

Jupyter Introduction

INFO-F-208

28/09/18

Outline

- Qu'est-ce que c'est Jupyter ?
- Votre premier notebook
- Bonne utilisation

Qu'est-ce que c'est Jupyter?

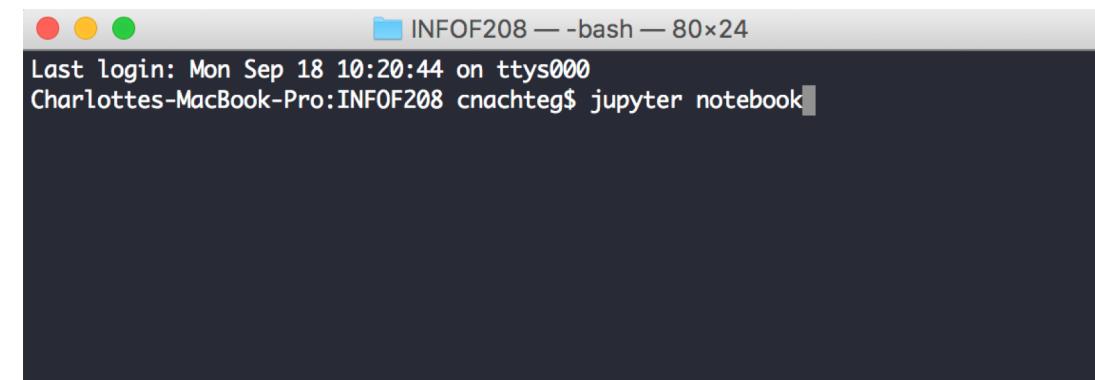
- Moyen de combiner du texte (et des maths) et du code (qui peut être exécuté) en un seul document contenu dans un browser
- Notebook est enregistré dans un fichier texte en format JSON¹
- Jupyter peut exécuter plus de 40 languages différents, mais a été conçu initialement pour Julia, Python et R

¹ <http://json.org/>

Qu'est-ce que c'est Jupyter ?

Installer & lancer Jupyter notebook

- Installer avec Anaconda ou pip² sur votre PC
- Lancer sur un PC de l'ULB avec /serveur/logiciels/anaconda3/bin/jupyter notebook

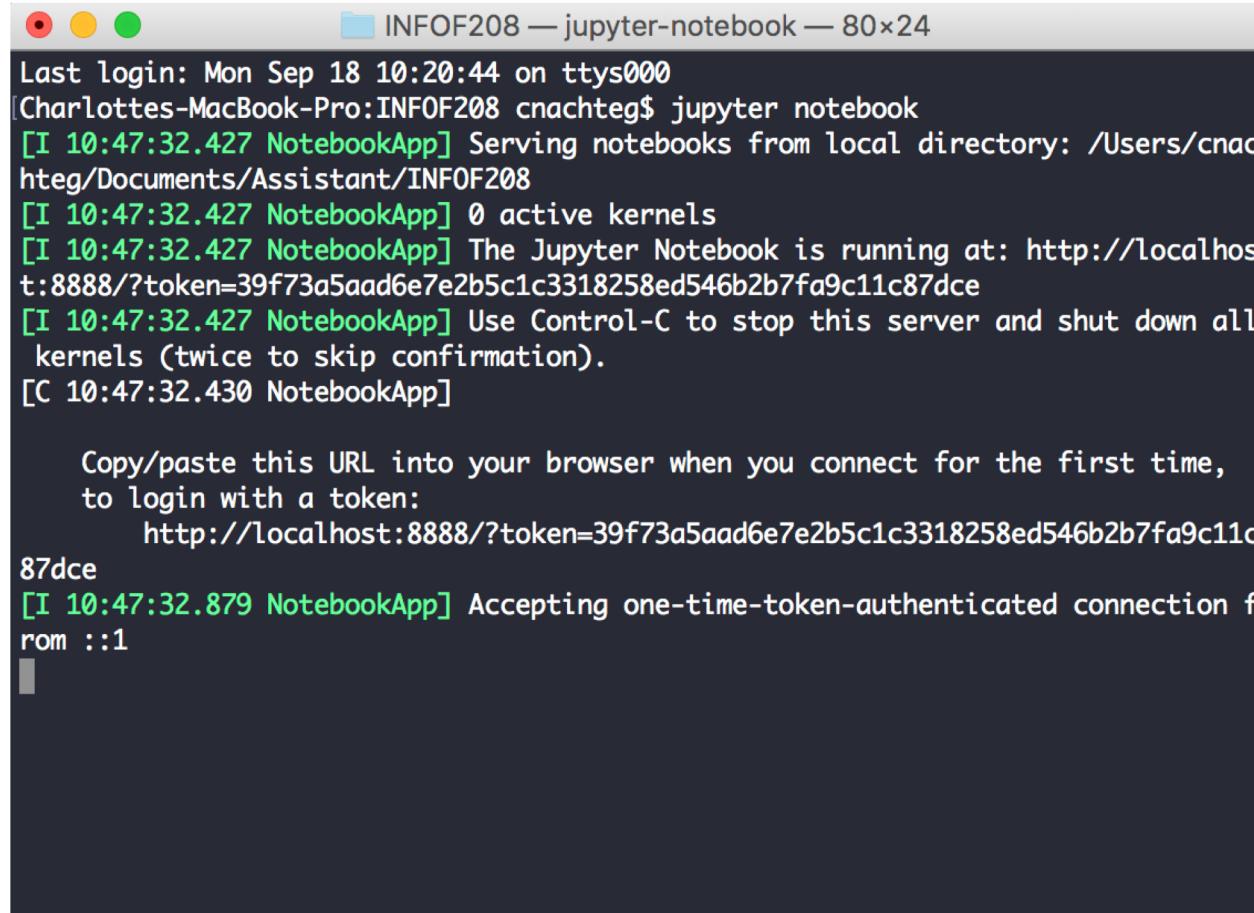


A screenshot of a Mac OS X terminal window titled "INFOF208 — bash — 80x24". The window shows the command "jupyter notebook" being typed at the prompt. The terminal interface includes standard Mac OS X window controls (red, yellow, green) and a dark background.

```
Last login: Mon Sep 18 10:20:44 on ttys000
Charlottes-MacBook-Pro:INFOF208 cnachteg$ jupyter notebook
```

² <http://jupyter.org/install.html>

Qu'est-ce que c'est Jupyter ?

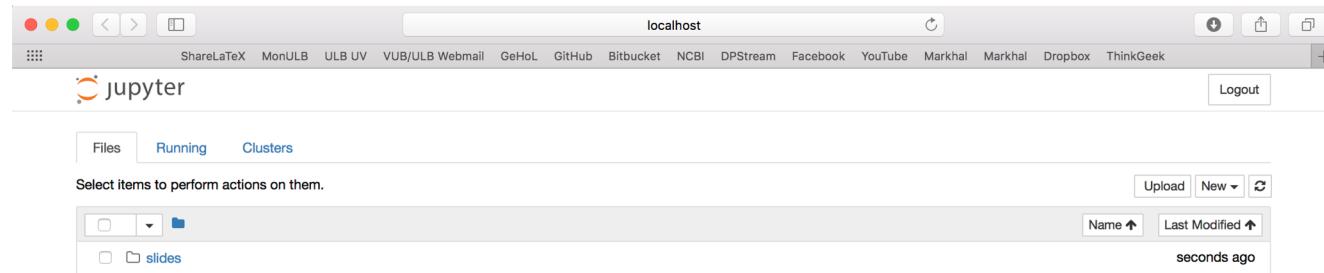


The screenshot shows a terminal window titled "INFOF208 — jupyter-notebook — 80x24". The window contains the following text:

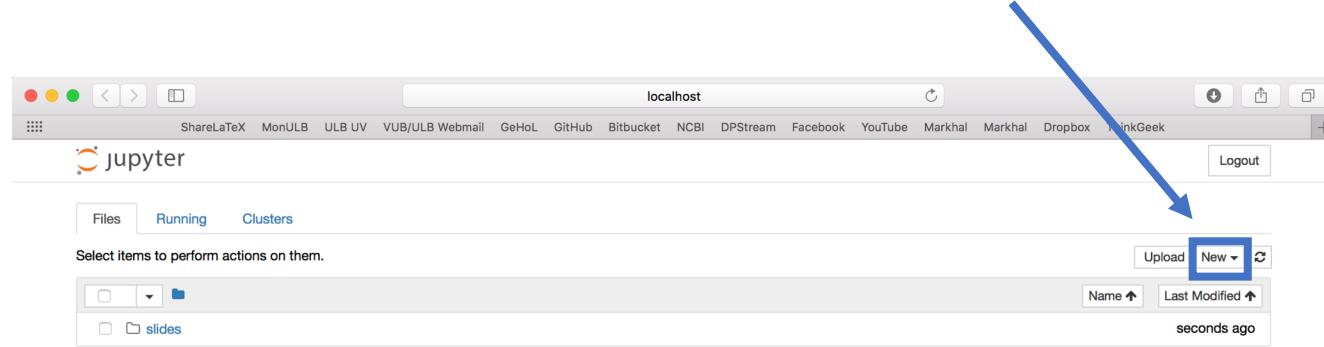
```
Last login: Mon Sep 18 10:20:44 on ttys000
[Charlottes-MacBook-Pro:INFOF208 cnachteg$ jupyter notebook
[I 10:47:32.427 NotebookApp] Serving notebooks from local directory: /Users/cnac
hteg/Documents/Assistant/INFOF208
[I 10:47:32.427 NotebookApp] 0 active kernels
[I 10:47:32.427 NotebookApp] The Jupyter Notebook is running at: http://localhost:8888/?token=39f73a5aad6e7e2b5c1c3318258ed546b2b7fa9c11c87dce
[I 10:47:32.427 NotebookApp] Use Control-C to stop this server and shut down all
kernels (twice to skip confirmation).
[C 10:47:32.430 NotebookApp]

Copy/paste this URL into your browser when you connect for the first time,
to login with a token:
http://localhost:8888/?token=39f73a5aad6e7e2b5c1c3318258ed546b2b7fa9c11c
87dce
[I 10:47:32.879 NotebookApp] Accepting one-time-token-authenticated connection f
rom ::1
```

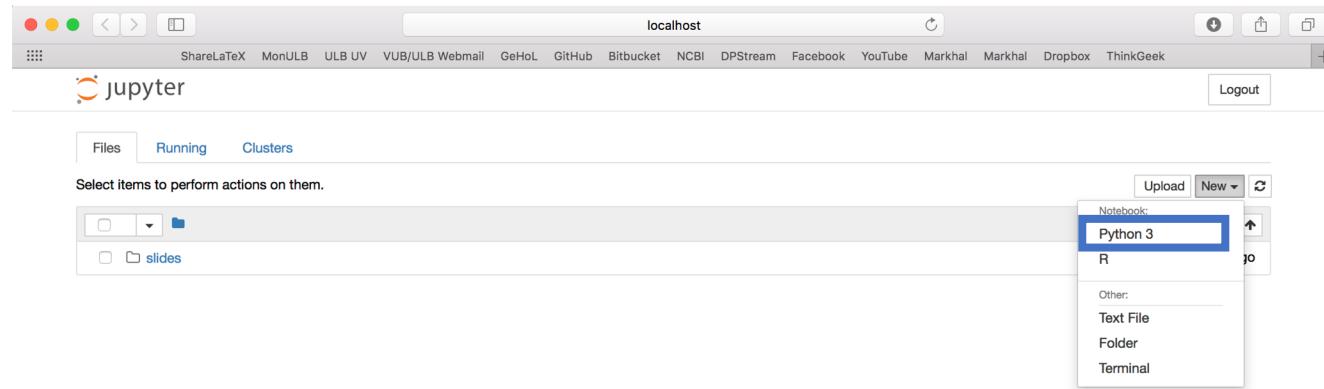
Votre premier notebook



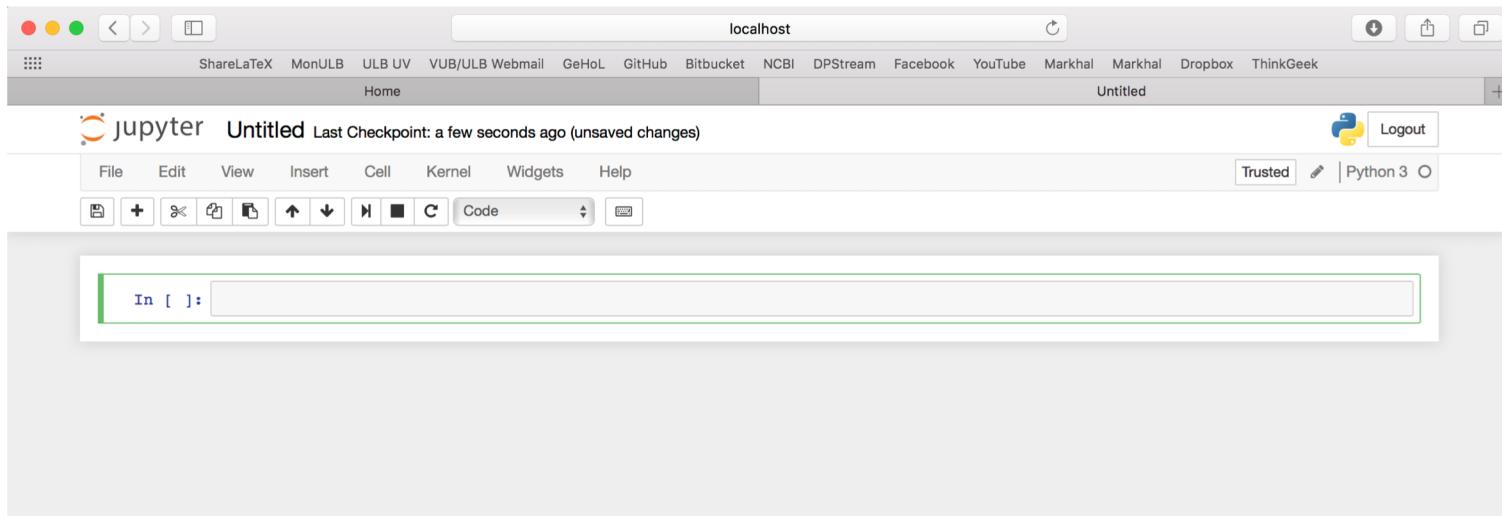
Votre premier notebook



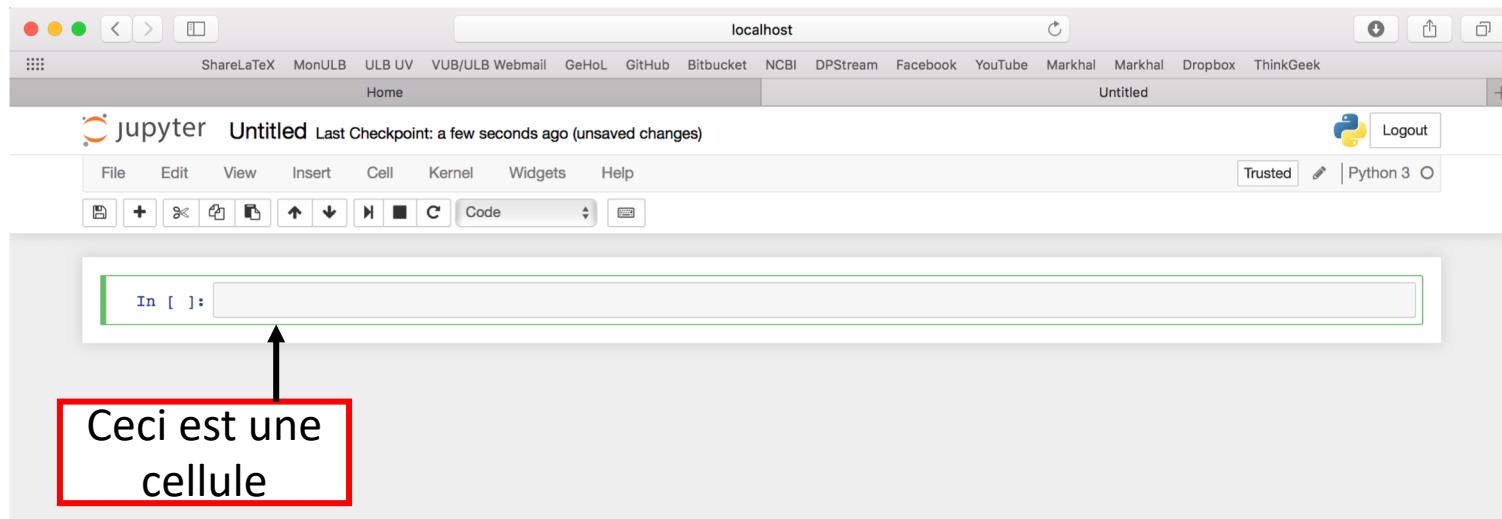
Votre premier notebook



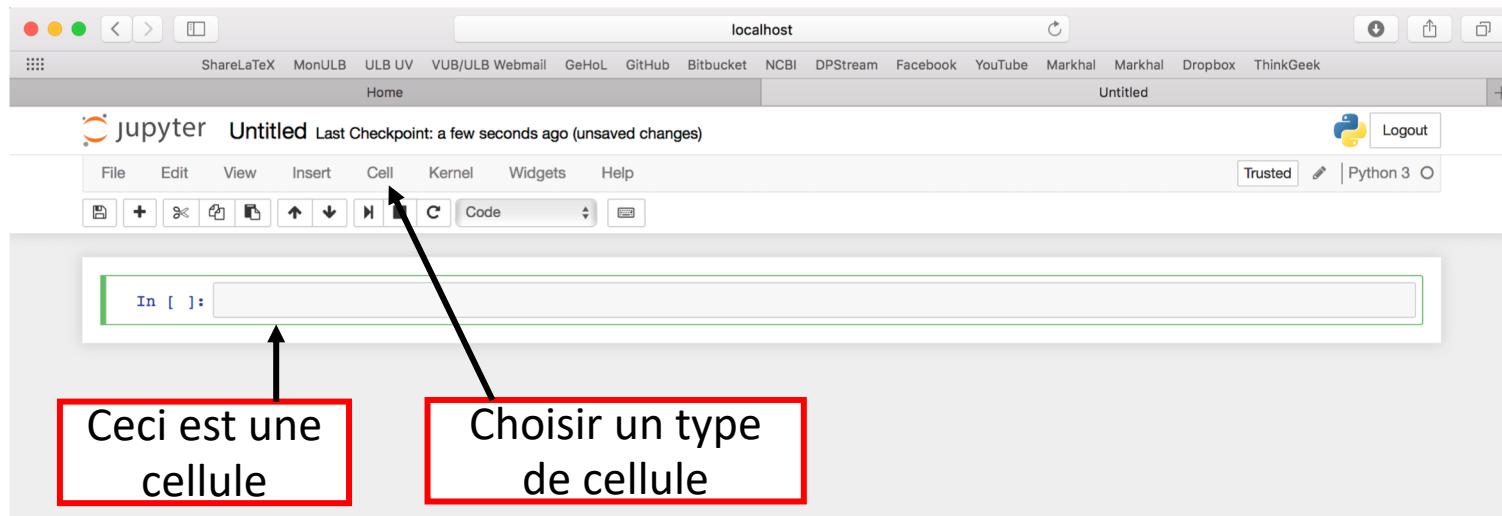
