Course N°04

Script in MATLAB + For-End Loop

Dr. Salah Djerouni

1.Constructing a script (program) in MATLAB

For simple problems, entering commands at the MATLAB prompt in the command window is simple and efficient. However, when the number of commands increases, or you want to change the value of one or more variables, reevaluate a number of commands, typing at the MATLAB becomes tedious. You will find that for most uses of MATLAB.

This section covers the following points concerning script/editor; how to :

- ✓ Open or create a script window
- ✓ Write a name of script in MATLAB
- ✓ Select a folder to save the script in MATLAB
- ✓ Write commands and functions in script
- ✓ Run script and display the result

Notes.

- ❖ When script or editor is executed, all its variables are displayed in workspace window (see fig.9).
- ❖ It is useful to use functions such as (clc, clear all, format,…) in script file to improve the results (see fig.3).
- ❖ If you try to run script and your script is not in the current folder whose path is listed in the current folder toolbar, a dialog box will appear giving you the option of changing the folder listed in the current folder toolbar to the folder containing your script (see fig.10)
- ❖ Do not use a variable name that is same as a file name.

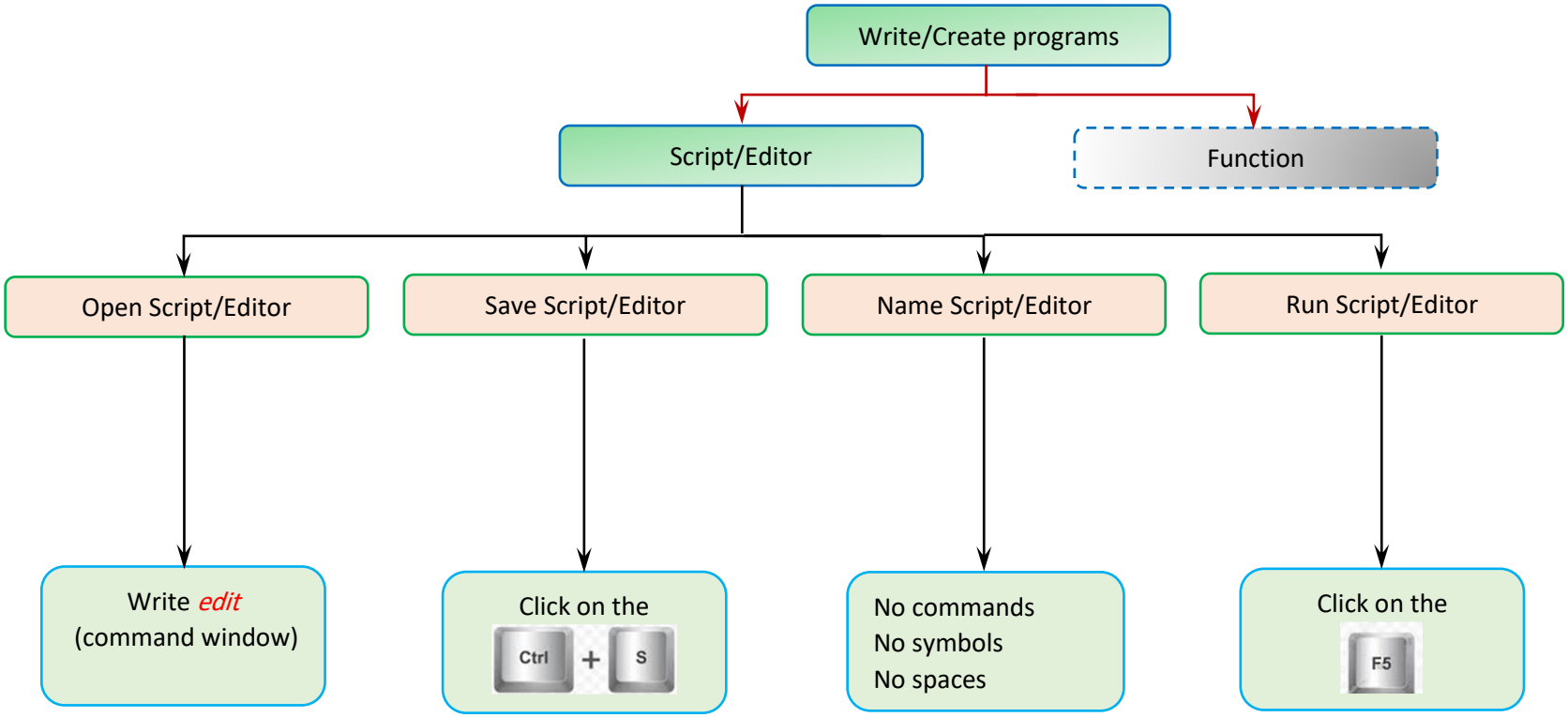


Fig 1. Summarizes the steps for writing a script in MATLAB

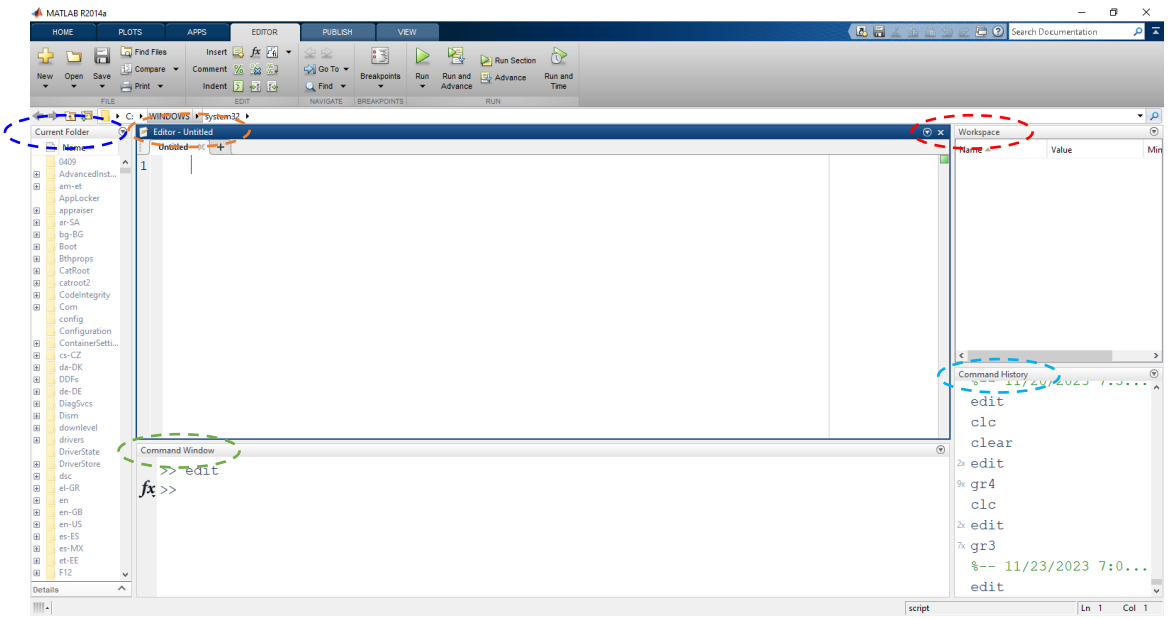


Fig 2. Default layout of the MATLAB programming environment, editor/script window just above the command window

