

Sri Lanka Institute of Information Technology



Lab Submission  
<Lab sheet 6>

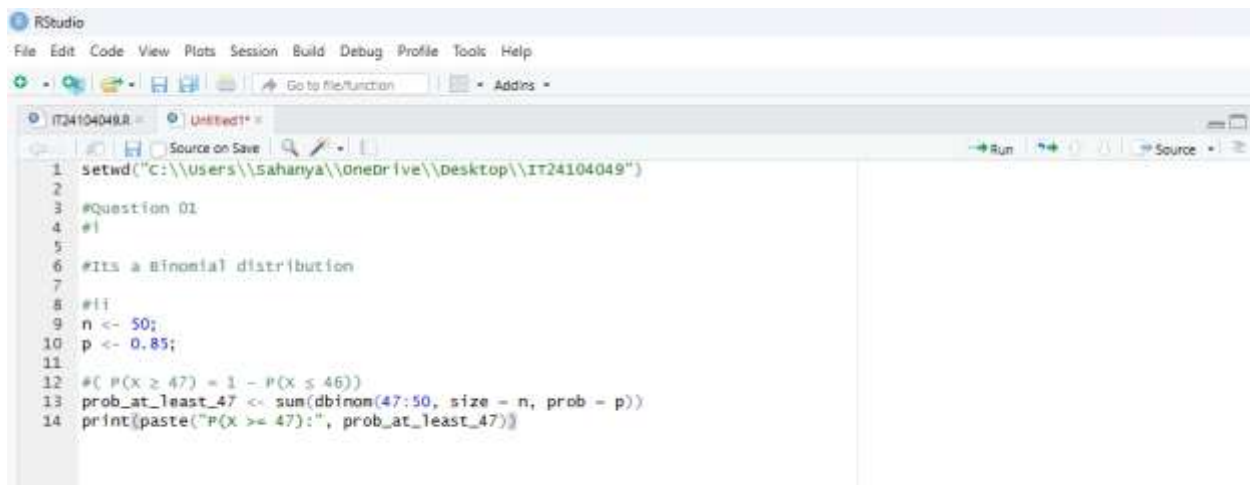
<IT24104049>

<Hewa V S S>

**Probability and Statistics - IT2120**

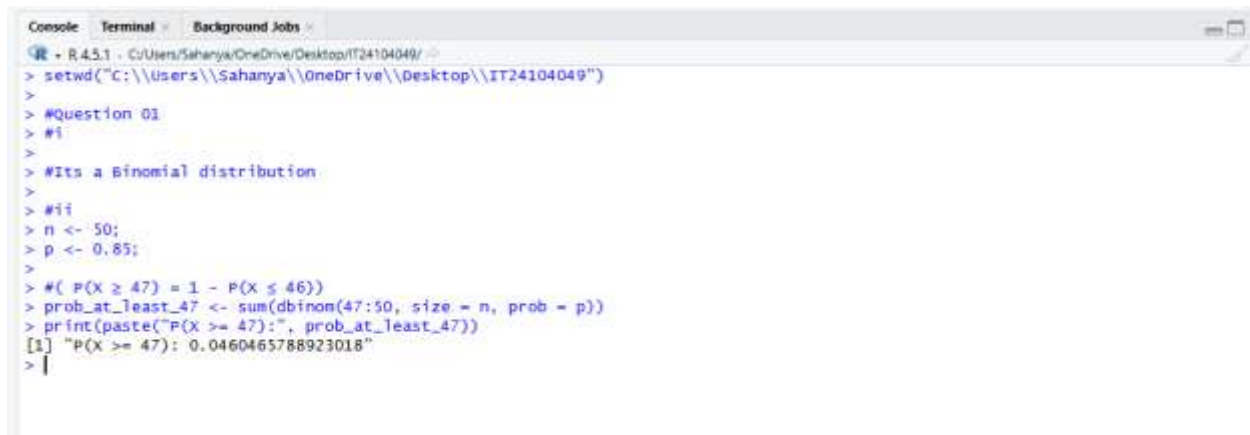
B.Sc. (Hons) in Information Technology

1)



