

## TP1: Introduction to Python and Jupyter Notebook

1. Install Python (the latest version).
2. Check the option (Add Python 3.10 to PATH).



3. Check if Python has been installed correctly through the command prompt (cmd) using the command: >python

```
C:\Users\difna>python
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep  5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more
>>>
```

4. Exit the text editor and install Jupyter by following these lines of code:

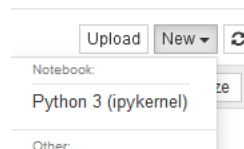
```
>>> quit()

C:\Users\difna>python -m pip install jupyter
Collecting jupyter
```

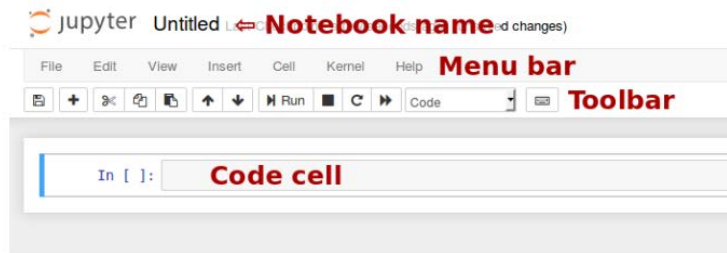
5. To verify if the installation is successful, type the following command in your console

```
C:\Users\difna>jupyter notebook
```

6. Create a new notebook.



7. Rename the file, add cells of text type and code type.



8. Install the following libraries (in the command console): scipy, numpy, matplotlib, pandas, sklearn: `pip install library_name`.

### 9. Vectors:

- Create an array containing numbers from 1 to 9.
- Reshape this 1D array into a 2D array and display its dimensions.
- Display the first row and the first column of the reshaped array.
- Perform a matrix product between two 2D arrays.

### 10. Graphs

- Given the two lists X, Y:  $X = [-1, 0, 1, 2]$ ,  $Y = [3, 2, 4, 1]$ , where X represents the list of abscissas and Y represents the list of ordinates, create a graph.
- Gradually insert the following commands:

```
plt.grid()
plt.axis([-2,3,0,5])
plt.xlabel("mes abscisses")
plt.ylabel("mes ordonnées")
plt.title("courbe d'équation  $y = f(x)$ ")
```

- Replace the line `plt.plot(X, Y)` with `plt.plot(X, Y, 'r.')`