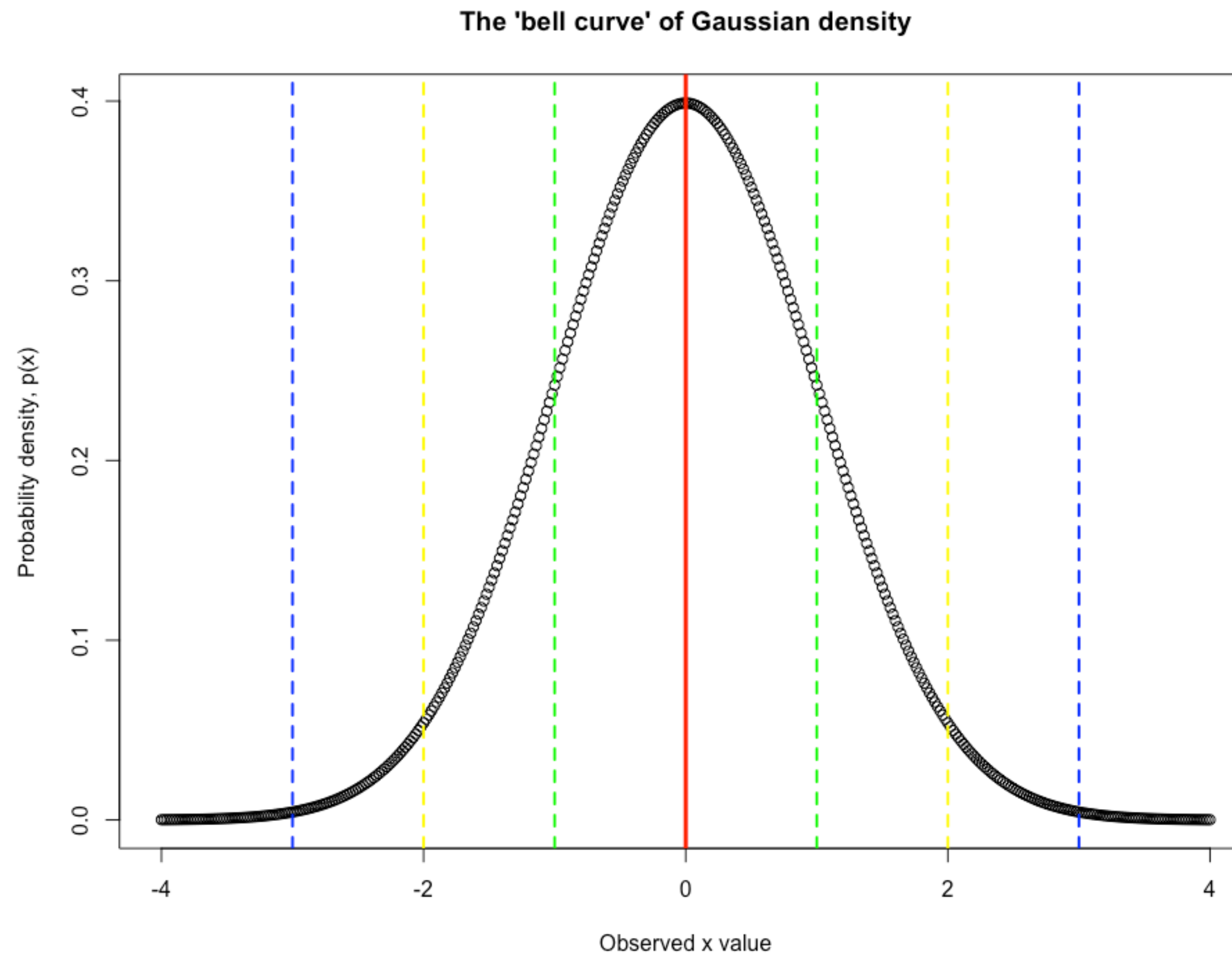




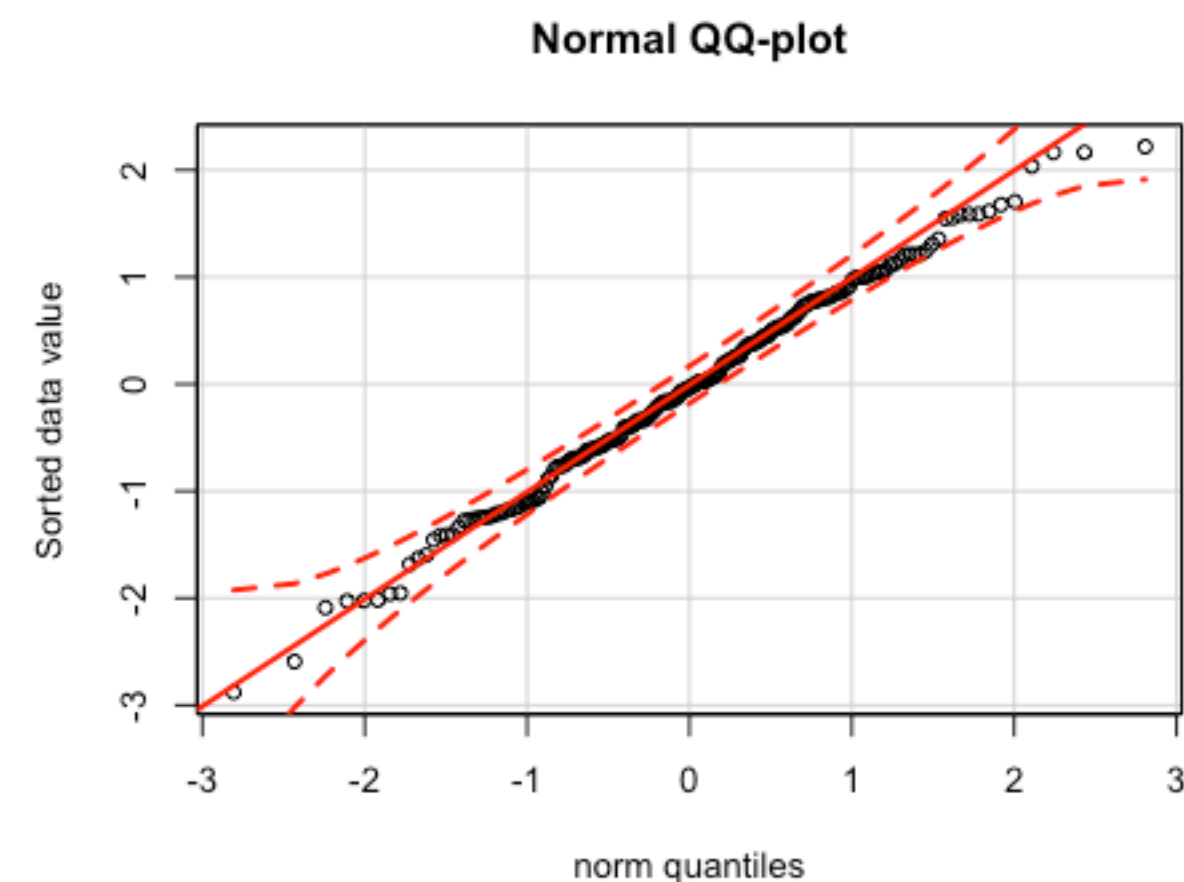
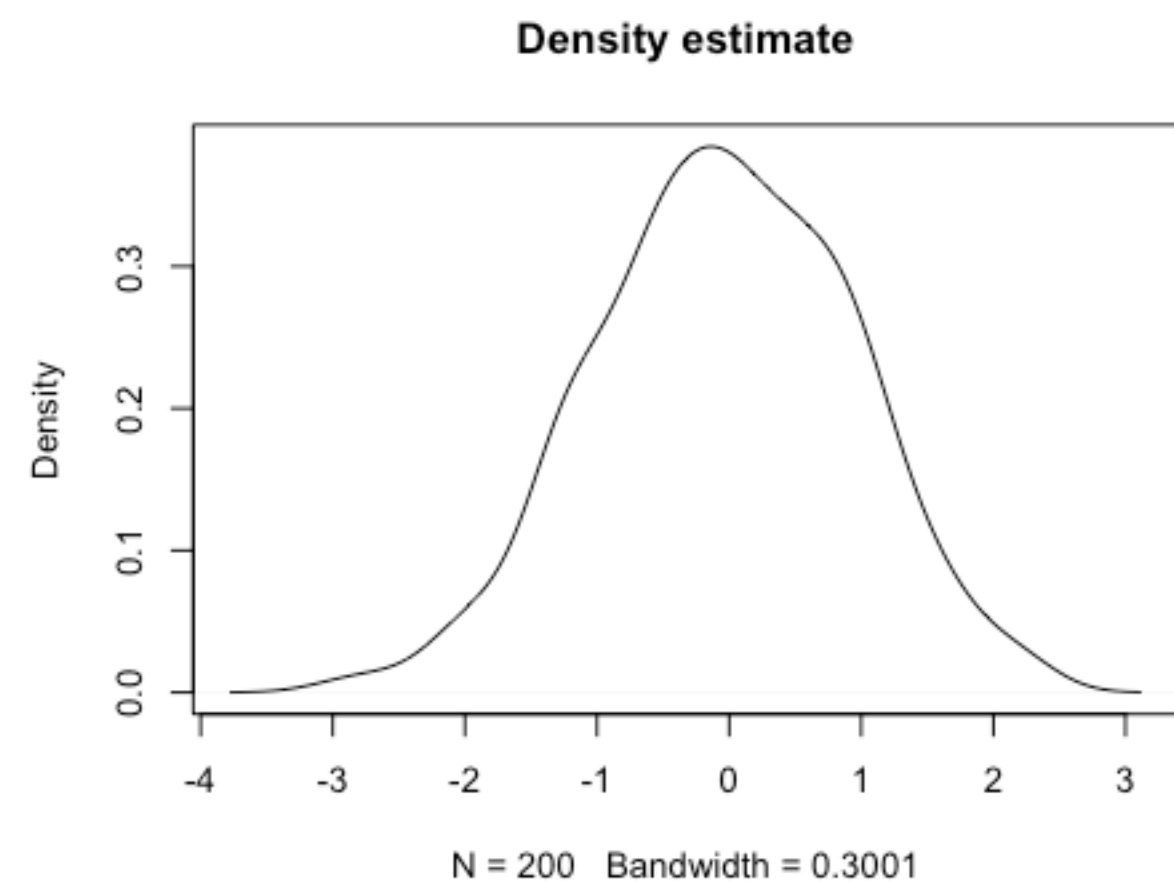
