IT24103913

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Probability and Statistics - IT2120

Lab sheet 4

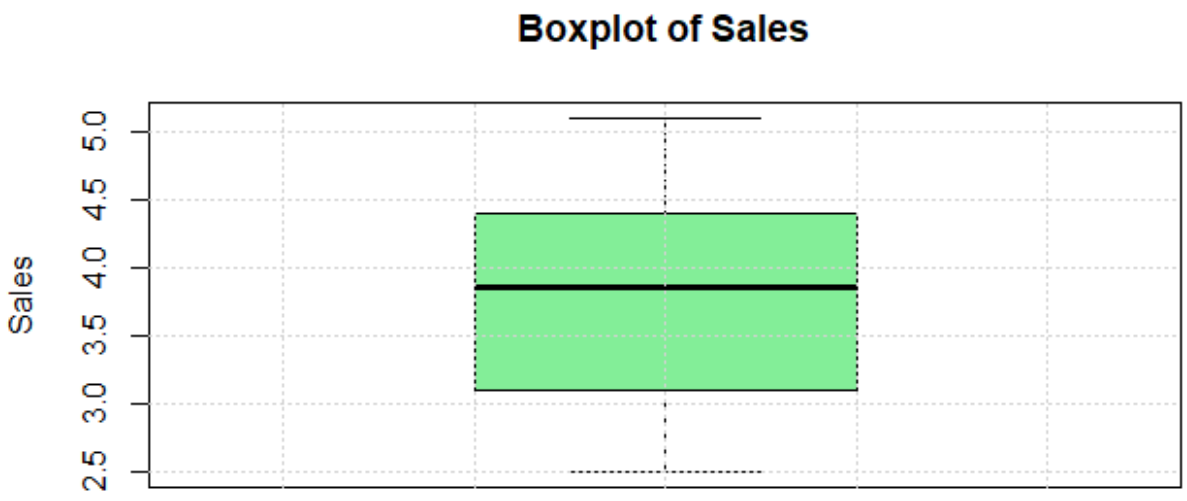
Exercise

1,2

```
> setwd("C:\\Users\\IT24103913\\Desktop\\IT24103913")
>
> #1
> branch_data <- read.table("Exercise.txt", header = TRUE, sep = ",")
> 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",
+ col = "lightgreen",
+   border = "black")
>     grid()
```



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.

```
> 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 <- Q1 + 1.5 * IQR
+   return (x[x < lower_bound | x > upper_bound])
+ }
>
> outliers <- find_outliers(branch_data$Years_X3)
> print(outliers)
[1] 12 11
```