

Sri Lanka Institute of Information Technology



Lab Submission
Worksheet No 04

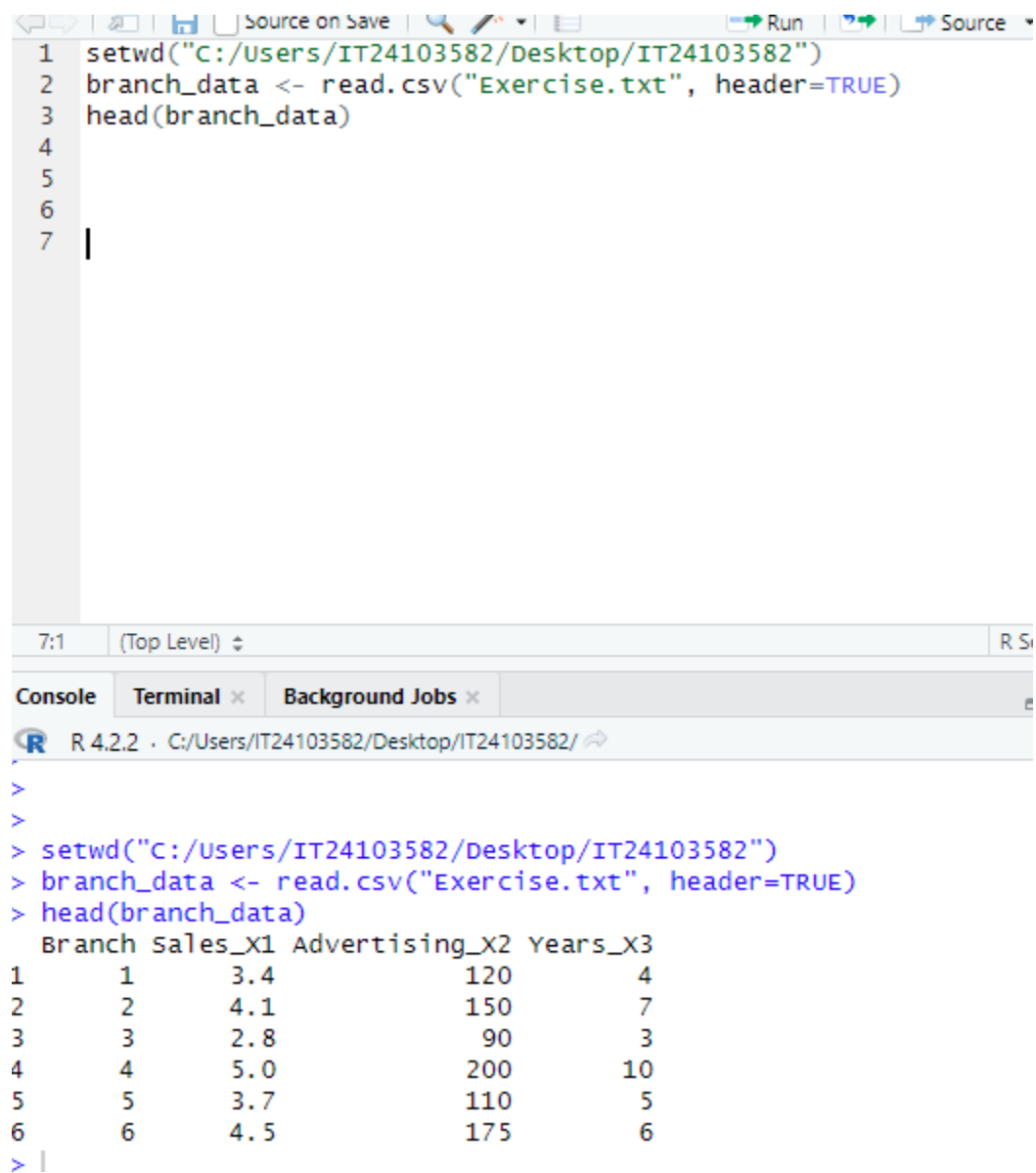
IT24103582

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Probability and Statistics - IT2120

B.Sc. (Hons) in Information Technology

1)