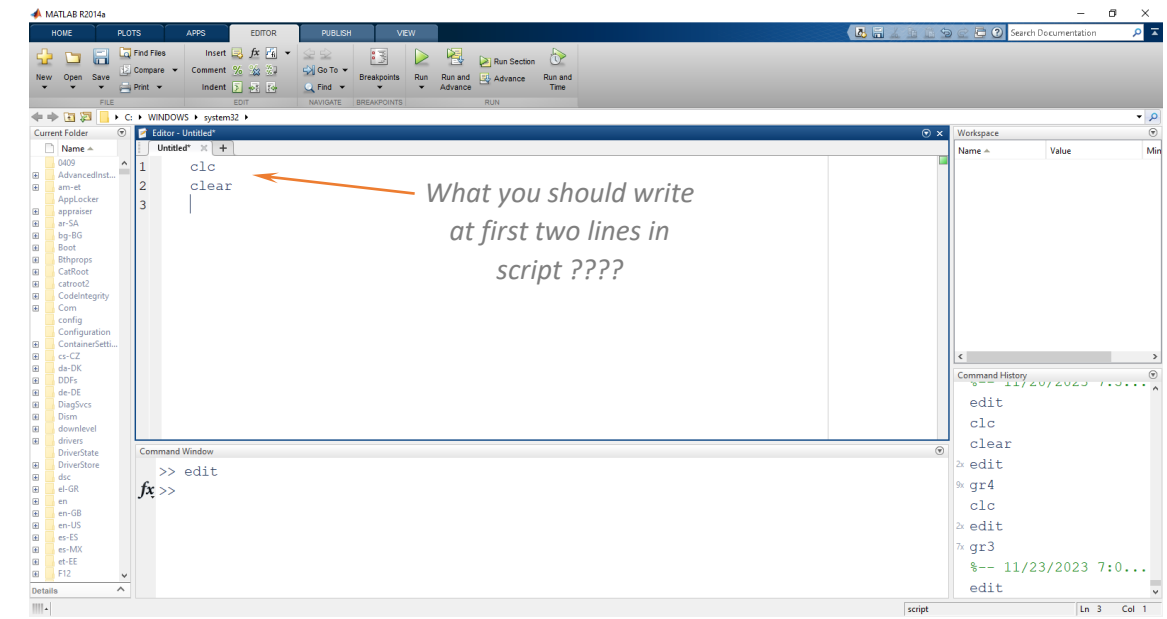


Fig 3. First two lines in script window

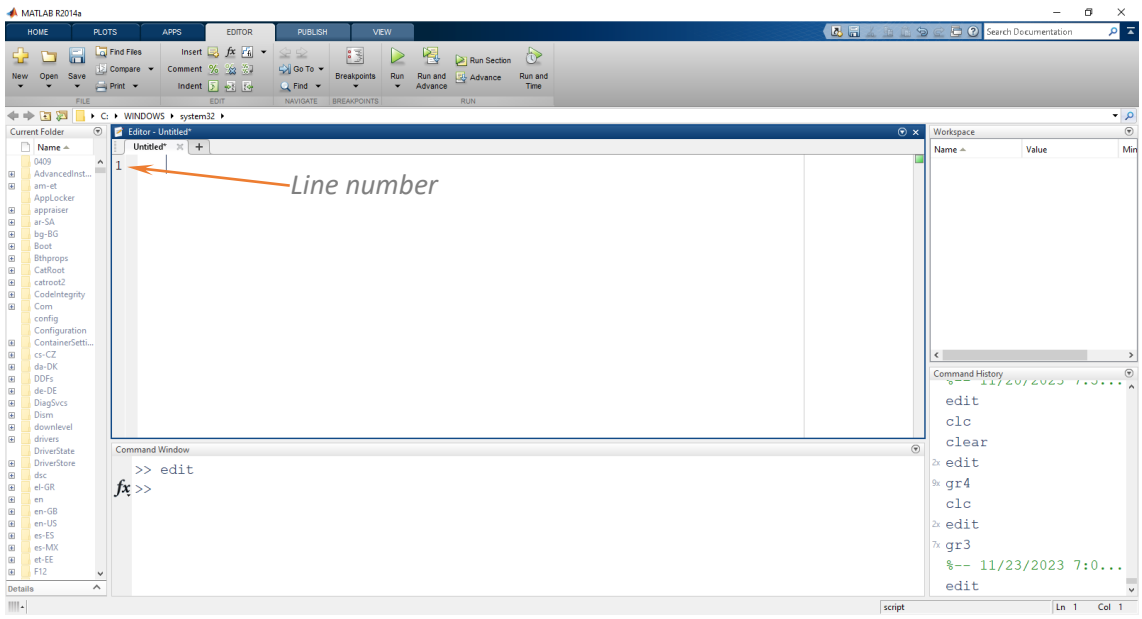


