IT2120 - Probability and Statistics

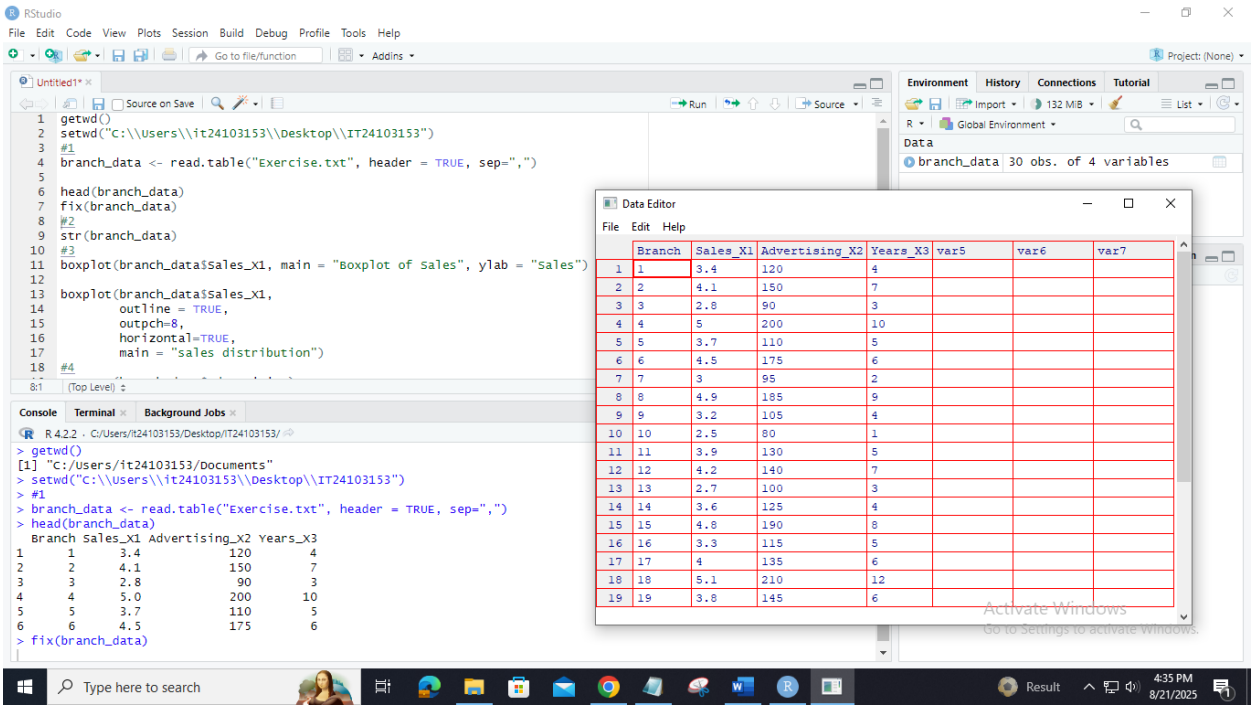
Lab Sheet 04

IT24103153

