# Kouvaris Karanja 3

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## get data

```
# The Data Set
attach(Orange)
head(Orange)
```

```
##   Tree  age circumference
## 1    1  118            30
## 2    1  484            58
## 3    1  664            87
## 4    1 1004           115
## 5    1 1231           120
## 6    1 1372           142
```

### (a)

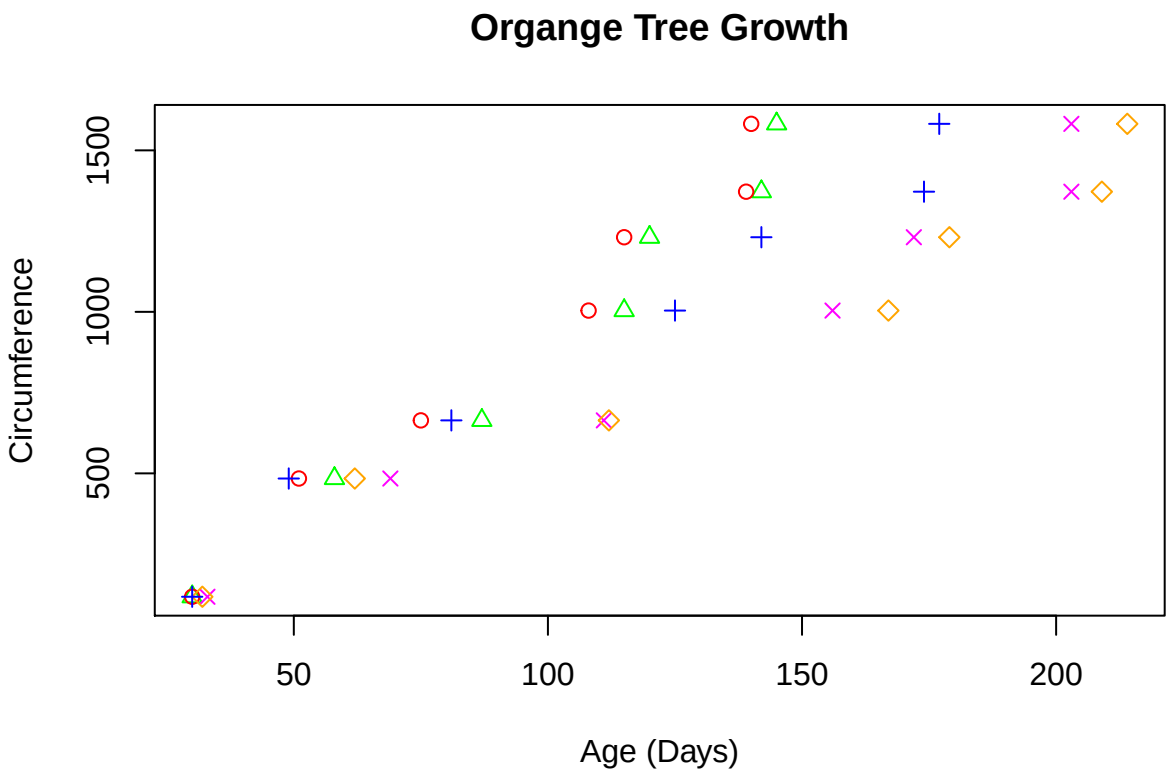
```
for (class in unique(Orange$Tree)) {
  df <- Orange[Orange$Tree == class,]
  print(class)
  print(mean(df$circumference))
  print(median(df$circumference))
}
```

```
## [1] "1"
## [1] 99.57143
## [1] 115
## [1] "2"
## [1] 135.2857
## [1] 156
## [1] "3"
## [1] 94
## [1] 108
## [1] "4"
## [1] 139.2857
## [1] 167
## [1] "5"
## [1] 111.1429
## [1] 125
```

### (b)

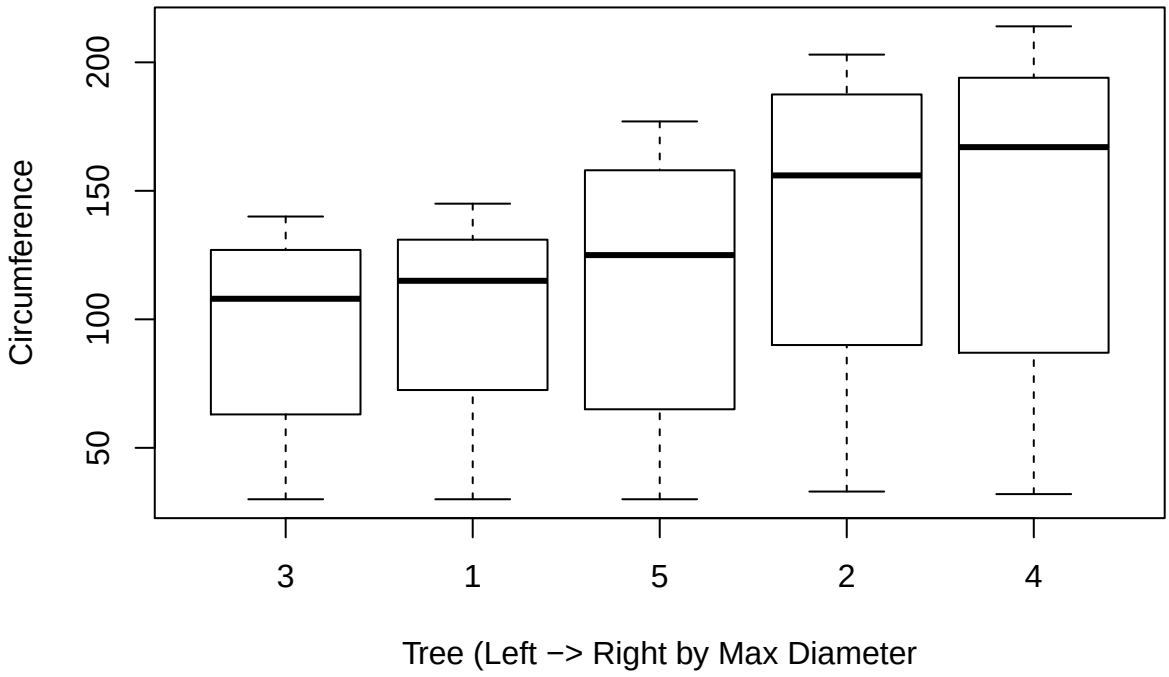
```
plot(Orange$age ~ Orange$circumference,
     xlab = "Age (Days)",
```

```
     ylab = "Circumference",
     pch = c(1, 2, 3, 4, 5)[as.numeric(Orange$Tree)],  # different 'pch' types
     main = "Organge Tree Growth",
     col = c("red", "green","blue","magenta", "orange")[as.numeric(Orange$Tree)],
     data = Orange)
```




## (c)

```
boxplot(circumference~Tree, data=Orange,  ylab = "Circumference",
        main="Tree Circumference", xlab="Tree (Left -> Right by Max Diameter")
```


Tree Circumference
Circumference
50
100
150
200
3
1
5
2
4
Tree (Left −> Right by Max Diameter