Fig 4. Line numbers in script window

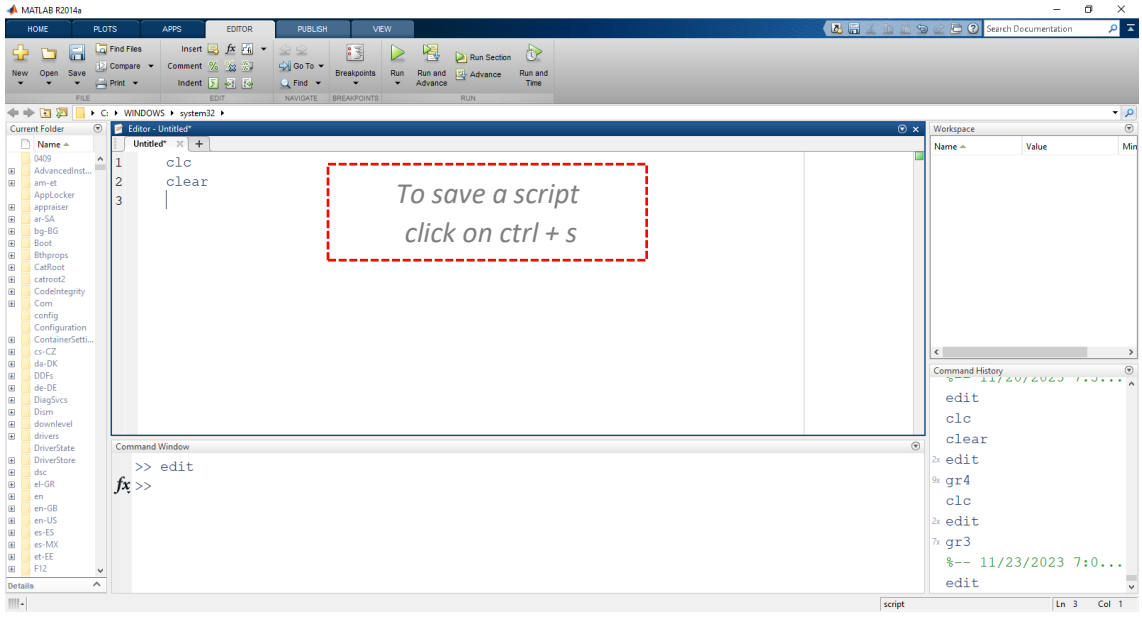


Fig 5. Save icon in script MATLAB (toolstrip)

