Bayesian Stats HW2

```r
getwd()
```

```r
setwd("████████████████████████████████████████████████████")
```

Questions: With following data create a .csv file. Call this file Week2Data.csv

```r
# create a data.frame
Week2Data <- data.frame(matrix(c(
  1,1,1,1,
  1,1,2,0,
  1,1,1,1,
  1,1,2,1,
  2,1,1,0,
  2,1,2,0,
  2,1,1,0,
  2,1,2,0,
  3,1,1,1,
  3,1,2,1,
  3,1,1,1,
  3,1,2,1,
  4,1,1,0,
  4,1,2,0,
  4,1,1,1,
  4,1,2,1,
  1,2,1,1,
  1,2,2,0,
  1,2,1,1,
  1,2,2,1,
  2,2,1,0,
  2,2,2,0,
  2,2,1,0,
  2,2,2,0,
  3,2,1,1,
  3,2,2,1,
  3,2,1,1,
  3,2,2,1,
  4,2,1,0,
  4,2,2,0,
  4,2,1,1,
  4,2,2,1), ncol = 4, byrow = TRUE))
colnames(Week2Data) = c("subNum", "cond1", "cond2", "data")
Week2Data
```

```
##    subNum cond1 cond2 data
## 1       1     1     1    1
## 2       1     1     2    0
## 3       1     1     1    1
## 4       1     1     2    1
## 5       2     1     1    0
```

1

```
## 6          2      1      2      0
## 7          2      1      1      0
## 8          2      1      2      0
## 9          3      1      1      1
## 10         3      1      2      1
## 11         3      1      1      1
## 12         3      1      2      1
## 13         4      1      1      0
## 14         4      1      2      0
## 15         4      1      1      1
## 16         4      1      2      1
## 17         1      2      1      1
## 18         1      2      2      0
## 19         1      2      1      1
## 20         1      2      2      1
## 21         2      2      1      0
## 22         2      2      2      0
## 23         2      2      1      0
## 24         2      2      2      0
## 25         3      2      1      1
## 26         3      2      2      1
## 27         3      2      1      1
## 28         3      2      2      1
## 29         4      2      1      0
## 30         4      2      2      0
## 31         4      2      1      1
## 32         4      2      2      1
#
write.csv(Week2Data, file = "Week2Data.csv", row.names = FALSE) #create a .csv file
```
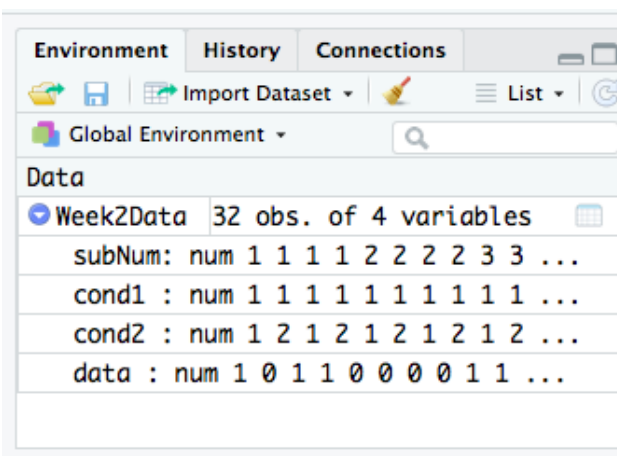
1. Using the read.csv function open Week2Data.csv

```
Week2Data <- read.csv(file = "Week2Data.csv", header = TRUE, sep = ",")
```

2. Click on the blue arrow next to Week2Data:

3. Click on "File View" icon

4. Using the summary() funtion, find the global mean for the data.

```r
summary(Week2Data) # the global mean for data is 0.5625
```

```
##     subNum          cond1          cond2          data
## Min.   :1.00   Min.   :1.0   Min.   :1.0   Min.   :0.0000
## 1st Qu.:1.75   1st Qu.:1.0   1st Qu.:1.0   1st Qu.:0.0000
## Median :2.50   Median :1.5   Median :1.5   Median :1.0000
## Mean   :2.50   Mean   :1.5   Mean   :1.5   Mean   :0.5625
## 3rd Qu.:3.25   3rd Qu.:2.0   3rd Qu.:2.0   3rd Qu.:1.0000
## Max.   :4.00   Max.   :2.0   Max.   :2.0   Max.   :1.0000
```

5. At the command line, enter: Week2Data[,'subNum']

```r
Week2Data[,'subNum']
```

```
## [1] 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4
```

6. At the command line, enter: Week2Data[,1]

```r
Week2Data[,1]
```

```
## [1] 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4
```

7. At the command line, enter: What do cond11 and cond22 correspond to?

```r
cond11 = Week2Data$cond1 == 1 # cond11 is a logic vector that indicates which value in cond1 equals 1
cond11
```

```
## [1]   TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [12]  TRUE  TRUE  TRUE  TRUE  TRUE FALSE FALSE FALSE FALSE FALSE FALSE
## [23] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
```

```r
cond12 = Week2Data$cond1 == 2 # cond12 is a logic vector that indicates which value in cond1 equals 2
cond12
```

```
## [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [12] FALSE FALSE FALSE FALSE FALSE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [23]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
```

8. At the command line, enter: Week2Data[,'data']

```r
Week2Data[,'data']
```

```
## [1] 1 0 1 1 0 0 0 0 1 1 1 1 0 0 1 1 1 0 1 1 0 0 0 0 1 1 1 1 0 0 1 1
```

9. At the command line, enter: What is being computed?

```r
mean(Week2Data[cond11 == TRUE, 'data']) # this is the mean of the values in data column if cond1 is 1
```

```
## [1] 0.5625
```

```r
mean(Week2Data[cond12 == TRUE, 'data']) # this is the mean of the values in data column if cond1 is 2
```

```
## [1] 0.5625
```

10. At the commandline,enter

```r
x = Week2Data$data
```

11. At the command line, evaluate x. In other words, what does the variable x equal?

```r
x     # x is all the values in data column
```

```
##   [1] 1 0 1 1 0 0 0 0 1 1 1 1 1 0 0 1 1 1 0 1 1 0 0 0 0 1 1 1 1 0 0 1 1
```

12. At the command line, enter What was returned?

```r
aggregate(x, by = list(Week2Data$cond1, Week2Data$cond2), FUN = mean)
```

```
##   Group.1 Group.2     x
## 1       1       1 0.625
## 2       2       1 0.625
## 3       1       2 0.500
## 4       2       2 0.500
```

```r
# this is the mean of x (values in data column) for each of the cond1 by cond2 combinations
```

13. Save each of these commands in an R file. This file is called a program or a script. Name the file
Week2Homework{YourName}. Put your answers to the 3 questions I asked in a comment next the
appropriate line of R code. If you completed this assignment properly, I should be able to source or run
your program when I open in RStudio. Place this file in the course Dropbox folder.