BST 625: Assignment 1 (R portion, 5 points in total)

Your Name

Due date 10/21/2020

Question 1 (1 point)

First I wrote down

```
dat <- read.csv("http://courses.washington.edu/b517/Datasets/shoulder.csv")
```

then there is an object created in my environment. Can you guess what I am doing? (1 point) If your answer is no, you will still get your point since we have not covered this yet.

```
## write down your answer after "## ---|" in the next line. Provide code as you will
## ----| You are creating a data.frame by reading a CSV file (Now we have learnt that if I use read_csv from {tidyverse}, it will be a tibble)
head(dat)
```

```
##    id trt sex age pain time
## 1 101   1   2  64    0    1
## 2 101   1   2  64    0    2
## 3 101   1   2  64    0    3
## 4 101   1   2  64    0    4
## 5 101   1   2  64    0    5
## 6 101   1   2  64    0    6
```

Question 2 (2 points)

Then I wrote

```
Pain_long <- dat$pain
```

What is *Pain_long*? (2 points)

```
## write down your answer after "## ---| in the next line". Provide code as you will
## ----| Pain_long is a vector extracted from the column labeled "pain" in the data.frame dat (vector is a one dimensional data structure and we use Pain_long[i] to extract the ith element. Data.frame is a two dimensional data structure with rows and columns and we put comma in the [i,j] to extract the ith row jth column element. We can exchange data structure using the as. functions such as Pain_long2 <- as.data.frame(Pain_long): even it only has one column, it is still a two dimensional data structure: we have to use Pain_long2[i,j] or Pain_long2[i,] to extract elements, where I leave j as
```

```
empty to indicate all the columns)
head(Pain_long)

## [1] 0 0 0 0 0 0

Pain_long[10]

## [1] 0

Pain_long2 <- as.data.frame(Pain_long)

Pain_long2[10,1]

## [1] 0

Pain_long2[10,]

## [1] 0
```

Question 3 (2 points)

Conduct some operation on *Pain_long*. In other words, provide any function using *Pain_long* as an input (1 point). Hint: a function is in the format of *functionname()*. Describe your operation in English (1 point) ---not create any function, we are not there yet

```
## Tell R what you want to do in the next line
head(Pain_long, 10)

##  [1] 0 0 0 0 0 0 2 1 0 0

## write down your answer after "## ---|" in the next line. Provide code as
you will
## ----| This function just prints out the first 10 elements of a vector
```

Bonus

Share something with me about what you have learned by yourself **beyond** what we have covered so far (1 point) I will choose some impressive ones from all the BST 625 contributors

```
## Tell R your command in the next line
mean(Pain_long[which(dat$sex==1)])

## [1] 0.9791667

mean(Pain_long[which(dat$sex==2)])

## [1] 0.9866667
```

```
## write down the purpose of the above command
## ----| to calculate conditional mean of Pain_long according to different
gender. The which function will return the position of the elements in a
logical vector where it only selects what is TRUE. Therefore, the first
statement will only select males because it is true when they are equal to 1.
```