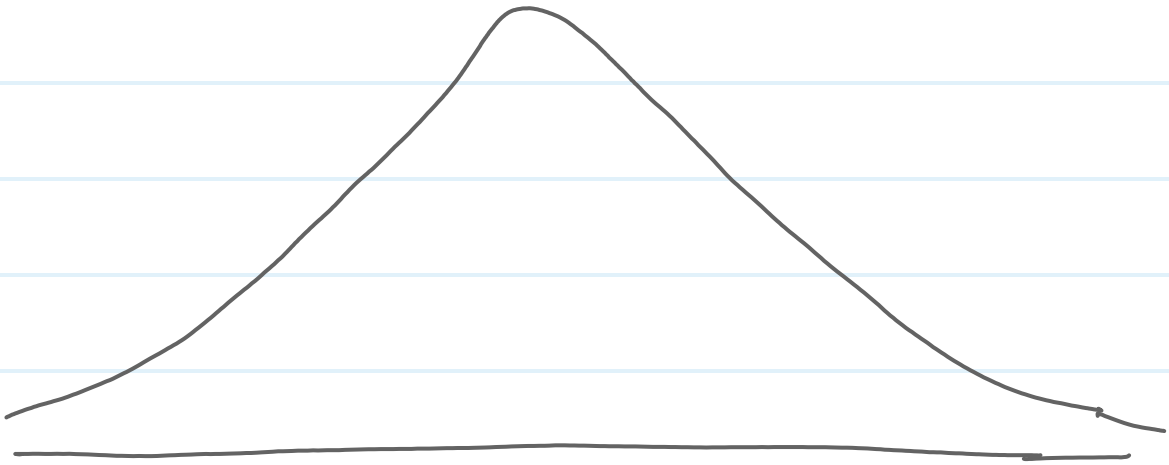
② Asymmetric Distribution curv





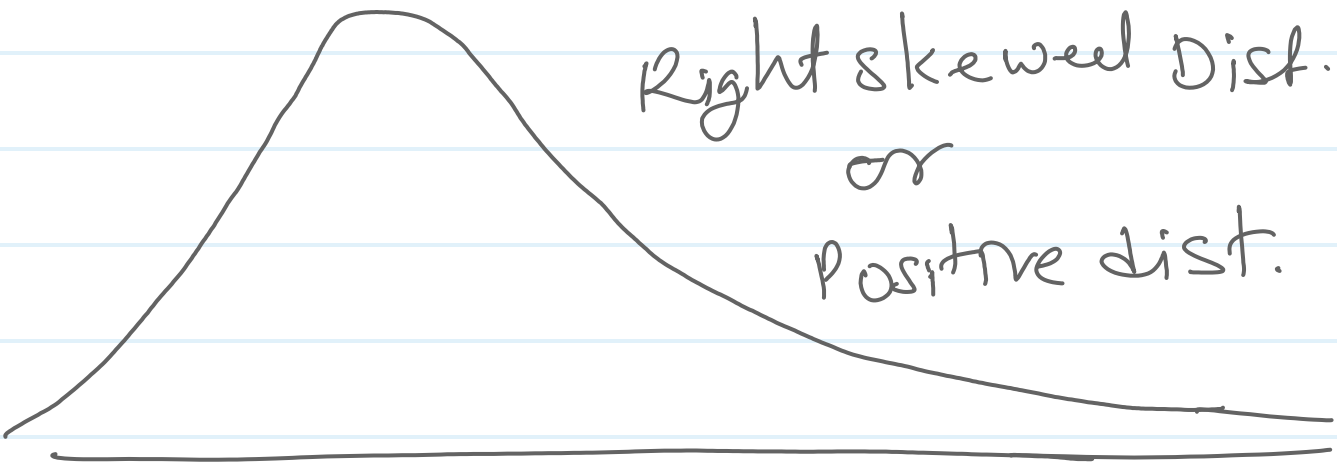
(2) Skewness :-

(1)



