**Introduction 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? **Console in R studio or in R script Editor**
   * Where is the output of the code? **You can either see it in the console or Environment panel if defined as variable**

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* + Where do plots show up? **Plot tab on the right-down of console**

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* + What is a global environment? **The global environment stores all defined objects, variables, and functions.**
  + How do you get help for a function through R studio? **You can type the function name help tab**A screenshot of a computer

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  + What is an R package? **An extension or collection to run specific analysis, it has functions embedded in it e.g ggplot2**
  + What is a function? **A function is a reusable piece of code that performs a specific task, you can either defined your function or used stored function e.g., `mean**
  + How do you find the installed and loaded packages? **You can find it in packages or install.packages()**
  + What is a working directory, and how do you find it? **this is a folder where you read files into R and save result output. To find it you can use `getwd()`**
  + What is a relative file path and how is it different than an absolute file path? **A relative path is referenced from the working directory whereas an absolute path is the full file location or root from the computer.**

1. 2 pts. Explain the steps to start a new R project connected to a GitHub repository.

**First, create a new repository on GitHub with project title.**

**Open your RStudio and create a new project (Version Control > Git)**

**Copy the GitHub repo URL and clone it on the version control**

**Write R code on the commentand use Git (commit and push changes).**

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1. 3 pts. Please explain the different data classes and how they are similar and different from each other.
   * Vector: sequence of elements of the same type in a row e.g vector <- c(1, 2,3)
   * Dataframe A table-like structure with different data types in columns. Df <- data.frame() function
   * Matrix: A structure with only one data type either numerical, character or logical. Matricdat <-matrix() function

Each classes are similar in that they store data, but different in the arrangement of data

1. 10 pts. Complete all tasks in an R script and push it to GitHub.

* Create a vector named 'z' with the values 1 to 200
* Print the mean and standard deviation of z on the console
* Create a logical vector named zlog that is 'TRUE' for z values greater than 30 and 'FALSE' otherwise.
* Make a dataframe with z and zlog as columns. Name the dataframe zdf
* Change the column names in your new dataframe to equal “zvec” and “zlogic”
* Make a new column in your dataframe equal to zvec squared (i.e., z2). Call the new column zsquared.
* Subset the dataframe *with and without* the subset() function to only include values of zsquared greater than 10 *and* less than 100
* Subset the zdf dataframe to only include the values on row 26
* Subset the zdf dataframe to only include the values in the column zsquared in the 180th row.
* Annotate your code, commit the changes and push it to your GitHub

<https://github.com/Damseltemi/Reproducibility_Project>

1. 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?

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I checked the structure of the file to see if everything is okay.