Lab Assignment #1 Solution

1. Calculate $2.4 - 1.96 * \frac{0.71}{\sqrt{82}}$, using Rstudio as a calculator.

```
> 2.4 - 1.96 * 0.71 / sqrt(82)
[1] 2.246323
```

3. Create a **frequency table (1 variable)**.

(a) Create a table for the variable GENDER by typing table(GENDER)

```
> table(GENDER)
GENDER
FEMALE   MALE
   264    191
```

(b) Create a table for the variable MARRIED by typing table(MARRIED)

```
> table(MARRIED)
MARRIED
 NO YES
393  62
```

(c) How many female and male students are there?

264 female and 191 male students

(d) How many students are married?

62 married and 393 unmarried students

(e) How many students have tattoos?

99 students have tattoos and 356 do not

```
> table(TATTOO)
TATTOO
 NO YES
356  99
```

4. Create a **contingency table (2 variables)**.

(a) Create a table using two variables CLASS and GENDER typing table(CLASS, GENDER)

```
> table(CLASS, GENDER)
             GENDER
CLASS         FEMALE MALE
  FRESHMAN        68   44
  JUNIOR          63   56
  SENIOR          34   18
  SOPHOMORE       99   73
```

(b) Create a table using two variables GENDER and MARRIED typing table(GENDER, MARRIED)

```
> table(GENDER, MARRIED)
        MARRIED
GENDER    NO YES
  FEMALE 228  36
  MALE   165  26
```

(c) How many female freshmen and male freshmen are there?

68 female freshmen and 44 male freshmen

(d) How many married female students? How many unmarried male students?

36 married female and 165 unmarried male students

(e) How many married freshmen are there? How many married seniors are there?

10 married freshmen and 19 married senior students

```
> table(MARRIED, CLASS)
       CLASS
MARRIED FRESHMAN JUNIOR SENIOR SOPHOMORE
    NO       102    104     33       154
    YES       10     15     19        18
```

5. Create a **contingency table (3 variables)**. **Copy/Paste** codes/results from a. Answer b.

(a) Create a table of CLASS by MARRIED for each GENDER by typing table(CLASS, MARRIED, GENDER)

```
> table(CLASS, MARRIED, GENDER)
, , GENDER = FEMALE

           MARRIED
CLASS       NO YES
  FRESHMAN  60   8
  JUNIOR    55   8
  SENIOR    22  12
  SOPHOMORE 91   8

, , GENDER = MALE

           MARRIED
CLASS       NO YES
  FRESHMAN  42   2
  JUNIOR    49   7
  SENIOR    11   7
  SOPHOMORE 63  10
```

(b) How many unmarried male sophomores are there? Married female seniors?

63 unmarried male sophomores and 12 married female seniors

6. Summary Statistics.

(a) Calculate the mean GPA (or average GPA) by typing `mean(GPA)`

```
> mean(GPA)
[1] 3.051692
```

(b) Calculate the average weekly work hour by typing `mean(WORKHR)`,

```
> mean(WORKHR)
[1] 24.89451
```

(c) Calculate the median GPA by typing `median(GPA)`

```
> median(GPA)
[1] 3
```

(d) Calculate the median weekly work hour by typing `median(WORKHR)`

```
> median(WORKHR)
[1] 25
```

(e) What is the average GPA? Average weekly work hour?

average GPA: about 3.1 average weekly work hour: about 24.89 hours

(f) What is the median GPA? Median weekly work hour?

median GPA: 3.0; median weekly work hour: 25 hours

(g) What is the average car age? Average exercise hour?

average car age: about 6.96 years; average exercise hour: about 4.36 hours

```
> mean(CARAGE)
[1] 6.956044
```

```
> mean(EXERCISE)
[1] 4.36044
```