

COMPUTING SUBJECT:	Machine Learning
TYPE:	WORK ASSIGNMENT
IDENTIFICATION:	Jupyter notebook introduction
COPYRIGHT:	<i>Michael Claudius</i>
DEGREE OF DIFFICULTY:	Easy
TIME CONSUMPTION:	< 30 min.
EXTENT:	< 10 lines
OBJECTIVE:	Learning Jupyter
COMMANDS:	

IDENTIFICATION: Jupyter Introduction

The Mission

Your mission is to get used to the functionality and basics of Spyder and Jupyter.

Remark

Jupyter is an efficient tool when it comes to visualizing data and showing the functionality of code. Unlike Spyder, Jupyter does not supply you with a complete developer environment but are good for showing code fast and easy.

The problem

Jupyter has a different approach when it comes to creating projects and files, an approach that needs to be understood in order to start working productively with your python code. Your assignment is to create a feasible structure with new folders, build a new project and save it in your folder.

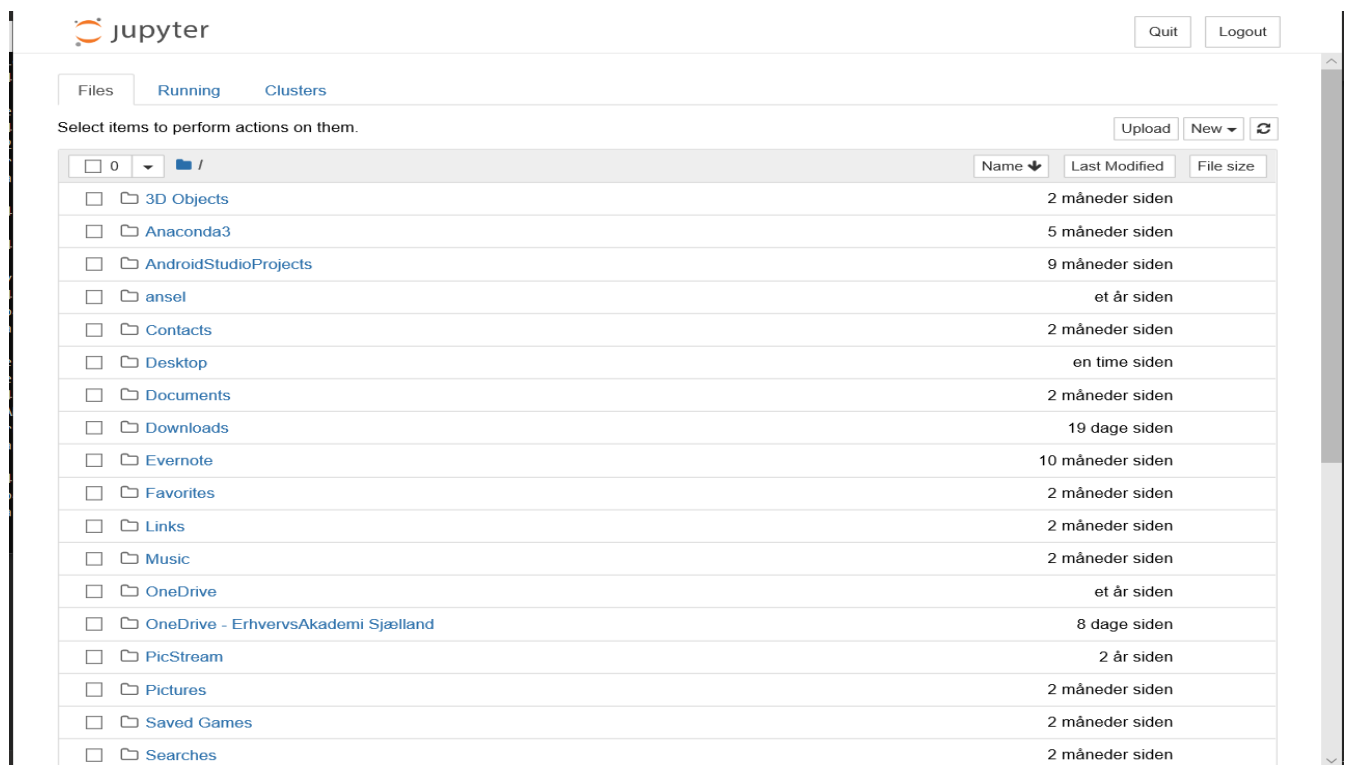
Remark

By creating a structure, it will be easier for you to keep track of notebook-files and datasets.

