**Olivia Brown and Kylie Blake**

**Intro to R – 25 pts**

This assignment is intended to introduce you to R, RStudio, and integration with GitHub, as well as help you practice some R coding. You may work in pairs. When submitting the assignment on Canvas, please put both names on the assignment.

1. 5 pts. Explain the following things about R and Rstudio:
   * Where do you type code?
     + In the upper-left corner.
   * Where is the output of the code?
     + Outputs in the console.
   * Where do plots show up?
     + Plots show up in the plots tab in the bottom right.
   * What is a global environment?
     + Your global environment is where all you variables, data frames, functions, etc. will be located.
   * How do you get help for a function through R studio?
     + In the bottom right corner, you can use the help table to get help for a function. In addition, in the console you can use “?? Function or “? function” to call upon help. Another option is typing help(function) in the console.
   * What is an R package?
     + R package is a suite of functions that can be used to format data, analyze it, or create figures as well.
   * What is a function?
     + A function is an action for R to perform on your data in some way, such as calculating a mean, or get a level of a variable, or data type, etc.
   * How do you find the installed and loaded packages?
     + The installed packages can be found in the “Packages” tab in the bottom right corner of RStudio. To confirm it’s loaded, there will be a box that is checked confirming if it loaded. You can also do install.packages to install a package and library(“package”) to load it in.
     + Can also use installed.packages() to see what is installed
   * What is a working directory, and how do you find it?
     + The filepath where you are calling a file or dataset from. This filepath is also where you are saving your Rscript to. You can find your working directory by using the command getwd() or by manually going to the file in your computer and copying the file location to R.
   * What is a relative file path and how is it different than an absolute file path? Relative file path is more accessible for a reproducible workflow, this is using tools such as Github or Dropbox, or a repository under a doi, as well. A absolute filepath is only saved on to your local device and cannot be accessed from anywhere else.
2. 2 pts. Explain the steps to start a new R project connected to a GitHub repository
   * File > New Project > Version Control. Once you have an personal access token and provide that to R, you can then choose the version control as “Git” and then clone your repository from GitHub onto your local device. Once this set up, a Git tab will become available in the upper righthand corner of your RStudio.
3. 3 pts. Please explain the different data classes and how they are similar and different from each other.
   * Vector -> a strong of values of one data type
   * Dataframe -> matrix with multiple different data type or classes
   * Matrix -> a set of one data type, with multiple rows or columns
4. 10 pts. Complete all tasks in an R script and push it to GitHub.
5. 5 pts. Download the Tips.csv file from Canvas. Use the read.csv() function to read the data into R so that the missing values are properly coded. \*\*Note the missing values are reported in the data as a period (i.e., “.”). How do you know the data were read correctly?

When you open the dataframe in RStudio, you can view the CSV file and confirm the Gender column “.” were properly replaced with NA values from the na.strings function.

#main issue with setwd() is it is not reproducible

#make wd where R project is in futue