Programming tools for mathematics

TP N° 1

Launch MATLAB :

Exercise α (alpha)

Type the following commands on the **Command Window**, what do you notice in the Command window, workspace and command history windows ?

a) >>a =5
b) >> A = 5.6
c) >> b = 7 ;
d) >> B = 'salam'
e) >>5 ;
f) >> ans = A + b
h) >> A
i) >>% what is the purpose of the % character?
j) clc

- What do the command Clc do?
- What happens when you type quit
- What is the current mode of operation in the Command Window?

Exercise β (Beta) (Workspace)

a. Your Workspace is cleared. To retrieve your workspace variables (from the previous exercise), click on the Command Window and use the up arrow (↑) and Enter keys.
b. What information is displayed for each variable in the workspace window?
c. Right click on the workspace pane to display more information, what are they ?
d. Delete workspace variables, one by one, using one of the following methods :
   - select the variable →right click →choose " delete"
   - select the variable → go to the "edit" menu → click "delete"
   - select the variable →press the "Del" key on your keyboard→ confirm the deletion
e. Use the up arrow key again (↑) to retrieve deleted workspace variables.
f. Save your workspace by following these steps :
   - Click on the "File" menu → choose "Save Workspace As"
   - then, in the dialog box, enter a file name and save.
   - What do you notice on the Current Folder window?

g. Type >>clear B, What does this command do?
   - Identify three methods to delete all the workspace variables at once.

h. Retrieve your variables as following :
   Go to the "File" menu → select "Import Data"→ in the dialog box that appears, double click on the file you saved earlier (with the .mat extension)→
   In the final dialog box (titled "import wizard"), click on "Finish"
   what do you notice in the Workspace ?

i. Double click on a variable of your choice.
   - What is the name of the window that appears? what is its purpose?
   - Modify the value of this variable using this last window, is this modification saved?
j. Can you save only one variable of the workspace?

Exercise γ (Gamma): Command History

1 In the Command History window, Notice the time when you started working. what do the green lines represent?
2 What is the effect of "clc" and "clear" commands on the Command History ? Test this.
3 How to delete a command from this window ? try deleting the clear and clc commands from the current session.
4 Double click (two times) on the dashes – of your session (%--date et heure), What do you notice ?
5 How to re-run a single instruction?

Exercise δ (Delta) Current Folder

a. What is the current working directory (on the address bar)? Change the path to the Desktop.
b. What are the MATLAB files in the current folder? Which extensions do they have?
c. Type these commands: A=5, printmatrix(A), what do you notice ?
d. Modifiy the current folder path to : C:\ProgramFiles\MATLAB\R2011a\extern\examples\compiler
e. What are MATLAB files in the current folder now?
f. Retype printmatrix(A) instruction, what do you notice, explain
g. Type the following commnads, what are the results ?
>>which printmatrix >>which sin >>flames

Exercise λ (Lambda)

Open the MATLAB editor **(Code Editor)** to start working in programming mode , by following : (File→New →Script)

a. First type these commands :
tic, A = ones(1000,1000);
B=A/2; toc
Time1=toc
b. Continue on the same file with these lines :
tic, for i=1:1000; for j=1:1000;AA(i,j)=1; end, end
for i=1:1000; for j=1:1000; BB(i,j)=AA(i,j)/2; end, end, toc
time2=toc
c. Save the file on the current folder. What is its extension ?
d. Execute your code by typing the filename (without its extension) in the command window (behind the command line prompt)
e. Compare the results of time1 and time2, explain the difference
f. What do you notice on the workspace ?

Exercise ξ (Zeta)

Customize the MATLAB desktop

✓ Try different desktop layouts via the "Desktop" menu. Return to the default layout.
✓ Save your customized desktop, modify it , and then restore the personalized layout

✓ select "File"→ Preferences or click on the "Start" boutton (Start→Preferences).
✓ On the dialog box that appears, select on the pane "*General"* →*Confirmation Dialogs.* What is the purpose of theses options? Chuck the option : « *Confirm before exiting MATLAB* ».
✓ Close MATLAB, what do you notice ?
✓ Modify the text size or the font in the command window.
✓ On the shortcuts bar, create a common shortcut for the clc and clear commands
✓