Stephen Hanna

109097796

AMS 394

3.1:

```
stocks <-
read.table("http://www.ams.sunysb.edu/~xing/statfinbook/_BookData/Chap03/d_logret_6stocks.txt",
header=T)
```

(1)

```
> t.test(stocks[,5],mu = 0)

        One Sample t-test


data:  stocks[, 5]
t = 0.18782, df = 63, p-value = 0.8516
alternative hypothesis: true mean is not equal to 0
95 percent confidence interval:
 -0.006792534  0.008201838
sample estimates:
   mean of x
0.0007046519
```

(2)

```
> wilcox.test(stocks[,5],mu = 0)


        Wilcoxon signed rank test with continuity correction


data:  stocks[, 5]
V = 1153, p-value = 0.3225
alternative hypothesis: true location is not equal to 0
```

(3)

```
> t.test(stocks[,2],stocks[,5])

        Welch Two Sample t-test

data:  stocks[, 2] and stocks[, 5]
t = -1.0028, df = 118.21, p-value = 0.318
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -0.014118044  0.004626111
sample estimates:
   mean of x     mean of y
-0.0040413145  0.0007046519
```

(4)

```
> wilcox.test(stocks[,2],stocks[,5],mu = 0)

        Wilcoxon rank sum test with continuity correction

data:  stocks[, 2] and stocks[, 5]
W = 1757, p-value = 0.1662
alternative hypothesis: true location shift is not equal to 0
```

(5)

```
> var.test(stocks[,2],stocks[,5])

        F test to compare two variances

data:  stocks[, 2] and stocks[, 5]
F = 0.5914, num df = 63, denom df = 63, p-value = 0.03896
alternative hypothesis: true ratio of variances is not equal to 1
```

95 percent confidence interval:

0.3592924 0.9734621

sample estimates:

ratio of variances

0.591403

3.2:

> rats = matrix(c(152,157,179,182,176,149,384,369,354,375,366,423),nrow = 6,ncol = 2)

> wilcox.test(rats[,1],rats[,2],mu = 0,conf.intervl = .95)

Wilcoxon rank sum test

data: rats[, 1] and rats[, 2]

W = 0, p-value = 0.002165

alternative hypothesis: true location shift is not equal to 0

Response: The sample size is small, so a non parametric test should be used. Since the p-value is less than .05, we should conclude that rats exposed to a 5 degree Celsius environment have a higher mean blood pressure than rats exposed to a 26 degree Celsius environment.

3.3: