A Review of Probability Models

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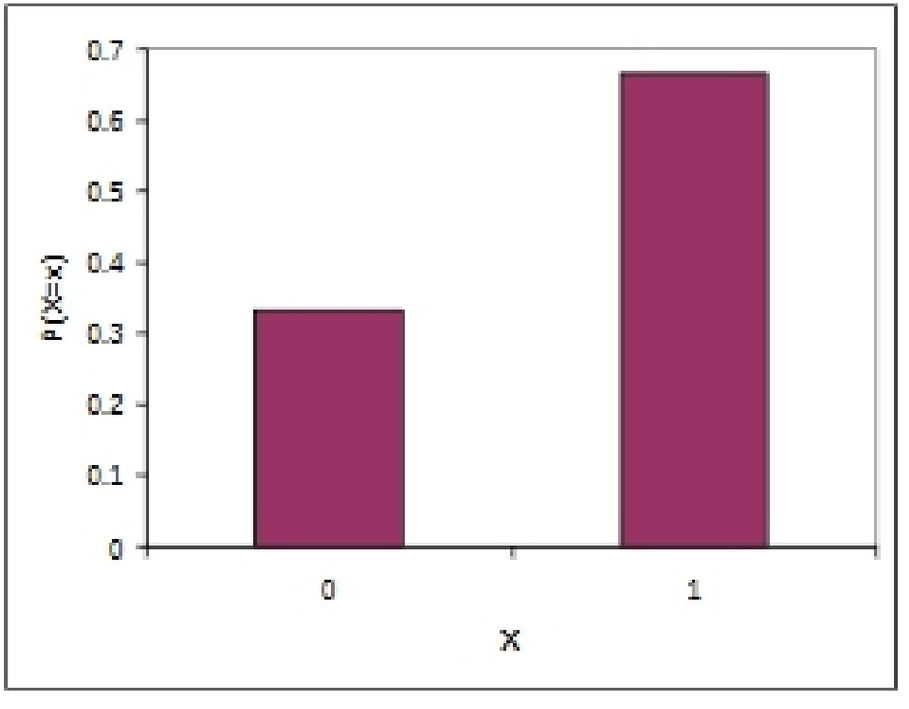
Bernoulli Distribution

- **The simplest form of random variable.**
  - Success/Failure
  - Heads/Tails

$$P(X=1) = p$$
$$P(X=0) = 1 - p$$

$$E[X] = p$$

$$Var(X) = p(1-p)$$



Binomial Distribution

- **The number of successes in *n* Bernoulli trials.**
  - Or the sum of n Bernoulli random variables.

$$P(X=x)=\binom{n}{x}p^{x}(1-p)^{n-x}$$

$$E[X]=np$$

$$Var(X)=np(1-p)$$