Classroom Activity-3

Real-Life Data Analysis Challenge

Gamification

Objective:

Students will collect real-life data based on a topic of their choice and use statistical methods to analyze it. They will compute **Binomial Distribution, Negative Binomial Distribution, Poisson Distribution.**

Instructions:

1. Choose a Real-Life Data Set:

A. **For Binomial Distribution:**

i. Take **n=roll number+15**, and Probability of success **p=0.roll number**.
ii. Accordingly generate random variable X.
iii. Find Binomial distribution $\boldsymbol{P(X = x)}$ of all values of X=0,1,2,....n.
iv. Find cumulative probability distribution $\boldsymbol{P(X \leq n)}$.

B. **For negative Binomial distribution:**

i. What is the Probability of **k**th success in **x**th tail when the probability of success p.
ii. Take **x=roll number+10, k=roll number, p=0.5**

C. **For Poisson distribution:**

i. Find Probability for $\boldsymbol{P(X \leq 3)}$ when the average of $\boldsymbol{\lambda = roll\ numbr + 5}$

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Expected Learning Outcomes:

- Understand how statistics applies to real-life scenarios.
- Learn to calculate and interpret key statistical measures.
- Develop analytical and presentation skills.