Sri Lanka Institute of Information Technology

Lab Submission
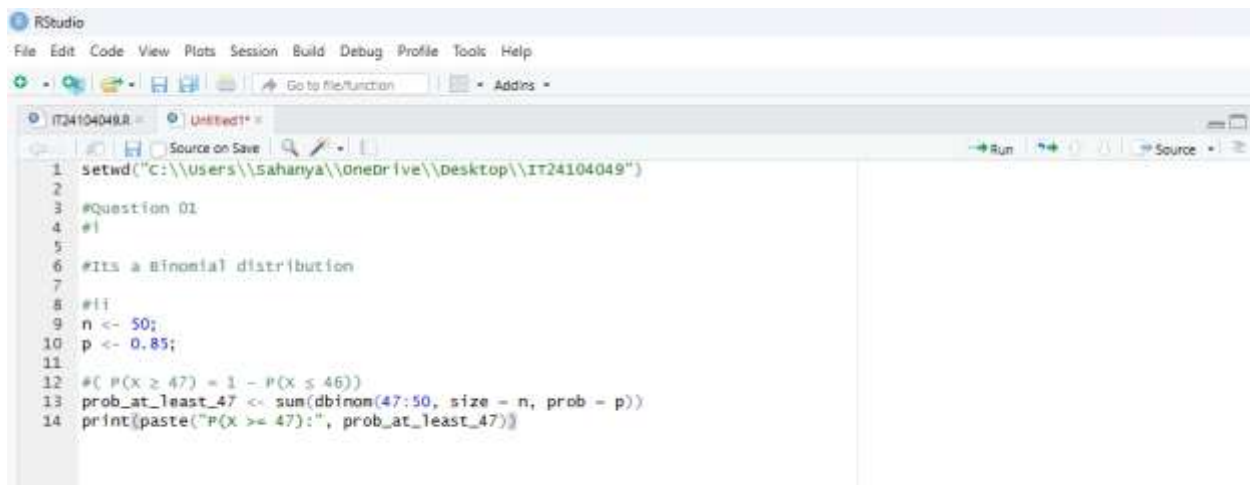# <Lab sheet 6>

<IT24104049>

<Hewa V S S>

Probability and Statistics - IT2120
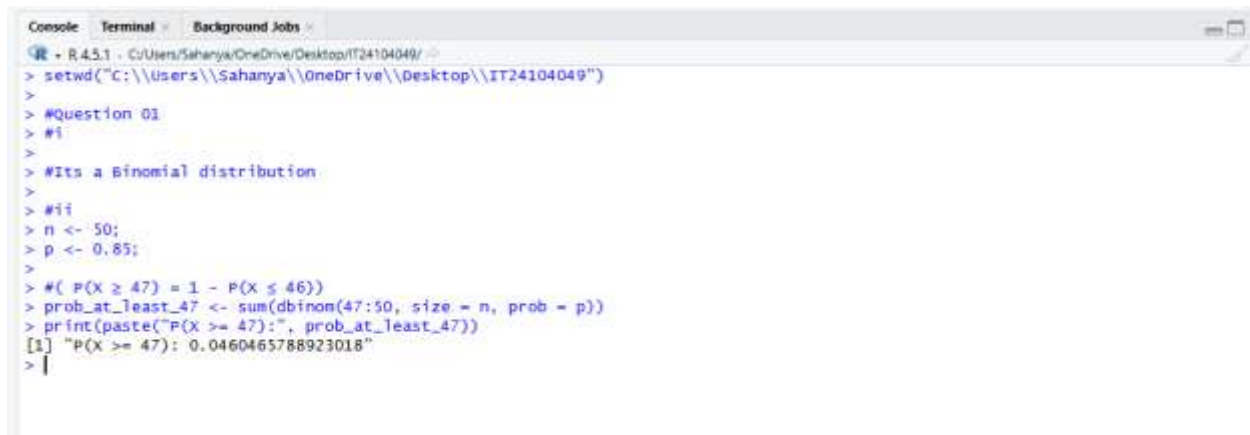
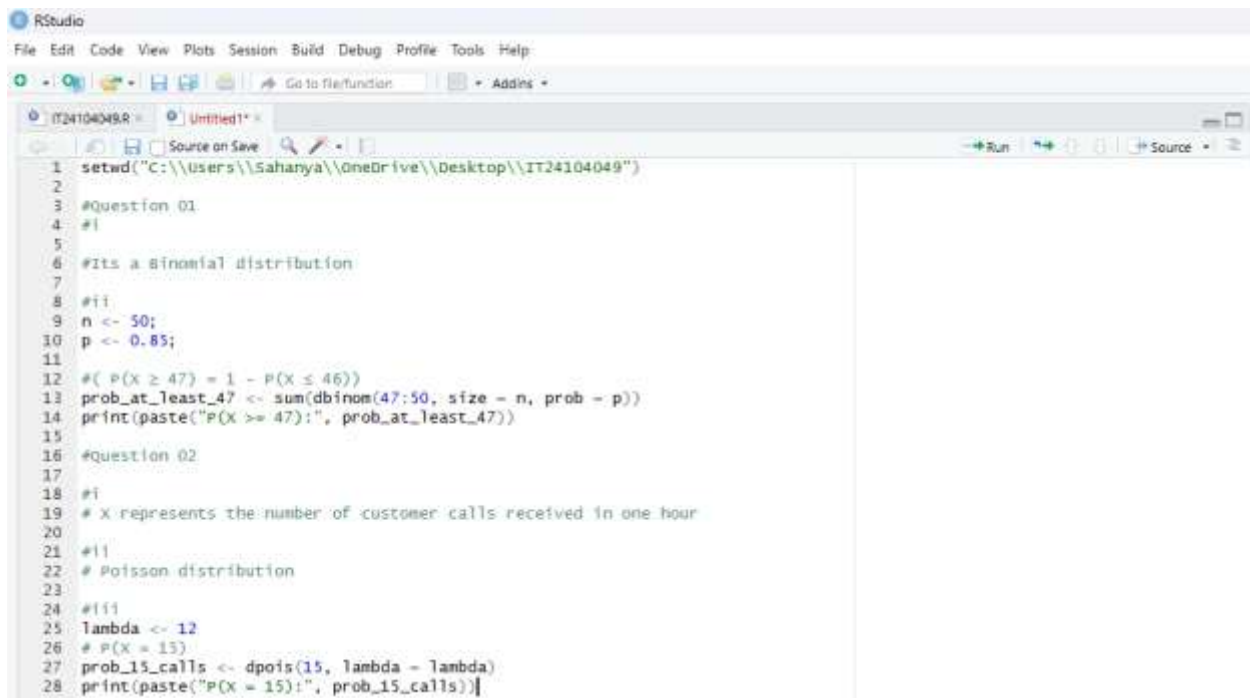B.Sc. (Hons) in Information Technology