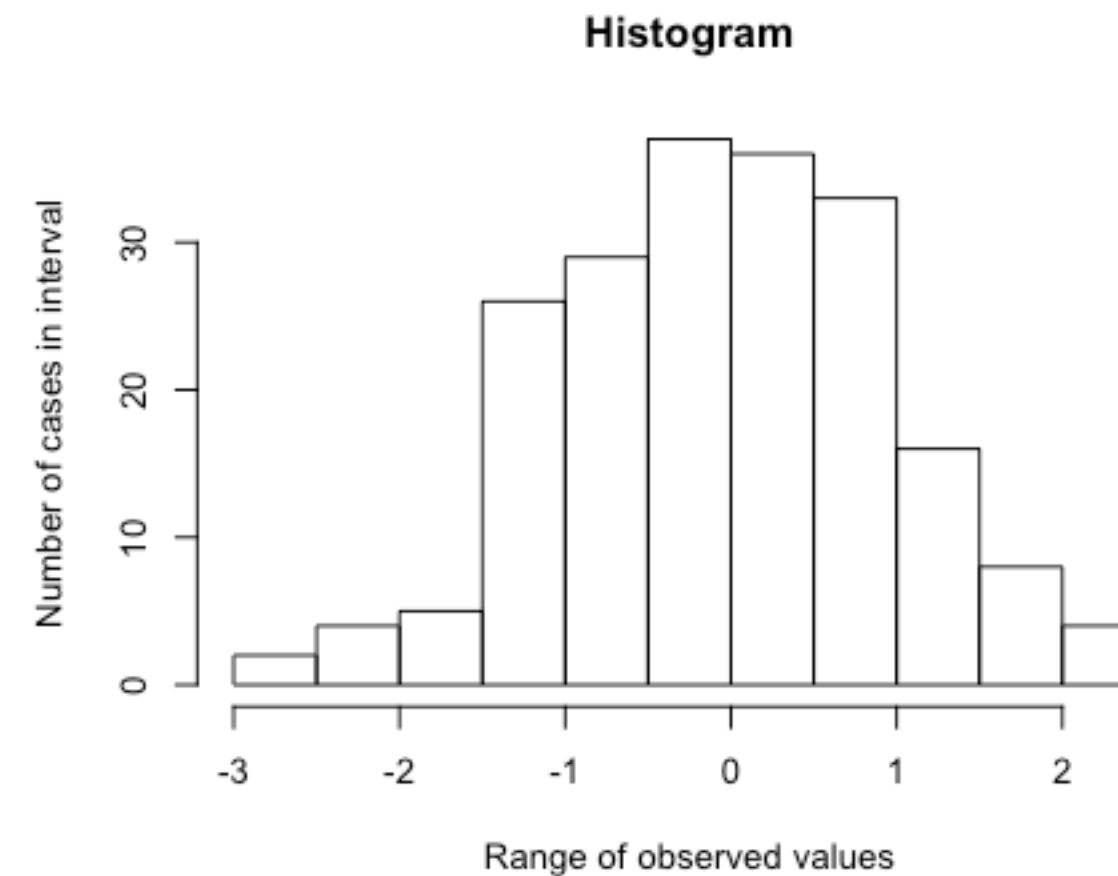
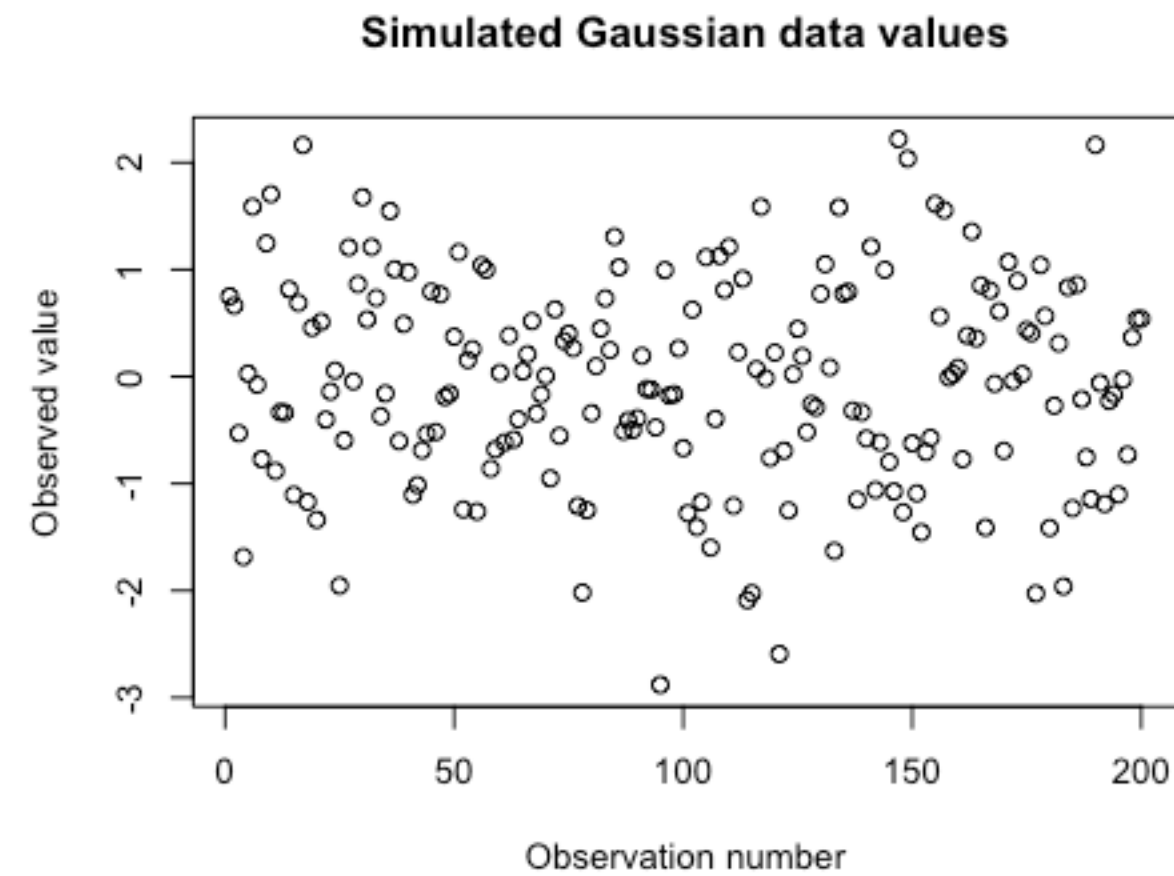
DATA VISUALIZATION IN R