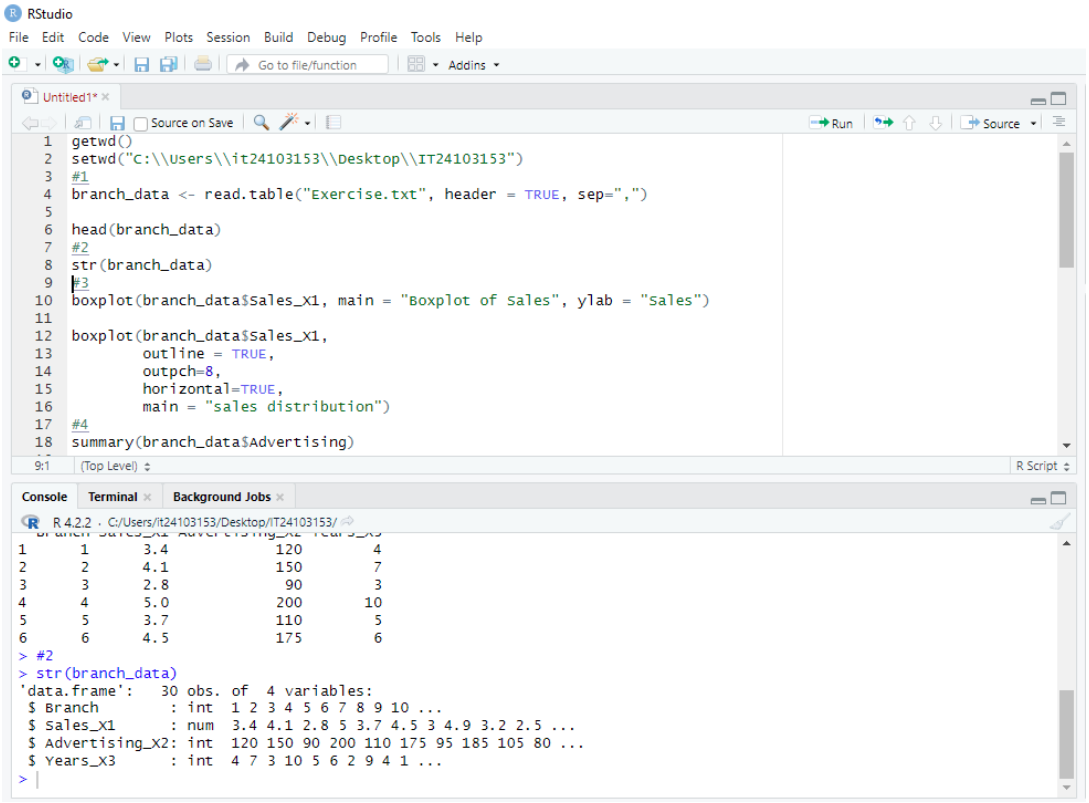
Dassanayake H.N

Exercise:

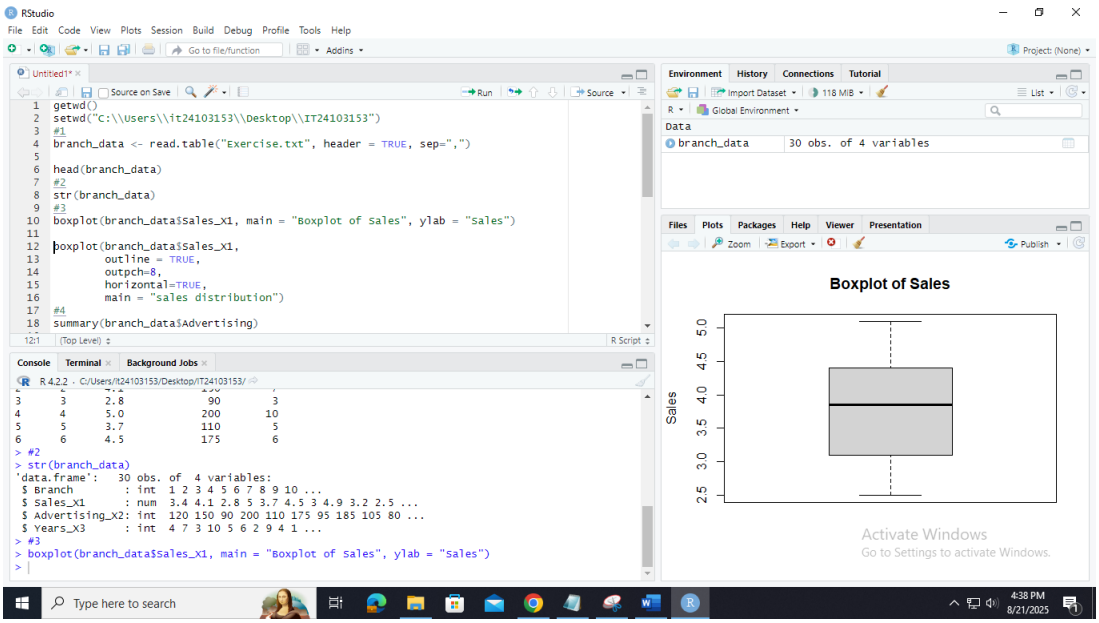
(1)

