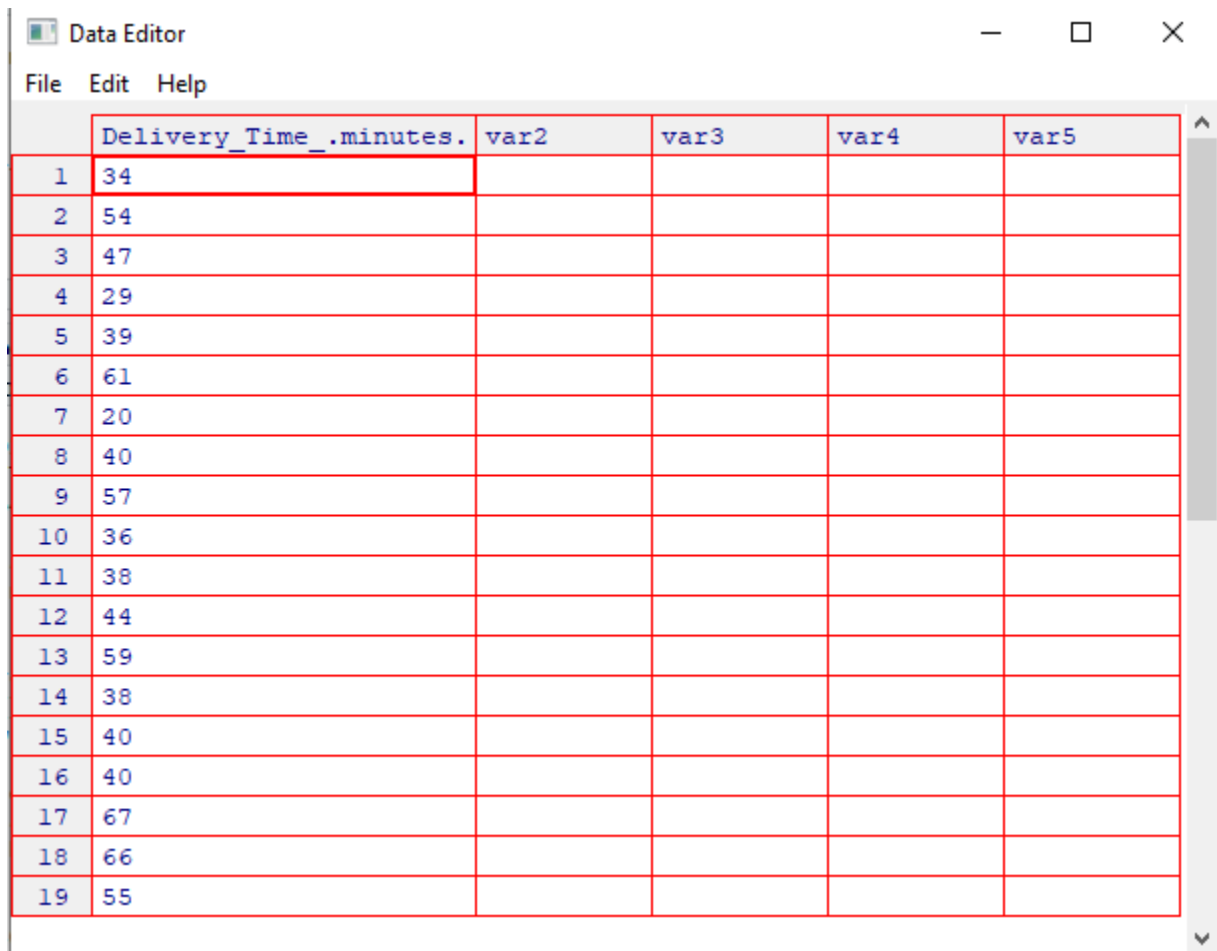


Probability and Statistics - T2120

Lab Sheet 05

Exercise



	Delivery_Time_.minutes.	var2	var3	var4	var5
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				

1.

The screenshot shows the RStudio IDE interface. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. Below the menu is a toolbar with icons for saving, running, and other functions. The main editor window, titled 'Untitled1', contains the following R code:

```

1 getwd()
2 setwd("C:\\Users\\it24400066\\Desktop\\IT24400066")
3 getwd()
4 #1
5 Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE)
6 fix(Delivery_Times)
7 names(Delivery_Times) = c("Delivery_Time")
8 attach(Delivery_Times)
9