Votre premier notebook



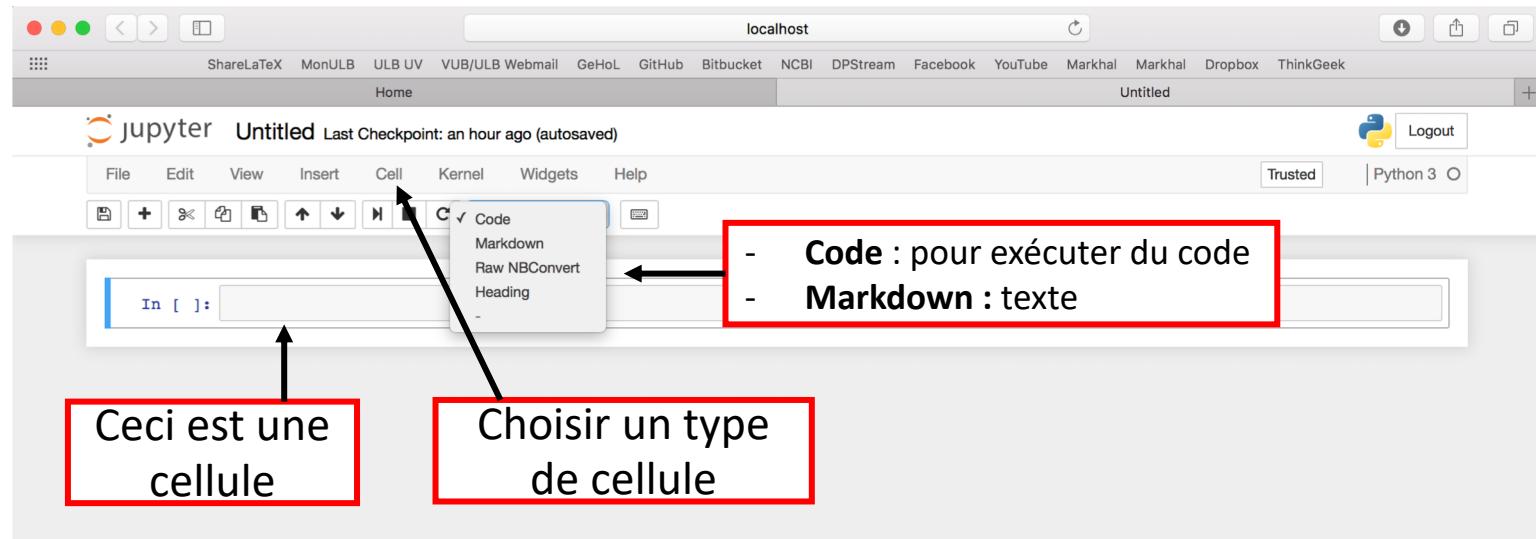
Votre premier notebook



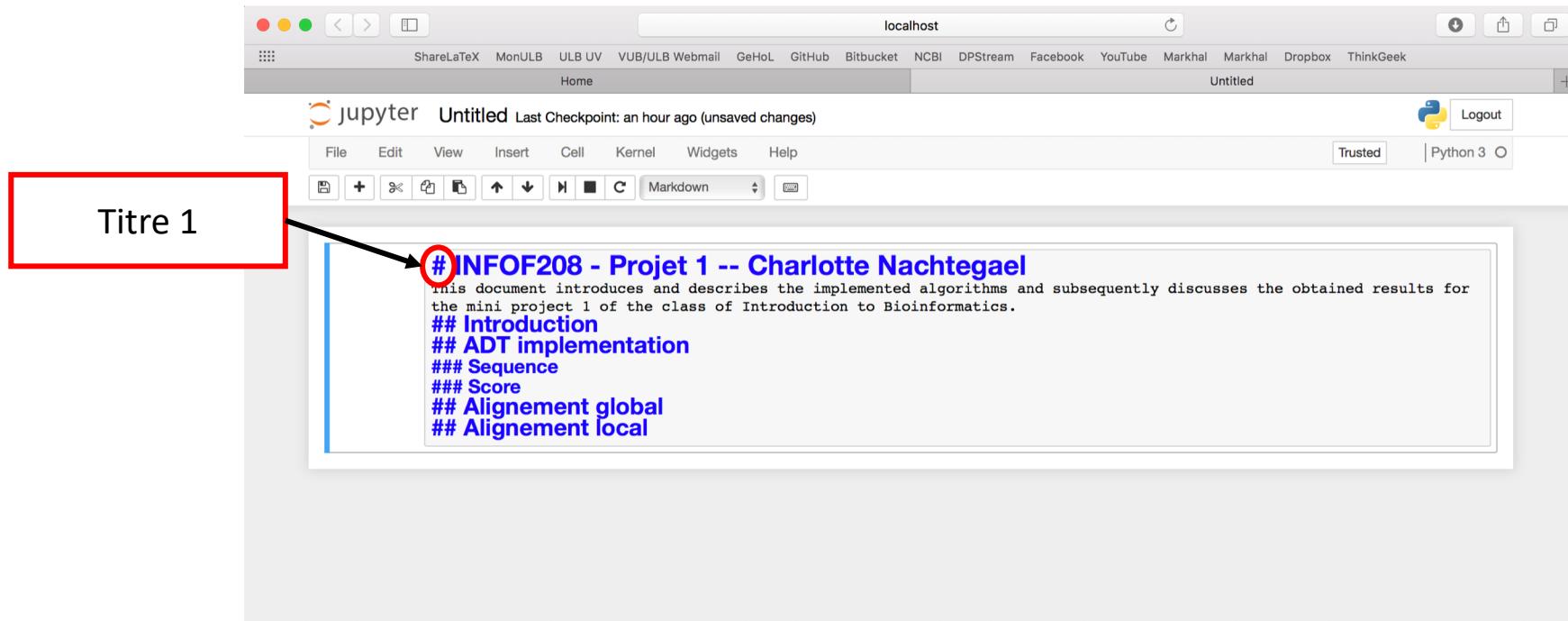
Votre premier notebook



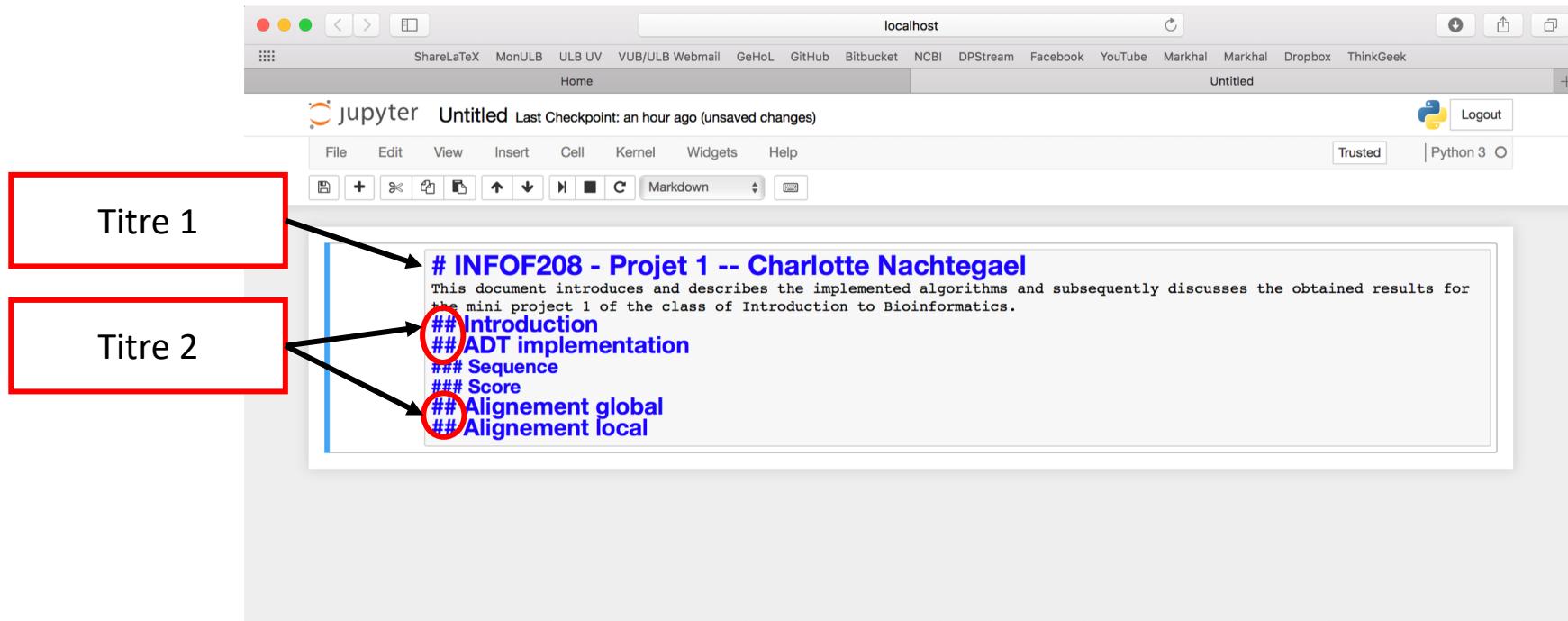
Votre premier notebook – Types de cellules