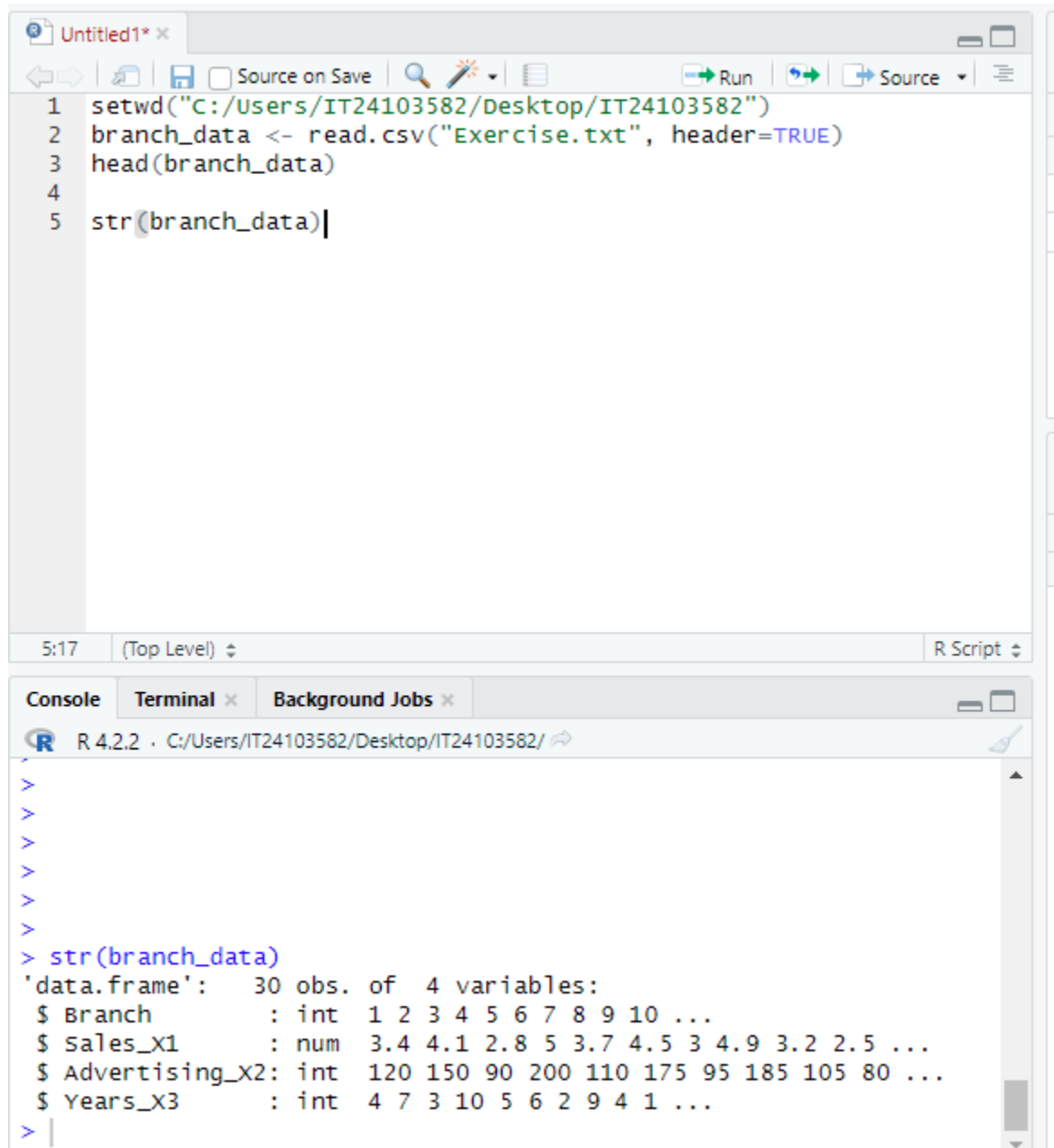
The screenshot shows the RStudio interface. The top pane contains the following R code:

```
1 setwd("C:/Users/IT24103582/Desktop/IT24103582")
2 branch_data <- read.csv("Exercise.txt", header=TRUE)
3 head(branch_data)
4
5
6
7 |
```

The bottom pane shows the console output for the executed code:

```
>
>
> setwd("C:/Users/IT24103582/Desktop/IT24103582")
> branch_data <- read.csv("Exercise.txt", header=TRUE)
> head(branch_data)
  Branch Sales_X1 Advertising_X2 Years_X3
1      1      3.4          120         4
2      2      4.1          150         7
3      3      2.8           90         3
4      4      5.0          200        10
5      5      3.7          110         5
6      6      4.5          175         6
> |
```

