Sri Lanka Institute of Information Technology

<IT24103527>

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<Lab Sheet No.4>

IT2120 | Probability & Statistics

Year 2 Semester 1

1.

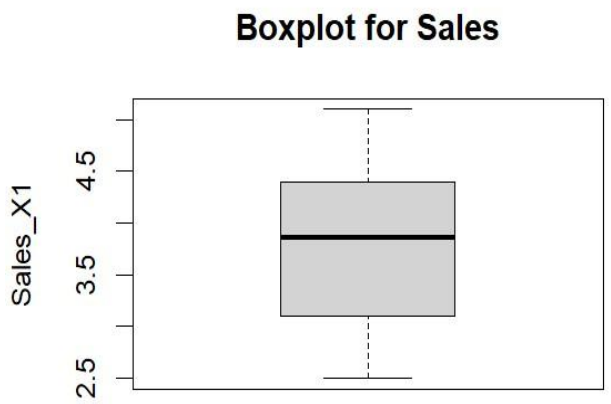
```
setwd("C:/Users/User/Desktop/IT24103527")
branch.data <- read.csv("Exercise.txt", header = TRUE)
```

2.

- **Branch:** This variable represents a nominal identifier for each branch. It's a **discrete** variable measured on a **nominal scale**.
- **Sales_X1:** This variable represents sales figures. It's a **continuous** variable measured on a **ratio scale**.
- **Advertising_X2:** This variable represents advertising costs. It's a **continuous** variable measured on a **ratio scale**.
- **Years_X3:** This variable represents the number of years. It's a **continuous** variable measured on a **ratio**

3.

```
boxplot(branch.data$Sales_X1, main = "Boxplot for Sales", ylab = "Sales_X1")
```



4.

```
summary(branch.data$Advertising_X2)
IQR(branch.data$Advertising_X2)
```

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)
}

# Check for outliers in the Years_X3 variable
outliers_years <- find_outliers(branch.data$Years_X3)
print(outliers_years)
```

Console

```
> setwd("C:/Users/User/Desktop/IT24103527")
> branch.data <- read.csv("Exercise.txt", header = TRUE)
> boxplot(branch.data$Sales_X1, main = "Boxplot for Sales", ylab = "Sales_X1")
> summary(branch.data$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$Advertising_X2)
[1] 57.5
> find_outliers <- function(x) {
+   Q1 <- quantile(x, 0.25)
+   Q3 <- quantile(x, 0.75)
+   IQR <- Q3 - Q1
+   lower_bound <- Q1 - 1.5 * IQR
+   upper_bound <- Q3 + 1.5 * IQR
+   outliers <- x[x < lower_bound | x > upper_bound]
+   return(outliers)
+ }
> outliers_years <- find_outliers(branch.data$Years_X3)
> print(outliers_years)
integer(0)
```

Global Environment