TECKY ACADEMY

The end of Jupyter Notebook

Alex Lau

Alex Lau

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20+ 年編程經驗

10 年創業經驗

Tecky Academy 共同創辦人及首席導師

薯片叔叔共創社 重塑教育挑戰 最佳表現初創

SwingMan Basketball 共同創辦人

Play More Limited 共同創辦人

ICT Award Grand and Gold Award **Winner**

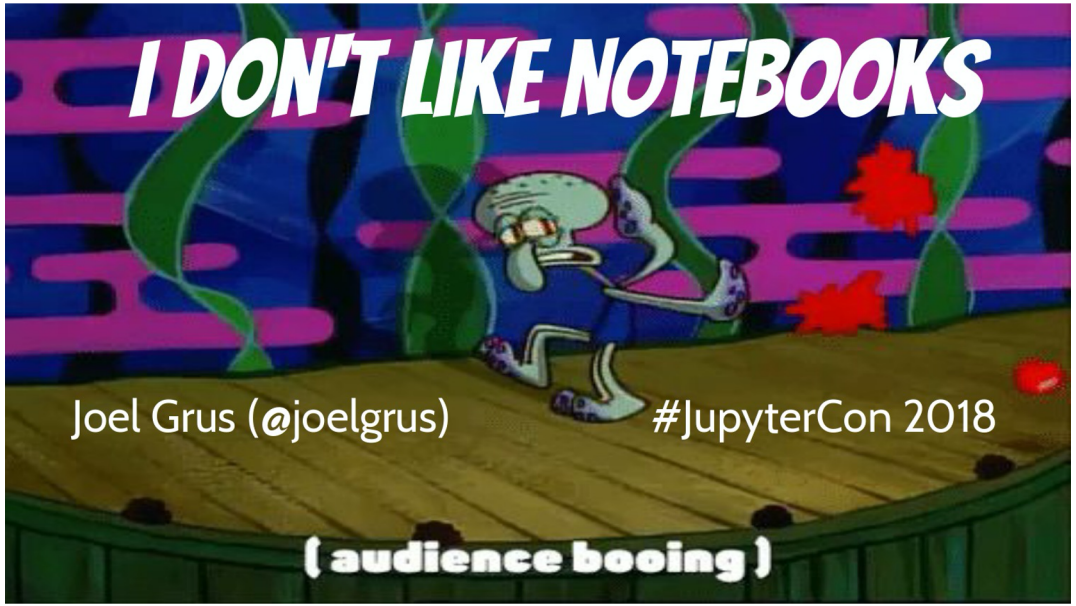
HSBC YB Award **Winner**

Innovative Entrepreneur **Awardee**

TECKY ACADEMY

感謝 PyCon Hong Kong

利申：靈感來源


I DON'T LIKE NOTEBOOKS
Joel Grus (@joelgrus)
#JupyterCon 2018
(audience booing)

何謂 “The end”

- 用完
- 唔好再用
- 幾時就唔好再用了

Jupyter 係正嘅

正：即試即有

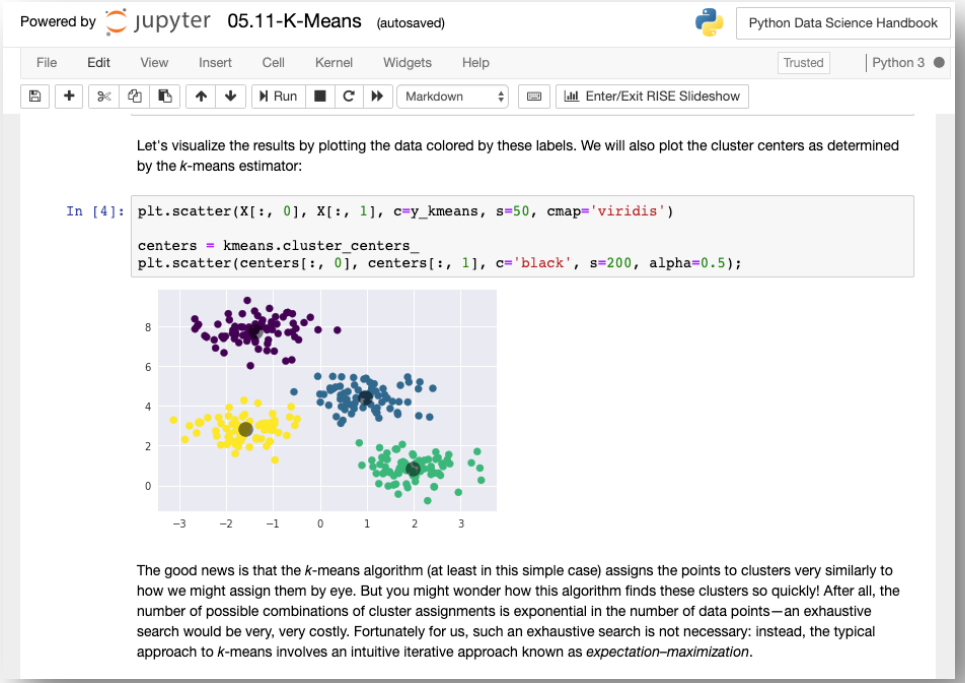
```
[7] import json
    import pandas as pd
```

```
[8] response = json.loads('{"waitTime":[{"hospName":"Alice Ho Miu Ling Nethersole Hospital"
```

