# Project1_2

TWW

2024-05-04

```
#Tooth Growth Analysis
#Data Summary
#Let's load the ToothGrowth data and perform some basic exploratory data analysis:

data(ToothGrowth)
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
```

```
#Confidence Intervals and Hypothesis Tests
#We can use confidence intervals and hypothesis tests to compare tooth growth by supplement type (supp)

#Compare tooth growth by supplement type
t.test(len ~ supp, data = ToothGrowth)
```

```
##
##  Welch Two Sample t-test
##
## data:  len by supp
## t = 1.9153, df = 55.309, p-value = 0.06063
## alternative hypothesis: true difference in means between group OJ and group VC is not equal to 0
## 95 percent confidence interval:
##  -0.1710156  7.5710156
## sample estimates:
## mean in group OJ mean in group VC
##         20.66333         16.96333
```

```
#Compare tooth growth by dose
anova(lm(len ~ dose, data = ToothGrowth))
```

```
## Analysis of Variance Table
##
## Response: len
##           Df Sum Sq Mean Sq F value    Pr(>F)
## dose       1 2224.3 2224.30  105.06 1.233e-14 ***
## Residuals 58 1227.9   21.17
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```r
#Conclusions and Assumptions
#Based on the results of the confidence intervals and hypothesis tests, we can draw conclusions about t
```