Faculty of Computing Year 2 Semester 1 (2025) IT2120

Probability and Statistics

Lab Sheet 04(IT24103414)

```
> getwd()
[1] "C:/Users/it24103414/Desktop/IT24103414"
> setwd("C:\\Users\\it24103414\\Desktop\\IT24103414")
> ##1
> branch_data<-read.csv("Exercise.txt" ,header=TRUE)
> ##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 ...
> names(branch_data)
[1] "Branch"         "Sales_X1"       "Advertising_X2" "Years_X3"
> ##3
> boxplot(branch_data$Sales_X1, main ="Boxplot of Sales",ylab="Sales")
> ##4
> summary(branch_data$Advertising_X2)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   80.0   101.2   132.5   134.8   158.8   210.0
> iqr_Advertising <- IQR(branch_data$Advertising_X2)
> print(paste("IQR of advertising:", iqr_Advertising))
[1] "IQR of advertising: 57.5"
> ##5
> find_outliers <- function(x){
+   q1 <- quantile(x,0.25, na.rm = TRUE)
+   q3 <- quantile(x,0.75, na.rm = REUE)
+   IQR_val <- q3 - q1
+   lower_bound <- q1 - 1.5 * IQR_val
+   upper_bound <- q3 + 1.5 * IQR_val
+   outlines <- X[X < lower_bound|X > upper_bound]
+   return(outliers)
+ }
> outliers_years <- find_outliers(branch_data$Years_X3)
```