1)

```
1   setwd("C:\\Users\\Sahanya\\OneDrive\\Desktop\\IT24104049")
2
3   #Question 01
4   #i
5
6   #Its a Binomial distribution
7
8   #ii
9   n <- 50;
10  p <- 0.85;
11
12  #( P(X ≥ 47) = 1 - P(X ≤ 46))
13  prob_at_least_47 <- sum(dbinom(47:50, size = n, prob = p))
14  print(paste("P(X >= 47):", prob_at_least_47))
```

```
Console   Terminal   Background Jobs

R 4.5.1 · C:/Users/Sahanya/OneDrive/Desktop/IT24104049/
> setwd("C:\\Users\\Sahanya\\OneDrive\\Desktop\\IT24104049")
>
> #Question 01
> #i
>
> #Its a Binomial distribution
>
> #ii
> n <- 50;
> p <- 0.85;
>
> #( P(X ≥ 47) = 1 - P(X ≤ 46))
> prob_at_least_47 <- sum(dbinom(47:50, size = n, prob = p))
> print(paste("P(X >= 47):", prob_at_least_47))
[1] "P(X >= 47): 0.0460465788923018"
>
```

2)


```r
setwd("C:\\Users\\Sahanya\\OneDrive\\Desktop\\IT24104049")

#Question 01
#i

#Its a Binomial distribution

#ii
n <- 50;
p <- 0.85;

#( P(X ≥ 47) = 1 - P(X ≤ 46))
prob_at_least_47 <- sum(dbinom(47:50, size = n, prob = p))
print(paste("P(X >= 47):", prob_at_least_47))

#Question 02

#i
# X represents the number of customer calls received in one hour

#ii
# Poisson distribution

#iii
lambda <- 12
# P(X = 15)
prob_15_calls <- dpois(15, lambda = lambda)
print(paste("P(X = 15):", prob_15_calls))
```



```r
> setwd("C:\\Users\\Sahanya\\OneDrive\\Desktop\\IT24104049")
>
> #Question 01
> #i
>
> #Its a Binomial distribution
>
> #ii
> n <- 50;
> p <- 0.85;
>
> #( P(X ≥ 47) = 1 - P(X ≤ 46))
> prob_at_least_47 <- sum(dbinom(47:50, size = n, prob = p))
> print(paste("P(X >= 47):", prob_at_least_47))
[1] "P(X >= 47): 0.0460465788923018"
> #Question 02
>
> #i
> # X represents the number of customer calls received in one hour
>
> #ii
> # Poisson distribution
>
> #iii
> lambda <- 12
> # P(X = 15)
> prob_15_calls <- dpois(15, lambda = lambda)
> print(paste("P(X = 15):", prob_15_calls))
[1] "P(X = 15): 0.0723911201466387"
>
```