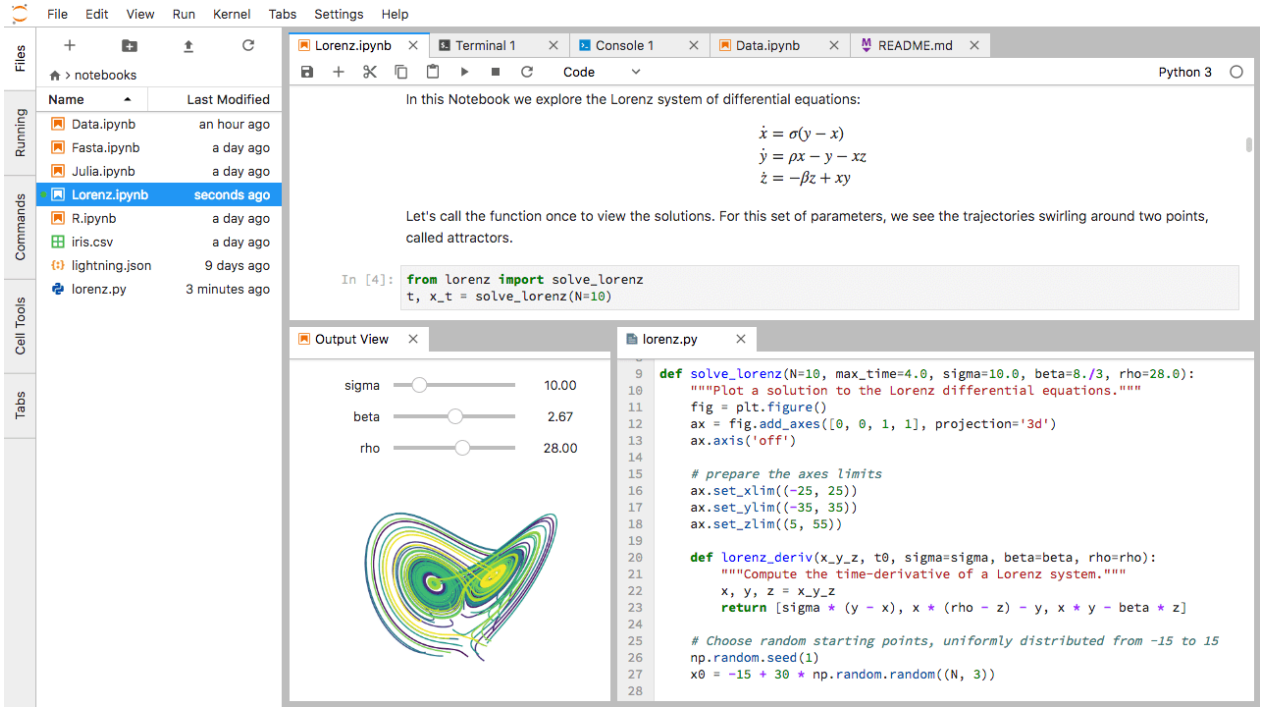
```
[9] pd.DataFrame(response["waitTime"])
```

