School of Computer Science & Artificial Intelligence

Python Lab #5

Course: Probability and Statistics

Question 1

A customer service center receives calls daily, with the number of calls ranging from **0 to 7** per day. The management wants to study the distribution of daily calls.

- Generate a dataset representing the number of calls received per day for **N** days.
- Compute and visualize the **PMF** and **CDF** to analyze the probability of receiving a specific number of calls on a given day.

Question 2

A hospital receives emergency cases daily, and there is a **25%** probability that a randomly arriving patient requires immediate surgery. Suppose **N** patients visit the emergency department in a day ($N \geq 100$):

i) What is the probability that exactly **20** patients need surgery?
ii) What is the probability that at least **30** patients need surgery?
iii) On average, how many patients requiring surgery should the hospital expect?