Sri Lanka Institute of Information Technology

Lab Submission
Lab sheet No 05

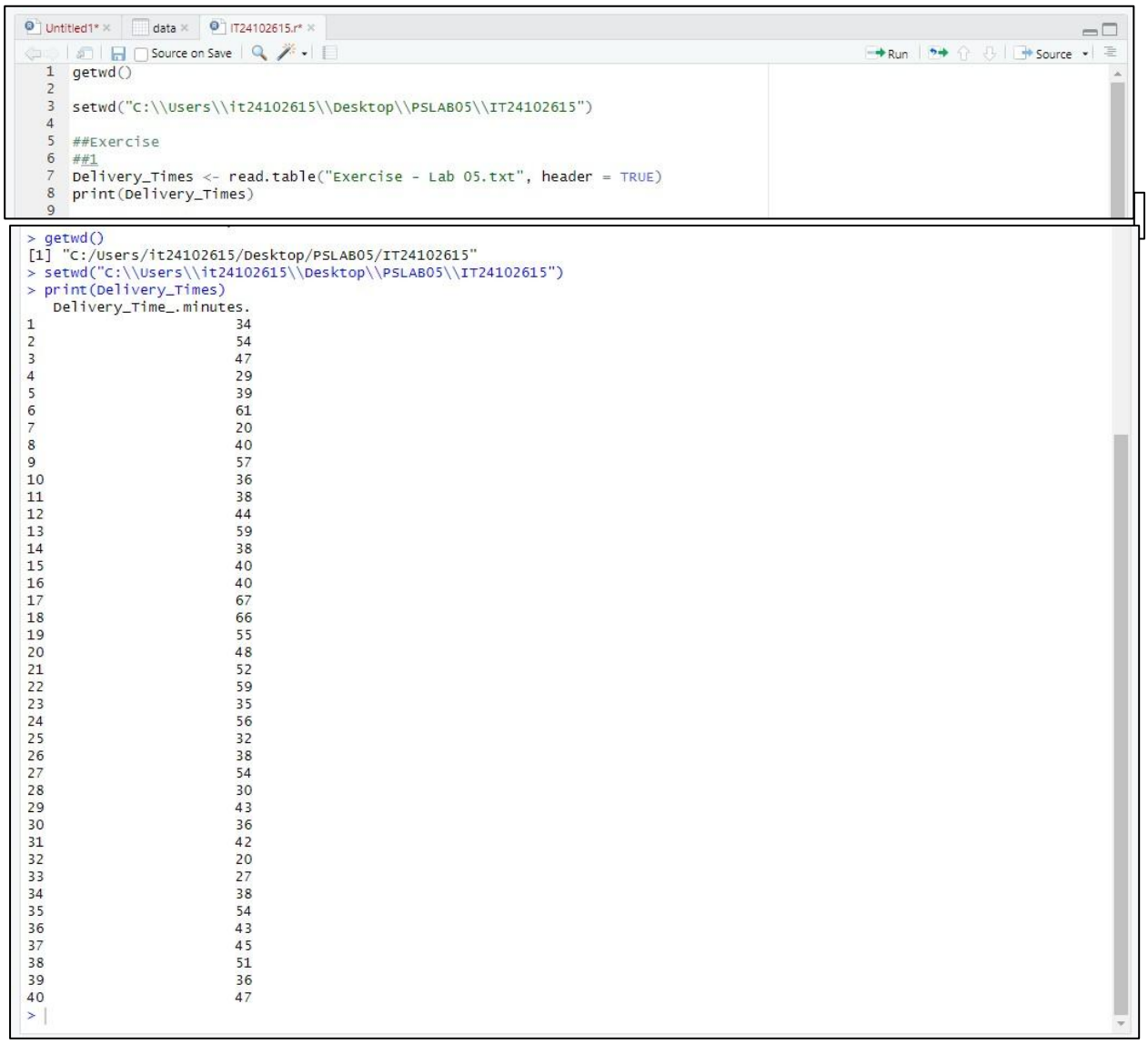
IT24102615
Mamalgaha I.G.W.S

Probability & 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”.**

