# IT2120 - Probability and Statistics

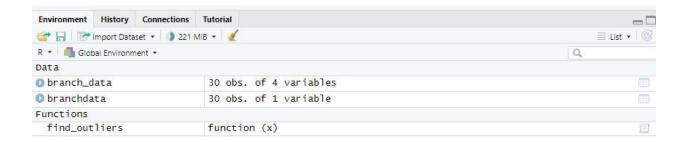
#### Lab Sheet 04

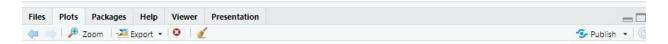
### IT24610821 - Punchinilame.U.P.I.S

### **Exercise**

```
1 setwd("C:\\Users\\it24104140\\Desktop\\IT24104140")
 3 branch_data <- read.csv("Exercise.txt", header = TRUE)</pre>
 4 str(branch_data)
 6
 7
   head(branch_data)
8
9 boxplot(branch_data$Sales_X1, main = "Boxplot of Sales")
10 summary(branch_data$advertising_X2)
11 IQR(branch_data$advertising_X2)
12
13 - find_outliers <- function(x) {
      Q1 \leftarrow quantile(x, 0.25)
      Q3 \leftarrow quantile(x, 0.75)
15
16
      IQR_val <- Q3 - Q1
      lower_bound <- Q1 - 1.5 * IQR_val
17
18
      upper_bound <- Q3 + 1.5 * IQR_val
19
      return(x[x < lower_bound | x > upper_bound])
20 - 7
21 find_outliers(branch_dataSyears)
```

```
> setwd("C:\\Users\\it24104140\\Desktop\\IT24104140")
> branch_data <- read.csv("Exercise.txt", header = TRUE)
> 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 ...
>
> head(branch_data)
  Branch Sales_X1 Advertising_X2 Years_X3
1
      1
            3.4
                           120
                                       7
       2
                            150
2
            4.1
3
      3
            2.8
                            90
                                      3
4
      4
            5.0
                            200
                                     10
5
      5
            3.7
                            110
                                      5
6
      6
            4.5
                            175
                                      6
> boxplot(branch_data$Sales_X1, main = "Boxplot of Sales")
> summary(branch_data$advertising_X2)
Length Class Mode
     0 NULL
               NULL
> IQR(branch_data$advertising_X2)
[1] NA
 > find_outliers <- function(x) {
 + Q1 <- quantile(x, 0.25)
 + Q3 <- quantile(x, 0.75)
    IQR_val <- Q3 - Q1
    lower_bound <- Q1 - 1.5 * IQR_val
    upper_bound <- Q3 + 1.5 * IQR_val
 + return(x[x < lower_bound | x > upper_bound])
 + }
 > find_outliers(branch_data$years)
 NULL
 >
```





# **Boxplot of Sales**