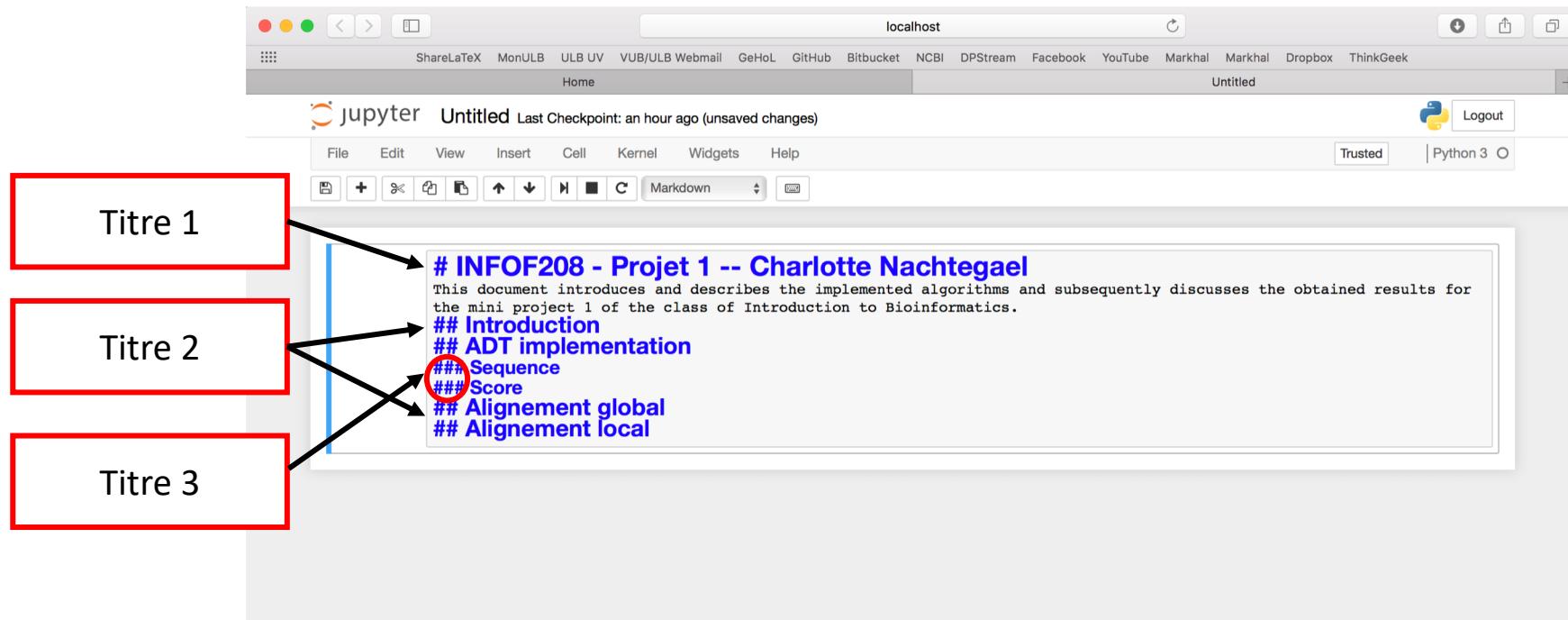
Votre premier notebook – Cellules Markdown



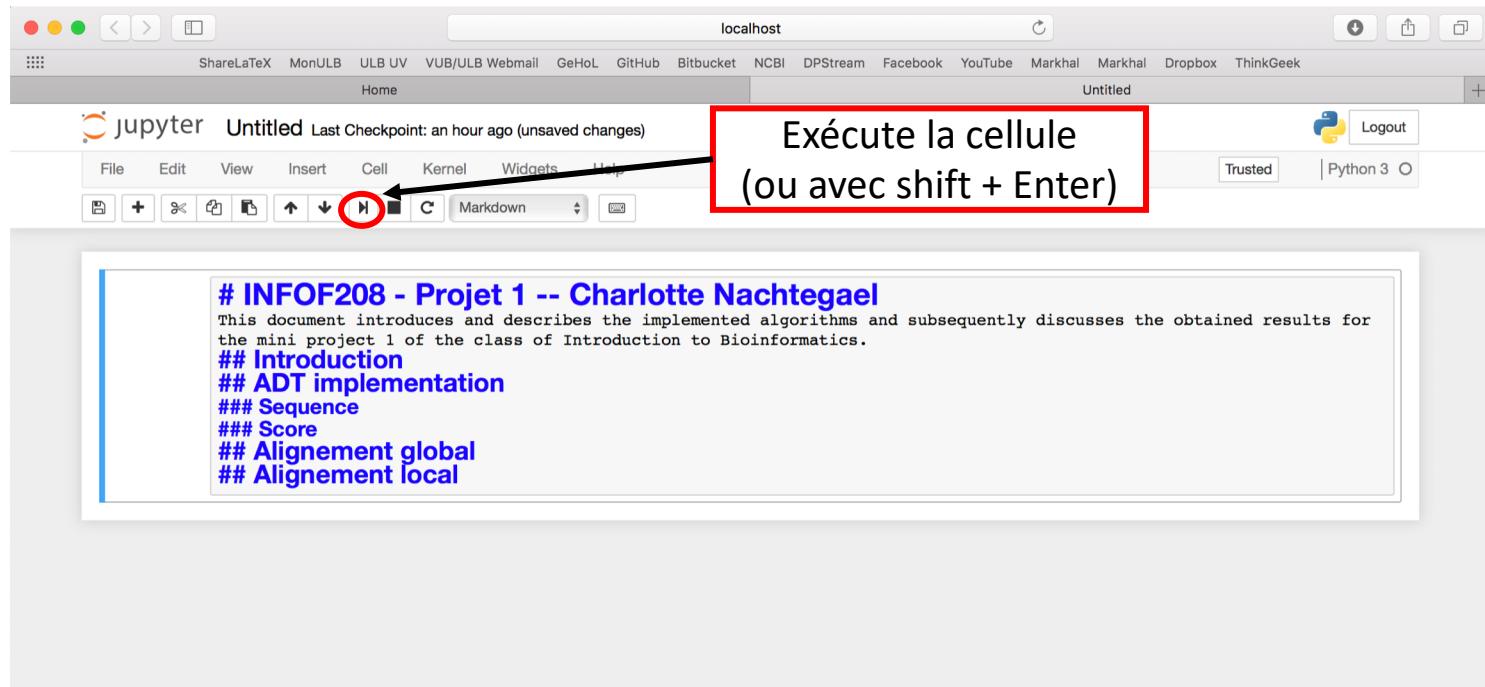
Votre premier notebook – Cellules Markdown