# Characterizing a single variable

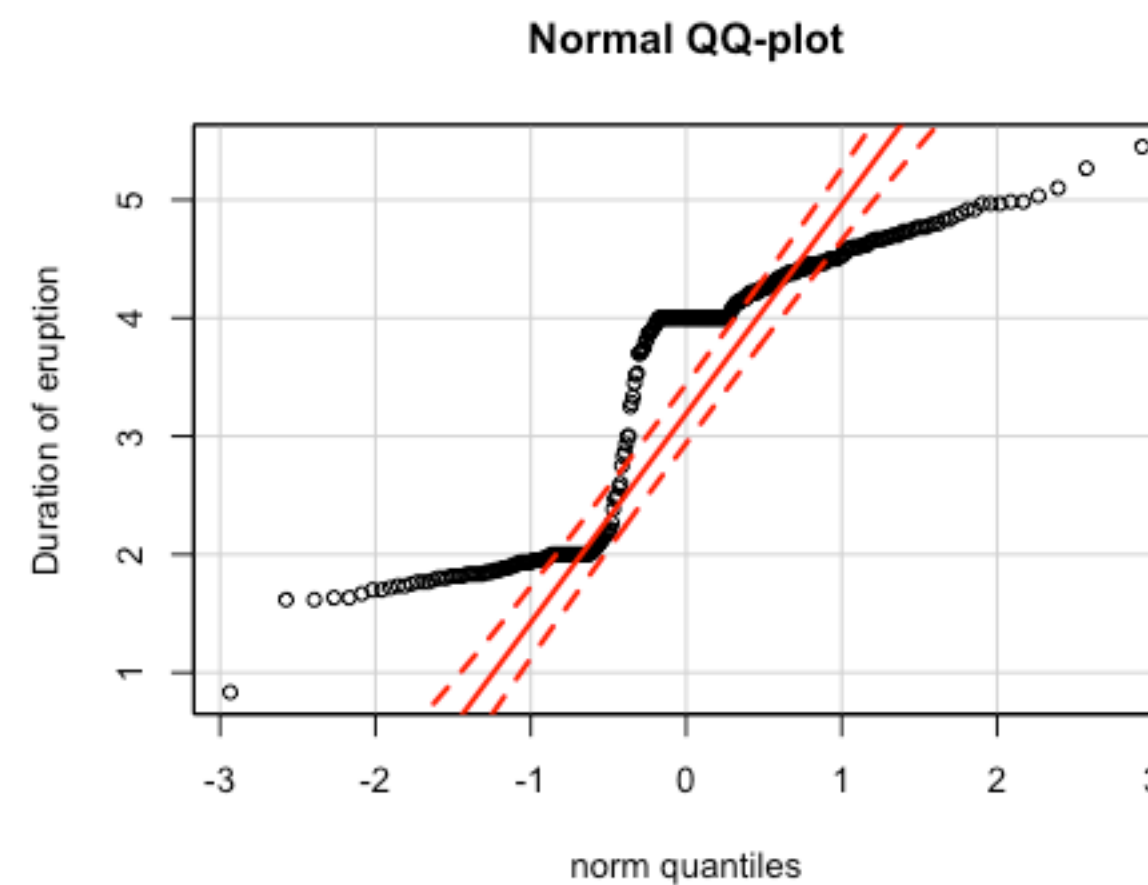
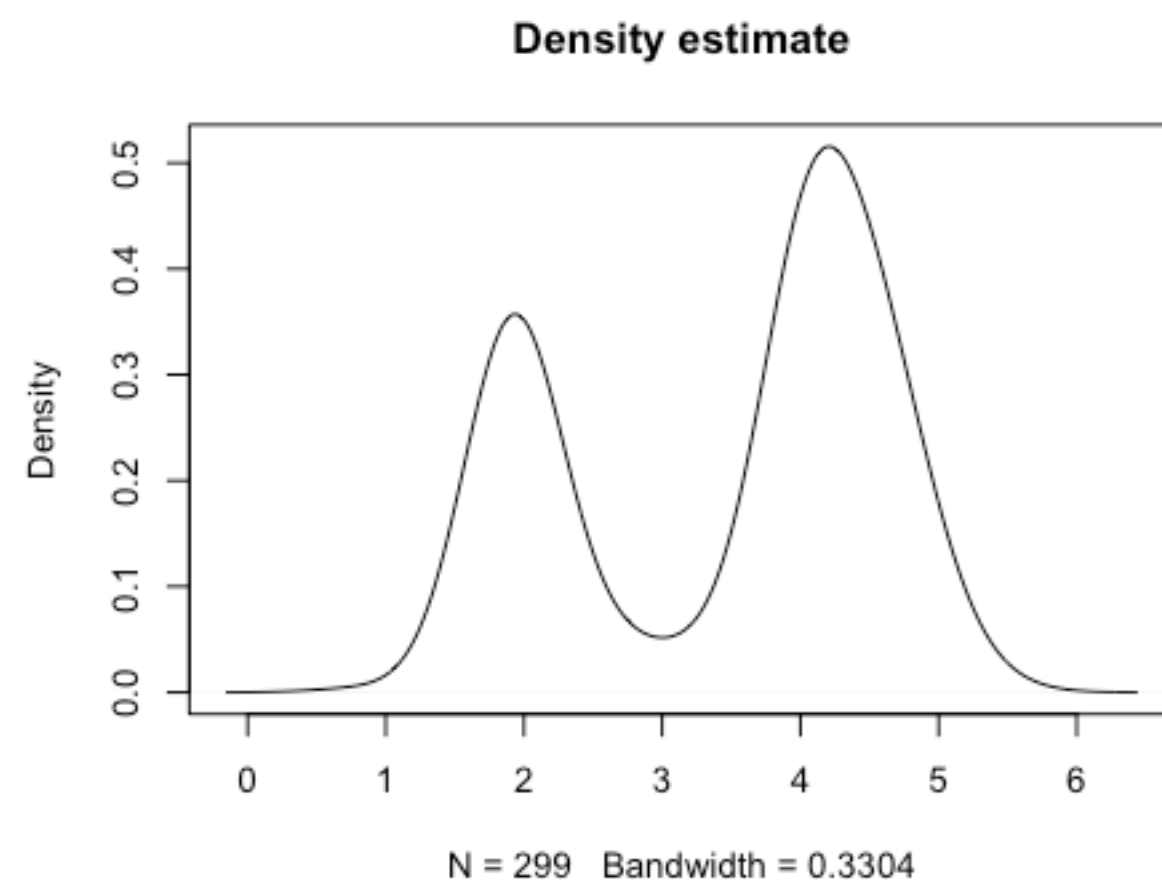