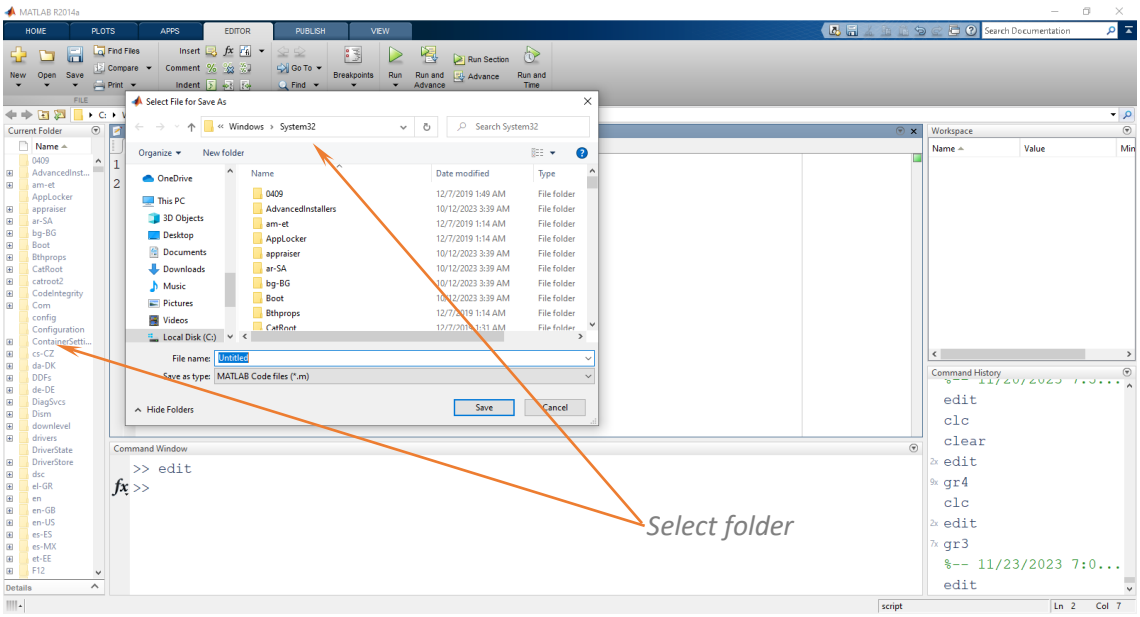


Fig 6. Select folder (left or top) of the script in MATLAB

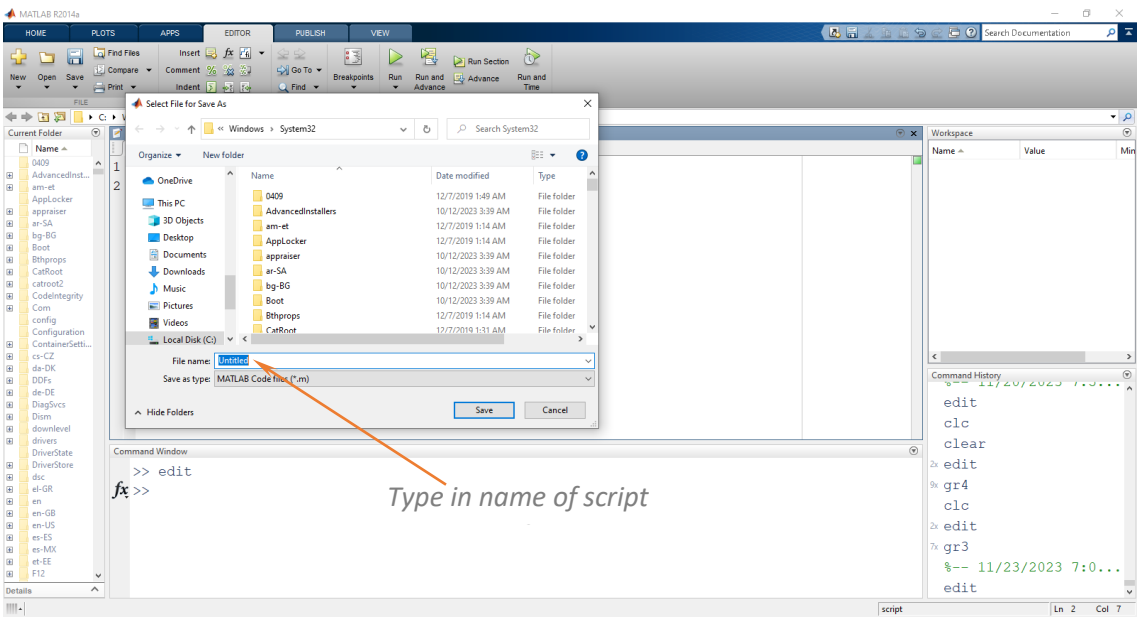


Fig 7. Type in the name of the script in the file name dialog box

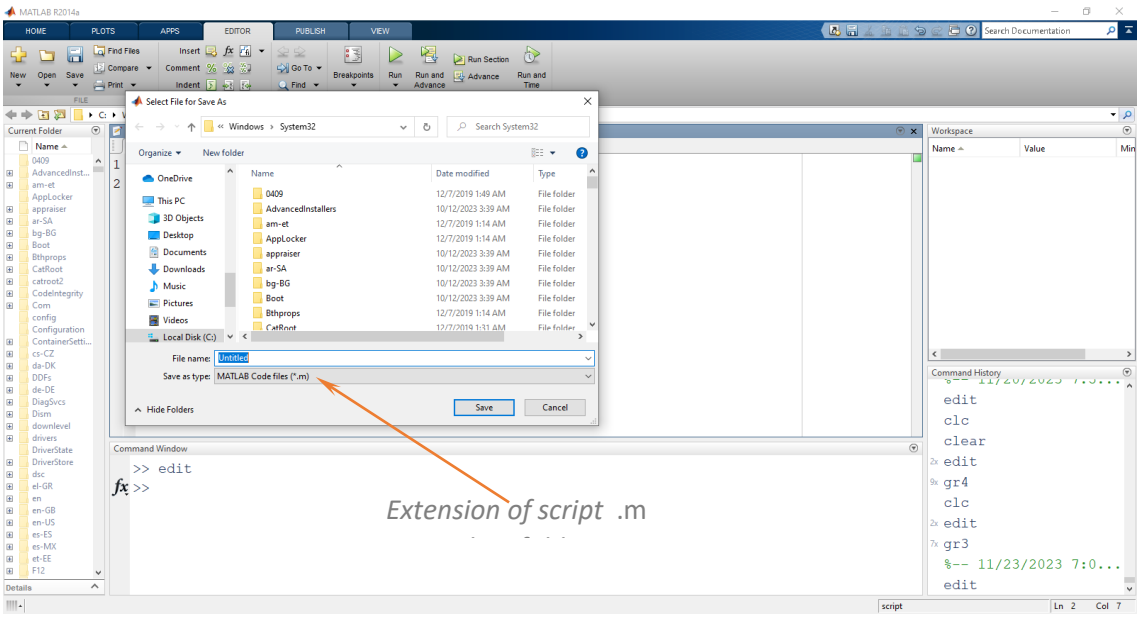


Fig 8. The extension of the script in the save as type

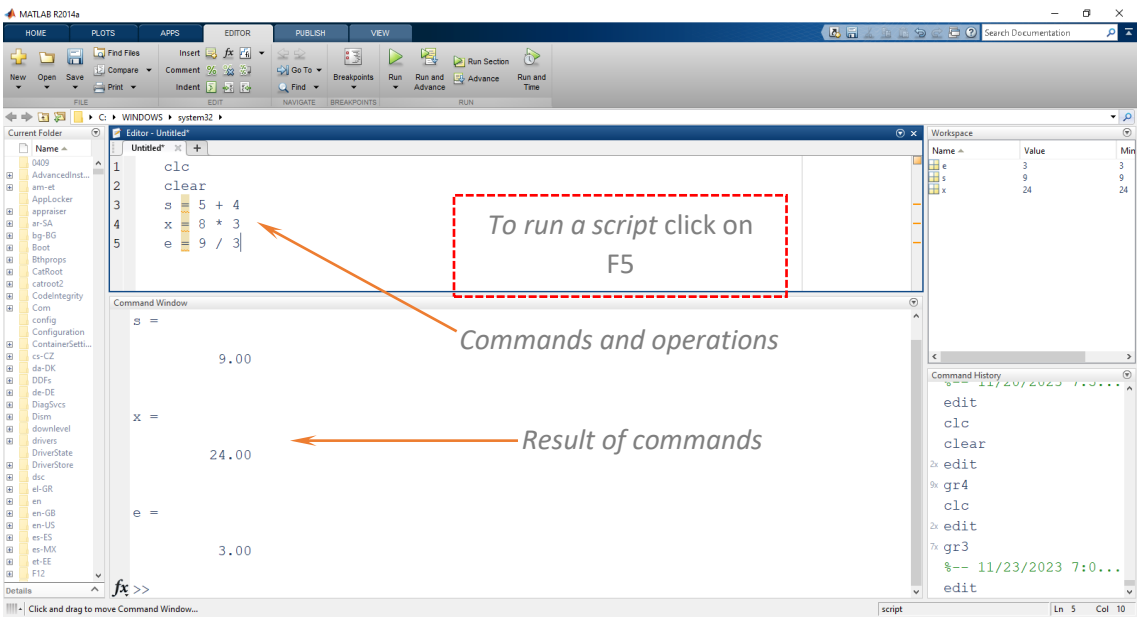


Fig 9. Run icon in the script MATLAB

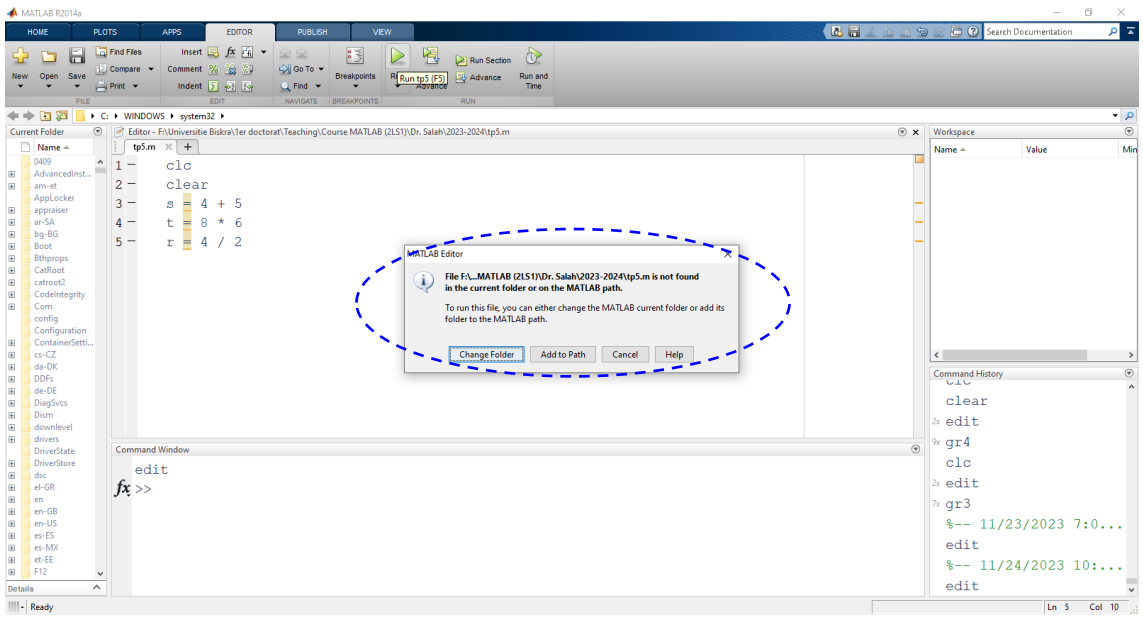
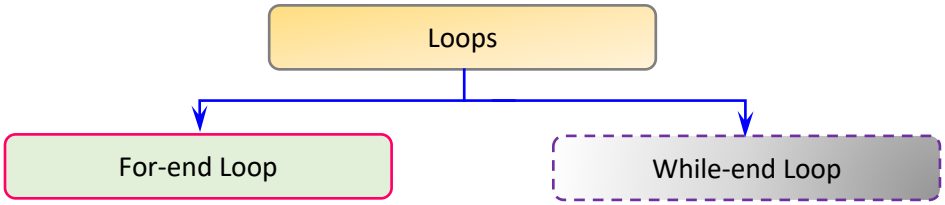


Fig 10. Dialog box for changing folder path

2.Loops

The loops command provides the means to repeat a series of statements with just a few lines of code. MATLAB has two ways to control number of times loop executes commands.