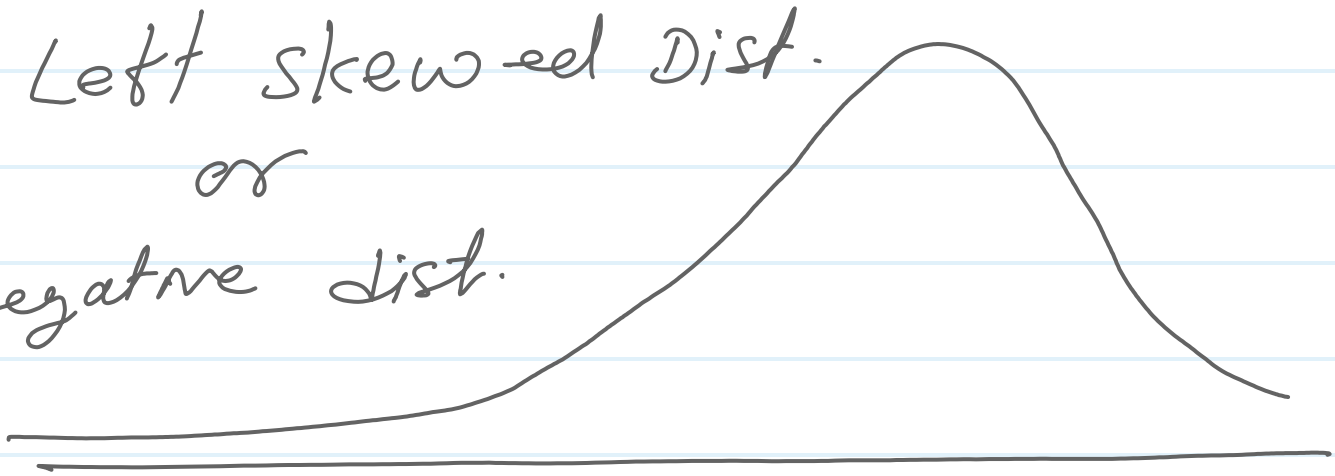
normal distribution

(2)

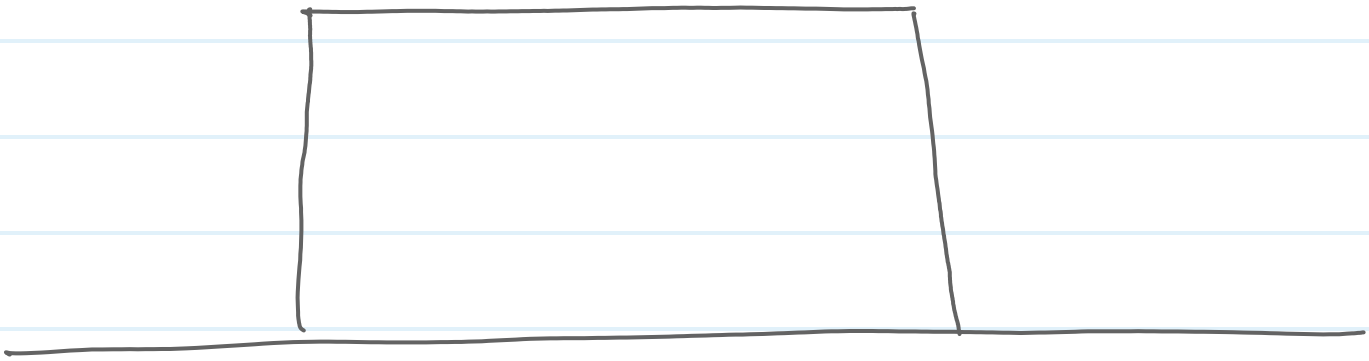


Right skewed Dist.
or
Positive dist.

③ Left skewed Dist.
or
negative dist.



④ uniform dist



measure of position

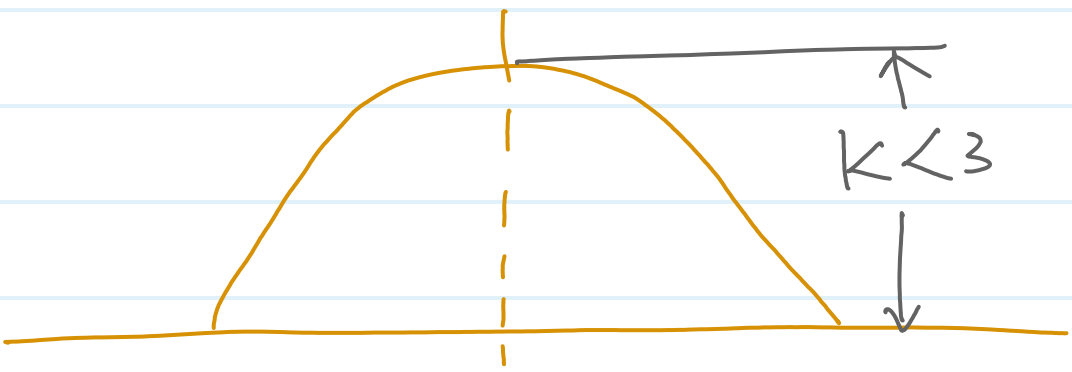
=> kurtosis

k = denote

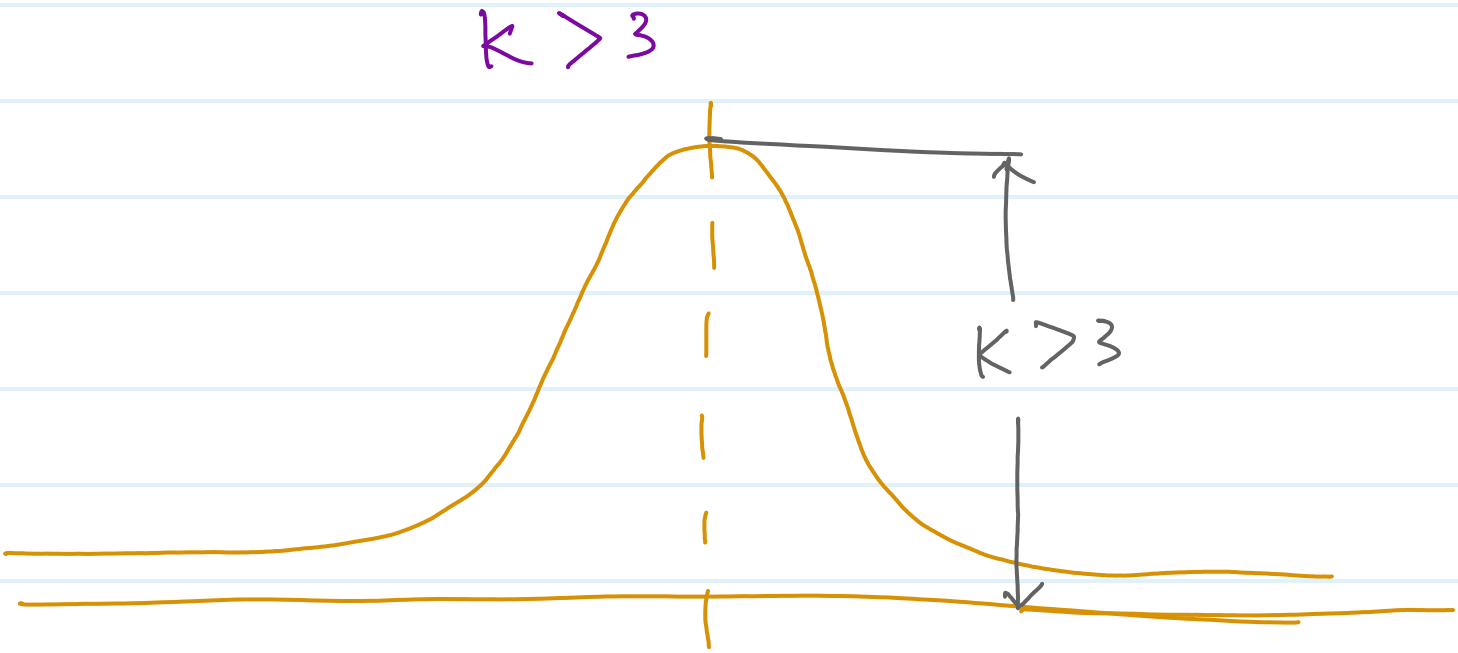
① mesokurtosis

Normal Distri.

