Course N°07

The while-end loop

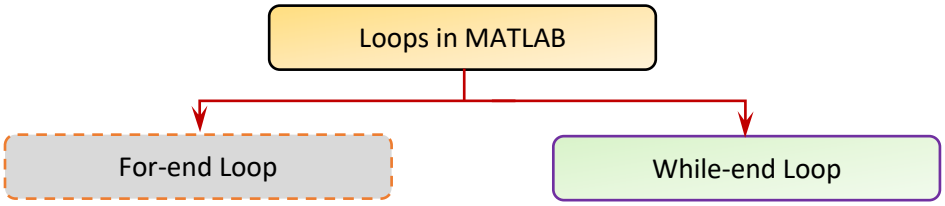
in MATLAB

Dr. Salah Djerouni

1.Repetitive execution/operation

MATLAB features two of the most common loop structures: counter loops (*for*) and conditional loops (*while*).

Unlike other languages, MATLAB only has two types of loop, *for* and *while*. For loops should be used when the number of iterations is known beforehand - as in 'Loop over these statements five times. When the required number of iterations is unknown, or may be different for each run of the program, use a while loop.



2.The *while-end* Loop

2.1.General loop structure

A while loop is used to repeat an operation until a condition is met.

An alternative to the *for loop* is the *while loop*. If an index in the program is required, the use of the while loop statement (unlike the for-loop statement requires that the program generates its own index. The basic syntax for a 'while' loop is as follows:

```
var = start ;
 while (var <= stop)

…. Statements/operations to be repeated…..

var = var + step ;
end
```

Note.

- The while loop is very useful, for example, to reach process convergence.

- Semi colon (;) after each command/operation do not show or display the execution of that command/operation in command window (see figure 1)
- To specify the results that need to show in command window just type the command *disp( )* and the name of the variable between parenthesis *( )*,(see figure 2)
- If you want to show more than single variable use brackets inside parenthesis disp([ ]) and separate them with space or comma (,),(see figure 3)
- The command disp(.) allow you to classify the result as in table, (see figure 4)

<	Smaller
>	Greater
<=	Smaller than or equal to
>=	Greater than or equal to
&&	And operator
~=	Not equal
==	Equal to