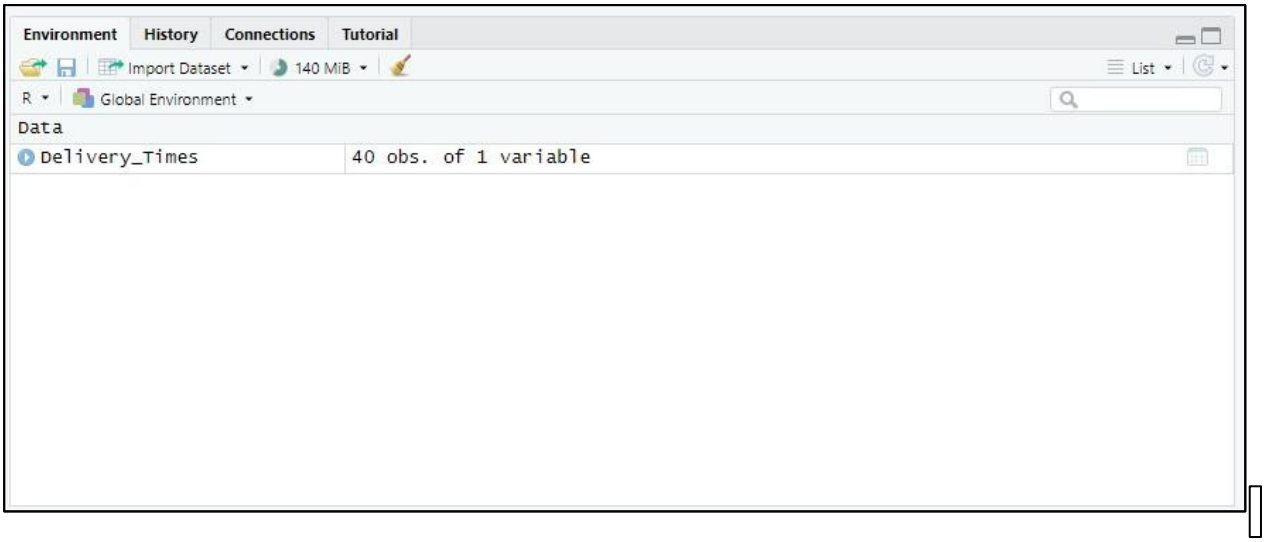


```
getwd()

setwd("C:\\Users\\it24102615\\Desktop\\PSLAB05\\IT24102615")

##Exercise
##1
Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE)
print(Delivery_Times)
```