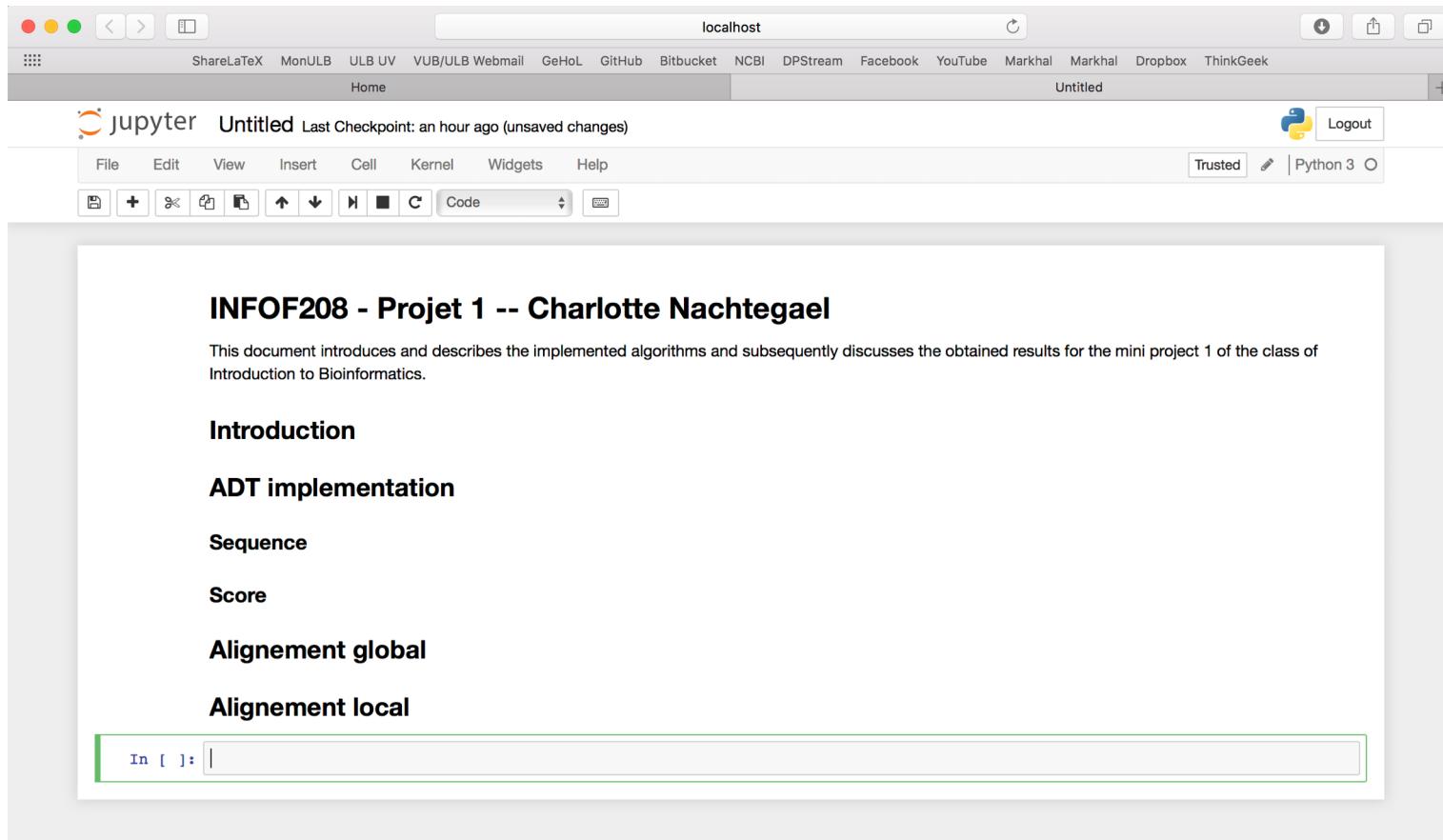
Votre premier notebook – Cellules Markdown



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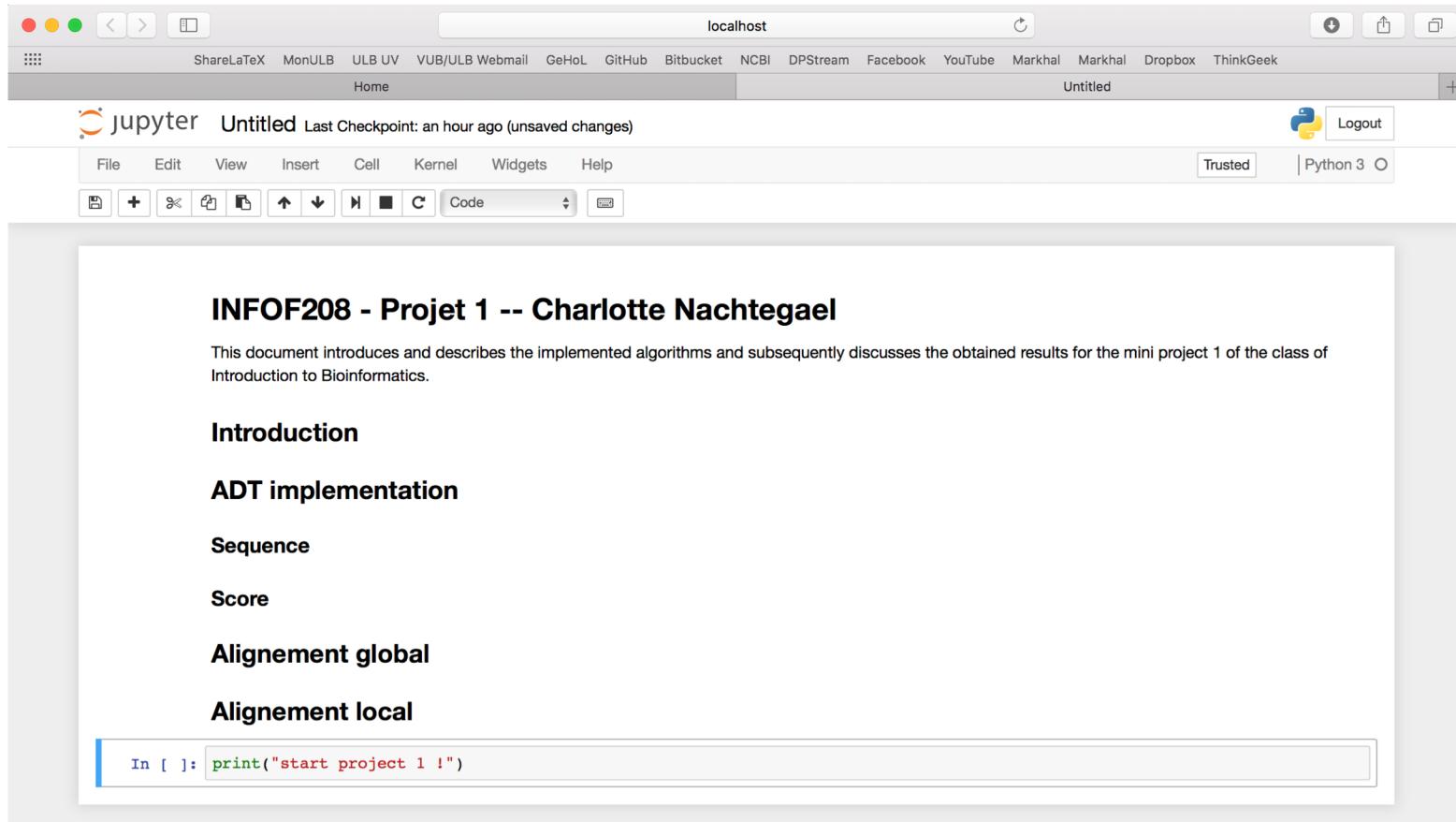


