Bernoulli Distribution

Bernoulli Distribution is a type of discrete probability distribution where every experiment conducted asks a question that can be answered only in yes or no. In other words, the random variable can be 1 with a probability p or it can be 0 with a probability (1 - p). Such an experiment is called a Bernoulli trial. A pass or fail exam can be modeled by a Bernoulli Distribution.

Parameters:

- **p (success):** This represents the probability of the successful outcome, often denoted by 1 (heads in a coin toss). It can range from 0 (certain failure) to 1 (certain success).

- **1 - p (failure):** This represents the probability of the failing outcome (tails in a coin toss). It's simply 1 minus the probability of success.

- **Random Variable:** The outcome of the experiment is represented by a random variable, X. It can take on only two values:
  - **X = 1:** Represents success.
  - **X = 0:** Represents failure.

- **Probability Mass Function (PMF):** This function defines the probability of each possible value of X.
  - P(X = 1) = p (probability of success)
  - P(X = 0) = 1 - p (probability of failure)

Bernoulli Distribution Graph