

IT24103558

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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?

```
getwd()
setwd("C:\\Users\\Methasa\\Desktop\\IT24103558")
##Question 1
#Part 1
#Binomial Distribution
#Here, random variable X has binomial distribution with n=47 and p=0.85

dbinom(47,50,0.85)
```

```
> 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?
 - ii. What is the distribution of X ?
 - iii. What is the probability that exactly 15 calls are received in an hour?

```
##Question 02
#Part 1
# A call center receives an average of 12 customer calls per hour

#Part 2
#Poisson distribution
#Here, random variable X has poisson distribution with lambda=12

dpois(15,12)
```

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