Votre premier notebook – Cellules Markdown Latex

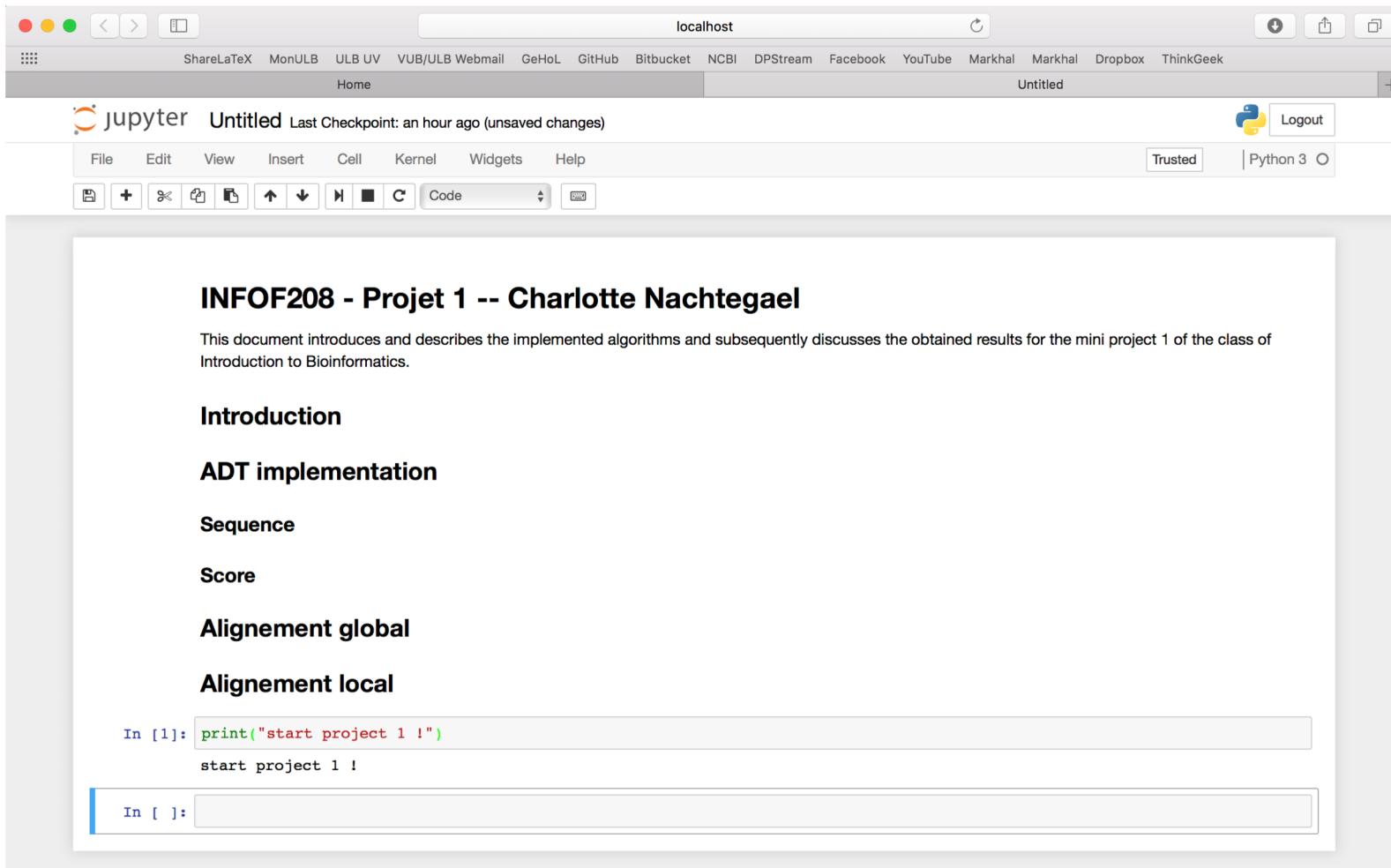
The following code computes the result of the sum $\sum_{i=1}^n x_i^2$

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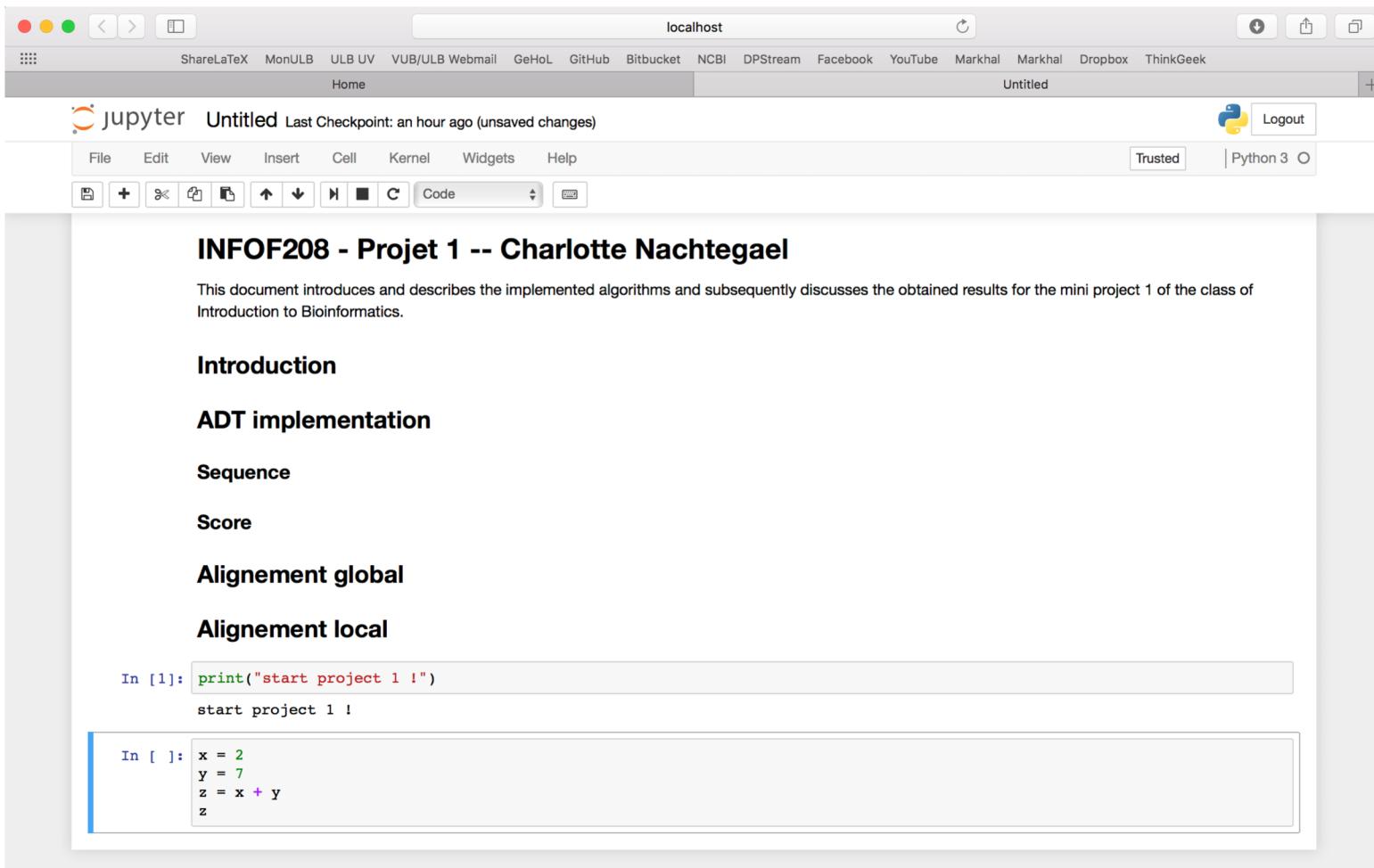
Votre premier notebook – Cellules Code



