

Common Confusion 07

Calling Functions

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Students tend to get confused on how to call their user-made functions. Unlike a normal MATLAB script, you *cannot* just hit ‘run’ on your function file. You have to call the function with some inputs and then receive some outputs from the function.

With a normal MATLAB script, you are able to just hit the ‘run’ button and have your code execute. This is because a MATLAB script does *not* require you to give it any inputs. You simply need to hit ‘run’, which sends a signal to MATLAB telling it to run the code contained in that MATLAB script file.

With user-made function files, you *cannot* just hit ‘run’ and expect to get an output. A MATLAB user-made function file works by passing your inputs to your function file and then returning a given output. If you do not give it an input, then it cannot produce an output. For example, consider a user-made function called ‘meanValue’ that calculates the average value of a set of numbers. The function definition, or the first line in your function file, would look something like:

```
‘function [mean] = meanValue(numbersVector)’
```

This function takes an input, ‘numbersVector’, and returns ‘mean’, which is the average value of the numbers given as an input. If you were to just hit run on your user-made function file titled ‘meanValue.m’, you would get an error. This is because you did not give the ‘meanValue’ function any input to calculate the ‘mean’ output. The proper way to call a function is:

```
‘average = meanValue(X)’
```

Where ‘X’ is a vector containing some number of values and ‘average’ is a variable in your main script that will hold the output of the function call to ‘meanValue’. This line of code will actually produce an output because you gave the function an input to work with.

As a sidenote, you can also call functions in the command window as long as you do it as described above.

In general, the main thing you need to understand about user-made functions in MATLAB is that you *cannot* just hit the ‘run’ button to get an output. You must call the function and pass the proper number of inputs to the function to get an output.