BIOS 512 Homework 2

Load Necessary Packages...

If you need to install tidyverse, you can use install.packages("tidyverse"). If you already have tidyverse installed, you can just load the package:

```
library(tidyverse);
```

Question 1

What are three ways that we can assign the value of 25 to y?

Question 2

How would I print the following line, including the quotes, in R?
He said, "I'm Garth Marenghi. Author. Dreamweaver. Visionary. Plus actor."

Question 3

What if I wanted to add backslashes into the statement from Question 1 to make the statement below?
He said, "I'm Garth Marenghi. Author\Dreamweaver\Visionary. Plus actor."

Question 4

Show two ways to get the following array: 1 2 3

Question 5

What does R call things like +, -, sin(), c(), etc? What about <-?

Question 6

What's the difference in the way R processes the while() and the for() below?

```
x <- 0;
while (x <= 3) {
    x <- x + 1;
}
x
```

```
## [1] 4
```

```
for(y in c(1,2,3)) {
     y <- y + 1;
}
y
```

```
## [1] 4
```

Question 7

Create the Pythagorean formula and evaluate it with a=3 and b=4. Print the output.

Question 8

Load the help for the built in sin() function.

Question 9

Which version of the counter function works? What is the difference in the way R processes the two functions?

```
counter1 <- function(start, step){
    val <- start;
    function(){
        old_val <- val;
        val <- val + step;
        old_val;
    }
}
counter_from_1 <- counter1(1,1);
counter_from_1()
```

```
## [1] 1
```

```
counter_from_1()
```

```
## [1] 1
```

```
counter2 <- function(start, step){
    val <- start;
    function(){
        old_val <- val;
        val <<- val + step;
        old_val;
    }
}
counter_from_1 <- counter2(1,1);
counter_from_1()
```

```
## [1] 1
```

```
counter_from_1()
```

```
## [1] 2
```

Question 10

a) Use read_csv the cars.csv and store it in a data frame.
b) Then, group the data frame by Make, get averages across the numeric variables, and then sort by Volume in descending order. Hint: Use summarise(across(c(), mean)) to get the averages.

Question 11

Make a function that returns the Fibonacci sequence, then call it 7 times to return the first 7 values of the sequence. Use the correct counter function from question 9 for inspiration.