Second Stage

File Usage in MATLAB & Some Built-in Functions

LEC10

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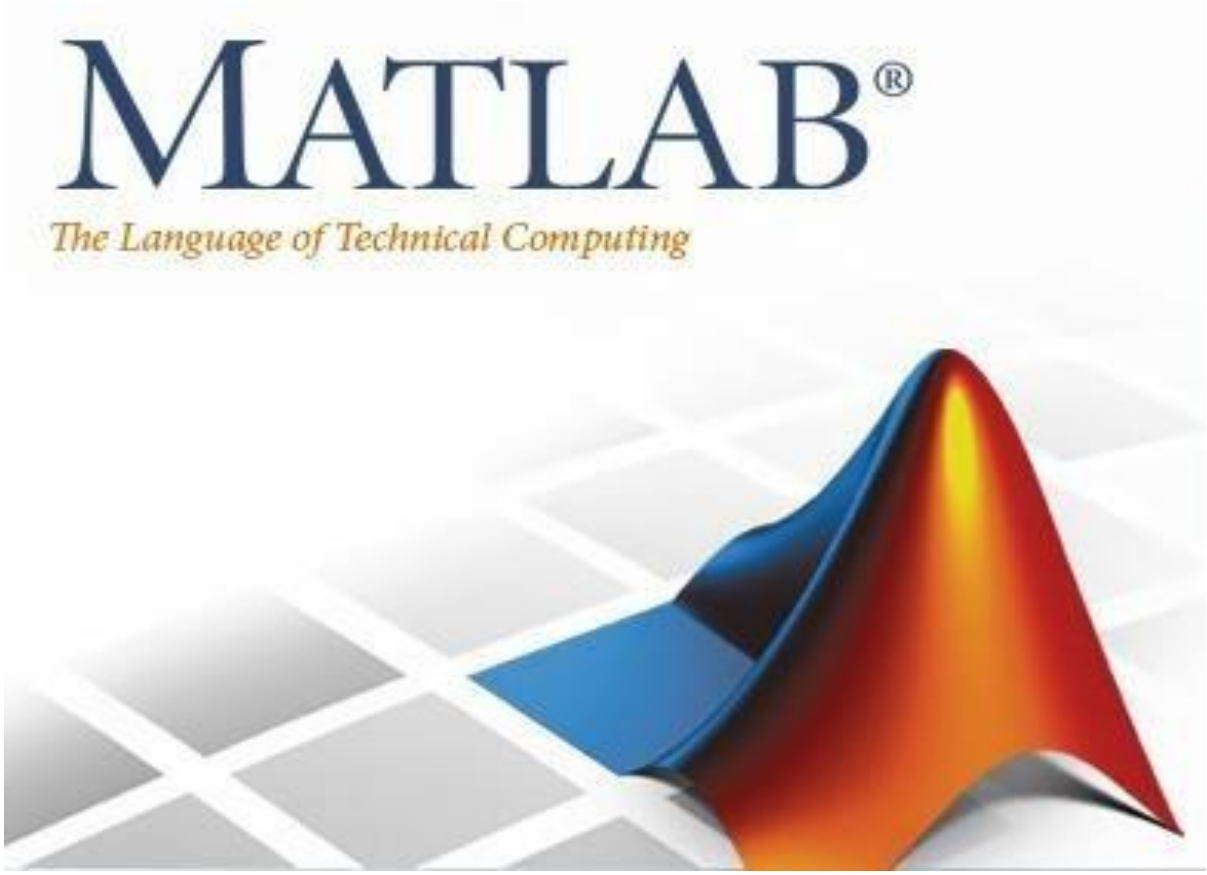


