Here are some essential things to know about Binomial Distribution:

1. Introduction to Binomial Distribution:

- Binomial distribution is a probability distribution that describes the number of successes in a fixed number of independent Bernoulli trials.
- Each trial has two possible outcomes: success or failure.

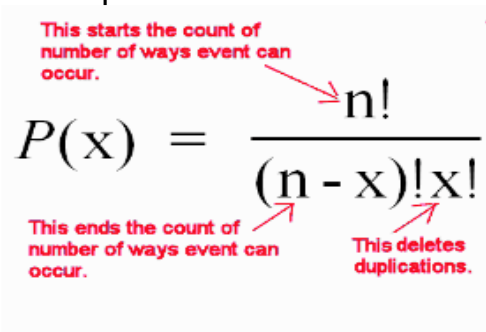
2. The binomial distribution requires four main parameters:

'n': The number of trials or experiments.
'p': The probability of success in each trial.
'q': The probability of failure in each trial (q = 1 - p).
'x': The number of successes we want to find the probability for.

3. Example:

we need to get a number of probabilities where (Heads = Tails) in 2 coin flips
Solution:: **H H , H T , T H , T T**
We take **H T ,T H** >>> Solution=2

$$\frac{n!}{x! * (n - x)!}$$



4. Example:

we need to get a number of probabilities where (Heads = 4) in 10 coin flips
We can use **(n! / ((n − x)! * x!))**

$$\frac{10!}{(10-4)! * 4!} = 210$$

5. Conclusion:

In conclusion, binomial distribution is a powerful tool for calculating probabilities of specific outcomes in repeated experiments with binary results. Understanding this distribution is essential for various statistical analyses and domain decision-making processes.