Binomial Distribution

the **binomial distribution** is the probability distribution that is discrete and applicable to events having only two possible results in an experiment, either success or failure. Binomial Distribution is a commonly used discrete distribution in statistics. The normal distribution as opposed to a binomial distribution is a continuous distribution.

Parameters:

- **n (number of trials):** This is the total number of independent trials conducted in the experiment.
- **p (probability of success):** This represents the probability of encountering a success in each individual trial. It ranges from 0 (guaranteed failure) to 1 (guaranteed success).

Probability Mass Function (PMF):

• This function defines the probability of each possible value of X. It calculates the likelihood of getting a specific number of successes (k) in n trials, given the probability of success (p) in each trial.

The PMF of the binomial distribution is expressed as:

$$P(X = k) = (nchoosek) * p^k * (1 - p)^(n - k)$$