

Two roads diverged in a wood

MATLAB search path



CS112 Scientific Computation

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MATLAB name evaluation

When MATLAB evaluates a name, it follows a set of *precedence rules*:

- 1) **variable** in current workspace?
- 2) **built-in MATLAB function**?
- 3) if name is in an M-file, is it a **subfunction** in this file?
- 4) **M-file** in the current directory?
- 5) M-file in a directory on the **MATLAB search path**?
- 6) otherwise, error:
??? Undefined function or variable...



Buggy code

```
% analyzeData.m
load depthData.mat
mean = mean(depthData)
stdDev = std(depthData)
depthData = depthData(depthData > (mean - 3*stdDev))
mean = mean(depthData)
```

```
>> analyzeData
mean =
    9.9737e+003
stdDev =
    275.5549
```

??? Subscript indices must either be real positive integers or logicals
Error in ==> analyzeData at 6
mean = mean(depthData)



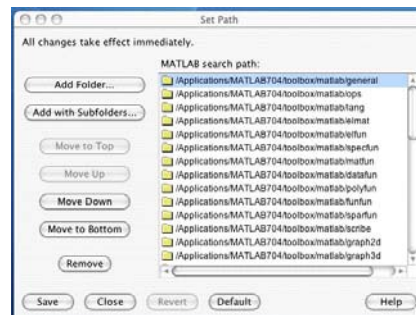
Files & Paths 3

MATLAB search path

The initial search path is the list of all directories where MATLAB files are stored

When resolving a name, MATLAB searches the directories on the search path in the order they are listed

View the search path by selecting **Set Path...** in the **File** menu



Files & Paths 4

To add a folder to the search path:

Press the **Add Folder...** or **Add with SubFolders...** button, select desired folder and press the **Open** button

As usual, things look slightly different on MACs & PCs ...

You can also use the `addpath` function:

Mac:

```
>> addpath('/Users/ellenh/Desktop/loops_programs');
```

PC:

```
>> addpath('C:/Documents and Settings/ellenh/My Documents/loops_programs');
```



Files & Paths 5

Generating a tree of paths

If you forget the format for specifying the name of your file, call `pwd` in the **Command Window** or in your code file to see the path leading to the **Current Directory**:

```
>> dir = pwd
dir =
C:\Documents and Settings\ellenh\My Documents\CS112
>> addpath(dir)
```

If you want to add a directory and all its subdirectories use:*

```
>> addpath(genpath(dir))
```



* This is similar to the file menu item **Add with Subfolders...**

Files & Paths 6

How do I know what a name refers to?

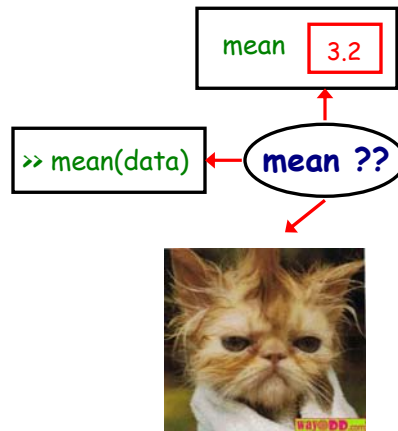
The `exist` function indicates whether a variable or function exists

`>> exist name` returns:

- 0 if `name` does not exist
- 1 if `name` is a variable in the workspace
- 2 if `name` is an M-file in the Current Directory or on the MATLAB search path
- 5 if `name` is a built-in MATLAB function

`>> exist magic`

```
ans =  
    2
```



Files & Paths 7

Which witch?

The `which` function prints the pathname of a function

`>> which magic`

```
/Applications/MATLAB704/toolbox/matlab/elmat/magic.m
```

The `type` function can be used to print the definition of functions that are not built-in MATLAB functions, but defined in M-files on the search path

`>> type magic`



Files & Paths 8