Assignment 1 Building folders for Jupyter projects

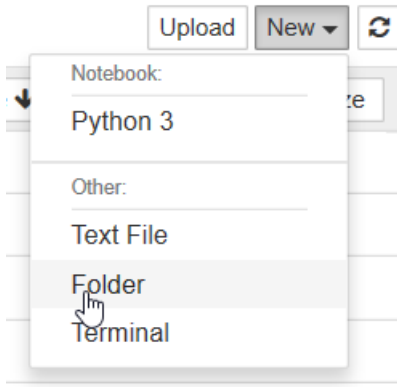
Open Jupyter notebook on your pc. A console window will appear, telling you that Jupyter is running – it runs through your browser, so your pc will either ask you to choose a browser, or it will open Jupyter in your default browser (Chrome).

Your main page should look like this.

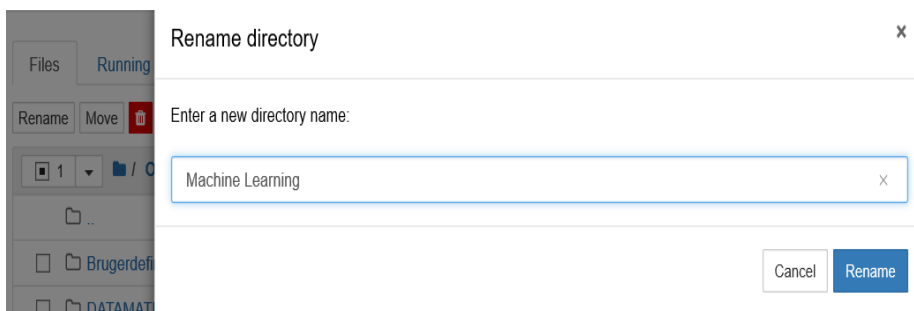


You can choose you OneDrive path (it's a little tedious later on) or just create a new folder right away. We are following the last mentioned approach.

In the right corner of your screen.
Click “New” -> Folder



Your folder will be created as *untitled*, find it in the list, mark it (tick the box) and go to your upper left corner and choose “Rename”. Name you folder “Machine Learning”.

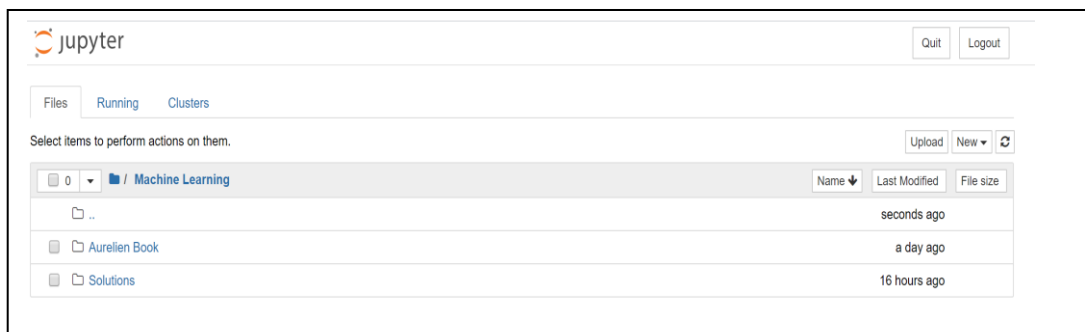


Choose the new folder *Machine Learning* and inside create two new folders:

Solutions; this is for your own projects

Aurelien; this is for the book examples and the Github examples

Make sure that your folder structure resembles:

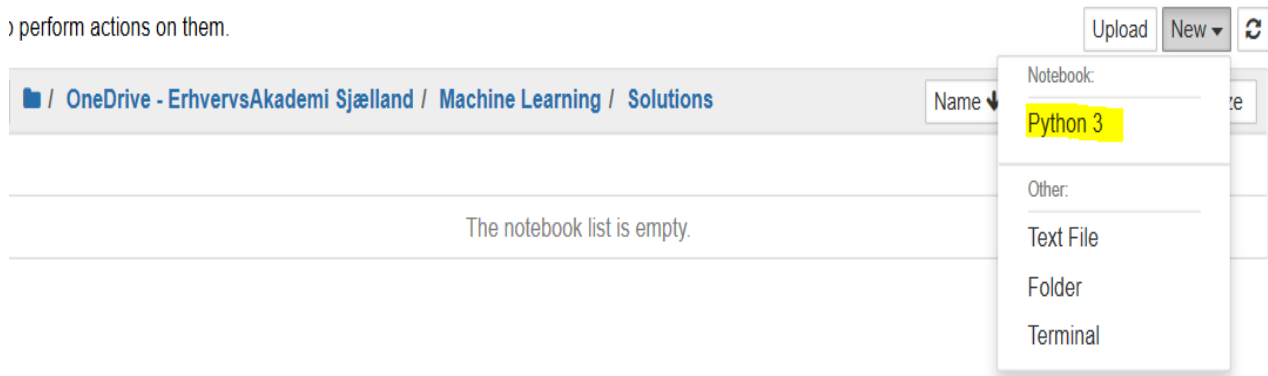


Assignment 2: Creating a new notebook

Now that you have learned how to create a new folder for projects, it is time to create a Python 3 notebook-file, to be used for testing some Python code.

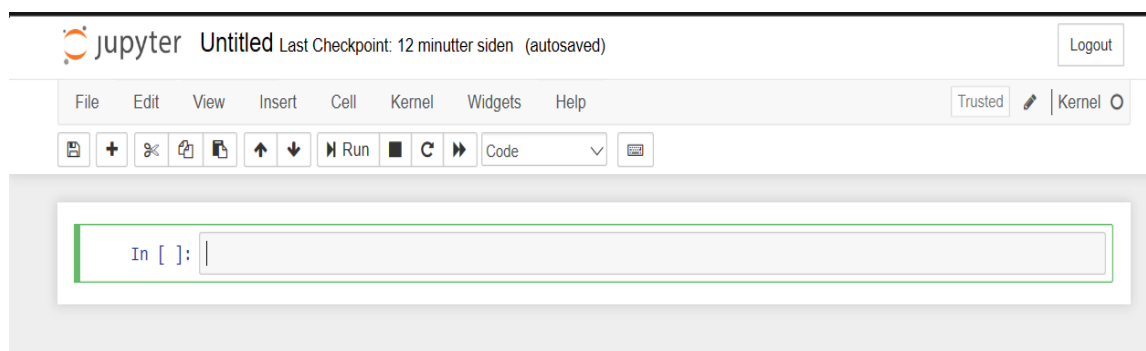
Navigate to your solutions folder. Once inside create a new python 3 notebook file

perform actions on them.



Jupyter will **not** ask you to type in a name for the notebook. It will just create it as an untitled file. Go to “File / Rename” and change the name to *JupyterTest*.

A Jupyter file is built up upon cells – cells consist of the code you put in. You could put a lot of code in one cell, but that breaks the idea behind Jupyter.



NOTE: Jupyter uses the “ipybn” extension (Iron Python NoteBook) and does not run within Spyder by default. Further you can **NOT** open a python-file (.py) in Jupyter and use it with the cell functionality.

Assignment 3: Working with code in Jupyter

When experimenting with code in Jupyter, you can output your code instantly. And see the results of your code.

In this assignment you are to work with some simple Python codes (one-liners and simple functions).

First, make a simple one-line code. Maybe like the below example:

```
print("Hello " + <your name>)
```

To run the code, simply hit the run-button (green triangle) and hopefully you will see something like:

```
In [1]: ▶ print("Hello Michael")  
Hello Michael
```

So far so good!

