Basic Inferential Data Analysis

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4/9/2018

Overview

This is the second part of the course project. In this paert, we conducted t test using ToothGroth data set. ## Part 2: Basic Inferential Data Analysis

Loading the data set.

```
library(datasets)
data("ToothGrowth")
```

Summary of the data

Notice that the variable dose is the quantity of dose which ranges from 0.5 to 2. There is the same number of subjects with respect to the supp variable (OJ/VC).

```
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
```

T test two sided test

```
VC <- subset(ToothGrowth, supp == "VC")
OJ <- subset(ToothGrowth, supp == "OJ")
```

```
t.test(VC$dose, OJ$dose, paired = FALSE, var.equal = FALSE, alternative = "two.sided")
```

```
##
##  Welch Two Sample t-test
##
## data:  VC$dose and OJ$dose
## t = 0, df = 58, p-value = 1
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -0.3278171  0.3278171
## sample estimates:
## mean of x mean of y
##  1.166667  1.166667
```

```
t.test(VC$len, OJ$len, paired = FALSE, var.equal = FALSE, alternative = "two.sided")
```

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

As a result of the analysis of the experiment data, there is no diference of tooth length by the supplement type (orange juice vs ascorbic acid). On the other hand, it is quite clear that there would not be difference by levels of Vitamin C (variable dose).For more information, please see R help page (“The Effect of Vitamin C on Tooth Growth in Guinea Pigs”: http://www.is.titech.ac.jp/~mase/mase/html.jp/temp/ToothGrowth.jp.html).