

# Sri Lanka Institute of Information Technology



## Lab Submission 06

**IT24100710**

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

```
setwd("D:\\SLIIT\\Semester\\Y2S1\\PS\\Lab Submission\\Lab 06")
```

```
[1] "D:/SLIIT/Semester/Y2S1/PS/Lab Submission/Lab 06"
```

```
pbinom(47,50,0.85,lower.tail = FALSE)
```

```
> pbinom(47,50,0.85,lower.tail = FALSE)
```

```
[1] 0.01418852
```

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

- i. What is the random variable ( $X$ ) for the problem?
- ii. What is the distribution of  $X$ ?
- iii. What is the probability that exactly 15 calls are received in an hour?

```
dpois(15,12)
```

```
> dpois(15,12)
```

```
[1] 0.07239112
```