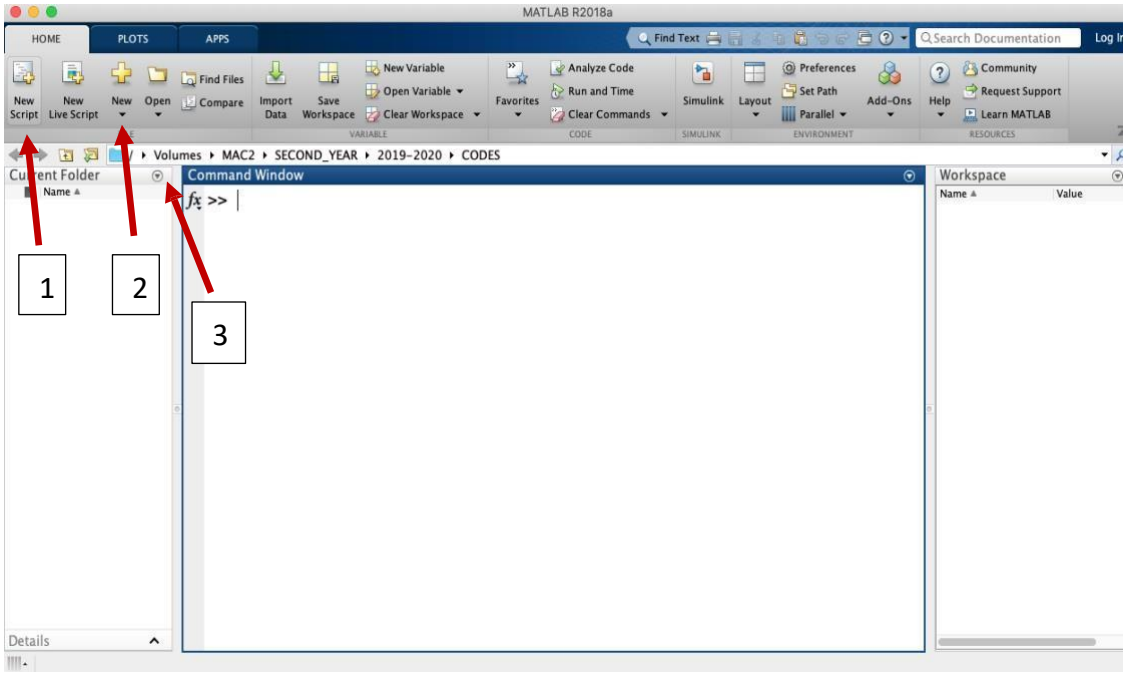
File Usage in MATLAB:

Now we will learn how to create a new MATLAB script [also we call it (.m) file], then how to edit, save, and run this file. And next how to open all (.m) files which already created in MATLAB.

There are five ways to create a new script, or (.m) file:

1. Click the Home tab then click the (New Script) button, which is located at the top-left at the home tab. A new script (.m) file will be opened in the editor window, its name by default is untitled.m