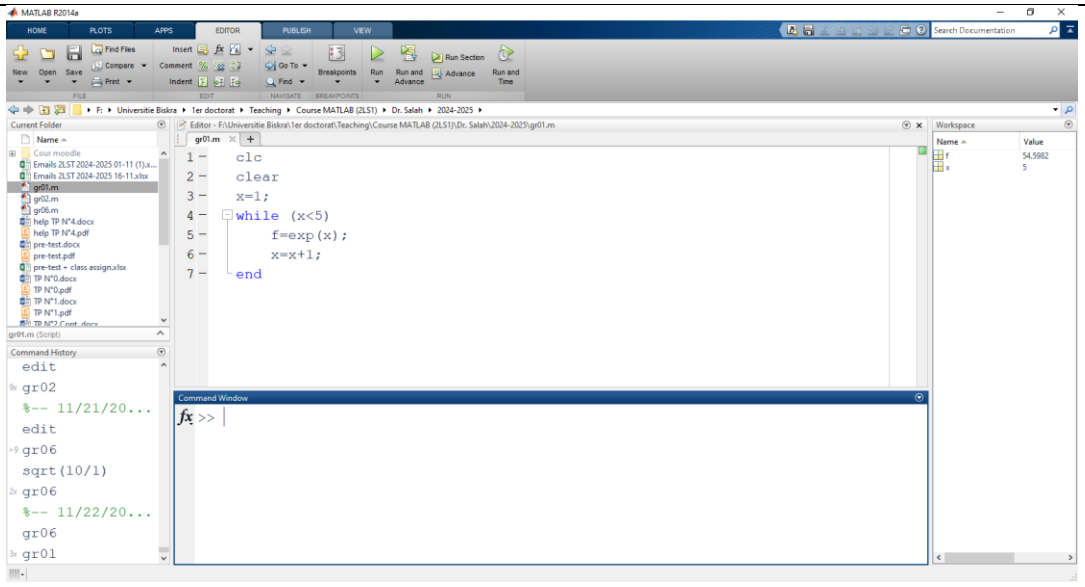


Figure 1. An example of using the semi-colon *(;)*

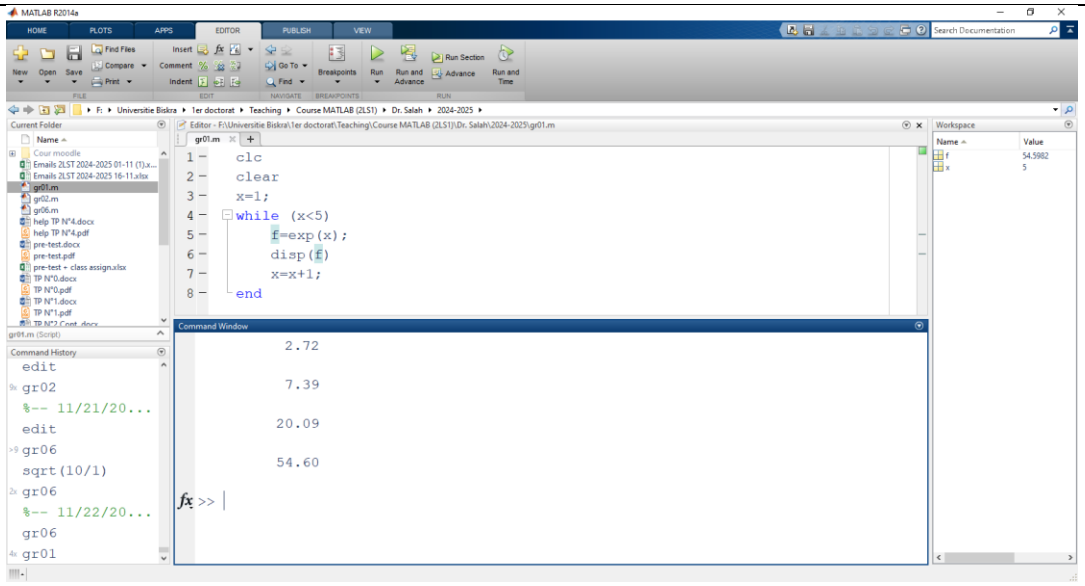


Figure 2. An example of using the command *disp(.)* to show the result of single variable

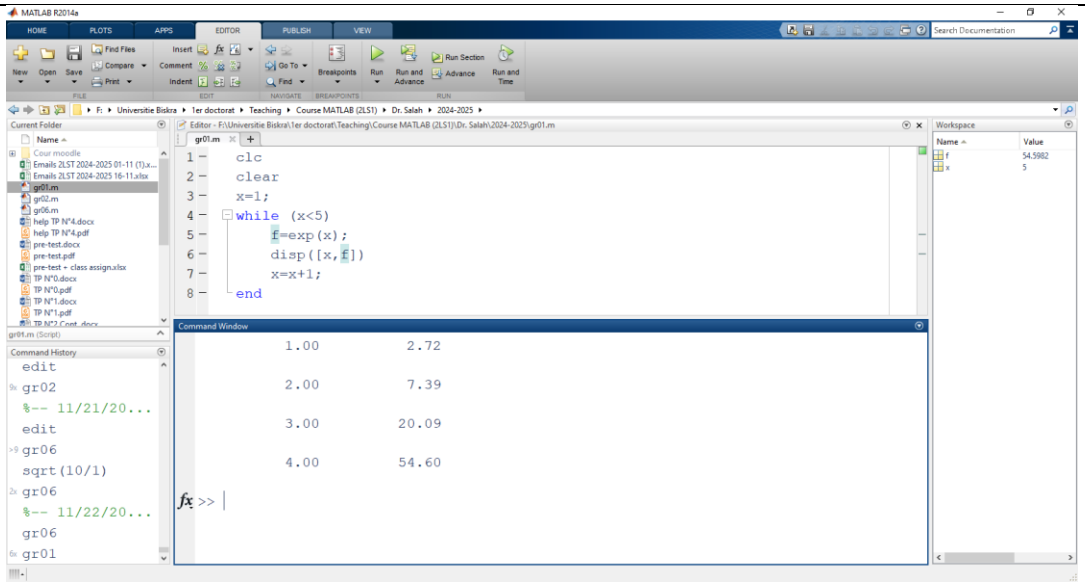


Figure 3. An example of using the command *disp(.)* to show the result of multiple variables

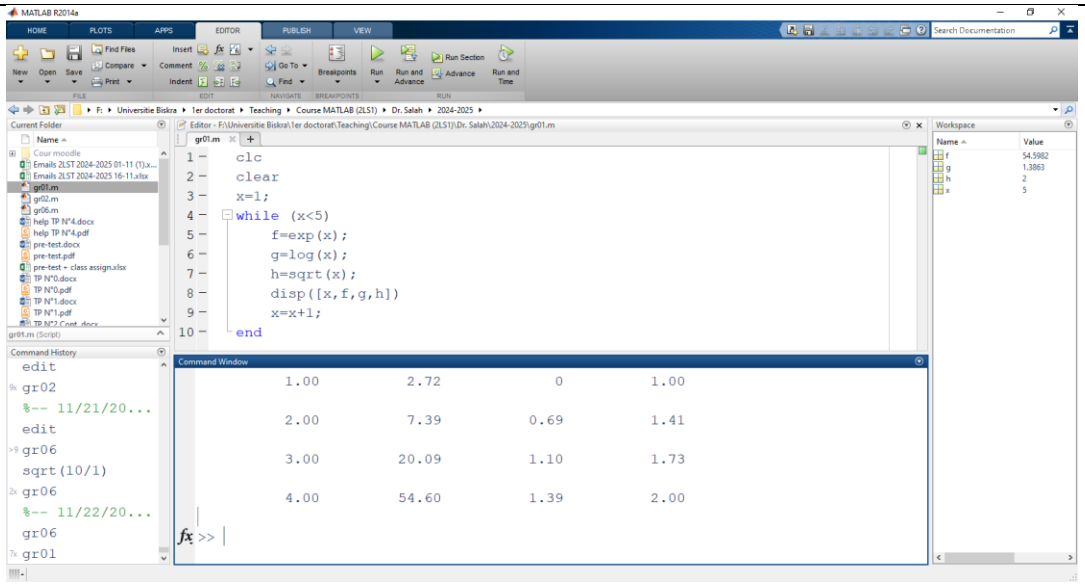


Figure 4. An example of using the command *disp(.)* to show the result of multiple functions

2.2. How many loops you should selected ?

A number of variables are only the variable that control the number of loops used, which means number of variables should be **equal** number of loops.

