

Student Presentations

[Bernoulli Distribution]

By Group 10

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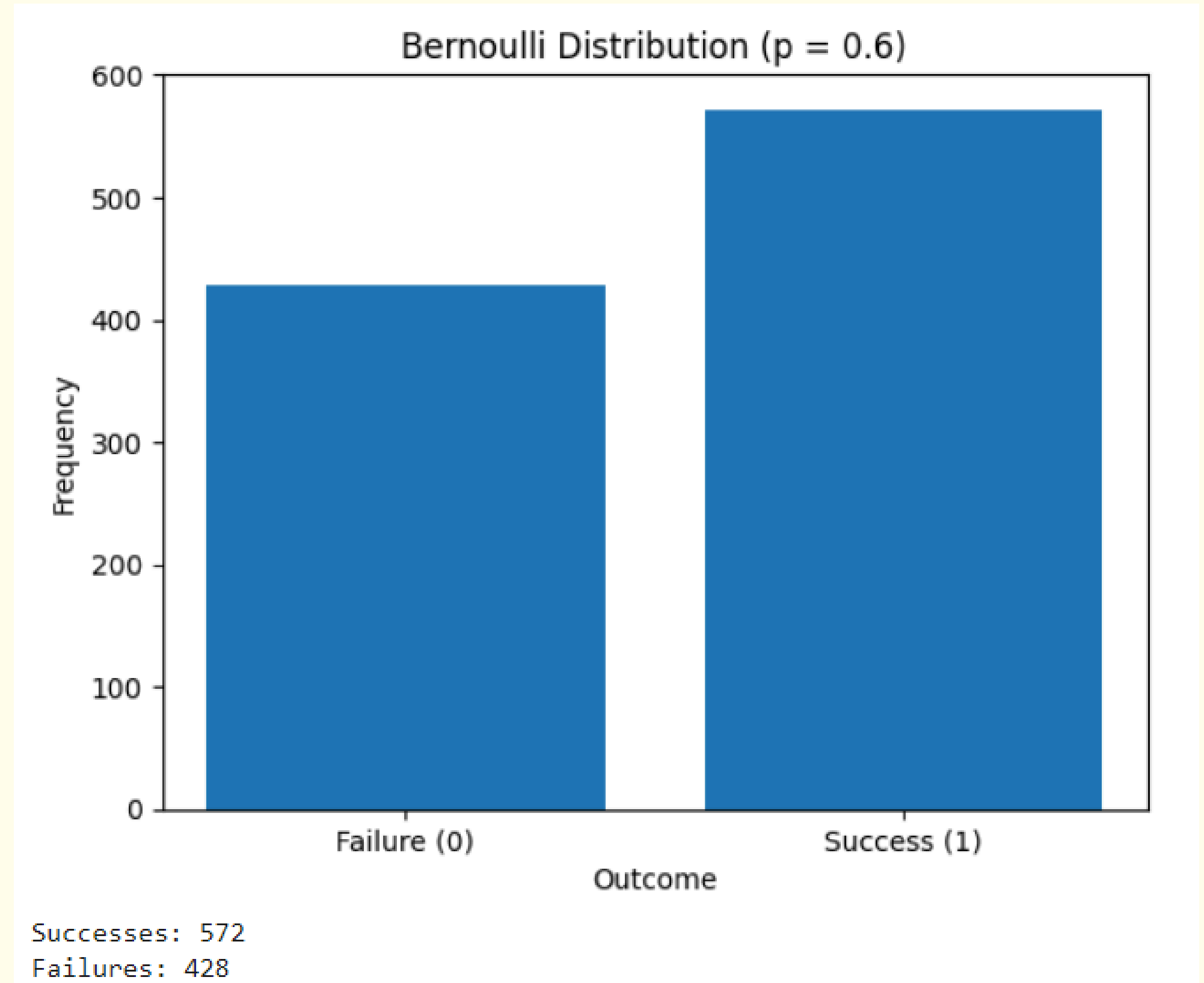
Diagram of the distribution A plot in the X-Y

Here's how we plot the distribution in Python (as in the example code above):

- X-axis: The two possible outcomes (0 = failure, 1 = success).
- Y-axis: The probabilities associated with each outcome.

For the coin flip example ($p = 0.6$), the plot would show:

- A bar at ($X = 1$) with height 0.6 (success).
- A bar at ($X = 0$) with height 0.4 (failure).



Relevant formula Used

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

- Probability Mass Function (PMF) gives the probability of success (1) or failure (0) in a Bernoulli trial:
 - $P(X = 1) = p$ and $P(X = 0) = 1 - p$
- p : Probability of success.
- $1 - p$: Probability of failure.

Key Point: A Bernoulli trial has only two outcomes: success ($X = 1$) or failure ($X = 0$).

Example using the formula

Event: Flipping a biased coin once

- Success (1): Getting heads ($p = 0.6$)
- Failure (0): Getting tails ($1 - p = 0.4$)

Probabilities:

- $P(X = 1) = 0.6$ (60% chance of heads)
- $P(X = 0) = 0.4$ (40% chance of tails)

This single coin flip represents a Bernoulli trial with $p = 0.6$.



THANK YOU!!