Lecture 3.3 – Functions

Specific Learning Objectives:

1.2.1 – Understand the way computers execute commands.

1.2.2 – Create functions in R.

1.2.3 – Use functions to reduce repetitive procedures in a script.

1.2.4 – Use functions to automate and standardize the production of a product (e.g. a graph, an analysis).

1.2.5 – Create a function that vectorizes a calculation.

3.5 – Think and work independently with code.

Check Your Understanding

Add the packages `dplyr` and `ggplot2` to your global environment with `library()`.

To find the function `mean()` in the base package, what environments does R search in what order?

Check Your Understanding

Write a function named `add.these` that takes two input arguments (a and b) and then returns the sum of a and b as an output.

Include a line of code to see if the function works.

Check Your Understanding

For the function `whichisit()`:

```
whichisit <- function(j){
  a <- j + 1
  h <- j*10
  c <- 2*(2+j)+10
  d <- j+3
}
```

Running `whichisit(4)` would have what output?

a) 7

c) 22

b) 5

d) 40

Code it and try!

Check Your Understanding

Take the following code (see markdown) and make a function that will plot individual stations red. Inputs should be the station number and the output should be a plot with that station's points colored red.

```
plot(x = quakes$depth, y = quakes$mag,
     pch = 21, col = "gray40", bg = "gray80")
points(x = quakes$depth[quakes$stations==12],
 y = quakes$mag[quakes$stations==12],
 pch = 21, bg = "red")
```

As a bonus, you could add an option to change the color of the station's point from red to user-defined.

Action Items

1. **Assignment 3.2.**

Action Items

1. **Complete Assignment 3.2.**

2. **Read Davies Ch. 10.1 for next time.**