2. Click the new button at the home tab then choose (Script).

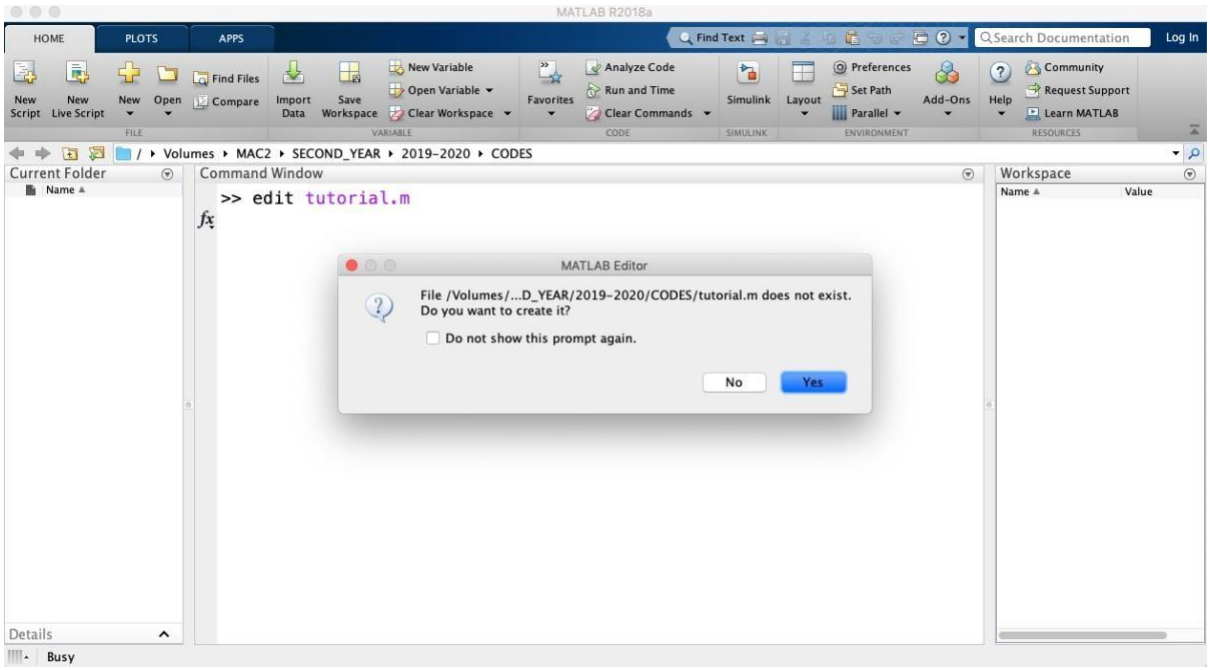


3. Click the drop-down menu at the current folder tab, then choose (New Folder).
4. If you know in advance what to name the new script file, type in the command window the following command if the file name for example is tutorial.m

   >>edit tutorial.m

   Then click enter, a new pop-up window will appear and there is a message there says: File/…../tutorial.m does not exist. Do you want to create it? By clicking Yes, a new file will be created and opened in the editor window under the name tutorial.m.

As shown in the following Figure.



5. If the editor window is already opened and there is one or more script files already opened, click the (+) button next to the last tab of opened scripts.

After closing the file: how to open it in the editor window?

First, check that the path of the current folder is showing that the tutorial.m file is in this current folder. To open this file:

Either to go to the current folder and double click on tutorial.m file, then it will be opened in the editor window. Or to type in the command window the following command:

>> edit tutorial.m

Then click enter. The tutorial.m file will be opened in the editor window.

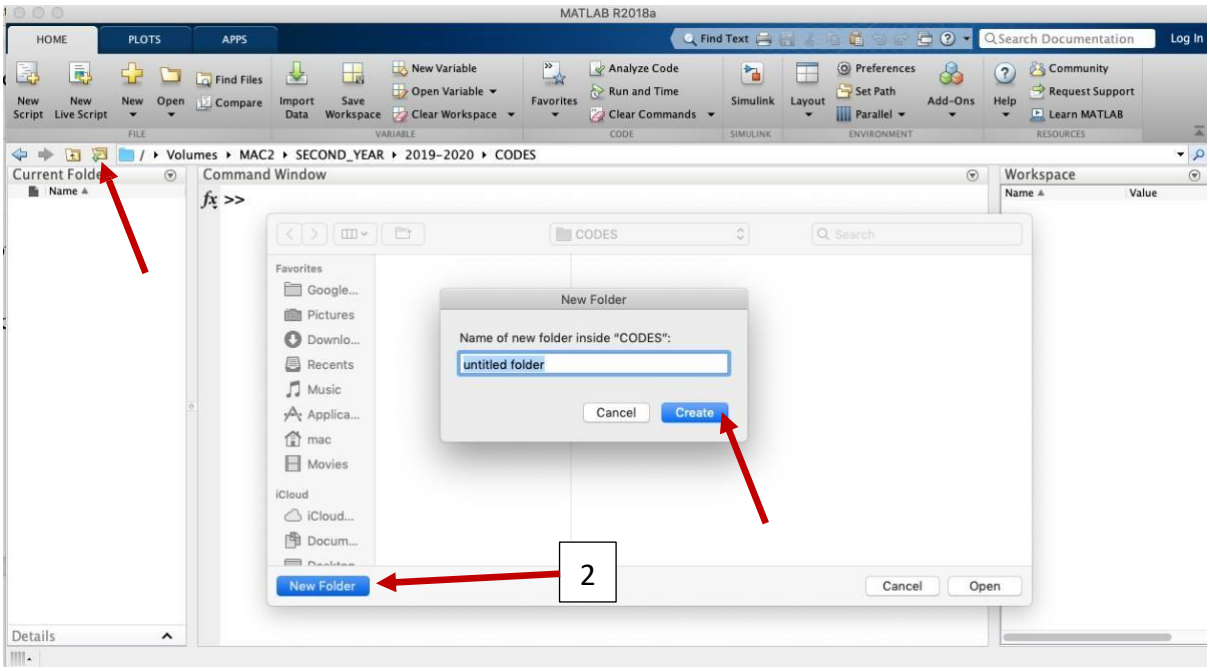
So there are two uses of the function edit:

