Week 2 Classwork/Homework Assignment

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For the assignment, you will submit a R Markdown (.rmd) file and the compiled document as both a pdf and html. Make sure that the compiled documents will display all the required code to get your results.

The assignment is due Friday August 25 at 8:00 PM.

1. Write and execute a chunk of code that performs each of these operations. For each line of code, annotate it to describe what it will do when run.

- Print the line "Here are my answers for Question 1."
- Compute the product of six and five.
- Compute eight to the fifth power.
- Compute the product of two variables, A and B, where A is nine and B is eighty.

2. Use the following set to complete the following operations.

$$\{13.0, 1.0, 5.0, 8.0, 1.0, 0.0, 34.0, 2.0, 21.0, 0.0, 3.0\} \tag{1}$$

- Create a vector named *Ornacia* using the set.
- Determine the length of the vector.
- Find the highest values and the positions of the value(s).
- Find the lowest value(s). Display the lowest values(s).
- Find the position of value 21.
- Order the vector from the lowest to highest numbers.
- Create a new vector, *Ornacia.Even*, which are only the values of the even positions in the vector.
- Append the following numbers to the end of the vector *Ornacia* $\{55.0, 89.0\}$
- Create a new vector, *Ornacia.Half*, which contains all half of all the values of *Ornacia*.

3. Import the dataset "eBird_BotGarden_2016.csv". These are estimated abundances of birds seen at the State Botanical Gardens of Georgia (Athens, GA) each week of 2016. Perform the following operations:

- Plot the weekly abundance of the Northern Flicker as a bar graph.
- Plot the weekly abundance of the Barred Owl, Canada Goose and Red Shouldered Hawk on a single line graph each with a different color.

4. Using the eBird data (from question 3), write a function that will calculate the average abundance of a specified species for the year. Your function should have two arguments/inputs: the dataset and the name of the species. The output should be a single number (the average). Find the average abundance for the Canada Goose. (Hint: The *names* function will return the column names of a data frame.)

5. Using your averaging function, write script to create a new dataframe containing the names and average abundance of every species that has an average abundance greater than 5 individuals. Your resulting data frame should have two columns: the name of the species and their average abundance.