21BDS0340

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Exploratory Data Analysis Lab

Experiment – VII

Code:

```
# z score method
data = c(10, 10, 11, 11, 12, 12, 13, 12, 11, 14, 13, 15, 100)

mean.data = mean(data)
std.data = sd(data)

z.scores = (data - mean.data) / std.data

# outliers have -3 < z.score < 3
outliers = data[abs(z.scores) > 3]
outliers
```

Output:

```
> # z score method
> data = c(10, 10, 11, 11, 12, 12, 13, 12, 11, 14, 13, 15, 100)
>
> mean.data = mean(data)
> std.data = sd(data)
>
> z.scores = (data - mean.data) / std.data
>
> # outliers have -3 < z.score < 3
> outliers = data[abs(z.scores) > 3]
> outliers
[1] 100
```

Code:

```
# inter quartile range method
data = c(10, 10, 11, 11, 12, 12, 13, 12, 11, 14, 13, 15, 100)

q1 = quantile(data, 0.25)
q3 = quantile(data, 0.75)
iqr = q3 - q1

# outliers lie outside of the inter quartile range
outliers <- data[data < q1 | data > q3]
outliers
```

Output:

```
> # inter quartile range method
> data = c(10, 10, 11, 11, 12, 12, 13, 12, 11, 14, 13, 15, 100)
```

```
>
> q1 = quantile(data, 0.25)
> q3 = quantile(data, 0.75)
> iqr = q3 - q1
>
> # outliers lie outside of the inter quartile range
> outliers <- data[data < q1 | data > q3]
> outliers
[1]  10  10  14  15 100
```

Code:

```
# boxplot method (purely visualisation)
data = c(10, 10, 11, 11, 12, 12, 13, 12, 11, 14, 13, 15, 100)
boxplot(data)
```

Output: