IT24103506 – Siriwardana S.A.D.V.I

IT2120- Probability and Statistics | Lab Sheet 06

Exercise

01)

```r
setwd("C:\\Users\\vimuk\\OneDrive\\Desktop\\IT24103506")

# Exercise
#(01)
n <- 50
p <- 0.85

#(i) Distribution of X?
X ~ Binomial(n=50, p=0.85)

#(ii) Probability that at least 47 students passed the test?
# P(X >= 47) = 1 - P(X <= 46)

prob_at_least_47 <- 1 - pbinom(46, size = n, prob = p)
prob_at_least_47
```

Console | Terminal | Background Jobs

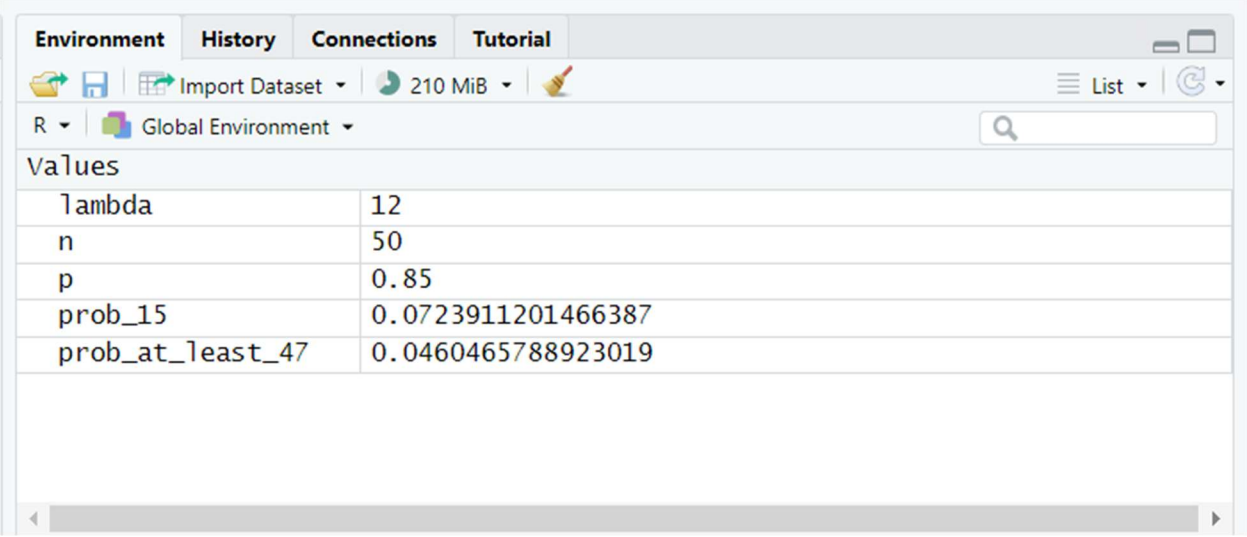
R 4.5.1 · C:/Users/vimuk/OneDrive/Desktop/IT24103506/

```
> setwd("C:\\Users\\vimuk\\OneDrive\\Desktop\\IT24103506")
> # Exercise
> #(01)
> n <- 50
> p <- 0.85
> #(i) Distribution of X?
> X ~ Binomial(n=50, p=0.85)
X ~ Binomial(n = 50, p = 0.85)
> prob_at_least_47 <- 1 - pbinom(46, size = n, prob = p)
> prob_at_least_47
[1] 0.04604658
```

02)

```
17  #(02)
18  #(i) Random variable (X) = # of calls received in an hour
19
20  #(ii) Distribution of X
21  X ~ Poisson(lambda = 12)
22
23  #(iii) Probability that exactly 15 calls are received in an hour?
24  lambda <- 12
25  prob_15 <- dpois(15, lambda = lambda)
26  prob_15
27
```

```
> #(ii) Distribution of X
> X ~ Poisson(lambda = 12)
X ~ Poisson(lambda = 12)
> #(iii) Probability that exactly 15 calls are received in an hour?
> lambda <- 12
> prob_15 <- dpois(15, lambda = lambda)
> prob_15
[1] 0.07239112
```



lambda	12
n	50
p	0.85
prob_15	0.0723911201466387
prob_at_least_47	0.0460465788923019