1. To create a completely new script file.
2. To open the already saved script file.

How to create a new folder:

To create a new folder in the current folder, go to the current folder window and click the drop-down menu at the current folder and choose (New Folder). Or click

the folder button to the left of the path bar, a new window will open, then click the (New Folder) button.



How to delete files:

There are two ways to delete files (any MATLAB file):

1. Right-click on the file in the current folder, then click delete.
2. Type in the command window (>> delete filename.m)

How to delete folders:

1. Right-click on the folder in the Current Folder window, then click delete.
2. Type in the command window (>> rmdir foldername).

How to save data and variable which are existed in the workspace as (.mat) file:

1. Type in the command window (>> save 'filename.mat').
2. Go to the workspace window and click the drop-down menu, then click on (save), a new window will appear, give a file name and then click save button. A new (.mat) file will be created in the current window.

How to open (.mat) files:

1. Double click on the .mat file in the current folder.
2. Type in the command window or any script file (>> load('filename.mat').

How to run the script file:

1. Click the run button at the Editor tab.
2. Type the filename (without the file extension .m) in the command window.
3. Call the file name (without the file extension .m) from another script file.

Some Built-in Math & Logical Functions:

There are plenty of Math functions in MATLAB, herein some of common Math functions:

First create a matrix a;

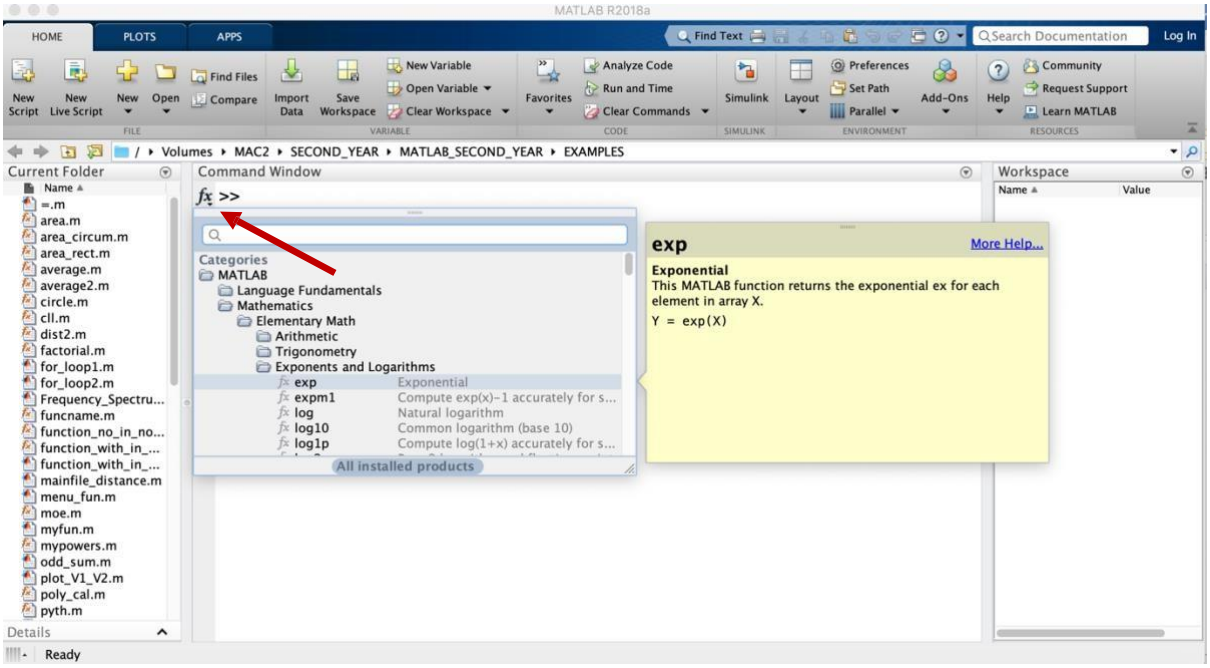
```
>> a=randi([1 9],[3 4])

a =

    8    2    2    4

    6    4    6    6

    4    5    3    3

>> transpose(a)

ans =

    8    6    4

    2    4    5

    2    6    3

    4    6    3

>> a'

ans =

    8    6    4

    2    4    5

    2    6    3
```

```
    4     6     3
>> a=randi([1 9],[3 3])
a =
    8     9     3
    9     6     5
    2     1     9
>> inv(a)                    % inv(a) computes the inverse of matrix a.
ans =
   -0.1914    0.3047   -0.1055
    0.2773   -0.2578    0.0508
    0.0117   -0.0391    0.1289
>> rand                              % creates one random number only
