Assignment 1

read and view data in R

```
data = read.csv("mosqtemp.csv")
head(data)
```

```
##   Year SppRichness      Temp     Urban   Precip       DDT
## 1 1938    3.000000 11.263889 0.1900950 4.220000 0.0000000
## 2 1939    2.700000 11.319444 0.1937250 3.473333 0.0000000
## 3 1940    2.400000  9.449074 0.1973550 3.803333 0.1620583
## 4 1941    1.333333 11.097222 0.2052324 3.174167 0.3980469
## 5 1942    2.750000 11.263889 0.2131098 4.269167 0.6340355
## 6 1943    2.400000 10.564815 0.2209872 3.246667 0.8700241
```

The first column is integer and last 5 columns are numerical.

The dimension of the dataset is 75x6. This means the dataset has 6 colums and 75 rows.

```
data[ , 'Temp' ]
```

Selecting a column using square brackets

```
##  [1] 11.263889 11.319444  9.449074 11.097222 11.263889 10.564815 10.902778
##  [8] 10.967593 11.097222 11.421296 10.152778 12.606481 10.907407 11.828704
## [15] 11.819444 12.513889 12.000000 11.939815 10.453704 11.842593 10.925926
## [22] 11.509259 11.416667 11.157407 10.944444 10.546296 11.175926 11.212963
## [29] 11.236111 10.782407 11.152778 11.305556 11.175926 11.546296 11.055556
## [36] 12.027778 11.569444 11.921296 11.782407 10.773148 10.430556 11.074074
## [43] 11.814815 11.046296 10.763889 12.212963 11.236111 11.912037 11.731481
## [50] 11.486111 11.333333 11.439815 11.643519 12.865741 11.078704 11.439815
## [57] 11.111111 12.412037 10.768519 11.569444 12.712963 12.824074 11.833333
## [64] 11.625000 13.425926 11.027778 11.773148 12.226852 12.597222 12.689815
## [71] 12.120370 11.467593 13.375000 12.333333 13.601852
```

```
data[ data$Temp > 11 , 'Temp']
```

Selecting a column using logical statements

```
##  [1] 11.26389 11.31944 11.09722 11.26389 11.09722 11.42130 12.60648 11.82870
##  [9] 11.81944 12.51389 12.00000 11.93981 11.84259 11.50926 11.41667 11.15741
## [17] 11.17593 11.21296 11.23611 11.15278 11.30556 11.17593 11.54630 11.05556
## [25] 12.02778 11.56944 11.92130 11.78241 11.07407 11.81481 11.04630 12.21296
## [33] 11.23611 11.91204 11.73148 11.48611 11.33333 11.43981 11.64352 12.86574
## [41] 11.07870 11.43981 11.11111 12.41204 11.56944 12.71296 12.82407 11.83333
## [49] 11.62500 13.42593 11.02778 11.77315 12.22685 12.59722 12.68981 12.12037
## [57] 11.46759 13.37500 12.33333 13.60185
```

```
summary(data)
```

```
##       Year       SppRichness         Temp            Urban
##  Min.   :1938   Min.   :0.000   Min.   : 9.449   Min.   :0.1901
##  1st Qu.:1956   1st Qu.:0.225   1st Qu.:11.076   1st Qu.:0.5301
##  Median :1975   Median :1.000   Median :11.440   Median :1.2046
##  Mean   :1975   Mean   :1.149   Mean   :11.542   Mean   :0.9814
##  3rd Qu.:1994   3rd Qu.:1.775   3rd Qu.:11.917   3rd Qu.:1.3560
##  Max.   :2012   Max.   :3.500   Max.   :13.602   Max.   :1.4933
##      Precip           DDT
##  Min.   :2.333   Min.   :0.0000
##  1st Qu.:3.434   1st Qu.:0.3422
##  Median :3.803   Median :1.0484
##  Mean   :3.856   Mean   :1.1790
##  3rd Qu.:4.241   3rd Qu.:1.9948
##  Max.   :5.531   Max.   :2.7515
```

Summery of my data gives me a simple statistics of each column.The statistics includes Max, Median, Mean, Min, 1st Quartile and 3rd quartile of the colums.

```
data$double_Urban = data$Urban * 2
head(data)
```