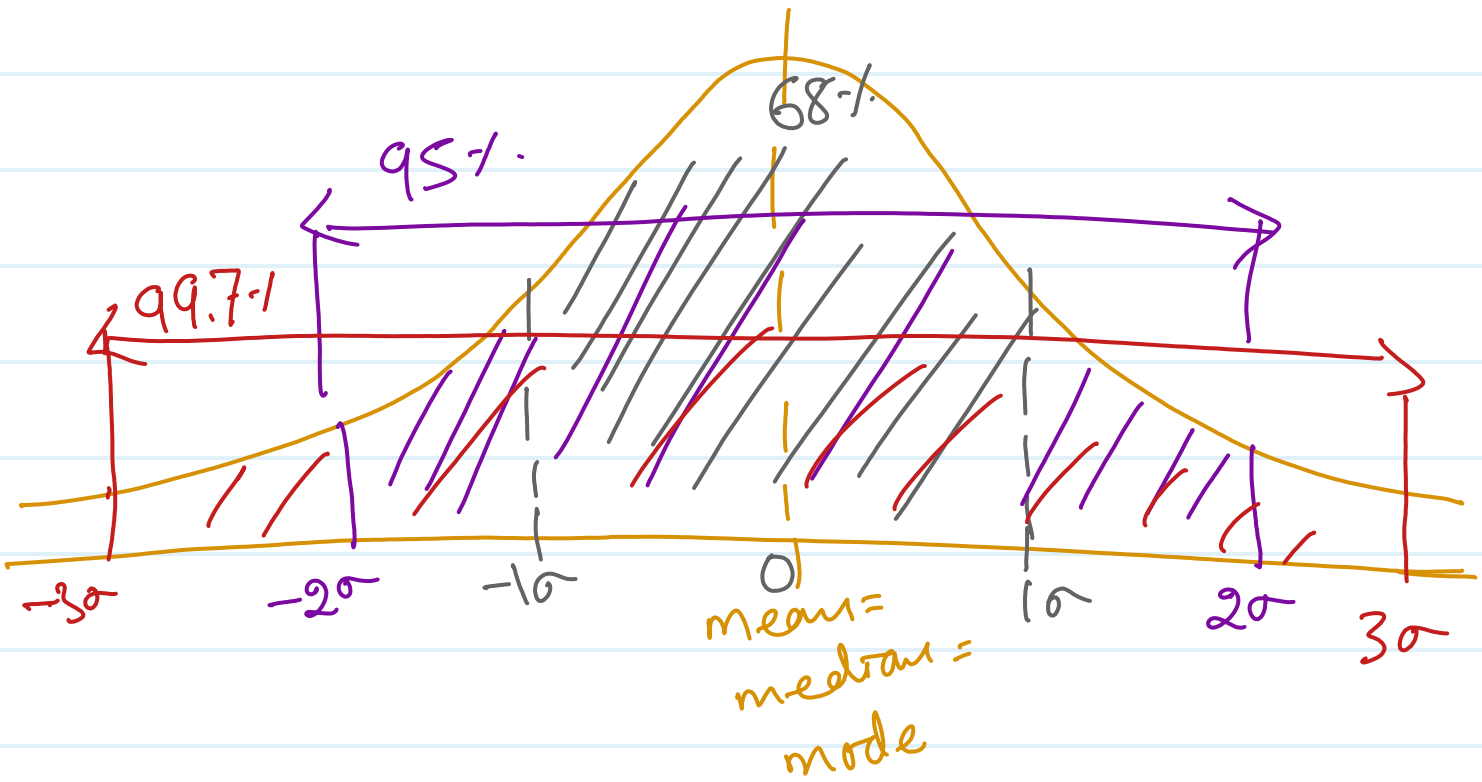
② platikurtosis – $K < 3$



③ Lepto kurtosis



* Emperical Rule of Distribution.



// Emperical formula : 68-95-99.5

✡ Variables

It is a container/box which hold value inside it.

$$X = 10$$

Type of variable

- Quantitative variable
  - Descret quant. variable (whole number)
  - Continous quant. varble (Decimale number)
- Qualitative variable
  - Nominal qula. var. (P/F, F/M, T/F)
  - Ordinal qual. var. (10^{th}, 12^{th}, UG, PG, Ph.D.)

X_1	X_2	X_3	X_4	X_5
Age	weight	education	Home	Gender
18	40	10th	1	M
19.6	50	ph.D.	2	F
20.8	55.3	UG	3	F
30.8	75	PG	1	M
	80.8			