2.1.The For-end Loop

A for loop is a repetition control structure that allows you to efficiently write a loop that needs to execute a specific number of times. The syntax of for statement in MATLAB is:

```
for variable = start number : step : stop number
    ……..statements/instructions/operations …….
end
```

Note.

- There is no semicolon ";" or "." after the *for* and *end* statements.
- Process repeats itself until *k>t.*
- The loop index variable can have any variable name *(i,j,k and so on).*
- The name of the variable should not be the same as the result in the statements or the instructions.

3.List of References

Kattan, Peter Issa. Matlab for Beginners: A gentle approach. Petra books, 2008.

Etter, Delores M., David C. Kuncicky, and Douglas W. Hull. Introduction to MATLAB. Vol.4. Hoboken, NJ, USA: Prentice Hall, 2002.

Attaway, Stormy. Matlab: a practical introduction to programming and problem solving. Butterworth-Heinemann, 2013.

Driscoll, Tobin A. Learning Matlab. Society for Industrial and Applied Mathematics, 2009.

Butt, Rizwan. Introduction to numerical analysis using MATLAB. Laxmi Publications, Ltd.,2008.

Sigmon, Kermit. Matlab: aide-mémoire. Springer Science & Business Media, 1999.

Chapman, Stephen J. Essentials of MATLAB programming. Cengage Learning, 2016.