ans =
    0.2936
>> a=rand(3,4,'double')
a =
    0.9446    0.1375    0.3977    0.3478
    0.5866    0.1393    0.1654    0.7508
    0.9034    0.8074    0.9275    0.7260
>> a=randi(3,4,'double')
a =
    3     1     2     2
    2     3     2     2
    3     2     1     2
    2     3     3     1
```

```
>> a=randi([3 7])          % generates random integer number between 3 & 7
a =
     6
>> randi(5)                % generates random integer number between 1 & 5
ans =
     5
>> X=(1==2)
X =
  logical
   0
>> class(X)
ans =
    'logical'
>> (1==1)+(3==3)
ans =
     2
>> 1|1
ans =
  logical
   1
>> or(1,1)
ans =
  logical
   1
```

```
>>
and(1,0
) ans =
logical
   0
>> a=NaN(2,3)                % creates a NaN matrix with 2 * 3
dimensions a =
   NaN   NaN
         NaN
   NaN   NaN
         NaN
```

For more examples for Math & Logical Built-in functions, please explore the f_x in the command window as in the following Figure


MATLAB R2018a
HOME
PLOTS
APPS
Find Text
Search Documentation
Log In
New Script
New Live Script
New
Open
Find Files
Compare
Import Data
Save Workspace
New Variable
Open Variable
Clear Workspace
Favorites
Analyze Code
Run and Time
Clear Commands
Simulink
Layout
Preferences
Set Path
Parallel
Add-Ons
Help
Community
Request Support
Learn MATLAB
FILE
VARIABLE
CODE
SIMULINK
ENVIRONMENT
RESOURCES
/ ▸ Volumes ▸ MAC2 ▸ SECOND_YEAR ▸ MATLAB_SECOND_YEAR ▸ EXAMPLES
Current Folder
Name
=.m
area.m
area_circum.m
area_rect.m
average.m
average2.m
circle.m
cll.m
dist2.m
factorial.m
for_loop1.m
for_loop2.m
Frequency_Spectru...
funcname.m
function_no_in_no...
function_with_in_...
function_with_in_...
mainfile_distance.m
menu_fun.m
moe.m
myfun.m
mypowers.m
odd_sum.m
plot_V1_V2.m
poly_cal.m
pyth.m
Details
Command Window
>>
Categories
MATLAB
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Mathematics
Elementary Math
Arithmetic
Trigonometry
Exponents and Logarithms
exp Exponential
expm1 Compute exp(x)-1 accurately for s...
log Natural logarithm
log10 Common logarithm (base 10)
log1p Compute log(1+x) accurately for s...
All installed products
exp
More Help...
Exponential
This MATLAB function returns the exponential ex for each element in array X.
Y = exp(X)
Workspace
Name
Value
Ready