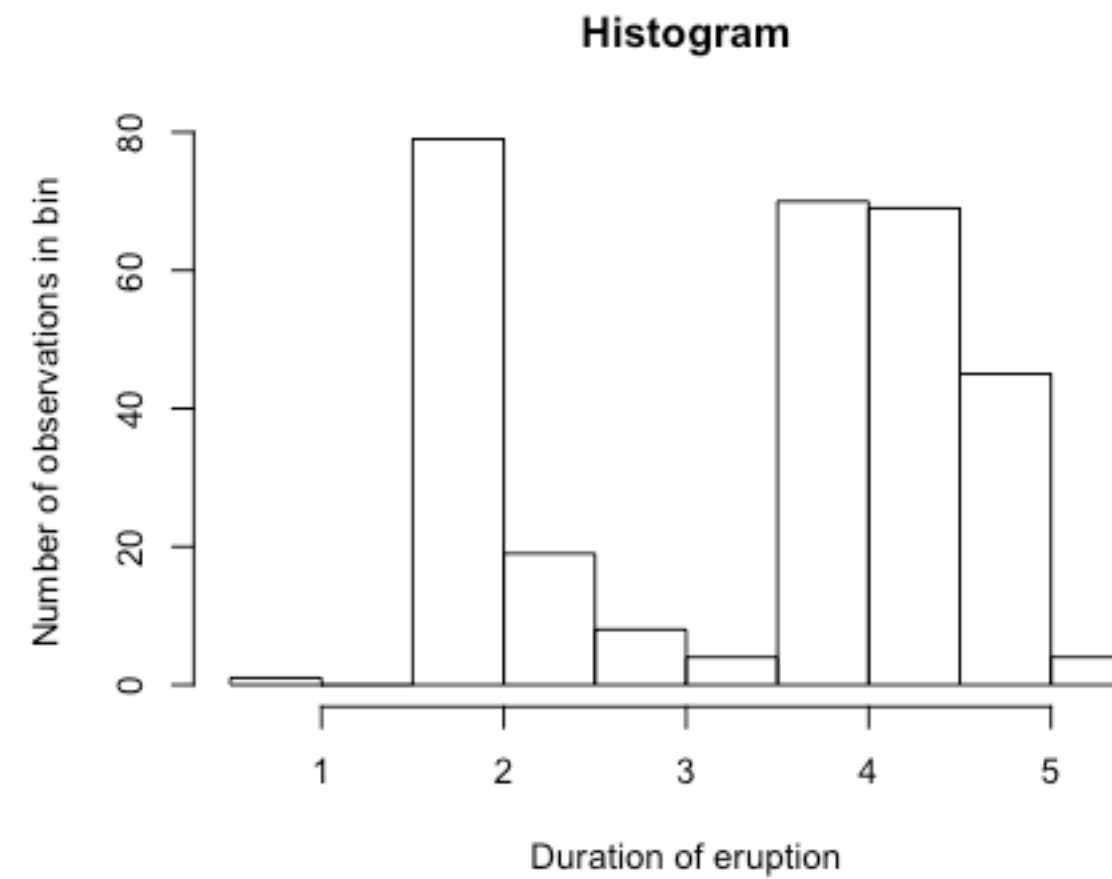
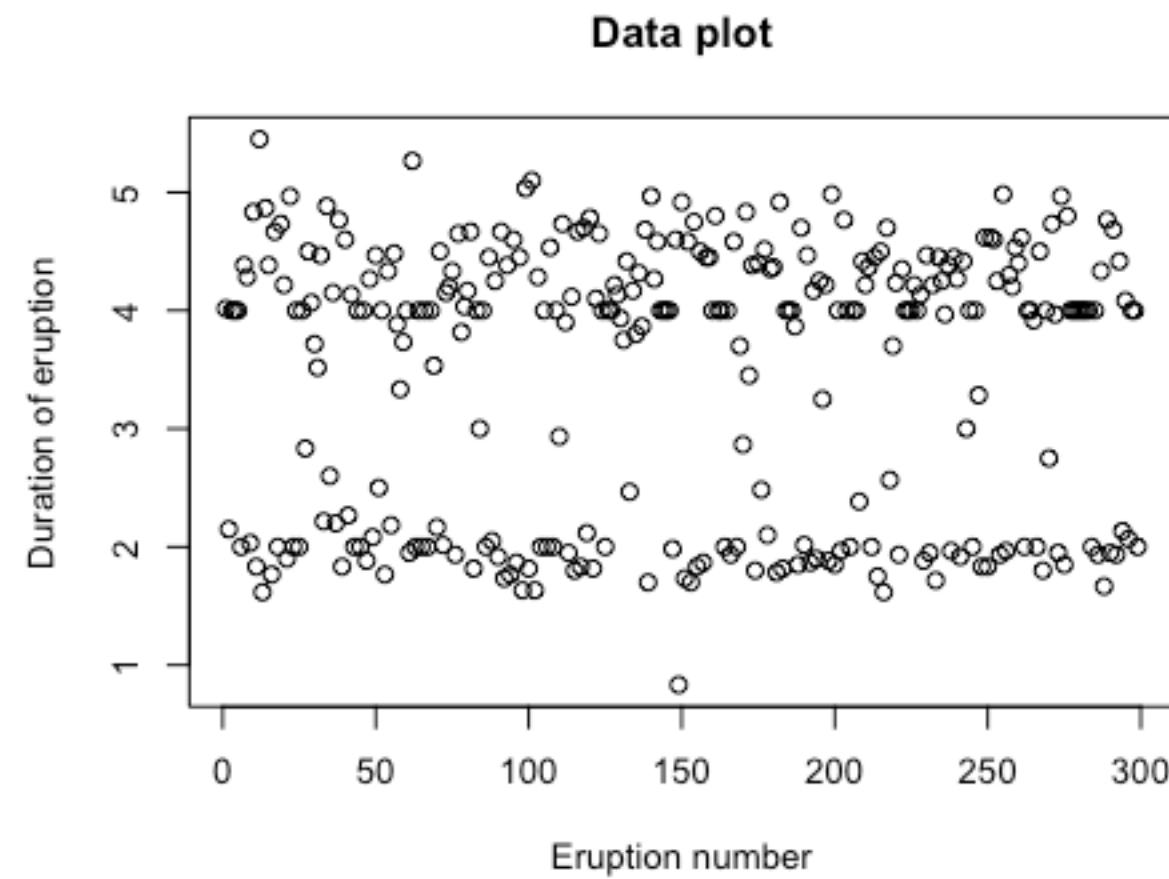
# What do we expect to see?



