**Data 210G – Project One – DUE February 1, 2018**

What to submit: a single file named “ProjectOne.R” that can be copied and pasted into an R Console window and executed with no errors.

In RStudio, go to the “File” menu and select “New File”... “R Script”

Run the following four lines:

mpg1 <- mtcars[1]

mpg2 <- mtcars$mpg

variables <- names(mtcars)

vehicles <- rownames(mtcars)

Observe there are now several items listed under “Environment”

Type comments about each of these four objects. What kind of object is each thing?

For example, consider the following:

Data1 <- 1:20 ## R creates a vector of integers from 1 to 20 with length 20

Now include the following lines of code:

is.vector(mpg1)

is.data.frame(mpg1)

is.vector(mpg2)

Run and comment on the result. How are mpg1 and mpg2 the same? How are they different?

Store the data from the R dataset **mtcars** into an object named **motor\_trend\_data**

Calculate the smallest value, largest value, and average of mpg as well as hp.

Create a list of length 19 that starts with the 7 colors of the rainbow (red, orange, yellow, green, blue, indigo, violet), the numbers 1 through 10, and then TRUE, FALSE. Create it so that the list appears as a list of 3.

Type a line that returns the 5th item in the list.