```

Below the editor is a console window with the following output:

```

R 4.2.2 - C:/Users/it24400066/Desktop/IT24400066/

R version 4.2.2 (2022-10-31 ucrt) -- "Innocent and Trusting"
Copyright (C) 2022 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

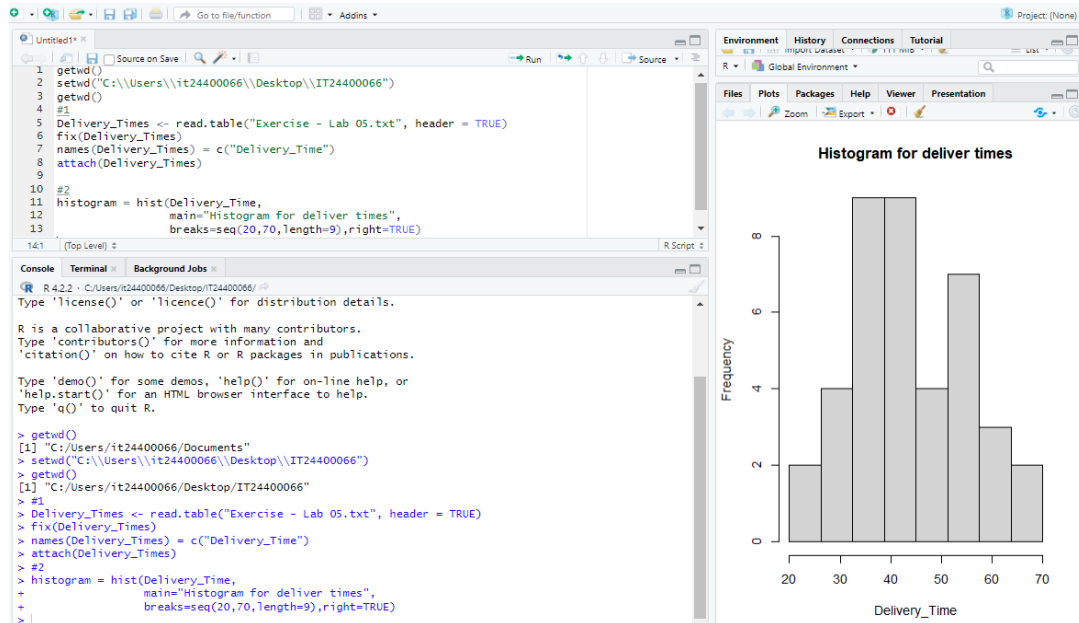
R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> getwd()
[1] "C:/Users/it24400066/Documents"
> setwd("C:\\Users\\it24400066\\Desktop\\IT24400066")
> getwd()
[1] "C:/Users/it24400066/Desktop/IT24400066"
> #1
> Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE)
> fix(Delivery_Times)
> names(Delivery_Times) = c("Delivery_Time")
> attach(Delivery_Times)
>

```

2.



3.

The RStudio interface shows the script and console output for the installation of the 'e1071' package.

```

10 #2
11 histogram = hist(Delivery_Time,
12                 main="Histogram for deliver times",
13                 breaks=seq(20,70,length=9),right=TRUE)
14
15 #3
16 install.packages("e1071")
17 library(e1071)
18

```

The console output shows the execution of the `install.packages("e1071")` command, including a warning about Rtools and the successful installation of the package.

```

R 4.2.2 - C:/Users/it24400066/Desktop/IT24400066/
> histogram = hist(Delivery_Time,
+                 main="Histogram for deliver times",
+                 breaks=seq(20,70,length=9),right=TRUE)
> #3
> install.packages("e1071")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/
Installing package into 'C:/Users/it24400066/AppData/Local/R/win-library/4.2'
(as 'lib' is unspecified)

There is a binary version available but the source version is later:
  binary source needs_compilation
e1071 1.7-14 1.7-16 TRUE

Binaries will be installed
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.2/e1071_1.7-14.zip'
Content type 'application/zip' length 664701 bytes (649 KB)
downloaded 649 KB

package 'e1071' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:/Users/it24400066/AppData/Local/Temp/Rtmp6V29ED/downloaded_packages
> library(e1071)
Warning message:
package 'e1071' was built under R version 4.2.3

```

```

13         breaks=seq(20,70,length=9),right=TRUE)
14
15     #3
16     install.packages("e1071")
17     library(e1071)
18
19     # Calculate skewness
20     skewness(Delivery_Times$Delivery_Time)
21
22

```

21:1 (Top Level) ↕

Console Terminal Background Jobs

R 4.2.2 · C:/Users/it24400066/Desktop/IT24400066/

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.2/e1071_1.7-14.zip'
Content type 'application/zip' length 664701 bytes (649 KB)
downloaded 649 KB

package 'e1071' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\it24400066\AppData\Local\Temp\Rtmp6V29ED\downloaded_packages

```

> library(e1071)
Warning message:
package 'e1071' was built under R version 4.2.3
> # Calculate skewness
> skewness(Delivery_Times$Delivery_Time)
[1] 0.04454399
>
>

```

4.

```

23     #4
24     breaks = round(histogram$breaks)
25     freq = histogram$counts
26     mids = histogram$mids
27     classes = c()
28
29     for (i in 1:length(breaks)-1) {
30         classes[i] <- paste0("[", breaks[i], ",", breaks[i+1], ")")
31     }
32
33     cbind(classes = classes, Frequency = freq)
34

```

36:1 (Top Level) ↕

Console Terminal Background Jobs

R 4.2.2 · C:/Users/it24400066/Desktop/IT24400066/

Warning message:
package 'e1071' was built under R version 4.2.3

```

> # Calculate skewness
> skewness(Delivery_Times$Delivery_Time)
[1] 0.04454399
>
> #4
> breaks = round(histogram$breaks)
> freq = histogram$counts
> mids = histogram$mids
> classes = c()
> for (i in 1:length(breaks)-1) {
+   classes[i] <- paste0("[", breaks[i], ",", breaks[i+1], ")")
+ }
> cbind(classes = classes, Frequency = freq)
  classes      Frequency
[1,] "[20,26)"      "2"
[2,] "[26,32)"      "4"
[3,] "[32,39)"      "9"
[4,] "[39,45)"      "9"
[5,] "[45,51)"      "4"
[6,] "[51,58)"      "7"
[7,] "[58,64)"      "3"
[8,] "[64,70)"      "2"
>

```