# Useful characterization tools in base R graphics



# Useful tools even when data are not Gaussian





DATA VISUALIZATION IN R

**Let's practice!**

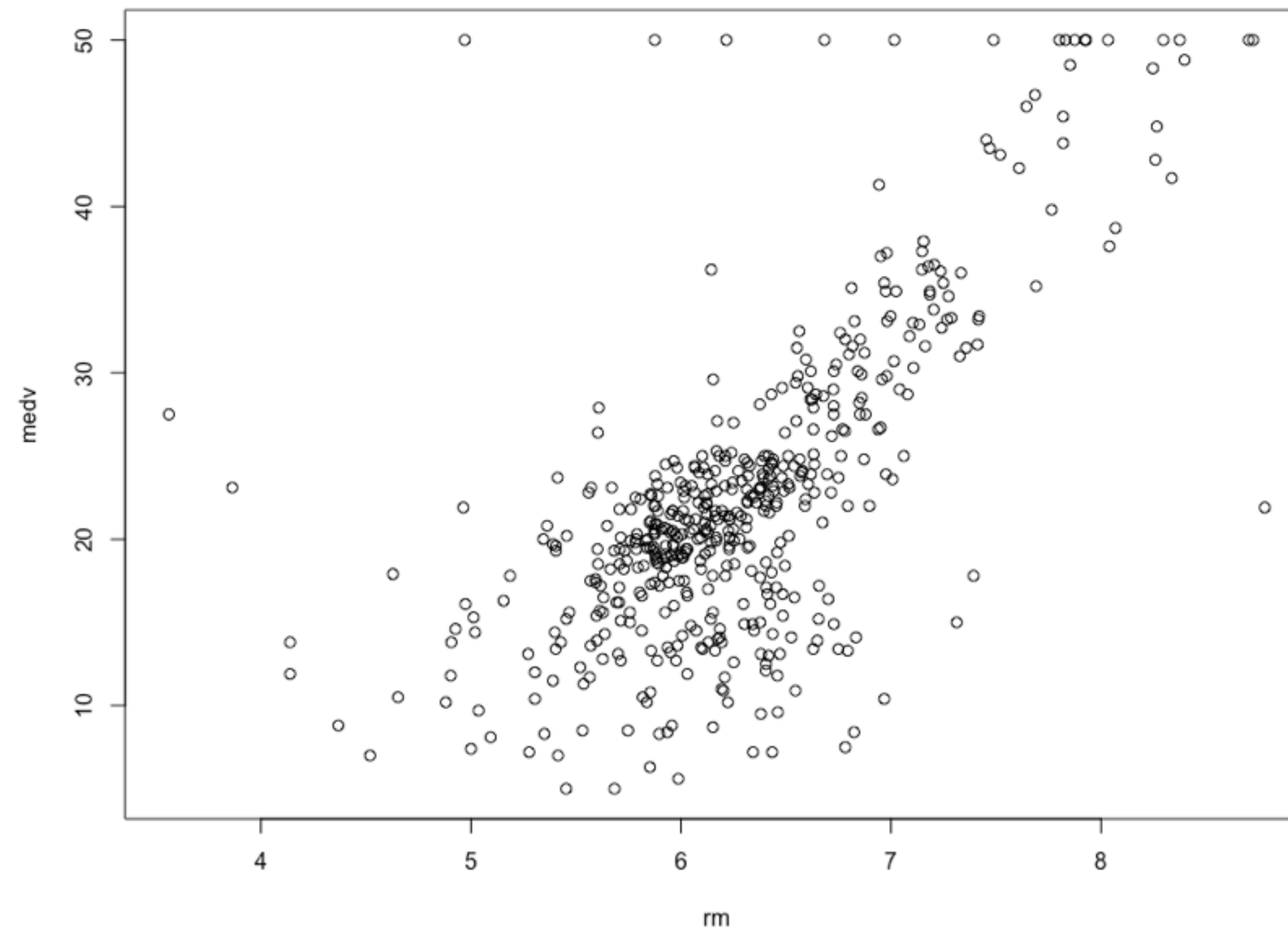


DATA VISUALIZATION IN R

# **Visualizing relations between two variables**

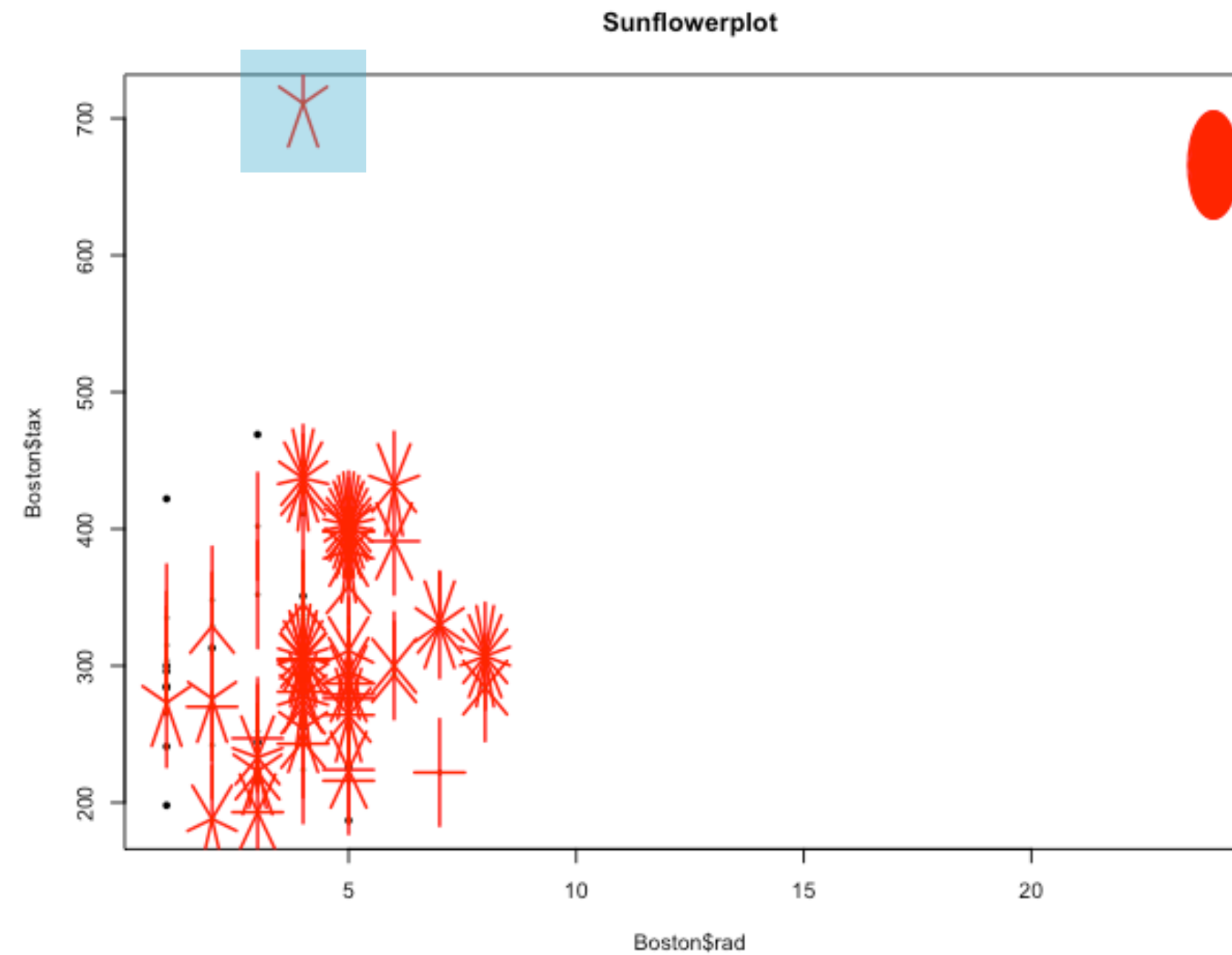
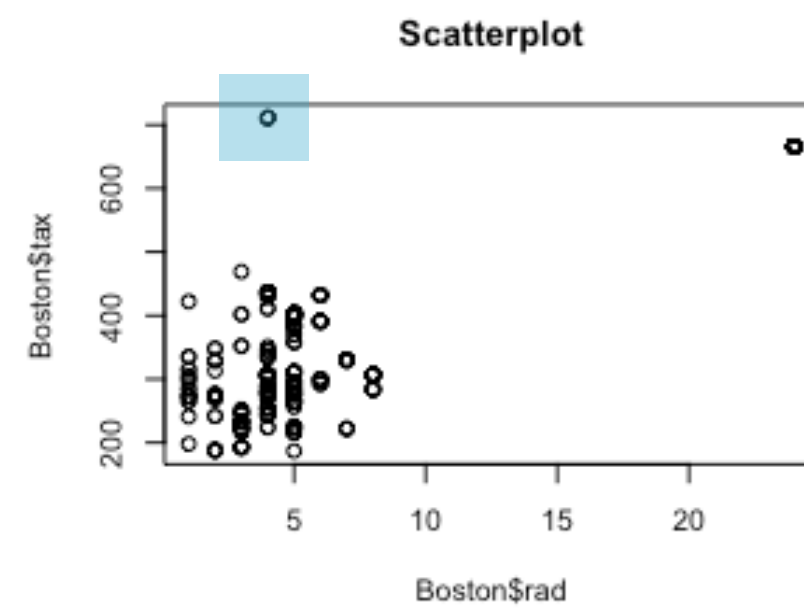
# Scatterplots

```
> library(MASS)
> plot(medv ~ rm, data = Boston)
```





