STAT 400 - Discussion 5

Colin Gibbons-Fly

Import Datasets Library

```
library(datasets)
data()
```

Load Iris Dataset

```
data("iris")
head(iris)
```

```
  Sepal.Length Sepal.Width Petal.Length Petal.Width Species
1          5.1         3.5          1.4         0.2  setosa
2          4.9         3.0          1.4         0.2  setosa
3          4.7         3.2          1.3         0.2  setosa
4          4.6         3.1          1.5         0.2  setosa
5          5.0         3.6          1.4         0.2  setosa
6          5.4         3.9          1.7         0.4  setosa
```

#Confidence Interval - By hand

```
n <- length(iris$Sepal.Length)
mean <- mean(iris$Sepal.Length)
conf_level <- 0.95
z <- qt((1 + conf_level)/2, df=n-1)
se <- sd(iris$Sepal.Length)/sqrt(n)
ci <- z*se

cat("95% Confidence Interval:", mean-ci, mean+ci)
```

```
95% Confidence Interval: 5.709732 5.976934
```

#Confidence Interval - Function

```r
t_test_result <- t.test(iris$Sepal.Length)
cat("95% Confidence Interval:", t_test_result$conf.int, "\n")
```

```
95% Confidence Interval: 5.709732 5.976934
```