R Homework 3

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Statistics 5193

Question 1a

Data Frames: Find the social media data on the website.

Create 3 vectors: one called txt.sent that contains all the measurements for texts sent, one called Fb.time that contains Facebook time measurement, and one called gender for gender. Print the storage mode of each vector to the console.

```
library(readxl)
stud_dat <- read_excel("/Users/fisher/Documents/data_science/r_stat_5193/data/StudentData.xlsx")

text.sent <- stud_dat$TxtSent
Fb.time <- stud_dat$Fbtime
gender <- stud_dat$Gender

mode(text.sent)
```

```
## [1] "numeric"
```

```
mode(Fb.time)
```

```
## [1] "numeric"
```

```
mode(gender)
```

```
## [1] "character"
```

Question 1b

Create a data frame containing the 3 vectors above in the same order as listed above. The data frame should be named your 3 initials, i.e. my data frame would be named JDH. Print the data for the first 3 students to the console.

```
fra <- data.frame(text.sent, Fb.time, gender)
fra[1:3,]
```

```
##   text.sent Fb.time gender
## 1         1      30      M
## 2        10      20      M
## 3       150      80      M
```

Question 1c

Print the storage mode of each variable in the data frame to the console. Are all of the storage modes the same as in part a? Print yes or no to the console.

```
str(fra)
```

```
## 'data.frame':    35 obs. of  3 variables:
##  $ text.sent: num  1 10 150 18 30 100 20 100 150 75 ...
##  $ Fb.time  : num  30 20 80 45 20 60 5 20 20 20 ...
##  $ gender   : Factor w/ 2 levels "F","M": 2 2 2 1 1 1 2 1 1 1 ...
```

```
fra$gender
```

```
##  [1] M M M F F F M F F F F M M F M F F F F F M F F F F F M M F F M F M F F
## Levels: F M
```

```
"no"
```

```
## [1] "no"
```

Question 1d

Print a summary of the data set to the screen. What proportion of the students are males?

```
summary(fra)
```

```
##    text.sent         Fb.time       gender
##  Min.   :  1.00   Min.   :  0.00   F:23
##  1st Qu.: 10.00   1st Qu.: 10.00   M:12
##  Median : 25.00   Median : 25.00
##  Mean   : 47.89   Mean   : 34.29
##  3rd Qu.: 87.50   3rd Qu.: 55.00
##  Max.   :200.00   Max.   :120.00
```

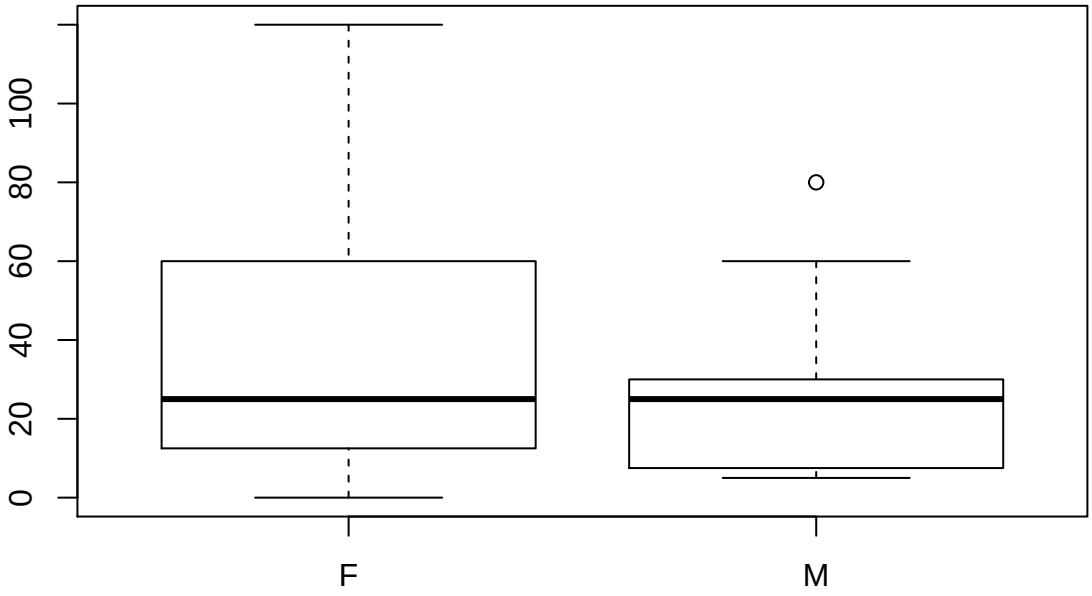
```
# male prop
sum(fra$gender == "M") / length(fra$gender)
```

```
## [1] 0.3428571
```

Question 1e

Construct side by side boxplots of male Facebook time and female Facebook time.

```
boxplot(fra$Fb.time~fra$gender)
```



Question 2a

Generate 25 realizations from a Poisson distribution by running the code below. Create an object called x.f that is an ordered factor of x. Print x.f to the console.

```
set.seed(1)
x <- rpois(25,1)
x.f <- factor(x, order=T, levels = c(0,1,2,3,4,5))

x.f
```

```
##  [1] 0 1 1 2 0 2 3 1 1 0 0 0 1 1 2 1 1 4 1 2 3 0 1 0 0
## Levels: 0 < 1 < 2 < 3 < 4 < 5
```

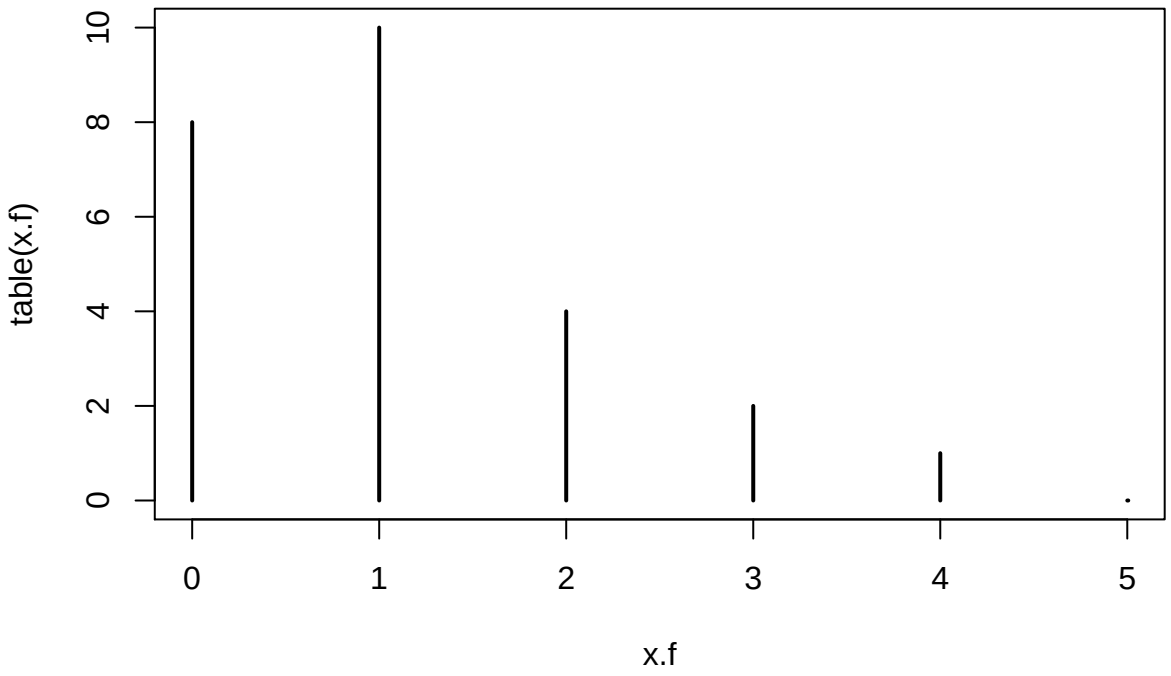
Question 2b

Read the help file for the table function in R.

```
help(table)
"combination of factor"
```

```
## [1] "combination of factor"
```

```
plot(table(x.f))
```



Question 3a

Create a list called "your 3 initials" (for example JDH) with 3 elements - The first element is called my.name and is a character with value "First Last" where "First Last" is your name. - The second element is a 2x2 matrix named D which has diagonal elements 1 and off diagonal elements 0. - The third element is called summary and contains the summary in part 1d. - Print the list to console

```
fra <- list(first.name = "Fisher Ankney", matrix(c(1,0,0,1), nrow=2, ncol=2), summary(fra))
fra
```

```
## $first.name
## [1] "Fisher Ankney"
##
## [[2]]
##      [,1] [,2]
## [1,]    1    0
## [2,]    0    1
##
## [[3]]
##    text.sent         Fb.time       gender
##  Min.   :  1.00   Min.   :  0.00   F:23
##  1st Qu.: 10.00   1st Qu.: 10.00   M:12
##  Median : 25.00   Median : 25.00
##  Mean   : 47.89   Mean   : 34.29
##  3rd Qu.: 87.50   3rd Qu.: 55.00
##  Max.   :200.00   Max.   :120.00
```

Question 3b

Use your list to create a new list that only contains the first and second elements of the list above. The elements should be named the same as in part a. Print the second element of the list to the console.

```
fra <- fra[1:2]
fra[[2]]
```

```
##      [,1] [,2]
## [1,]    1    0
## [2,]    0    1
```