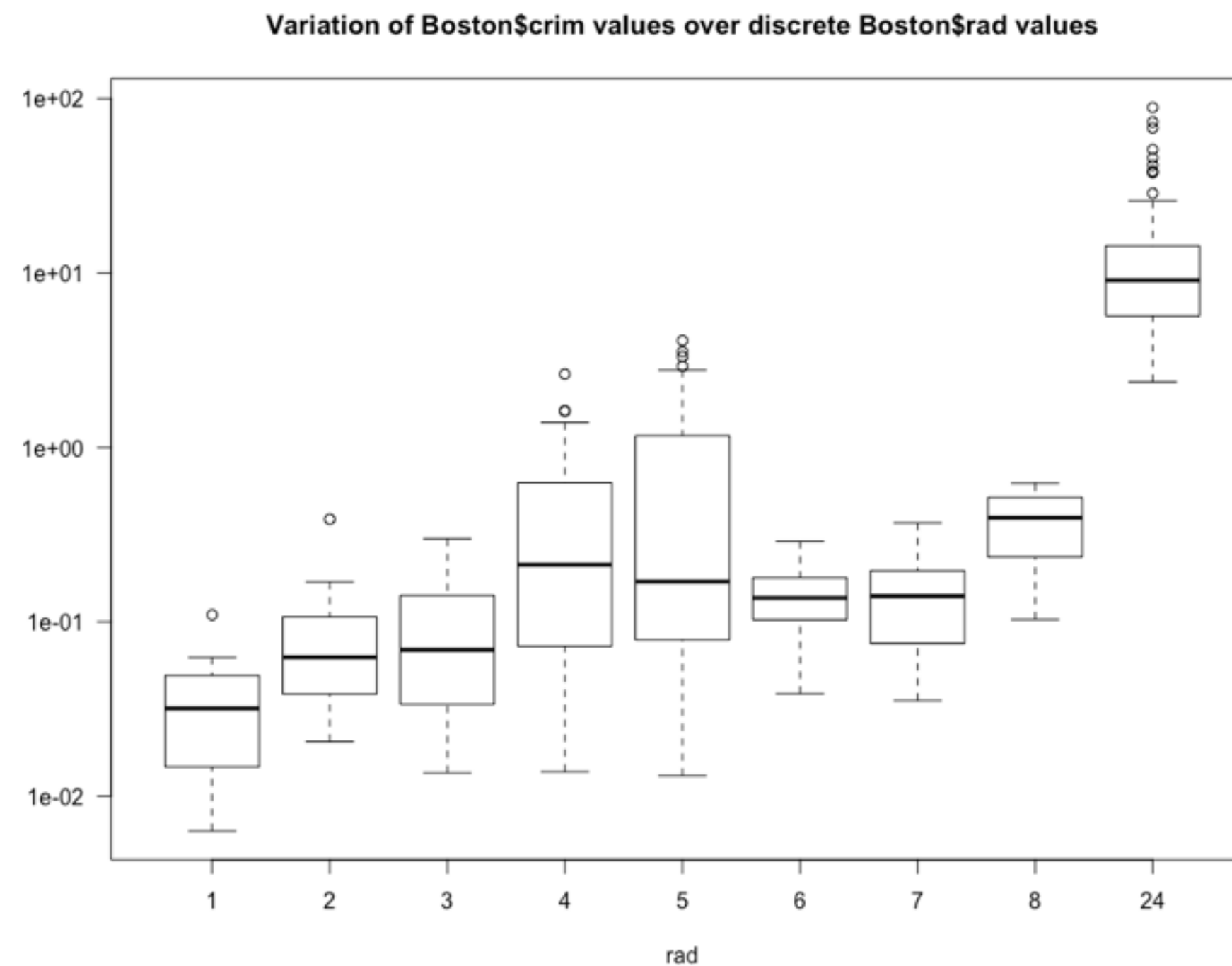
# Sunflowerplots





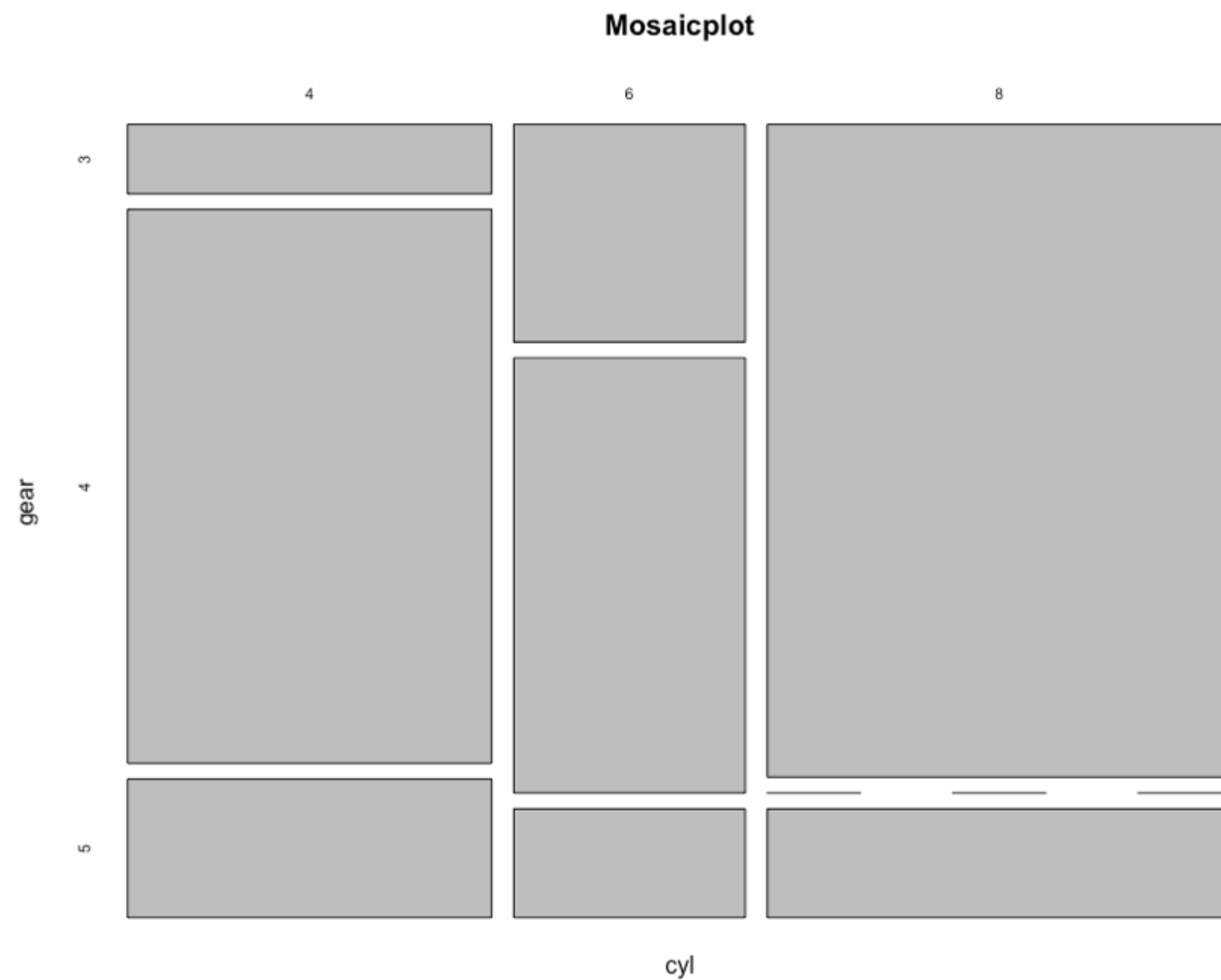
# Boxplots

```
> library(MASS)
> boxplot(crim ~ rad, data = Boston, log = "y", las = 1,
          xlab = "rad")
> title("Variation of Boston$crim values over discrete
        Boston$rad values")
```



