PSY 221A Homework 3

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10/17/2017

Disclaimer: The methods used in this *C1*, *C2* and *C3* are not necessarily the most efficient for this particualr assignment, but they were written while keeping generalization in mind such that they can easily be adapted to other tasks.

Chapter 3

C1

Find the mode, median, and mean for each of the quantitative variables in Ihno's data set.

Quantitative variables: Num_cups, Phobia, Prevmath, Mathquiz, Statquiz, Exp_sqz, Hr_base, Hr_pre, Hr_post, Anx_post, Anx_base, Anx_pre, Anx_post

```
# Load data
library(haven)
```

```
## Warning: package 'haven' was built under R version 3.2.5
```

```
filelocation = "~/Desktop/UCSB/fall2017/psych221a/hw/data_hw1.sav"
dataset      = as.data.frame(read_sav(filelocation))

# quant_var is a vector with column names
# dataTable is empty dataframe for final data
quant_var = names(dataset)[which(names(dataset) == "Num_cups"):length(names(dataset))]
dataTable = data.frame(matrix(ncol = length(quant_var), nrow = 3))

# Create mode function
mymode <- function(values) {
   uniq_val = unique(values)
   uniq_val[which.max(tabulate(match(values, uniq_val)))][[1]][[1]]
}

# Loop through each column of quantitative variables
for (i in 1:length(quant_var)) {
  # Create vector for current variable
  curr = c()

  # Append mode to index 1, median to index 2, and mean to index 3
  curr[1] = mymode(dataset[quant_var[i]])
  curr[2] = as.numeric(sapply(dataset[quant_var[i]], median, na.rm = TRUE))
  curr[3] = as.numeric(sapply(dataset[quant_var[i]], mean, na.rm = TRUE))

  # Append vector to datatable
  dataTable[i] = curr
}

names(dataTable) = quant_var
```

```
row.names(dataTable) = c("Mode", "Median", "Mean")
dataTable
```

```
##        Num_cups Phobia Prevmath Mathquiz Statquiz Exp_sqz Hr_base Hr_pre
## Mode       0.00   1.00     3.00 43.00000     6.00    7.00   71.00  68.00
## Median     0.00   3.00     1.00 30.00000     7.00    7.00   72.00  74.00
## Mean       0.68   3.31     1.38 29.07059     6.86    6.83   72.27  73.85
##        Hr_post Anx_base Anx_pre Anx_post
## Mode      65.0    17.00   22.00     20.0
## Median    73.0    18.00   19.00     19.0
## Mean      72.8    18.43   19.58     19.4
```

C2

Find the mode for the undergraduate major variable.

```
majorl     = c("Psychology", "Premed", "Biology", "Sociology", "Economics")
major_fac  = factor(dataset$Major,    level = c(1:5), majorl)
major_mode = mymode(major_fac)
major_mode
```

```
## [1] Psychology
## Levels: Psychology Premed Biology Sociology Economics
```

C3

Find the range, semi-interquartile range, unbiased variance, and unbiased standard deviation for each of the quantitative variables in Ihno's data set.