Do a calculations with your data where you add a column

```
##   Year SppRichness      Temp     Urban   Precip       DDT double_Urban
## 1 1938    3.000000 11.263889 0.1900950 4.220000 0.0000000    0.3801900
## 2 1939    2.700000 11.319444 0.1937250 3.473333 0.0000000    0.3874500
## 3 1940    2.400000  9.449074 0.1973550 3.803333 0.1620583    0.3947100
## 4 1941    1.333333 11.097222 0.2052324 3.174167 0.3980469    0.4104648
## 5 1942    2.750000 11.263889 0.2131098 4.269167 0.6340355    0.4262196
## 6 1943    2.400000 10.564815 0.2209872 3.246667 0.8700241    0.4419744
```

```
aggregate(Precip ~ SppRichness, data = data, FUN = mean)
```

```
##    SppRichness   Precip
## 1   0.00000000 3.490298
## 2   0.08333333 4.793333
## 3   0.16666667 3.463333
## 4   0.20000000 4.109444
```

```
## 5   0.25000000 4.662916
## 6   0.33333333 3.653333
## 7   0.40000000 3.584167
## 8   0.50000000 3.922500
## 9   0.60000000 3.806666
## 10  0.80000000 3.396250
## 11  0.83333333 3.763889
## 12  1.00000000 3.692083
## 13  1.16666667 4.385833
## 14  1.20000000 3.923334
## 15  1.25000000 4.247916
## 16  1.33333333 3.174167
## 17  1.50000000 3.902917
## 18  1.60000000 4.201666
## 19  1.75000000 4.093958
## 20  1.80000000 4.060833
## 21  2.00000000 3.897292
## 22  2.20000000 4.299167
## 23  2.25000000 4.370000
## 24  2.40000000 4.010000
## 25  2.60000000 3.653333
## 26  2.70000000 3.473333
## 27  2.75000000 4.073889
## 28  3.00000000 4.220000
## 29  3.50000000 4.375000
```

```
aggregate(Precip ~ SppRichness, data = data, FUN = sum)
```

```
##    SppRichness    Precip
## 1   0.00000000 48.864166
## 2   0.08333333  4.793333
## 3   0.16666667  3.463333
## 4   0.20000000 12.328333
## 5   0.25000000  9.325833
## 6   0.33333333  3.653333
## 7   0.40000000 10.752500
## 8   0.50000000  3.922500
## 9   0.60000000  7.613333
## 10  0.80000000  6.792500
## 11  0.83333333 11.291666
## 12  1.00000000 22.152500
## 13  1.16666667  8.771666
## 14  1.20000000  7.846667
## 15  1.25000000  8.495833
## 16  1.33333333  3.174167
## 17  1.50000000 15.611667
## 18  1.60000000  8.403333
## 19  1.75000000 16.375833
## 20  1.80000000  4.060833
## 21  2.00000000 15.589167
## 22  2.20000000  4.299167
## 23  2.25000000  4.370000
## 24  2.40000000 12.030000
## 25  2.60000000 10.960000
```

```
## 26  2.70000000  3.473333
## 27  2.75000000 12.221667
## 28  3.00000000  4.220000
## 29  3.50000000  4.375000
```

```
aggregate(Precip ~ SppRichness, data = data, FUN = max)
```

```
##    SppRichness   Precip
## 1   0.00000000 4.280000
## 2   0.08333333 4.793333
## 3   0.16666667 3.463333
## 4   0.20000000 4.486667
## 5   0.25000000 4.862500
## 6   0.33333333 3.653333
## 7   0.40000000 4.147500
## 8   0.50000000 3.922500
## 9   0.60000000 3.965000
## 10  0.80000000 3.414167
## 11  0.83333333 4.660000
## 12  1.00000000 4.217500
## 13  1.16666667 5.530833
## 14  1.20000000 4.261667
## 15  1.25000000 5.077500
## 16  1.33333333 3.174167
## 17  1.50000000 4.549167
## 18  1.60000000 4.398333
## 19  1.75000000 4.575000
## 20  1.80000000 4.060833
## 21  2.00000000 4.162500
## 22  2.20000000 4.299167
## 23  2.25000000 4.370000
## 24  2.40000000 4.980000
## 25  2.60000000 3.787500
## 26  2.70000000 3.473333
## 27  2.75000000 4.775833
## 28  3.00000000 4.220000
## 29  3.50000000 4.375000
```

```
aggregate(Precip ~ SppRichness, data = data, FUN = min)
```

```
##    SppRichness   Precip
## 1   0.00000000 2.333333
## 2   0.08333333 4.793333
## 3   0.16666667 3.463333
## 4   0.20000000 3.898333
## 5   0.25000000 4.463333
## 6   0.33333333 3.653333
## 7   0.40000000 2.968333
## 8   0.50000000 3.922500
## 9   0.60000000 3.648333
## 10  0.80000000 3.378333
## 11  0.83333333 3.205833
## 12  1.00000000 3.167500
```

```
## 13  1.16666667 3.240833
## 14  1.20000000 3.585000
## 15  1.25000000 3.418333
## 16  1.33333333 3.174167
## 17  1.50000000 3.644167
## 18  1.60000000 4.005000
## 19  1.75000000 3.621667
## 20  1.80000000 4.060833
## 21  2.00000000 3.617500
## 22  2.20000000 4.299167
## 23  2.25000000 4.370000
## 24  2.40000000 3.246667
## 25  2.60000000 3.426667
## 26  2.70000000 3.473333
## 27  2.75000000 3.176667
## 28  3.00000000 4.220000
## 29  3.50000000 4.375000
```