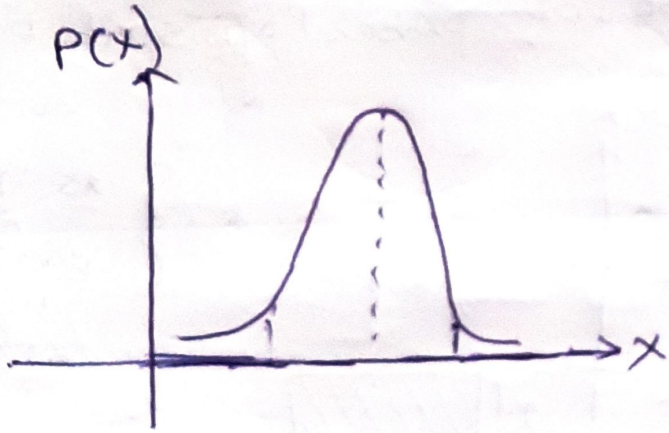
4. Normal Random Variable:-

$$P(X=x) = \frac{1}{\sqrt{2\pi\sigma}} \cdot e^{\left\{-\frac{(x-\mu)^2}{2\sigma^2}\right\}}$$

→ Normal distribution is also known as Parametric Distribution. because it is dependent on μ, σ^2 (mean & variance)

$$N(\mu, \sigma^2)$$

↓ Normal distribution

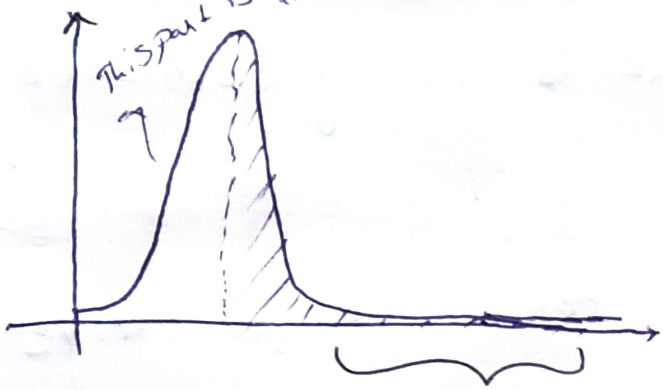


Q) Why Normal distribution is bell shape.

Sol. Suppose, in an exam, one person will get high marks, & some person fails. So, both these people have very less probability. Remaining most of the people have average marks.

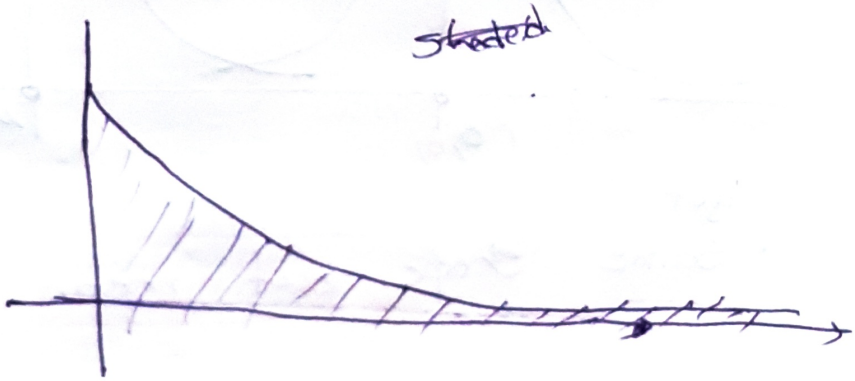
So, probability of getting average for these people is high.

5 Log Normal Distribution:-



This is because of outlier.

6. pareto Distribution



Ex:- Income of India; very less people have high income. Probability will be less for high income

→ probability of getting income less is for many people. So probability will be low.

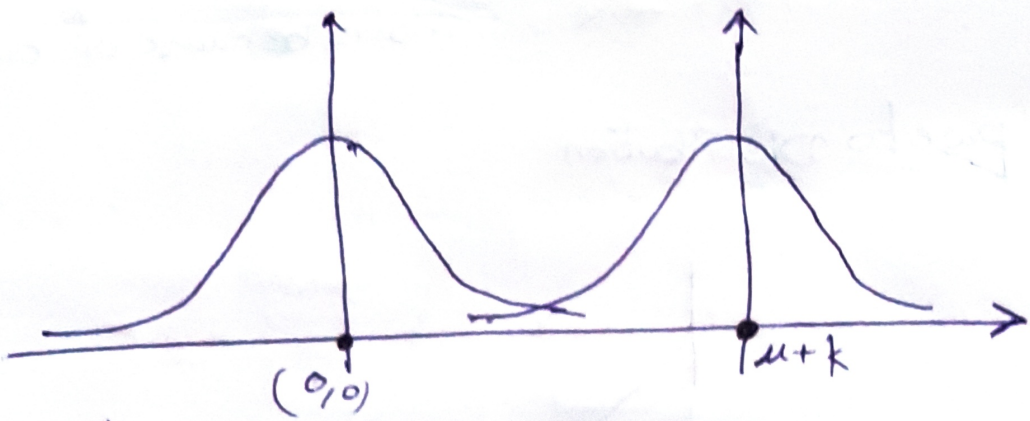
9) What are the parameter for Normal Distribution.

$$\text{Height} \sim N(\mu, \sigma^2)$$

↓

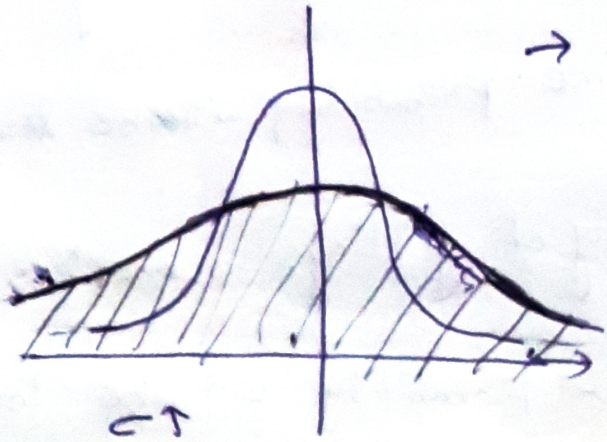
Height is normally distributed with mean μ & Variance σ^2

9) what happens if we change μ ~~(redraw)~~ ?



we will get
↳ Same shape but mean is shifted to $\mu+k$

9) What happens if we increase σ ?



→ If we increase "σ", spread will increase, so the height will decrease