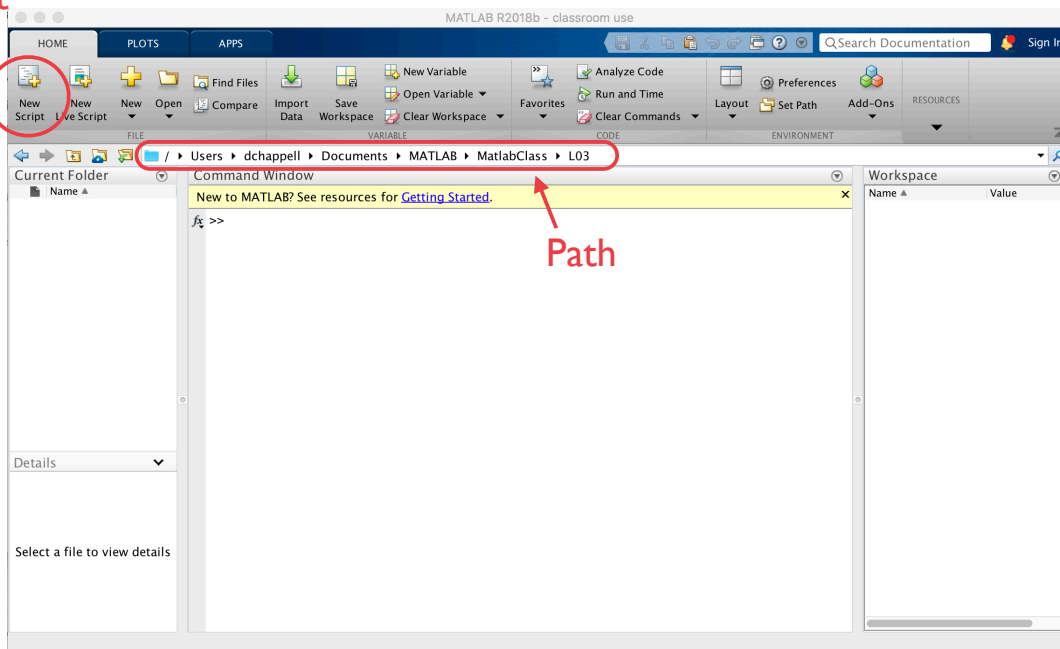


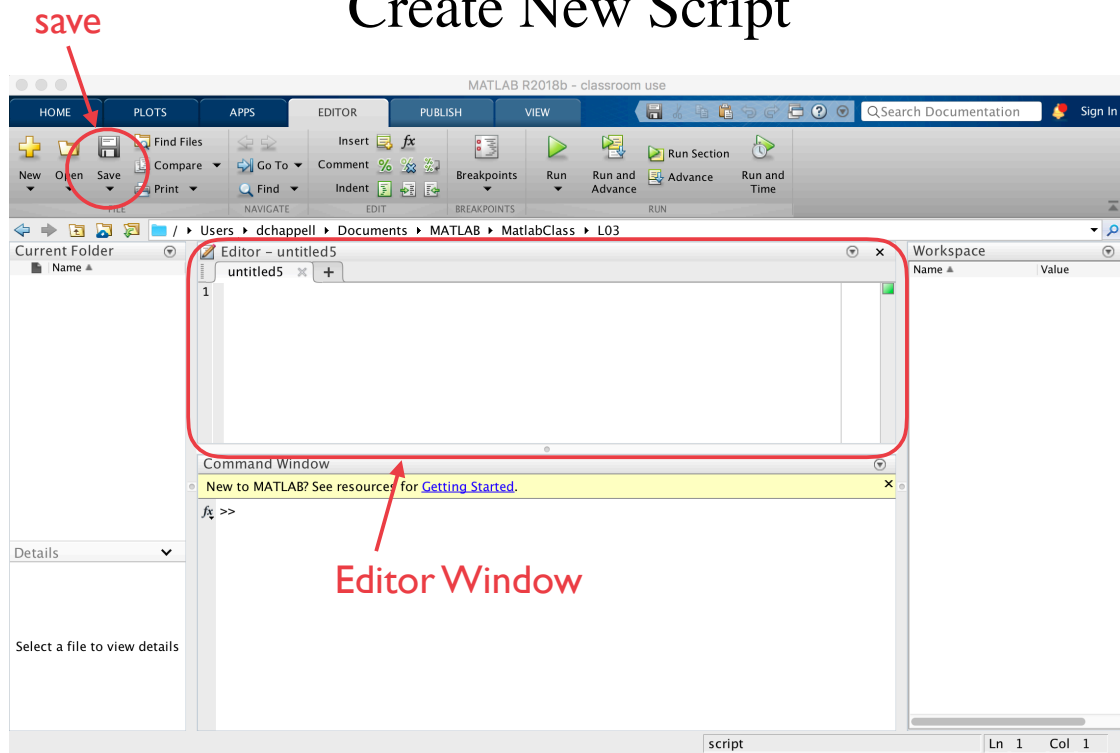
Lecture 3 - Scripts

New Script

Create New Script



Create New Script



Create New Script

- Organize scripts in folders by assignments.
 - Folder name: “First_name_HW02”
 - for example: “David_HW02”
 - Script name: “P01.m”, “P02.m” etc. for problem 1, problem 2, etc.

Script names:

- Can not contain spaces
- Can not start with a number

Simple Program

```
% My first program  
  
disp('hello world')  
x = 1 + 2
```

Type in the code, save it, and run

Simple Program

```
% Program Name (test.m)  
% Your Name  
% PHYS 407: Computational Methods  
% Date  
%  
% Description of what your program does  
  
clc          % clear command window  
clear       % clear all variables  
close all   % close all graphics windows  
  
disp('hello world')  
x = 1 + 2
```

Include at
beginning of
every script

Matlab-Monkey.com - A02.m

```
%  
% A02.m  
%  
% Calculate the period of a pendulum  
%  
% Demonstrates: how to input data into the program and output nicely  
%                 formatted messages to the command window  
%  
% INPUT:   User is prompted to enter the length of a simple pendulum  
% OUTPUT:  The period is calculated and displayed in the command window  
%  
% Matlab-Monkey.com  
% 12/30/2014  
  
clc          % clear command window  
clear       % clear all variables  
close all   % close all graphics windows  
  
g = 9.8;    % define acceleration of gravity in MKS units  
  
% prompt user to enter the length of a pendulum  
L = input('Enter length of pendulum (in meters): ');  
  
% calculate the period  
P = 2*pi*sqrt(L/g);  
  
% the first fprintf statement prints a blank line to space things out.  
% the second fprintf statement prints the period of the pendulum in command  
% window and specifies that 3 sig figs should be displayed.  
fprintf('\n')  
