LAB SHEET 04

IT24102739

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IT2120 - Probability and Statistics

1)

```
> setwd("C:/Users/it24102739/Desktop/IT24102739")
> branch_data<-read.table("Exercise.txt", header = TRUE,sep = ",")
> fix(branch_data)
attach(branch_data)
```
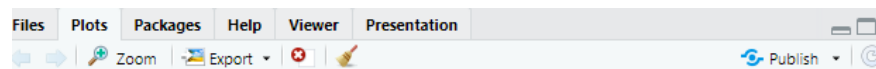
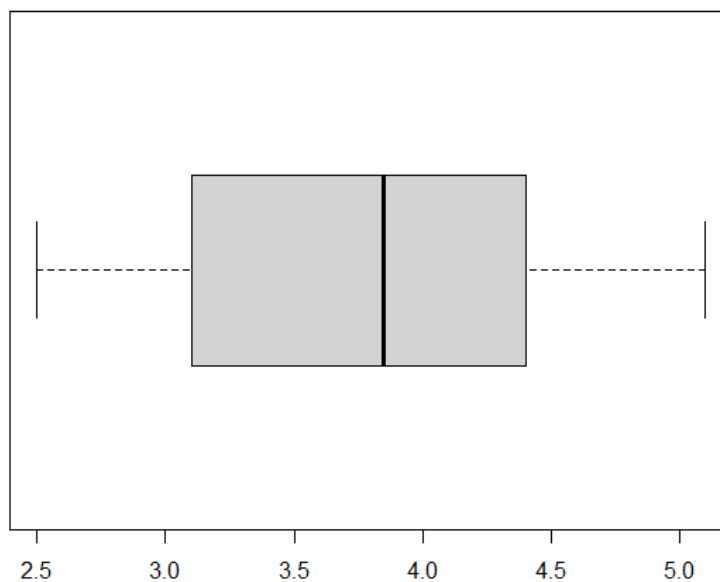|	Branch	Sales_X1	Advertising_X2	Years_X3	var5	var6	var7
1	1	3.4	120	4			
2	2	4.1	150	7			
3	3	2.8	90	3			
4	4	5	200	10			
5	5	3.7	110	5			
6	6	4.5	175	6			
7	7	3	95	2			
8	8	4.9	185	9			
9	9	3.2	105	4			
10	10	2.5	80	1			
11	11	3.9	130	5			
12	12	4.2	140	7			
13	13	2.7	100	3			
14	14	3.6	125	4			
15	15	4.8	190	8			
16	16	3.3	115	5			
17	17	4	135	6			
18	18	5.1	210	12			
19	19	3.8	145	6			

2)

```
> str(branch_data)
'data.frame':    30 obs. of  4 variables:
 $ Branch        : num  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: num  120 150 90 200 110 175 95 185 105 80 ...
 $ Years_X3      : num  4 7 3 10 5 6 2 9 4 1 ...
> class(branch_data$Branch)
[1] "numeric"
> class(branch_data$Salary_X1)
[1] "NULL"
> class(branch_data$Advertising_X2)
[1] "numeric"
> class(branch_data$Years_X3)
[1] "numeric"
> |
```

3)

```
> boxplot(branch_data$Sales_X1,main="Box plot for Sale",outline=TRUE,outpch=8,
horizontal=TRUE)
> |
```

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Box plot for Sale

4)

```
> summary(branch_data$Advertising_X2)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   80.0   101.2   132.5   134.8   158.8   210.0
> fivenum(branch_data$Advertising_X2)
[1]   80.0 100.0 132.5 160.0 210.0
> IQR(branch_data$Advertising_X2)
[1] 57.5
>
```

5)

```
> find_outliers <- function(x){
+    Q1 <- quantile(x, 0.25)
+    Q3 <- quantile(x, 0.75)
+    IQR <- Q3-Q1
+    lower_bound <- Q1-1.5 *IQR
+    upper_bound <- Q3+1.5 *IQR
+    outliers <- x[x < lower_bound | x > upper_bound]
+    return(outliers)
+
+ }
> find_outliers(branch_data$Years_X3)
numeric(0)
>
```