MA2252 Introduction to computing

lectures 5-6

Functions

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Scripts

- An m-file that contains a sequence of instructions
- Only way to code large and complex programs. Handy for re-running your program with different parameters, testing, etc.
- You can (and should) comment some text to describe your code.
- Script files share their workspace with the current directory.
- **TIP**: It is advised to have a **clc**, **clear all**, and **close all** at the beginning of every script file.

Functions basics

- Special type of script. Useful when you need to repeat a task many times
- Put something in -> get something out

```
function [outputs] = function_name(inputs)
```

- Any type(s) of inputs and outputs
- Function name should be the same as the script's name. It must start with a letter, but can contain alphanumeric characters or underscore.
- After coding the instructions you should finish with an **end** statement.
- Call a function within a script or in the command window.

Functions basics

To have in mind

- Don't really need to define outputs and/or inputs in the header.
- The function has its **own workspace** $\Rightarrow$ any variable defined within your function won't overwrite variables in the MATLAB workspace.
- Mind the semicolons!
- Save your function before running your program. The function is saved as an **m.file**
- The function has to be saved on the **MATLAB path** if you want to call it in your program.

Subfunctions

- A subfunction is a function that is defined in the same m-file as its parent function.
- Only the parent function is able to call the subfunction.
- Subfunctions retains a separate workspace from its parent function.

Function handles

Function handles are variables that have been assigned functions as their value

Construction

- Using built-in functions:

  functionHandle = @ functionName

- Using anonymous function:

  functionHandle = @(input variables) functionDefinition