NORMAL DISTRIBUTION

The most Popular continious distribution in theoritical listing of out comes and Probabi-lities is Normal Distribution. Normal Dist-ribution was first described by A.D. Moivre in 1733 as a limiting form of Binomial Distribution. Normal Distribution is also known as Normal Probability Distribution.

A random variable 'x' is said to have a Normal Distribution with Param-eters μ (Mean) and σ^2 (Variance) if the Probability density function is given by —

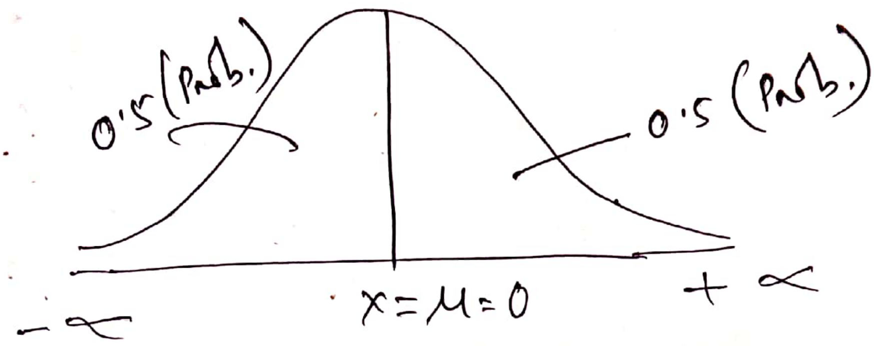
$$f(x;\mu,\sigma) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2};$$

$$-\infty < x < +\infty$$

Therefore, if a random variable X follows a Normal Distribution with two Param-eters μ & σ^2 then it is denoted by —

$$X \sim N(\mu, \sigma^2).$$

The graphical Presentation of Normal Distribution is given by —



The Normal Distribution Curve may have different shapes depending on different values of μ and σ but there is one and only one pair of values for μ and σ for which the curve is normally distributed.

A few Properties of Normal Distribution are given bellow —

① Normal Distribution curve is symmetrical about the Point $x = \mu$.

② μ and σ are the Parameters of Normal Probability Distribution.

③ Normal Distribution is a limiting case of Binomial Distribution, when —

ⓐ 'n' is infinite

ⓑ Neither P nor q is very small.

(4) Normal Distribution is a Limiting Case of Poission Distribution when it's mean is Large.

(5) The two tails of Normal Distribution extend indefinitely and never touch the horizontal axis.

(6) Probability of Normal Distribution Curve equally devides into two Parts at the Point $x = \mu$. etc.