The screenshot shows the RStudio interface with a script editor containing the following R code:

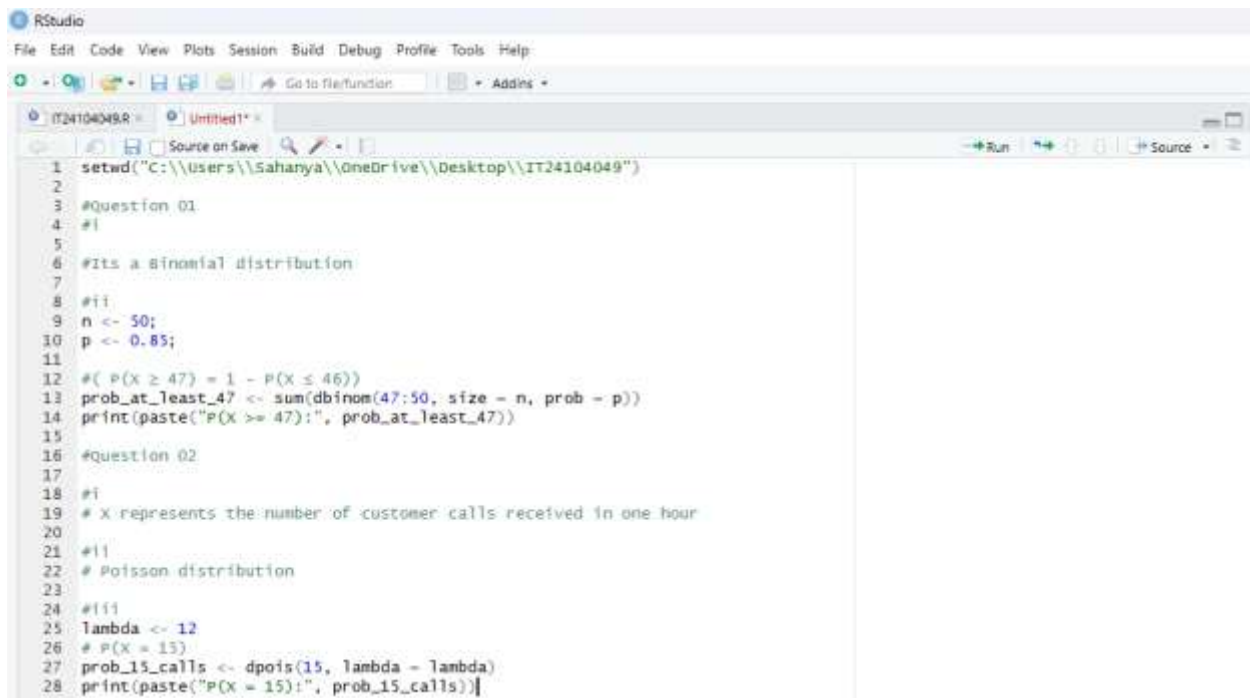
```
1 setwd("C:\\Users\\Sahanya\\OneDrive\\Desktop\\IT24104049")
2
3 #Question 01
4 #1
5
6 #Its a Binomial distribution
7
8 #ii
9 n <- 50;
10 p <- 0.85;
11
12 #( P(X ≥ 47) = 1 - P(X ≤ 46))
13 prob_at_least_47 <- sum(dbinom(47:50, size = n, prob = p))
14 print(paste("P(X ≥ 47):", prob_at_least_47))
```



The screenshot shows the RStudio console with the following output:

```
R 4.3.1 - C:/Users/Sahanya/OneDrive/Desktop/IT24104049/
> setwd("C:\\Users\\Sahanya\\OneDrive\\Desktop\\IT24104049")
>
> #Question 01
> #1
>
> #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)



```
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))
15
16 #Question 02
17
18 #i
19 # X represents the number of customer calls received in one hour
20
21 #ii
22 # Poisson distribution
23
24 #iii
25 lambda <- 12
26 # P(X = 15)
27 prob_15_calls <- dpois(15, lambda = lambda)
28 print(paste("P(X = 15):", prob_15_calls))
```



```
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"
> #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"
>
```