Week 1 – First Breakout

Each student should run R-Studio on their computer (or via https://rstudio.cloud/). \
Remember that R should always be installed before R-Studio (if you are not using rstudio.cloud).

1. Use the command line in R-Studio to add together all of the numbers between 1 and 10 (inclusive). Take note of the result. Remember, every student should type and run the code on their own copy of R-studio.

2. Now create a vector of data that contains the numbers between 1 and 10 (inclusive). Here is a line of code to do that:
   myNumbers <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

3. Now add together all of the numbers that are in the vector myNumbers. There is a built-in function within R that can do this for you in one step: Take a guess as to the name of that function and run it on myNumbers. Check your result against the results of question 1.

4. R can do a powerful operation called "vector math" in which a calculation runs on every element of a vector. Try vector math on myNumbers by adding 10 to each element of myNumbers, and storing the result in myNewNumbers. Print out myNewNumbers.

5. Efficiently calculate a sum of the numbers between 11 and 20 (inclusive), using techniques from the problems above. Hint: use c(11:20)

6. Calculate a sum of all of the numbers between 1 and 100 (inclusive), using techniques from the problems above.

End of breakout 1

7. Make sure you have a variable myNumbers, that is a vector of 10 numbers (1,2,3,4,5,6,7,8,9,10)

8. Add the following commands to the end of your code file and run each one:
   mean(myNumbers)
   median(myNumbers)
   max(myNumbers)
   min(myNumbers)

```
length(myNumbers)
```

9. Add a comment to each of the lines of code in your file explaining what it does. The comment character is "#".

10. Explain the output of the following command:
```
myNumbers > 5
```

11. Explain what in is bigNum after executing the following command:
```
bigNum <- myNumbers[myNumbers > 5]
```

12. Whenever you need R to explain what a command does and how it works, use the ? command or the help() command. Add and run these commands:
```
?mean
help("mean")
```