2)



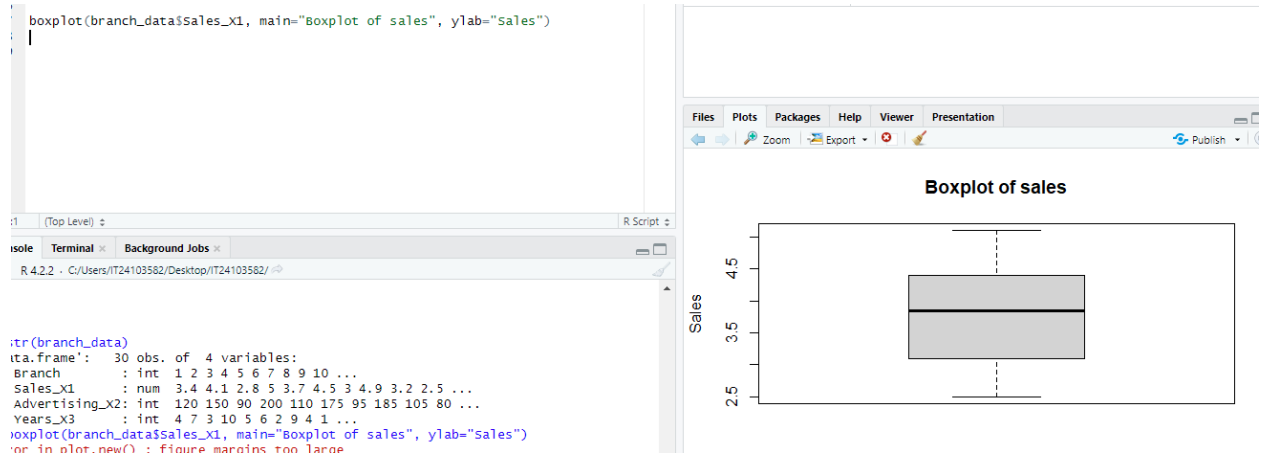
The screenshot displays the R Studio environment. The top pane, titled 'Untitled1*', contains an R script with the following code:

```
1 setwd("C:/Users/IT24103582/Desktop/IT24103582")
2 branch_data <- read.csv("Exercise.txt", header=TRUE)
3 head(branch_data)
4
5 str(branch_data)
```

The bottom pane, labeled 'Console', shows the output of the script execution. It begins with the R version and working directory, followed by several blank lines. The output of the `str(branch_data)` command is as follows:

```
>
>
>
>
>
>
>
> str(branch_data)
'data.frame': 30 obs. of 4 variables:
 $ Branch      : int  1 2 3 4 5 6 7 8 9 10 ...
 $ Sales_X1    : num  3.4 4.1 2.8 5 3.7 4.5 3 4.9 3.2 2.5 ...
 $ Advertising_X2: int  120 150 90 200 110 175 95 185 105 80 ...
 $ Years_X3     : int   4 7 3 10 5 6 2 9 4 1 ...
> |
```

3)




4)



5)

```
13  
14 find_outliers <- function(x) {  
15   Q1 <- quantile(x, 0.25)  
16   Q3 <- quantile(x, 0.75)  
17   IQR_value <- Q3 - Q1  
18   lower_bound <- Q1 - 1.5*IQR_value  
19   upper_bound <- Q3 + 1.5*IQR_value  
20   outliers <- x[x < lower_bound | x > upper_bound]  
21   return(outliers)  
22 }  
23 find_outliers(branch_data$Years_X3)
```

12:1 (Top Level) ↕

Console	Terminal ×	Background Jobs ×
 R 4.2.2 · C:/Users/IT24103582/Desktop/IT24103582/ ↗ > find_outliers(branch_data\$Years_X3) integer(0) > find_outliers <- function(x) { + Q1 <- quantile(x, 0.25) + Q3 <- quantile(x, 0.75) + IQR_value <- Q3 - Q1 + lower_bound <- Q1 - 1.5*IQR_value + upper_bound <- Q3 + 1.5*IQR_value + outliers <- x[x < lower_bound x > upper_bound] + return(outliers) + } > find_outliers(branch_data\$Years_X3) integer(0)		

