Bernoulli distribution

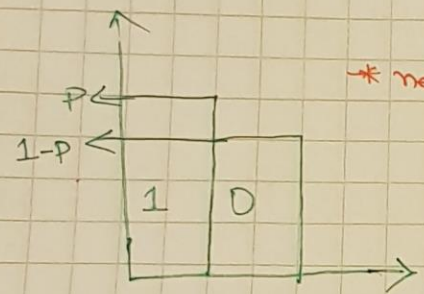
Bernoulli Distribution

When to use? → 1 event
→ 2 possible outcome
→ 1 coin, / 1 die

Coin flip / True, False

What is known? → 1 P(probability) is known
→ some previous data of experimental probability

Graph:



* need to assign 0 or 1

Expected value: P or 1-P

E(X) = P or (1-P)

Convention:

higher probability: P ⇒ 1

lower " : 1-P ⇒ 0

Variance: $\sigma^2 = P(1-P)$

Std. deviation: $\sigma = \sqrt{P(1-P)}$

Example:

Unfair Coin:

(H) = 60% = 1

(T) = 40% = 0

after the toss,

Expected value: $E(X) = P = 0.6$

Variance $\sigma^2 = P(1-P) = 0.6 \times 0.4 = 0.24$