Sri Lanka Institute of Information

Technology



Lab sheet 06

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**Probability and Statistics|IT2120**

B.Sc. (Hons) in Information Technology

1. An IT company claims that their newly developed learning platform improves student performance in online tests. According to previous data, 85% of students who used the platform passed their online tests. A batch of 50 students is selected at random who have completed the course using this platform. Let X denote the number of students who passed the test out of 50 students.

**i. What is the distribution of X?**

Since we have a fixed number of trials (n=50) and success probability p=0.85, the distribution is Binomial.

Therefore:

X ~ Binomial(n=50, p=0.85)

**ii. What is the probability that at least 47 students passed the test?**



2. A call center receives an average of 12 customer calls per hour.

**i. What is the random variable (X) for the problem**

Random variable:

X = number of customer calls received in one hour

**ii. What is the distribution of X?**

Since calls arrive on average at a constant rate

(12 per hour),

the distribution is Poisson with parameter λ = 12.

Therefore:

X ~ Poisson(lambda=12)

**iii. What is the probability that exactly 15 calls are received in an hour**