fprintf('Period = %.3g seconds\n',P)
```

Matlab-Monkey.com - A02.m

```
g = 9.8;    % acceleration of gravity (MKS units)  
  
% prompt user to enter the length of a pendulum  
L = input('Enter length of pendulum (in meters): ');  
  
% calculate the period  
P = 2*pi*sqrt(L/g);  
  
% print result to command line  
fprintf('\n')  
fprintf('Period = %.3g seconds\n',P)
```

Download A02.m from matlab-monkey to your Matlab folder.
Run it for different pendulum lengths.

Formatted Print

The formatted print statement lets you display the value of a variable in a line of text. You can change the number of significant digits, leading spaces, etc.

```
program [ a = 4;  
         fprintf('The value of a = %i\n', a)
```

```
output in [ >> The value of a = 4  
command  
window
```

Formatted Print

The formatted print statement lets you display the value of a variable in a line of text. You can change the number of significant digits, leading spaces, etc.

```
a = 4;  
fprintf('The value of a = %i\n', a)
```

%i says you want to
print an integer here

\n says you want a
new line

More fprintf() examples

`%f` - prints a floating point number (i.e. a number with decimal point)

```
a = pi;  
fprintf('pi = %f\n',a)  
>> pi = 3.141593
```

```
fprintf('pi = %.2f\n',a)      2 decimal places  
>> pi = 3.14
```

```
fprintf('pi = %6.2f\n',a)    spaces over to leave  
>> pi =    3.14              room for 6 digits
```

More fprintf() examples

`%e` - scientific (exponential) notation

```
fprintf('pi = %e\n',a)  
>> pi = 3.141593e+00
```

```
c = 299792458;  
fprintf('c = %e\n',c)  
>> c = 2.997925e+08
```

```
b = 4;  
fprintf('b = %e\n',b)  
>> b = 4.000000e+00
```

`%g` - concise notation

```
fprintf('pi = %g\n',pi)  
>> pi = 3.14159
```

```
c = 299792458;  
fprintf('c = %g\n',c)  
>> c = 2.997925e+08
```

```
b = 4;  
fprintf('c = %g\n',4)  
>> b = 4
```