File Input-Output - 1

Lecture 8

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Outline:

In this lecture, we will learn:

- ▶ reading from files and writing to files,
- ▶ .mat, excel, text and binary files,
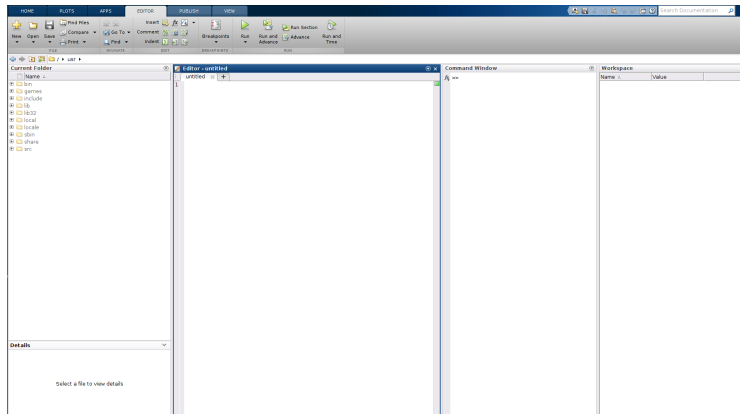- ▶ creating and accessing folders,

Why We Need File Input & Output:

Until now, we have been using disp(), fprintf(), Input() functions for displaying output and receiving input from the user in MAT-LAB.

Although these functions are useful, they are not enough for permenant storage of our results after processing data.

Beyond permenant storage, file I/O is important while transferring data between different programs written in different programming languages.

Default Matlab Screen-Current Folder Window:

Navigating Through Folders:

Perhaps the easiest way to navigate through folders in MATLAB is clicking the folder names in the Current Folder Window.

However, we might need to navigate folders inside scripts and functions.

There are built-in functions in MATLAB to achieve this.

cd() Built-in Function:

We can use cd function to navigate current directory to the destination folder:

```
Command Window
>> help cd
 cd      Change current working directory.
    cd directory-spec sets the current directory to the one specified.
    cd .. moves to the directory above the current one.
    cd, by itself, prints out the current directory.

    WD = cd returns the current directory as a string.

    Use the functional form of cd, such as cd('directory-spec'),
    when the directory specification is stored in a string.

    See also pwd.

    Reference page for cd
    Other functions named cd

>> cd('matlab');
>> wd = cd

wd =

    '/home/gorkem/matlab'

fx >> |
```

pwd() Built-in Function:

```
>> help pwd
 pwd Show (print) current working directory.
    pwd  displays the current working directory.

    S = pwd returns the current directory in the string S.

    See also cd.

    Reference page for pwd

>> cur_fold = pwd

cur_fold =

    '/home/gorkem/matlab'

>> cur_fold2 = cd

cur_fold2 =

    '/home/gorkem/matlab'
```

ls() Built-in Function:


```
Current Folder                      ⊗
  Name ⊿
    folder1
    folder2
  script1.m
  script2.m
```

```
Command Window
>> help ls
ls List directory.
    ls displays the results of the 'ls' command on UNIX. On UNIX,
    ls returns a character row vector of filenames separated
    by tab and space characters. On Windows, ls returns an m-by-n
    character array of filenames, where m is the number of filenames
    and n is the number of characters in the longest filename found.
    Filenames shorter than n characters are padded with space characters.

    You can pass any flags to ls as well that your operating system supports.

    See also dir, mkdir, rmdir, fileattrib, copyfile, movefile, delete.

    Reference page for ls

>> ls
folder1  folder2  script1.m  script2.m
```

Other Built-in Functions:

mkdir: is used to create a new folder.

rmdir: is used to remove a folder.

movefile: is used to move a folder from one directory to another.

copyfile: is used to copy a folder from one directory to another.

delete: is used to delete a file.

MAT-files:

One of the most common file type for MATLAB that is used to save/load a variable in the HDD.

save(): saves all variables in the workspaces as a struct named as matlab.mat.

save(filename): saves all variables in workspace as a struct named as filename.

save(filename, variables): saves mentioned variable(s) as filename.