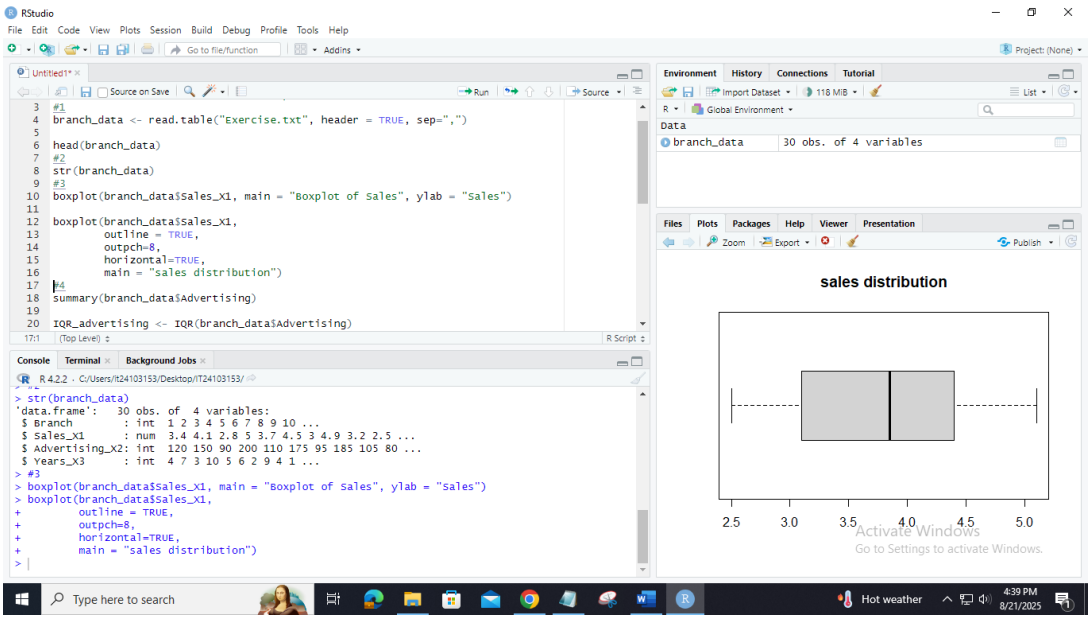


(2)


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Untitled1*
Source on Save
Run
Source
1 getwd()
2 setwd("C:\\Users\\it24103153\\Desktop\\IT24103153")
3 #1
4 branch_data <- read.table("Exercise.txt", header = TRUE, sep=",")
6 head(branch_data)
7 #2
8 str(branch_data)
9 #3
10 boxplot(branch_data$Sales_X1, main = "Boxplot of Sales", ylab = "Sales")
12 boxplot(branch_data$Sales_X1,
13 outline = TRUE,
14 outpch=8,
15 horizontal=TRUE,
16 main = "sales distribution")
17 #4
18 summary(branch_data$Advertising)
9:1 (Top Level) R Script
Console Terminal Background Jobs
R 4.2.2 · C:/Users/it24103153/Desktop/IT24103153/
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
> 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)


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Environment History Connections Tutorial
Data
branch_data 30 obs. of 4 variables
Files Plots Packages Help Viewer Presentation
Boxplot of Sales
Sales
2.5 3.0 3.5 4.0 4.5 5.0
Activate Windows
Go to Settings to activate Windows.
Type here to search
4:38 PM
8/21/2025