Say you want to make a “smart” program that can greet a person when a name is entered, you would define a function that takes an argument, in this case a name, i.e. a string value.

In cell [2]:

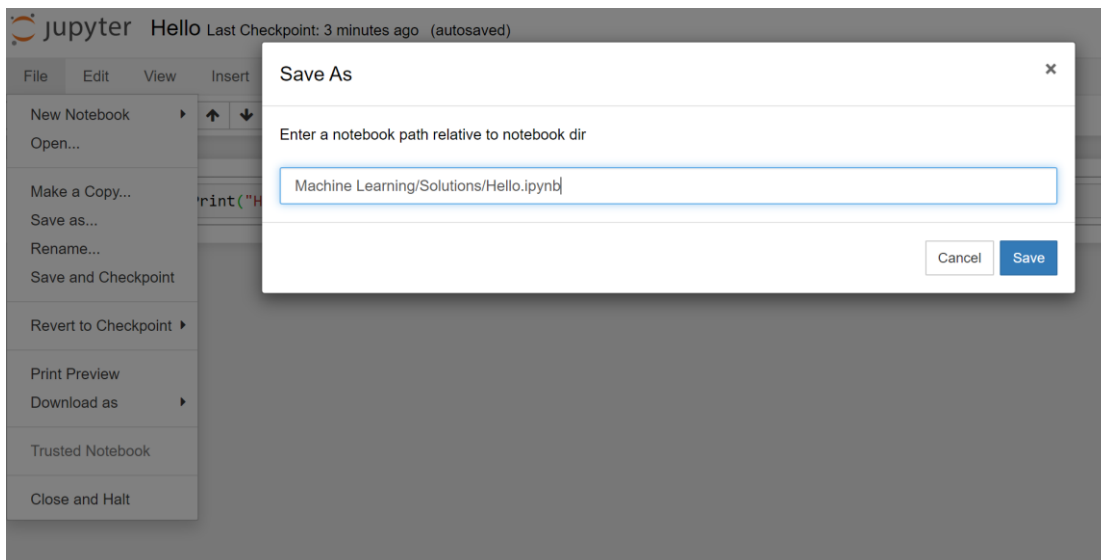
Define a function (C# method):

```
In [6]: ▶ def say_hello(name):  
        print("Hello " + name)
```

Then call the function:

```
In [7]: ▶ say_hello("Great Jens")  
Hello Great Jens
```

Finally save the file in the *Machine Learning\Solutions* folder.
Choose: Files -> Save As

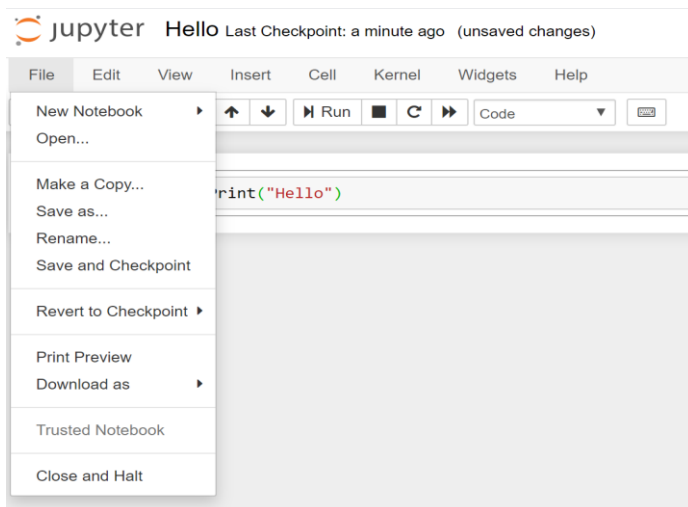


Note: File extension must be .ipynb !

Note: If you later want to save the file just

Choose: File -> Save with Checkpoint

If you like to rename the file later
Choose: Files -> Rename



Now the backbone operations are know and you proceed to next assignment !