

Worksheet 3: Functions

Lab worksheet: Functions

This worksheet assumes you've completed the intro and data types worksheets.

Functions

You've already been using functions, so let's be clear about what they are. Functions carry out a set of instructions using some specific input, returning the result. You call a function by its name and include the input it needs in parentheses. This input is also called the function's "arguments."

For example, in the last worksheet, you used the function `matrix()` with arguments `fibSeq`, `nrow`, and `ncol` (those are the arguments), and got in return the matrix `fibMat` (that's the result). Reminder:

```
> fibMat = matrix(data=fibSeq[1:6], nrow=3, ncol=2)
> fibMat
      [,1] [,2]
[1,]    1    3
[2,]    1    5
[3,]    2    8
```

There are tons of functions in R. It might be useful for you to keep a list of those that you use often. To learn more about how to use a function or what it does, you can check the manual page by typing into the console "?" and then the function name (like you did for the array function).

1. Look up the manual page for the function `sum()`
 - a. What input do you need to provide `sum()`?
 - b. What result does `sum()` return?
 - c. Use `sum()` to add 4 and 7.
 - d. Use `sum` to get the sum of the first seven Fibonacci numbers (from `fibSeq`)
 - e. Use `sum()` to determine how many elements in `mostlyTrue` are TRUE.
2. What do you think an analogous function for multiplication might be called? Use google, help pages, and manual pages to find out.
 - a. Use that function to multiply 34 and 1.3
 - b. Use that function to get the product of the first seven Fibonacci numbers
3. Think of another numeric operation
 - a. What numeric operation are you thinking of?
 - b. Using google, find the R function for that operation.
 - c. Apply that function to some variable(s) you already have. Or if you don't have the right variables yet, makes some up.
 - d. Share with a partner what you learned, and learn from their experience as well.

You can also create your own functions. We'll talk about that more later on.