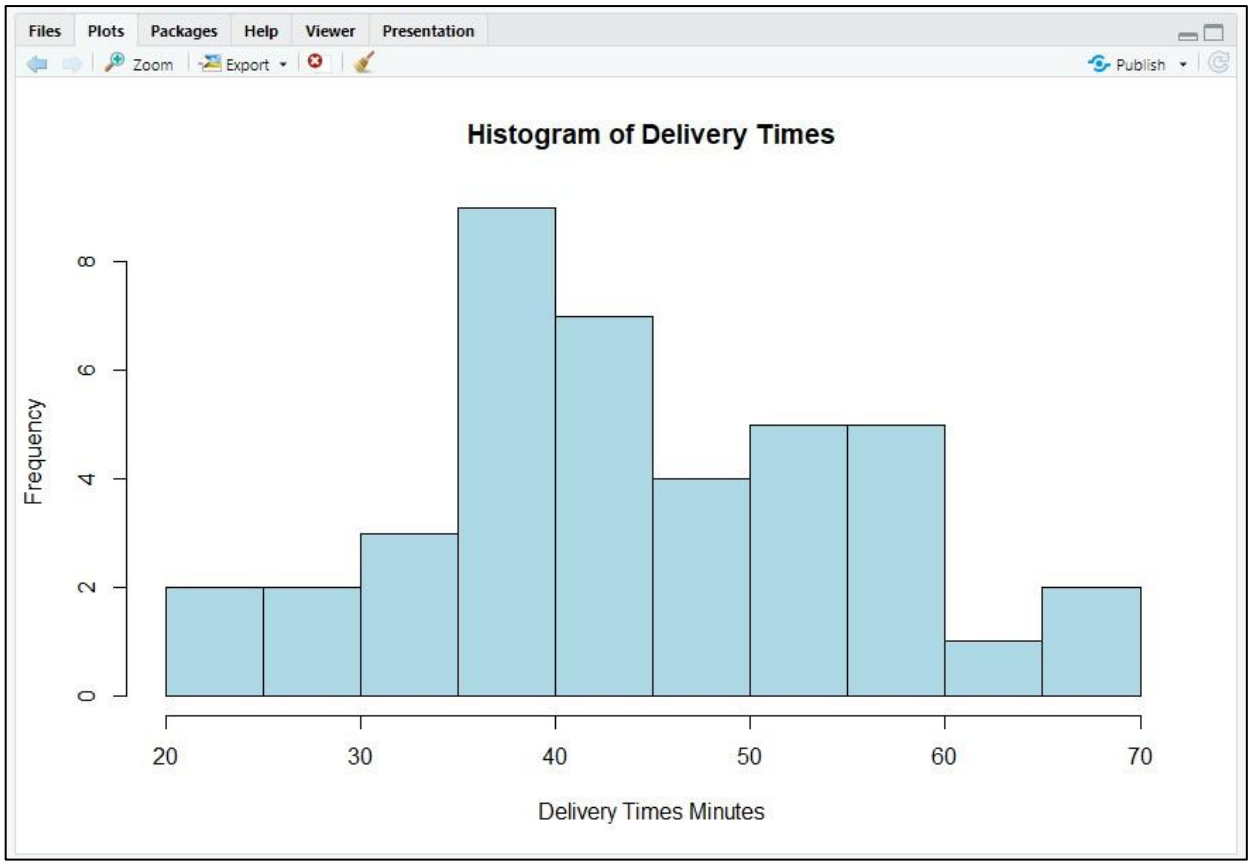
```
> getwd()
[1] "C:/Users/it24102615/Desktop/PSLAB05/IT24102615"
> setwd("C:\\Users\\it24102615\\Desktop\\PSLAB05\\IT24102615")
> print(Delivery_Times)
   Delivery_Time_.minutes.
1                       34
2                       54
3                       47
4                       29
5                       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.

```
##2
hist(Delivery_Times$Delivery,
     breaks = seq(20, 70, by = 5),
     right = FALSE,
     main = "Histogram of Delivery Times",
     xlab = "Delivery Times Minutes",
     ylab = "Frequency",
     col = "lightblue",
     border = "black")
```

```
> ##2
> hist(Delivery_Times$Delivery,
+      breaks = seq(20, 70, by = 5),
+      right = FALSE,
+      main = "Histogram of Delivery Times",
+      xlab = "Delivery Times Minutes",
+      ylab = "Frequency",
+      col = "lightblue",
+      border = "black")
```



3. Comment on the shape of the distribution.

```
> ##The distribution of delivery times is approximately symmetric and bell-shaped, resemb
ling a normal distribution centered around 40-45 minutes. Most delivery times fall near t
he center, with fewer very short or very long times
>
```

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

```
23  ##4
24  hist_data <- hist(Delivery_Times$Delivery,
25                    breaks = seq(20, 70, by = 5),
26                    right = FALSE,
27                    plot = FALSE)
28  cumulative_freq <- cumsum(hist_data$counts)
29
30
31  plot(hist_data$mids, cumulative_freq,
32       type = "o",
33       main = "Cumulative Frequency Polygon (Ogive)",
34       xlab = "Delivery Times",
35       ylab = "Cumulative Frequency",
36       pch = 16,
37       col = "blue")
38
39
```

```
> ##4
> hist_data <- hist(Delivery_Times$Delivery,
+                   breaks = seq(20, 70, by = 5),
+                   right = FALSE,
+                   plot = FALSE)
> cumulative_freq <- cumsum(hist_data$counts)
> plot(hist_data$mids, cumulative_freq,
+      type = "o",
+      main = "Cumulative Frequency Polygon (Ogive)",
+      xlab = "Delivery Times",
+      ylab = "Cumulative Frequency",
+      pch = 16,
+      col = "blue")
> |
```