

Sri Lanka Institute of Information Technology



Lab Submission

Lab Sheet 05

IT24102699
Mummullage B.U.T

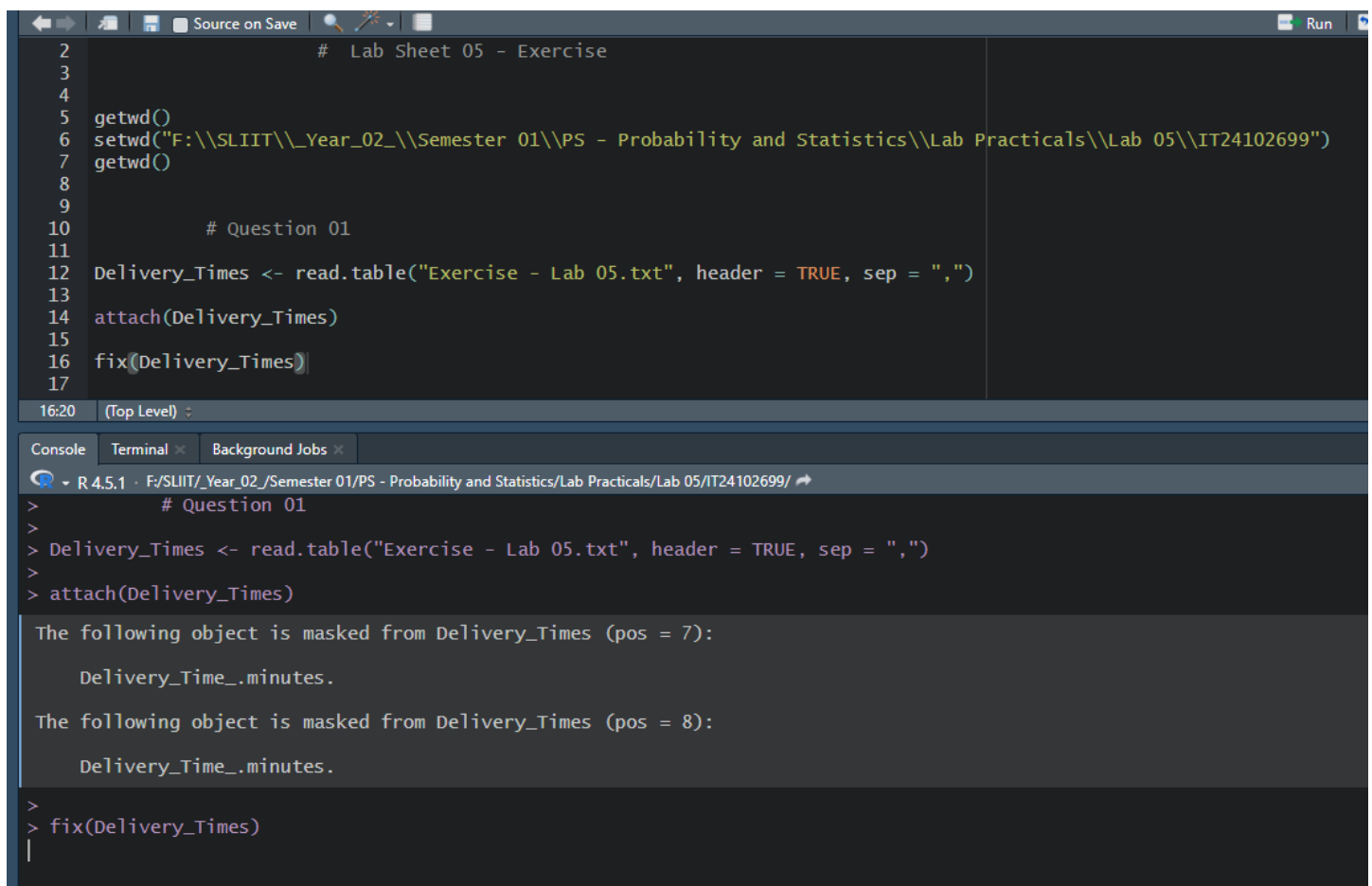
Probability and Statistics| IT2120

B.Sc.(Hons) in Information Technology

Exercise

Instructions: Create a folder in your desktop with your registration number (Eg: "IT....."). You need to save the R script file and take screenshots of the command prompt with answers and save it in a word document inside the folder. Save both R script file and word document with your registration number (Eg: "IT....."). After you finish the exercise, zip the folder and upload the zip file to the submission link.

