

IT2120 - Probability and Statistics

Lab Sheet 06-IT24100543

Exercise

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 ?

Answer- $B(50, 0.85)$

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

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> dbinom(47, 50, 0.85)
[1] 0.03185806
```

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

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

Answer- The random variable X is the number of customer calls received in one hour

ii. What is the distribution of X ?

Answer- $\lambda = 12$

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

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> dpois(15, 12)
[1] 0.07239112
```