# Mosaic plots

```
> mosaicplot(cyl ~ gear, data = mtcars, main = "Mosaicplot")
```





DATA VISUALIZATION IN R

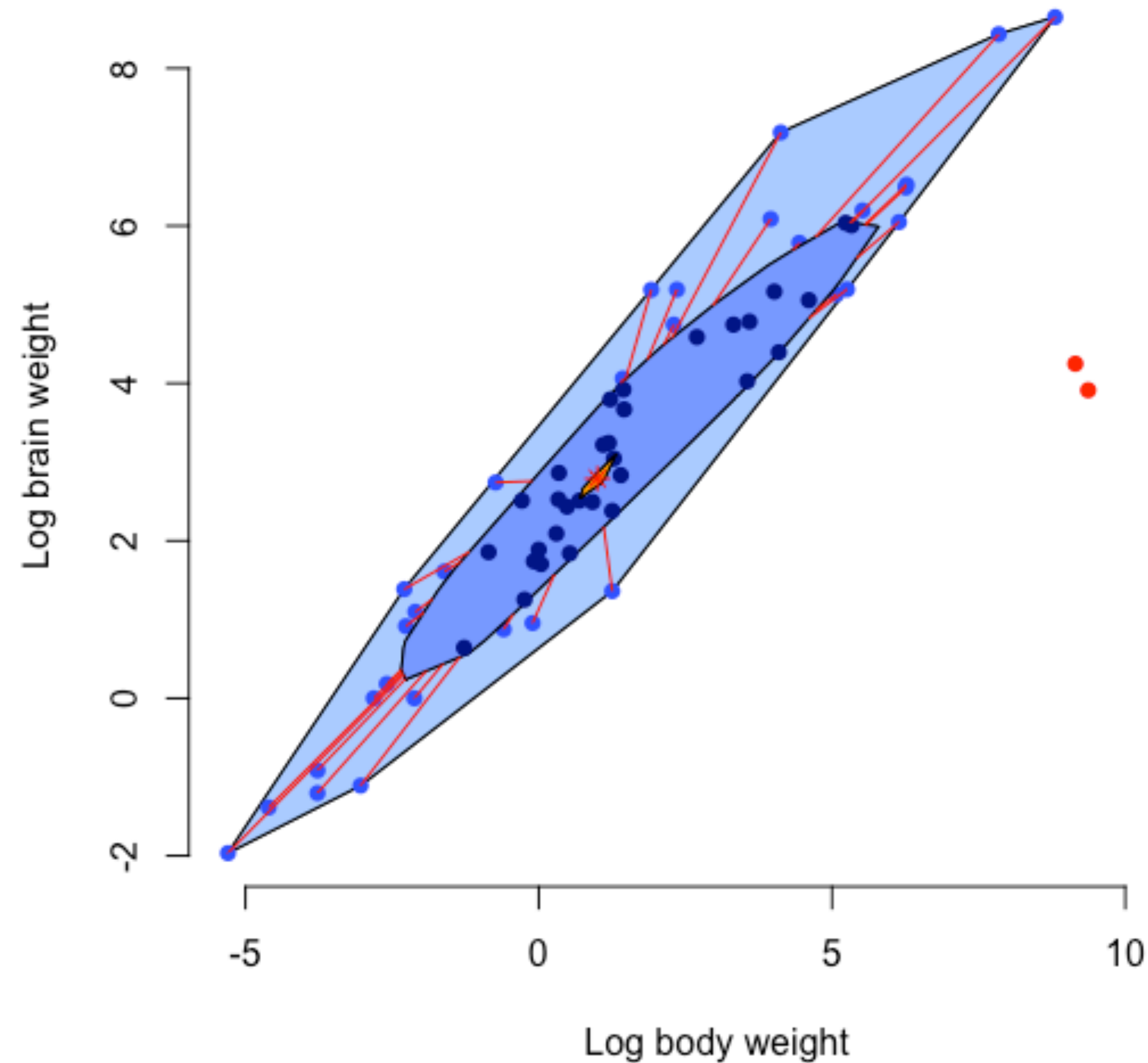
**Let's practice!**



DATA VISUALIZATION IN R

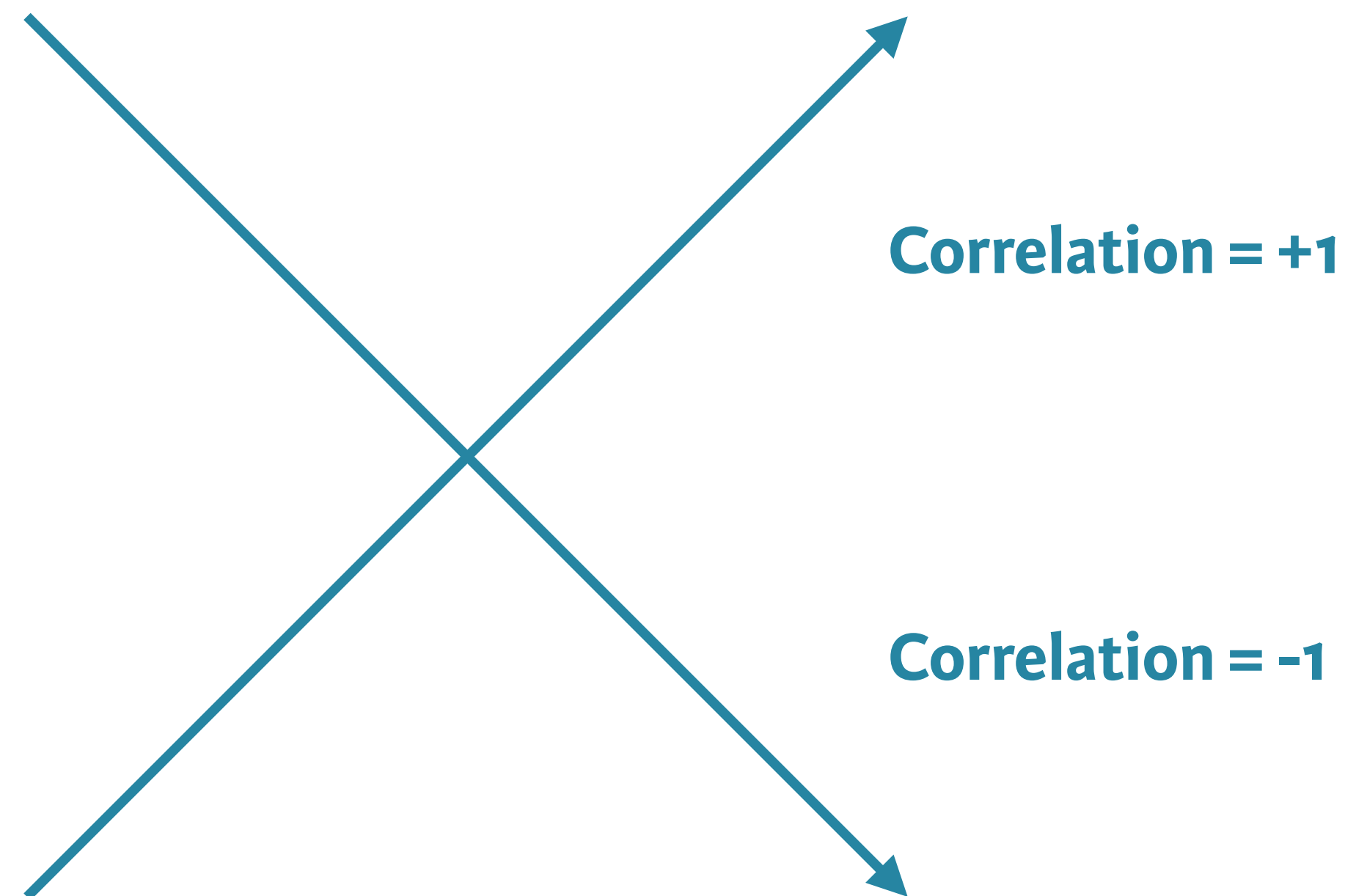
# **Showing more complex relationships**

