Week 10: Functions

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11/2/2020

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}
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    }
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for (i in 1:10000){

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Copy-pasting can get messy, increase the chance of errors, and makes your code harder to use and read.

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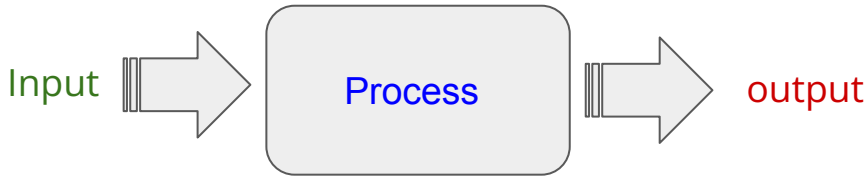
All functions take some kind of input (eg. your data), perform a process (eg. calculate the mean), and then return a value (eg. the mean of your data).



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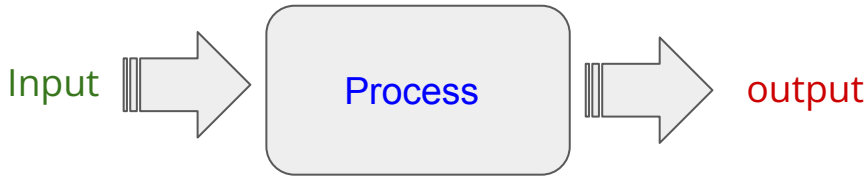

We can also create our own user defined functions in R.

R syntax for functions

```
NAME <- function(ARGUMENTS) {

  ACTIONS

  return(OUTPUT)

}
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Things that are specific to the user or change each time.

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eg. Loop through something, calculate a mean, plot data etc.

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```
var_name <- name(arg1, arg2, etc..)
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My_mean <- mean(my_data)
```

Let’s consider some built-in functions

Pick a function, and then describe its 4 attributes (in English words).

```
NAME <- function(ARGUMENTS) {

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```

sum()	mean()
paste()	print()

A little more on function arguments

When you write your own function you have to decide on the arguments.

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User must provide

if user doesn't provide NAs will be removed

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Var1 <- f(df)
Var2 <- f(df, na.rm = FALSE)
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The anatomy of a function in R

Functions have 4 attributes (adapted from YaRrr!):

1. **Arguments**: What are the ***inputs*** to the function (e.g., a vector of numeric data? Or some text?)? You can specify as many inputs as you want.
2. **Actions**: What do you want the function to do with the inputs? (e.g., Create a plot? Calculate a statistic? Run a regression analysis?) This is where you'll write all the real R code behind the function.
3. **Output**: What do you want the code to ***return*** when it's finished with the actions? (e.g., a scalar statistic? A vector of data? A dataframe?)
4. **Name**: What will you call your function? Should be descriptive. Can be any valid object name, but be careful not to use names of existing functions!

https://bookdown.org/ndphillips/YaRrr/the-structure-of-a-custom-function.html