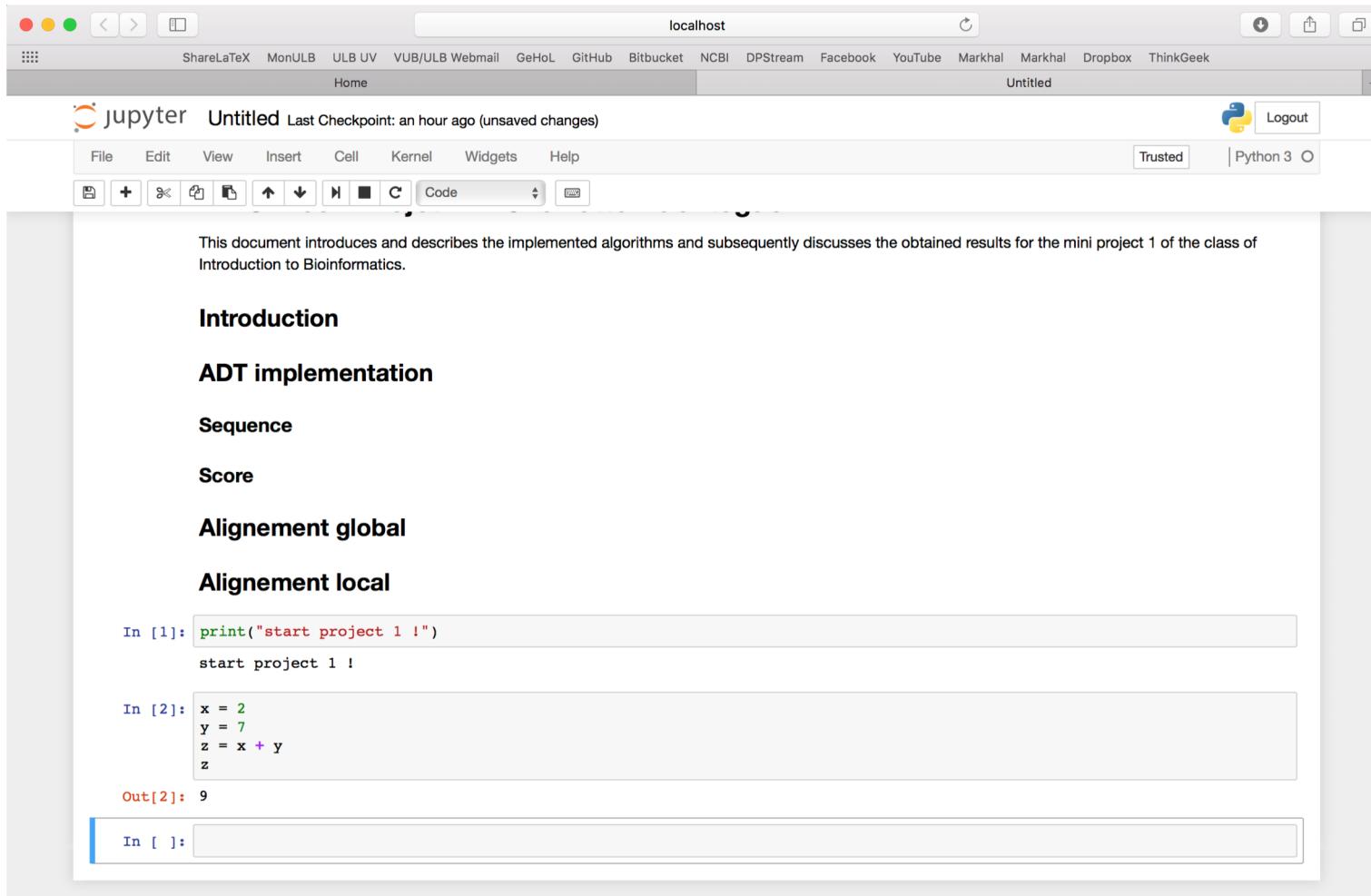
Votre premier notebook – Cellules Code



Votre premier notebook – Cellules Code



Votre premier notebook – Cellules Code



Votre premier notebook – Cellules Code

```
In [4]: # magic line to make your plot visible
%matplotlib inline

In [5]: # example from https://matplotlib.org/users/pyplot_tutorial.html
import numpy as np
import matplotlib.pyplot as plt

# evenly sampled time at 200ms intervals
t = np.arange(0., 5., 0.2)

# red dashes, blue squares and green triangles
plt.plot(t, t, 'r--', t, t**2, 'bs', t, t**3, 'g^')
plt.show()
```

The figure displays a plot with three distinct data series. The first series is a red dashed line representing the identity function $y = x$. The second series consists of blue square markers representing the quadratic function $y = x^2$. The third series consists of green triangle markers representing the cubic function $y = x^3$. All three series follow a similar upward trend as the x-value increases from 0 to 5.

```
In [ ]:
```

Meilleures pratiques et bonne utilisation

- Gardez vos cellules simples
- N'excédez pas la largeur de vos cellules pour le code
- Groupez les fonctions ayant des liens ensemble avec un nombre le plus petit possible
- Commentez votre code et ajouter des docstrings à vos fonctions
- Importez les librairies dans la première cellule de code
- Montrez vos graphiques inline