# Bagplots: two-dimensional boxplots



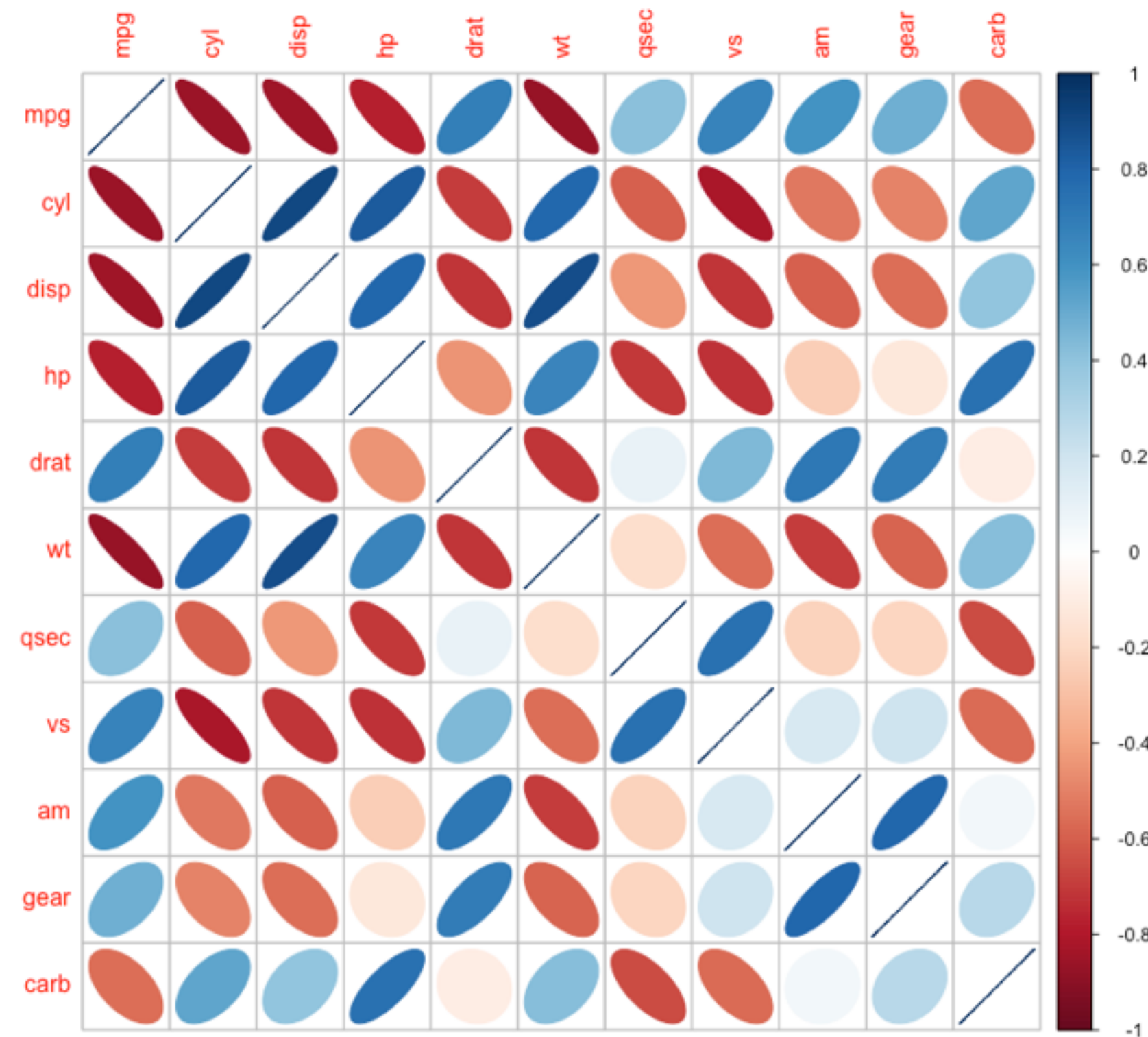
# Correlation coefficient

- Relationship between two numerical variables
- Number between -1 and +1



# Correlation plots

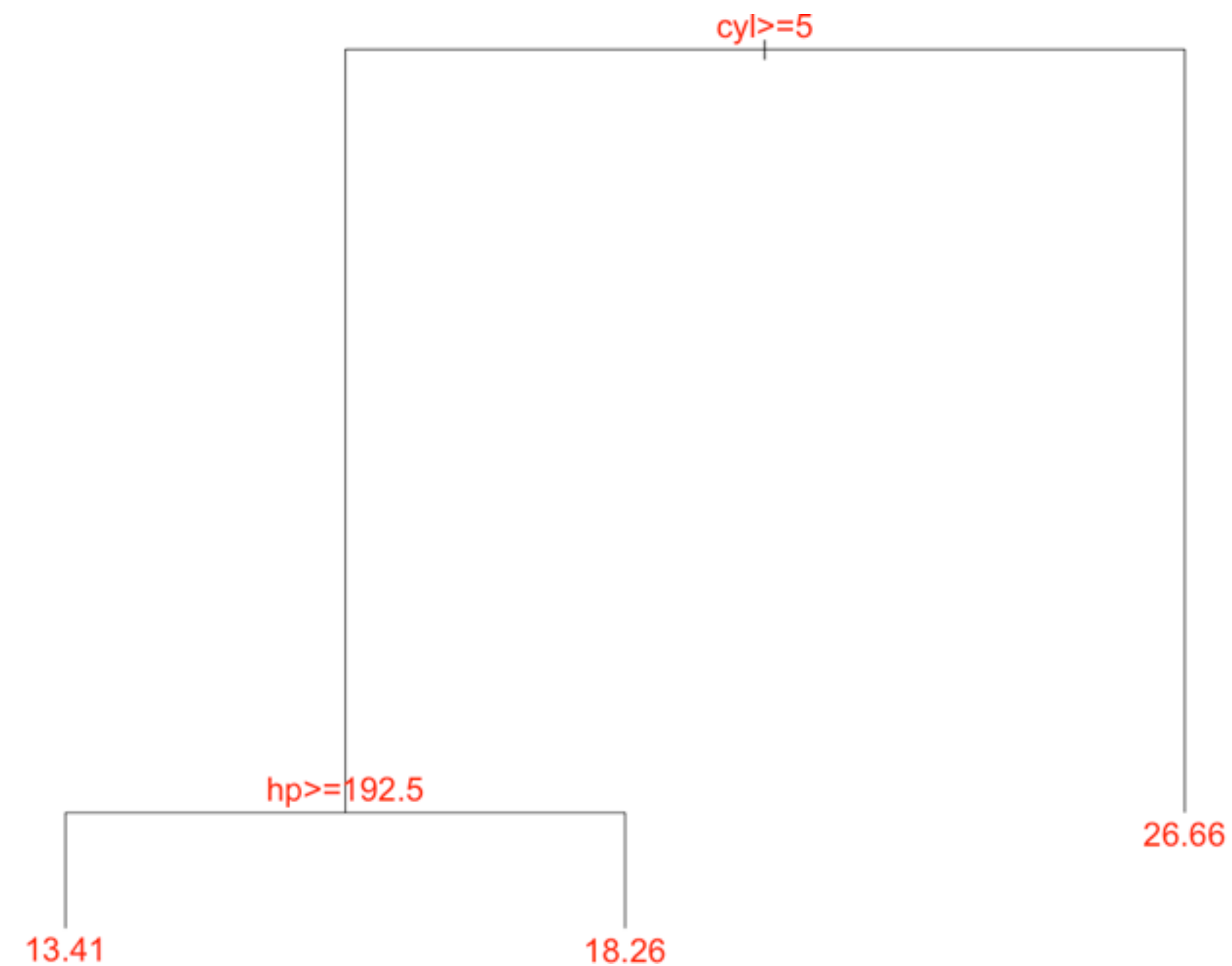
```
> mtCor <- cor(mtcars)
> library(corrplot)
> corrplot(mtCor, method = "ellipse")
```





# Displaying decision tree models

```
> library(rpart)
> treeModel <- rpart(mpg ~ ., data = mtcars)
> plot(treeModel)
> text(treeModel, cex = 1.6, col = "red", xpd = TRUE)
```





DATA VISUALIZATION IN R

**Let's practice!**