1. Import the dataset ('Exercise – Lab 05.txt') into R and store it in a data frame called "Delivery_Times".



```
2      # Lab Sheet 05 - Exercise
3
4
5  getwd()
6  setwd("F:\\SLIIT\\_Year_02_\\Semester 01\\PS - Probability and Statistics\\Lab Practicals\\Lab 05\\IT24102699")
7  getwd()
8
9
10     # Question 01
11
12  Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE, sep = ",")
13
14  attach(Delivery_Times)
15
16  fix(Delivery_Times)
17
```

16:20 (Top Level) ⌵

Console Terminal Background Jobs

R 4.5.1 · F:/SLIIT/_Year_02_/Semester 01/PS - Probability and Statistics/Lab Practicals/Lab 05/IT24102699/ ↗

```
>      # Question 01
>
> Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE, sep = ",")
>
> attach(Delivery_Times)

The following object is masked from Delivery_Times (pos = 7):
  Delivery_Time_.minutes.

The following object is masked from Delivery_Times (pos = 8):
  Delivery_Time_.minutes.

>
> fix(Delivery_Times)
|
```

Delivery_Time_.minutes.

1	34
2	54
3	47
4	29
5	39
6	61
7	20
8	40
9	57
10	36
11	38
12	44
13	59
14	38
15	40
16	40
17	67
18	66
19	55
20	48
21	52
22	59
23	35
24	56
25	32
26	38
27	54
28	30
29	43
30	36

31	42
32	20
33	27
34	38
35	54
36	43
37	45
38	51
39	36
40	47

2. Draw a histogram for deliver times using nine class intervals where the lower limit is 20 and upper limit is 70. Use right open intervals.

```
19  
20      # Question 02  
21  
22 delivery_hist <- hist(Delivery_Time_.minutes.,  
23                       main = "Histogram of Delivery Times",  
24                       xlab = "Delivery Time (minutes)",  
25                       breaks = seq(20, 70, length = 10),  
26                       right = FALSE)  
27
```

25:52

(Top Level) ▾

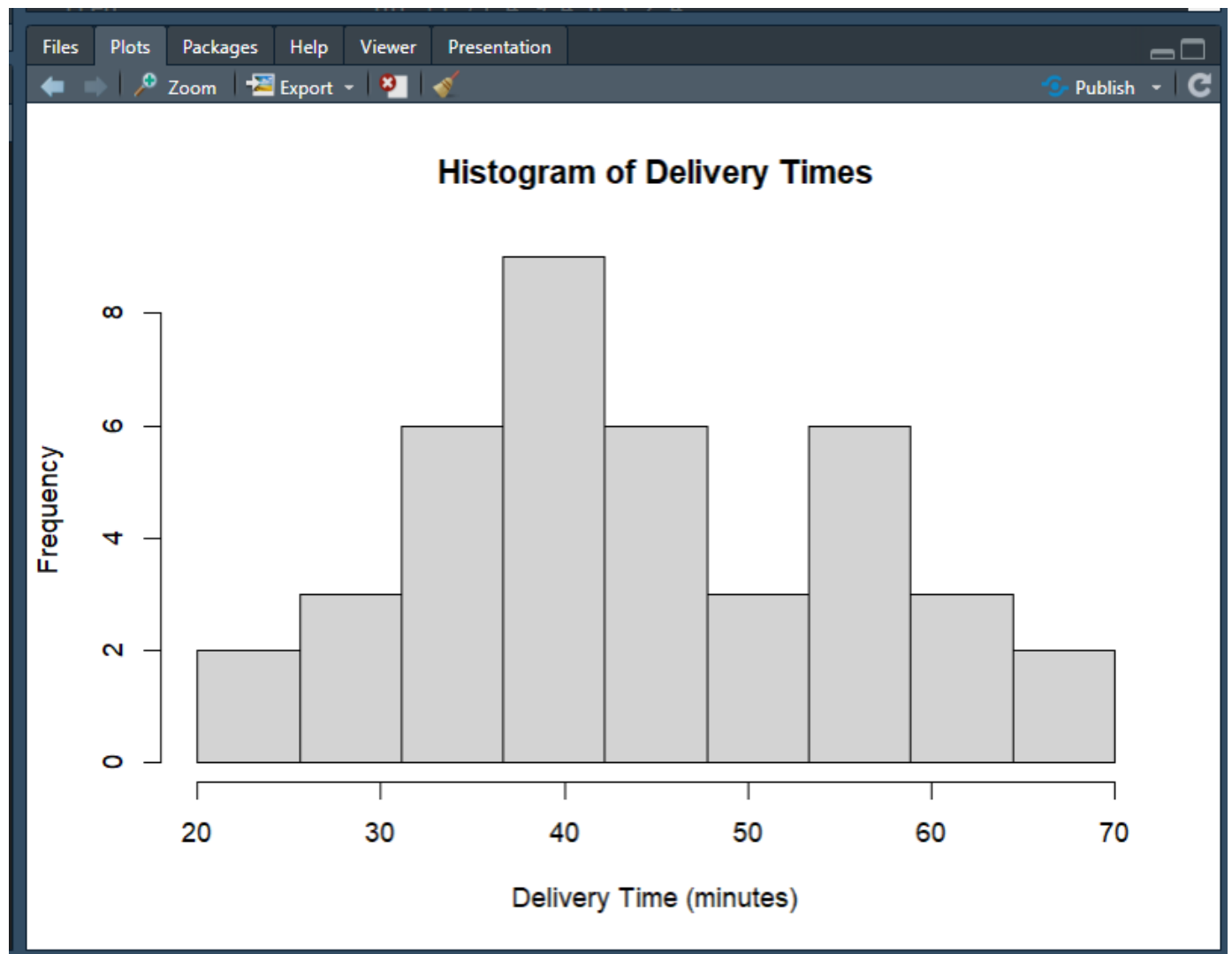
Console

Terminal ×

Background Jobs ×

R 4.5.1 · F:/SLIIT/_Year_02_/Semester 01/PS - Probability and Statistics/Lab Practicals/Lab 05/IT24102699/ ➔

```
>      # Question 02  
>  
> delivery_hist <- hist(Delivery_Time_.minutes.,  
+                       main = "Histogram of Delivery Times",  
+                       xlab = "Delivery Time (minutes)",  
+                       breaks = seq(20, 70, length = 10),  
+                       right = FALSE)  
>
```



3. Comment on the shape of the distribution.

```
31 # Question 03
32
33 # The histogram is unimodal, with most deliveries between 35 and 45 minutes.
34 # The shape is fairly balanced but slightly skewed to the right, showing a few longer delivery times.
35
36
```

39:1 (Top Level) ↕

Console Terminal × Background Jobs ×

R 4.5.1 · F:/SLIIT/_Year_02/_Semester 01/PS - Probability and Statistics/Lab Practicals/Lab 05/IT24102699/ ↗

```
# Question 03

# The histogram is unimodal, with most deliveries between 35 and 45 minutes.
# The shape is fairly balanced but slightly skewed to the right, showing a few longer delivery times.
```

4. Draw a cumulative frequency polygon (ogive) for the data in a separate plot.

```
37
38 # Question 04
39
40 breaks <- delivery_hist$breaks
41 freq <- delivery_hist$counts
42
43 cum.freq <- cumsum(freq)
44
45 new <- c(0)
46
47 new <- c(new, cum.freq)
48
49 plot(breaks, new,
50      type = "b", # "b" for both points and lines
51      main = "Cumulative Frequency Polygon for Delivery Times",
52      xlab = "Delivery Times (minutes)",
53      ylab = "Cumulative Frequency",
54      ylim = c(0, max(cum.freq)))
55
```

36:1 (Top Level) ↕

Console

Terminal ×

Background Jobs ×

R 4.5.1 · F:/SLIIT/_Year_02/_Semester 01/PS - Probability and Statistics/Lab Practicals/Lab 05/IT24102699/ ↗

```
> # Question 04
>
> breaks <- delivery_hist$breaks
> freq <- delivery_hist$counts
>
> cum.freq <- cumsum(freq)
>
> new <- c(0)
>
> new <- c(new, cum.freq)
>
> plot(breaks, new,
+      type = "b", # "b" for both points and lines
+      main = "Cumulative Frequency Polygon for Delivery Times",
+      xlab = "Delivery Times (minutes)",
+      ylab = "Cumulative Frequency",
+      ylim = c(0, max(cum.freq)))
>
```

Cumulative Frequency Polygon for Delivery Times

