Probability & Statistics - Lab Sheet 04

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```r
#Q1
getwd()
setwd("C:\\Users\\IT24102395\\Desktop\\IT24102395_Lab_04")

branch_data <- read.csv("Exercise.txt", header = TRUE)
head(branch_data)

```

R 4.2.2 · C:/Users/IT24102395/Desktop/IT24102395_Lab_04/

```
> #Q1
> getwd()
[1] "C:/Users/IT24102395/Desktop/IT24102395_Lab_04"
> setwd("C:\\Users\\IT24102395\\Desktop\\IT24102395_Lab_04")
>
> 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
```

```r
#Q2
str(branch_data)
```

```
> #Q2
> 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 ...
```

```
11  #Q3
12  boxplot(branch_data$Sales_X1,
13          main = "Sales Distribution",
14          outliine = "Sales",
15          col = "lemonchiffon")
16
```

```
> #Q3
> boxplot(branch_data$Sales_X1,
+         main = "Sales Distribution",
+         outliine = "Sales",
+         col = "lemonchiffon")
```

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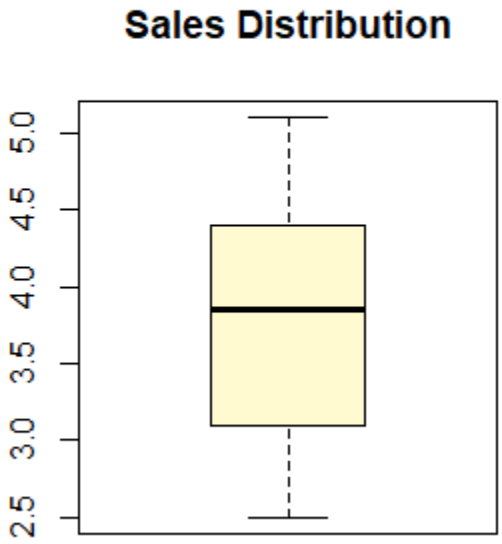


```
17  #Q4
18  summary(branch_data$Advertising_X2)
19  fivenum(branch_data$Advertising_X2)
20  IQR(branch_data$Advertising_X2)
```

```
> #Q4
> 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
```

```r
#Q5
find_outlier <- function(x){
  Q1 <- quantile(x, 0.25)
  Q3 <- quantile(x, 0.75)
  IQR_val <- Q3 - Q1
  lower <- Q1 - 1.5 * IQR_val
  upper <- Q3 + 1.5 * IQR_val

  outlier <- x[x<lower | x>upper]
  return(outlier)
}
find_outlier(branch_data$Years_X3)
```

```
> #Q5
> find_outlier <- function(x){
+   Q1 <- quantile(x, 0.25)
+   Q3 <- quantile(x, 0.75)
+   IQR_val <- Q3 - Q1
+   lower <- Q1 - 1.5 * IQR_val
+   upper <- Q3 + 1.5 * IQR_val
+
+   outlier <- x[x<lower | x>upper]
+   return(outlier)
+ }
> find_outlier(branch_data$Years_X3)
integer(0)
```