IT24103228

PS Lab-04

Exercise

1)
```
> setwd("C:/Users/it24103228/Desktop/IT24103228")
>
> # Exercise 1:
> branch_data <- read.table("Exercise.txt", header = TRUE, sep = ",")
>
> # View the data frame
> 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)
```
> # Exercise 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)
```
> # Exercise 3:
> boxplot(branch_data$Sales_X1, main = "Boxplot of Sales", ylab = "Sales")
```



Boxplot of Sales
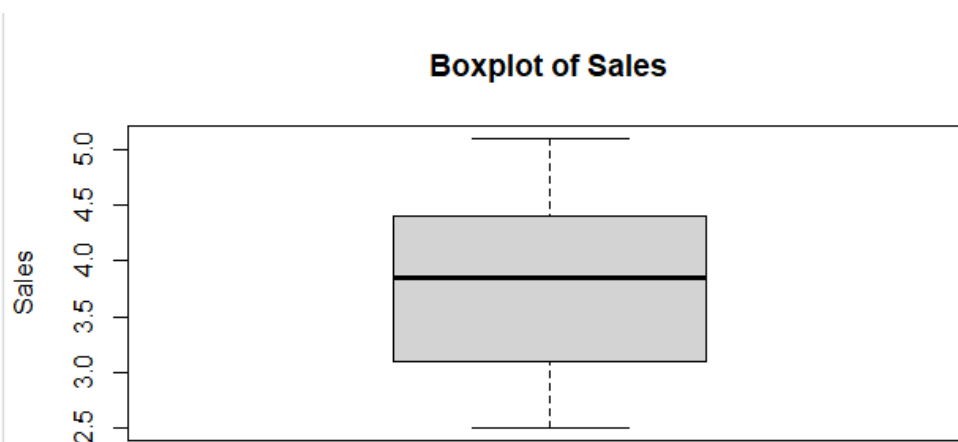
```
4) > # Exercise 4:
   > summary(branch_data$Advertising_X2)
      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
      80.0   101.2   132.5   134.8   158.8   210.0
   >
   > IQR(branch_data$Advertising_X2)
   [1] 57.5


5) > # Exercise 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)
   + }
   >
   > years_outliers <- find_outliers(branch_data$Years_X3)
   > print(years_outliers)
   integer(0)
```