# Coursera Statistical Inference Project Part 2

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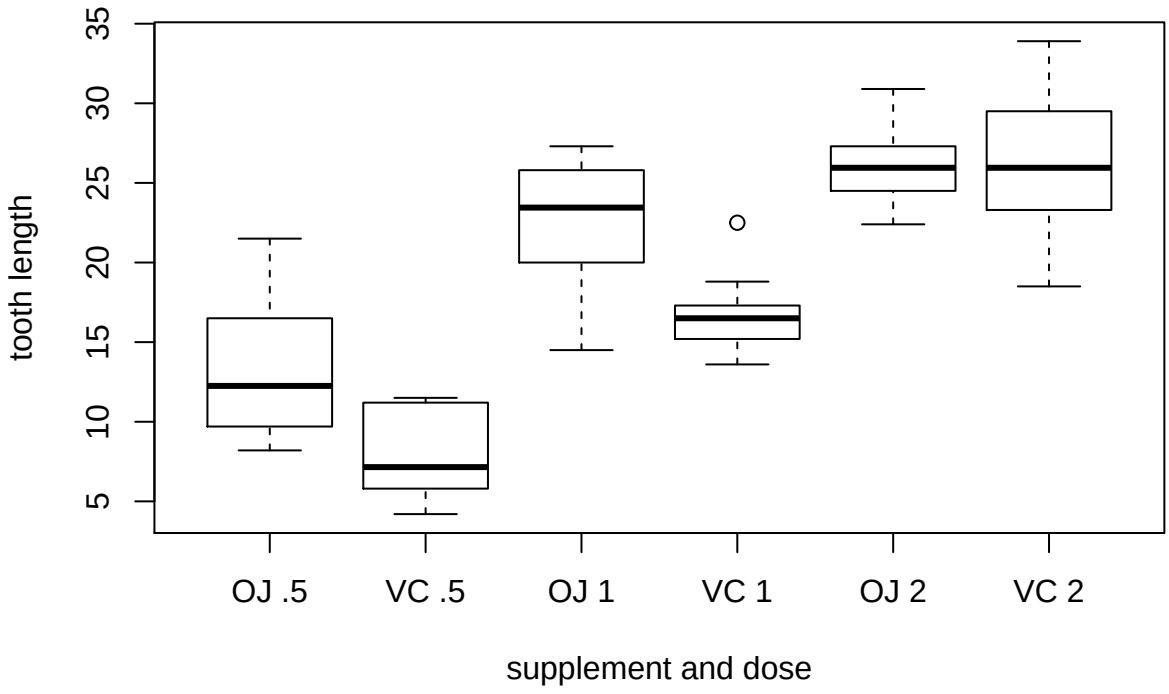
## Problem Statement

Analyze the ToothGrowth data in the R datasets package.

### Question 1

Load the ToothGrowth data and perform some basic exploratory data analyses

```
##    len supp dose
## 1  4.2   VC  0.5
## 2 11.5   VC  0.5
## 3  7.3   VC  0.5
## 4  5.8   VC  0.5
## 5  6.4   VC  0.5
## 6 10.0   VC  0.5
```



### Question 2

Provide a basic summary of the data.

```
summary(ToothGrowth[ToothGrowth$supp == "OJ",])
```

```
##       len       supp         dose
##  Min.   : 8.2   OJ:30   Min.   :0.50
##  1st Qu.:15.5   VC: 0   1st Qu.:0.50
##  Median :22.7           Median :1.00
##  Mean   :20.7           Mean   :1.17
##  3rd Qu.:25.7           3rd Qu.:2.00
##  Max.   :30.9           Max.   :2.00
```

```
summary(ToothGrowth[ToothGrowth$supp == "VC",])
```

```
##       len       supp         dose
##  Min.   : 4.2   OJ: 0   Min.   :0.50
##  1st Qu.:11.2   VC:30   1st Qu.:0.50
##  Median :16.5           Median :1.00
##  Mean   :17.0           Mean   :1.17
##  3rd Qu.:23.1           3rd Qu.:2.00
##  Max.   :33.9           Max.   :2.00
```

### Question 3

Use confidence intervals and hypothesis tests to compare tooth growth by supp and dose. (Use the techniques from class even if there's other approaches worth considering)

```
##     lower upper
## .5  1.719 8.781
## 1   2.802 9.058
## 2  -3.798 3.638
```

### Question 4

State your conclusions and the assumptions needed for your conclusions.

Increased dosages increases tooth length. A 2 mg dosage yields simliar mean for each type of supplement.