Tooth growth statistical inference

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Loading data

Load the ToothGrowth data and perform some basic exploratory data analyses

```
library(datasets)
library(ggplot2)
data(ToothGrowth)
```

Basic summary of the data

Here is a fragment of data that this study is built on:

```
head(ToothGrowth)
```

```
##    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
```

Here is some summary of this dataset:

```
summary(ToothGrowth)
```

```
##       len        supp         dose
##  Min.   : 4.20   OJ:30   Min.   :0.500
##  1st Qu.:13.07   VC:30   1st Qu.:0.500
##  Median :19.25           Median :1.000
##  Mean   :18.81           Mean   :1.167
##  3rd Qu.:25.27           3rd Qu.:2.000
##  Max.   :33.90           Max.   :2.000
```

In this studdy I will analyze the varriables *supp* and *dose* that have following values:

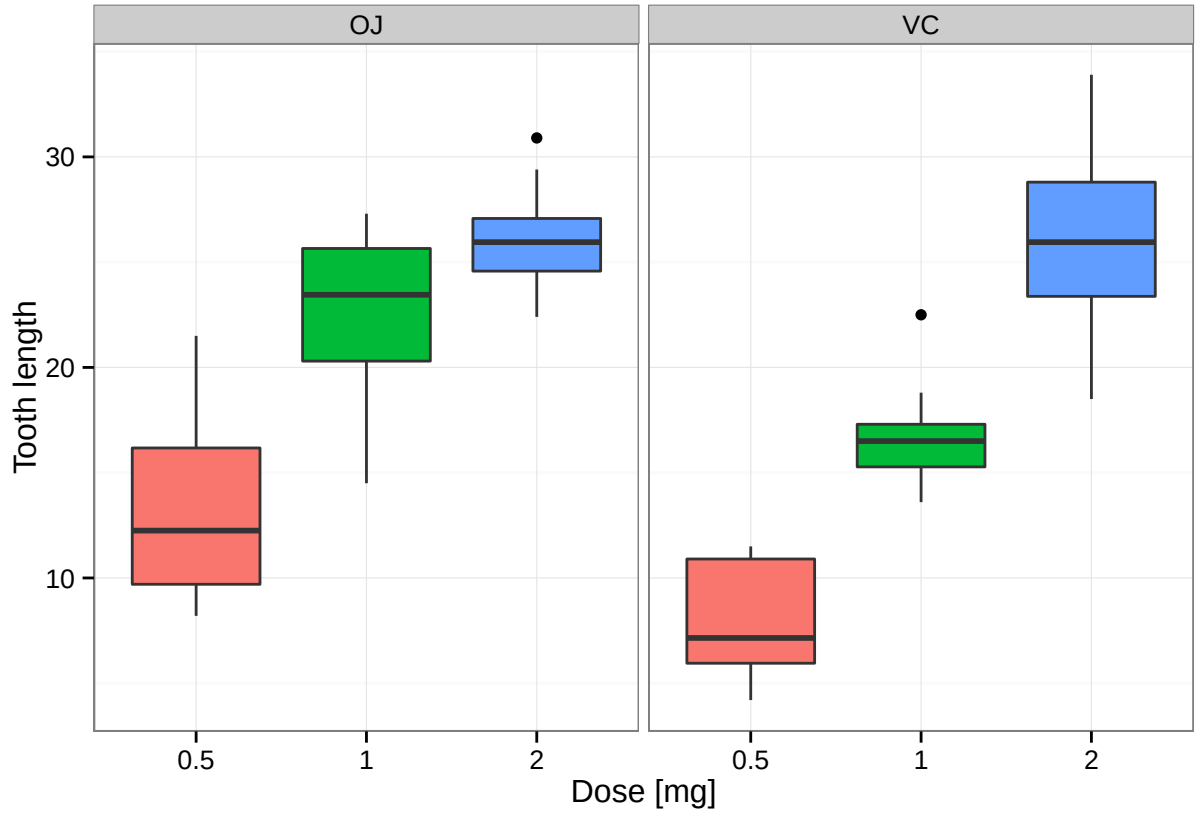
```
table(ToothGrowth$supp, ToothGrowth$dose)
```

```
##
##      0.5  1  2
##   OJ  10 10 10
##   VC  10 10 10
```

Exploratory data analysis

Some criteria that you will be evaluated on Did you perform an exploratory data analysis of at least a single plot or table highlighting basic features of the data?

```
ggplot(ToothGrowth,aes(x=factor(dose),y=len,fill=factor(dose)))+geom_boxplot()+theme_bw() +facet_wrap(~
```



Assumptions

Did the student describe the assumptions needed for their conclusions?

Confidence intervals and Hypothesis testing

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

Did the student perform some relevant confidence intervals and/or tests?

Conclusions

State your conclusions and the assumptions needed for your conclusions. Were the results of the tests and/or intervals interpreted in the context of the problem correctly?