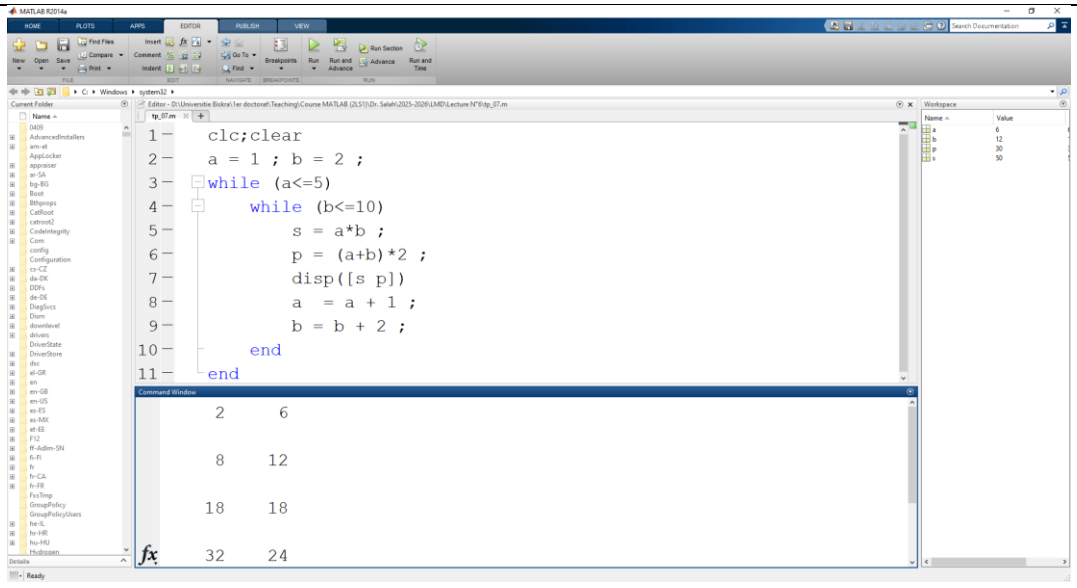


Figure 5. An example of using two-loops

Note. Rather than using many loops you can use one loop and the variables can be declare in one line all together and connect them with *and* see figure 6 .

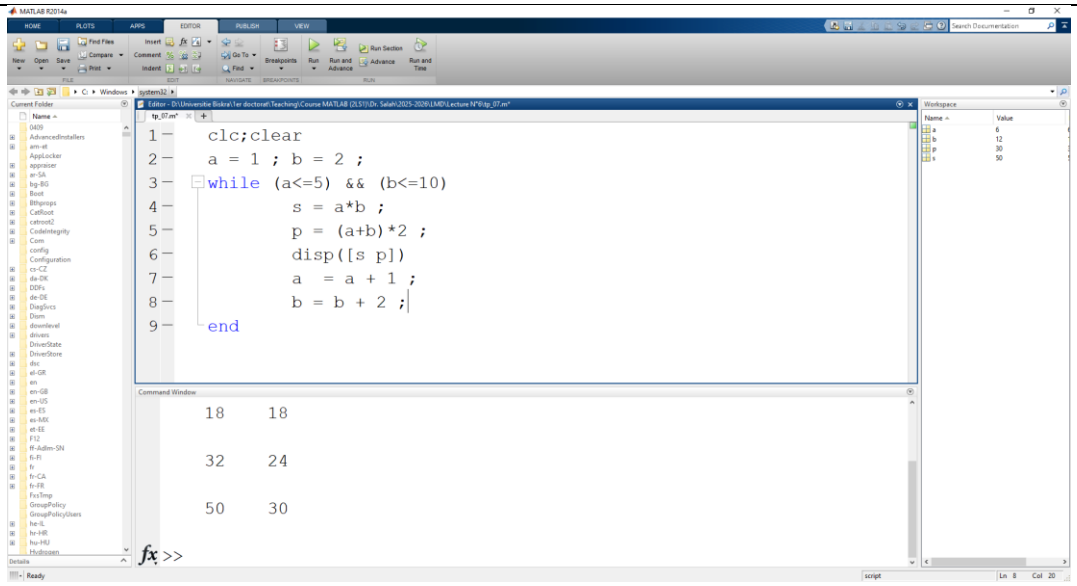


Figure 6. An example of using one loop with many variables

3.List of References

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