HW2

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Q1

```
require(tidyr);
```

```
## Loading required package: tidyr
```

Formatting Data

```
library(stringr)
nutrient = read.delim("nutrient.txt", header=FALSE)
df <- data.frame(nutrient)
df <- apply(df, 2, FUN=str_squish)
df <- data.frame(df)
cols = c('id','1', '2','3','4','5');
df <- separate(data=df, V1, cols, sep=' ', convert = TRUE)
df <- subset(df, select = -c(id))
head(df)
```

```
##         1      2       3      4       5
## 1  522.29 10.188  42.561 349.13  54.141
## 2  343.32  4.113  67.793 266.99  24.839
## 3  858.26 13.741  59.933 667.90 155.455
## 4  575.98 13.245  42.215 792.23 224.688
## 5 1927.50 18.919 111.316 740.27  80.961
## 6  607.58  6.800  45.785 165.68  13.050
```

```
apply(df, 2, mean)
```

```
##         1         2         3         4         5
## 624.04925  11.12990  65.80344 839.63535  78.92845
```

```
apply(df, 2, sd)
```

```
##          1          2          3          4          5
##  397.27754    5.98419   30.57576 1633.53983   73.59527
```

Question #2

Calcium, p is < 0.05, so we reject the hypothesis that the population mean calcium intake is not equal to 1000

```
t.test(df[1], mu = 1000, alternative = "two.sided")
```

```
##
##  One Sample t-test
##
## data:  df[1]
## t = -25.69, df = 736, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 1000
## 95 percent confidence interval:
##  595.3201 652.7784
## sample estimates:
## mean of x
##  624.0493
```

Iron, p is < 0.05, so we reject the hypothesis that the population mean iron intake is not equal to 15

```
t.test(df[2], mu = 15, alternative = "two.sided")
```

```
##
##  One Sample t-test
##
## data:  df[2]
## t = -17.557, df = 736, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 15
## 95 percent confidence interval:
##  10.69715 11.56265
## sample estimates:
## mean of x
##   11.1299
```

Protein, p is < 0.05, so we reject the hypothesis that the population mean iron intake is not equal to 15

```
t.test(df[3], mu = 60, alternative = "two.sided")
```

```
##
##  One Sample t-test
##
## data:  df[3]
## t = 5.1528, df = 736, p-value = 3.3e-07
## alternative hypothesis: true mean is not equal to 60
## 95 percent confidence interval:
##  63.59235 68.01453
## sample estimates:
## mean of x
##  65.80344
```

Vitamin A, p is > 0.05, so we accept the hypothesis that the population mean vitamin a intake not equal

```
t.test(df[4], mu = 800, alternative = "two.sided")
```

```
##
##  One Sample t-test
##
## data:  df[4]
## t = 0.6587, df = 736, p-value = 0.5103
## alternative hypothesis: true mean is not equal to 800
## 95 percent confidence interval:
##  721.5057 957.7650
## sample estimates:
## mean of x
##  839.6353
```

Vitamin C, p is > 0.05, so we accept the hypothesis that the population mean vitamin c intake not equal

```
t.test(df[5], mu = 75, alternative = "two.sided")
```

```
##
##  One Sample t-test
##
## data:  df[5]
## t = 1.4491, df = 736, p-value = 0.1477
## alternative hypothesis: true mean is not equal to 75
## 95 percent confidence interval:
##  73.6064 84.2505
## sample estimates:
## mean of x
##  78.92845
```

Question 3

US women do not meet the recommended daily nutrient intake amount for Calcium, Iron, Protein, but they do meet it for Vitamin A and C. US women should eat more calcium and iron, but less protein.