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Untitled1*
#1
branch_data <- read.table("Exercise.txt", header = TRUE, sep=",")
head(branch_data)
#2
str(branch_data)
#3
boxplot(branch_data$Sales_X1, main = "Boxplot of Sales", ylab = "Sales")
boxplot(branch_data$Sales_X1,
outline = TRUE,
outpch=8,
horizontal=TRUE,
main = "Sales distribution")
#4
summary(branch_data$Advertising)
IQR_advertising <- IQR(branch_data$Advertising)
Environment History Connections Tutorial
Data
branch_data 30 obs. of 4 variables
Files Plots Packages Help Viewer Presentation
sales distribution
2.5 3.0 3.5 4.0 4.5 5.0
Console Terminal Background Jobs
> 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
> boxplot(branch_data$Sales_X1, main = "Boxplot of Sales", ylab = "Sales")
> boxplot(branch_data$Sales_X1,
+ outline = TRUE,
+ outpch=8,
+ horizontal=TRUE,
+ main = "sales distribution")
Activate Windows
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Hot weather
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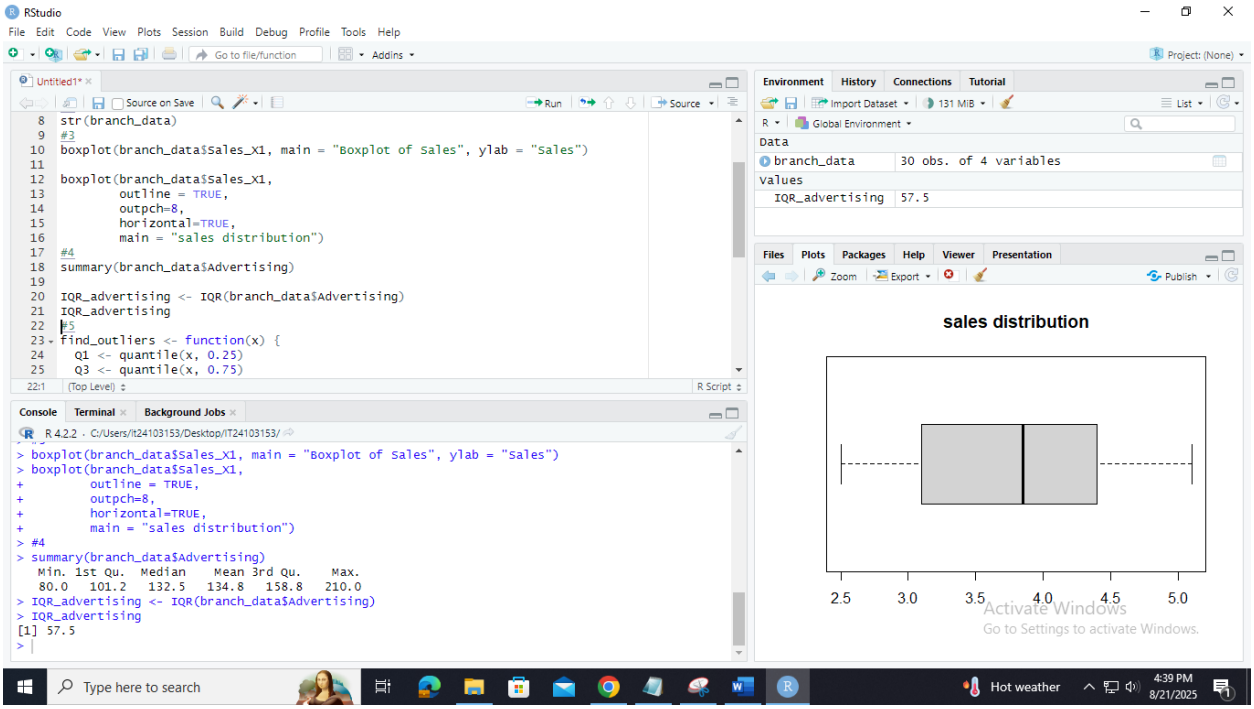
(4)


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Untitled1*
str(branch_data)
#3
boxplot(branch_data$Sales_X1, main = "Boxplot of Sales", ylab = "Sales")
boxplot(branch_data$Sales_X1,
outline = TRUE,
outpch=8,
horizontal=TRUE,
main = "sales distribution")
#4
summary(branch_data$Advertising)
IQR_advertising <- IQR(branch_data$Advertising)
IQR_advertising
#5
find_outliers <- function(x) {
Q1 <- quantile(x, 0.25)
Q3 <- quantile(x, 0.75)
Environment History Connections Tutorial
Data
branch_data 30 obs. of 4 variables
values
IQR_advertising 57.5
Files Plots Packages Help Viewer Presentation
sales distribution
2.5 3.0 3.5 4.0 4.5 5.0
Console Terminal Background Jobs
> boxplot(branch_data$Sales_X1, main = "Boxplot of Sales", ylab = "Sales")
> boxplot(branch_data$Sales_X1,
+ outline = TRUE,
+ outpch=8,
+ horizontal=TRUE,
+ main = "sales distribution")
> #4
> summary(branch_data$Advertising)
Min. 1st Qu. Median Mean 3rd Qu. Max.
80.0 101.2 132.5 134.8 158.8 210.0
> IQR_advertising <- IQR(branch_data$Advertising)
> IQR_advertising
[1] 57.5
Activate Windows
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Hot weather
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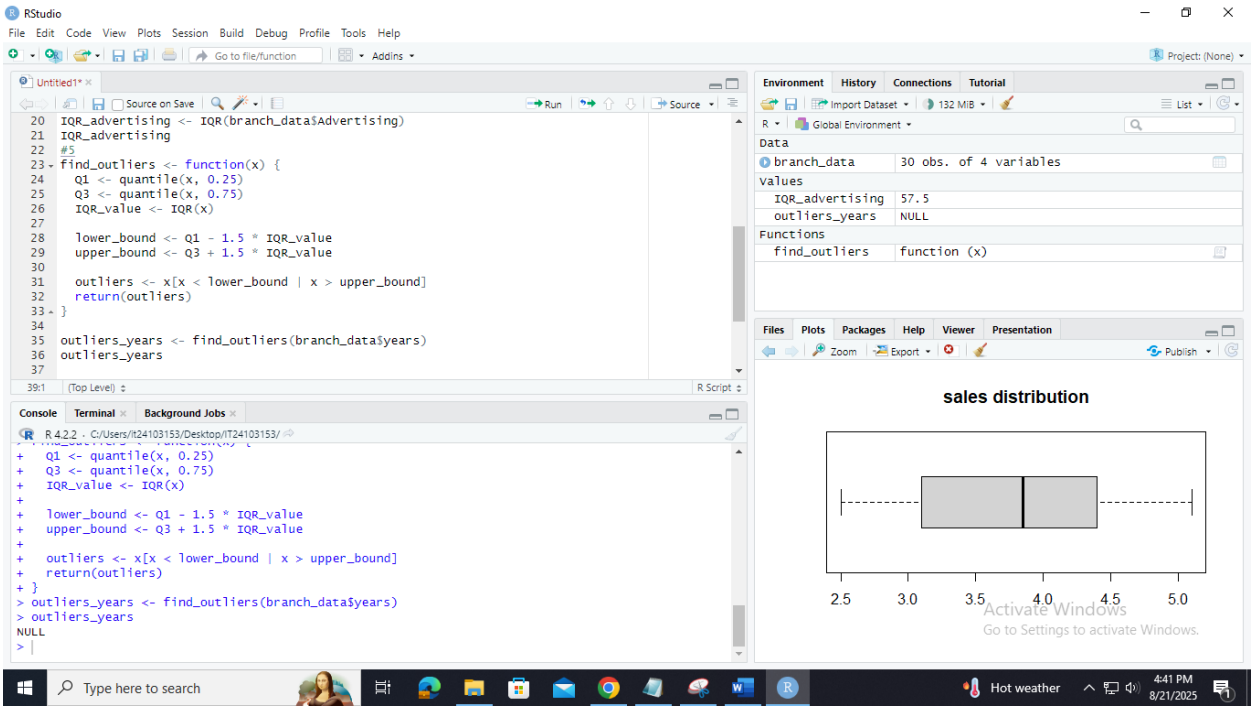
(5)


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Untitled1*
20 IQR_advertising <- IQR(branch_data$Advertising)
21 IQR_advertising
22 #5
23 find_outliers <- function(x) {
24 Q1 <- quantile(x, 0.25)
25 Q3 <- quantile(x, 0.75)
26 IQR_value <- IQR(x)
27
28 lower_bound <- Q1 - 1.5 * IQR_value
29 upper_bound <- Q3 + 1.5 * IQR_value
30
31 outliers <- x[x < lower_bound | x > upper_bound]
32 return(outliers)
33 }
34
35 outliers_years <- find_outliers(branch_data$years)
36 outliers_years
37
Environment History Connections Tutorial
Data
branch_data 30 obs. of 4 variables
values
IQR_advertising 57.5
outliers_years NULL
Functions
find_outliers function (x)
Files Plots Packages Help Viewer Presentation
sales distribution
2.5 3.0 3.5 4.0 4.5 5.0
Console Terminal Background Jobs
R 4.2.2 · C:/Users/it24103153/Desktop/IT24103153/
+ Q1 <- quantile(x, 0.25)
+ Q3 <- quantile(x, 0.75)
+ IQR_value <- IQR(x)
+
+ lower_bound <- Q1 - 1.5 * IQR_value
+ upper_bound <- Q3 + 1.5 * IQR_value
+
+ outliers <- x[x < lower_bound | x > upper_bound]
+ return(outliers)
+ }
> outliers_years <- find_outliers(branch_data$years)
> outliers_years
NULL
Activate Windows
Go to Settings to activate Windows.
Type here to search
Hot weather
4:41 PM
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