IT2120 - Probability and Statistics

IT24102510

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Exercise

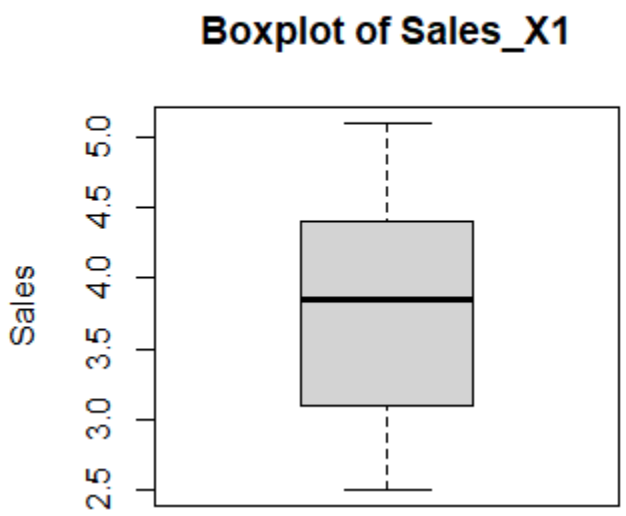
01)

```
setwd("C:\\Users\\it24102510\\Desktop\\IT24102510")
branch_data<-read.table("Exercise.txt",header = TRUE,sep = ",")
```

02)

```
> 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 ...
> summary(branch_data)
     Branch         Sales_X1     Advertising_X2     Years_X3
 Min.   : 1.00   Min.   :2.500   Min.   : 80.0   Min.   : 1.00
 1st Qu.: 8.25   1st Qu.:3.125   1st Qu.:101.2   1st Qu.: 3.25
 Median :15.50   Median :3.850   Median :132.5   Median : 5.50
 Mean   :15.50   Mean   :3.790   Mean   :134.8   Mean   : 5.70
 3rd Qu.:22.75   3rd Qu.:4.375   3rd Qu.:158.8   3rd Qu.: 7.75
 Max.   :30.00   Max.   :5.100   Max.   :210.0   Max.   :12.00
```

03)



04)

```
> 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
```

05)

```
> find_outliers <- function(x) {
+   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_X3)
> print(outliers_years)
integer(0)
```