Homework 1

Week 1

1. Explain the R studio layout. What do the different panes do?
2. What do we use to assign output to an object? Why might it be better to use than an `=`?

Week 2

3. Explain the difference between a factor and character data type. When would we want to use either?
4. Run the following line of code:

```
hw_factor <- factor(c(2, 1, 5, 3), levels = c(1, 2, 3, 5))
```

Change this into a numeric data type. Explain the steps you took to get there.

5. I want to create a logical data object called `hw_logical`. I run the following code.

```
hw_logical <- "TRUE"

is.logical(hw_logical)
```

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

Why does `is.logical` return `FALSE`? How can I fix `hw_logical` so it is a logical data type?

6. Create a function called `test_function`. It should take two arguments, `x` and `y`. It should do the following:

- Find the sum of input `x` and the number `6`
- Find the product of input `y` and the number `2`
- Store the output of those first two steps in a list

Run and show the output of `test_function`.

7. Explain the difference between `install.packages` and `library`. When would you use each of these functions?

Week 3

```
# Load up the iris dataset
data("iris")
```

8. Calculate the average `Petal.Length` and `Petal.Width` by `Species`. Save the output to a `tibble` called `avg_petal`.
9. `avg_petal` is in wide format; change it to long format (you should have three columns: Species, a key column, and a value column). Filter the new `tibble` for all values greater than or equal to `2`.
10. Explain the difference between a `tibble` and a `data.frame`.