	hospName	topWait
0	Alice Ho Miu Ling Nethersole Hospital	Over 1 hour
1	Caritas Medical Centre	Over 2 hours
2	Kwong Wah Hospital	Around 1 hour
3	North District Hospital	Over 3 hours
4	North Lantau Hospital	Around 1 hour
5	Princess Margaret Hospital	Around 1 hour
6	Pok Oi Hospital	Over 1 hour
7	Prince of Wales Hospital	Over 1 hour
8	Pamela Youde Nethersole Eastern Hospital	Around 1 hour
9	Queen Elizabeth Hospital	Around 1 hour

正：鼓勵 Documentation

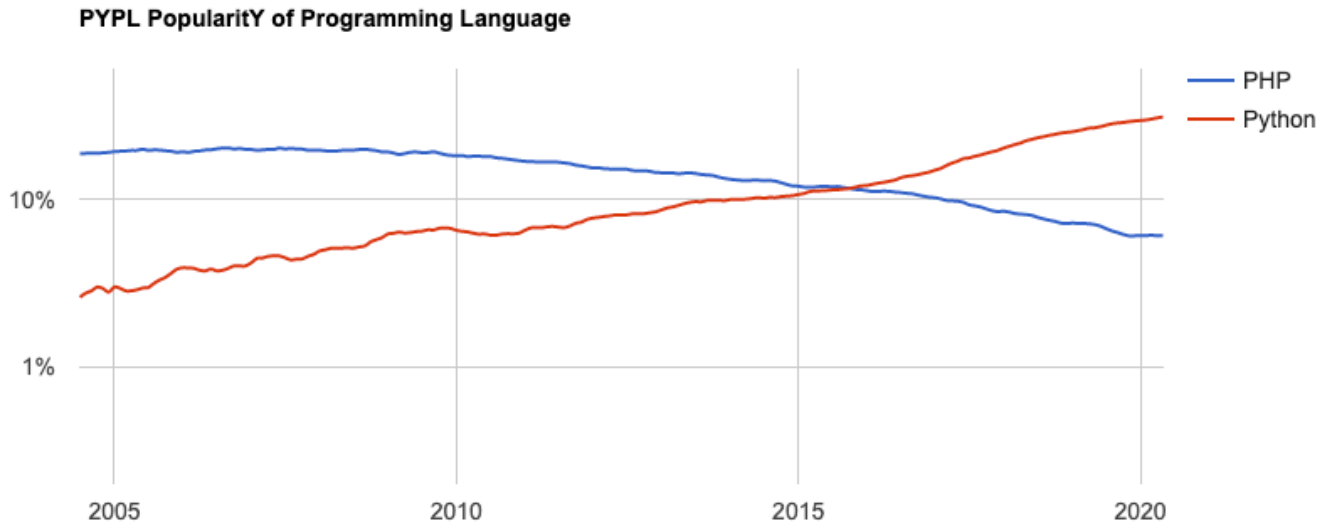


正：唔駛裝 （？）


File Edit View Run Kernel Tabs Settings Help
Files
Running
Commands
Cell Tools
Tabs
notebooks
Name
Last Modified
Data.ipynb an hour ago
Fasta.ipynb a day ago
Julia.ipynb a day ago
Lorenz.ipynb seconds ago
R.ipynb a day ago
iris.csv a day ago
lightning.json 9 days ago
lorenz.py 3 minutes ago
Lorenz.ipynb
Terminal 1
Console 1
Data.ipynb
README.md
Code
Python 3
In this Notebook we explore the Lorenz system of differential equations:
$$\dot{x} = \sigma(y - x)$$
$$\dot{y} = \rho x - y - xz$$
$$\dot{z} = -\beta z + xy$$
Let's call the function once to view the solutions. For this set of parameters, we see the trajectories swirling around two points, called attractors.
In [4]:
from lorenz import solve_lorenz
t, x_t = solve_lorenz(N=10)
Output View
sigma 10.00
beta 2.67
rho 28.00
lorenz.py
def solve_lorenz(N=10, max_time=4.0, sigma=10.0, beta=8./3, rho=28.0):
"""Plot a solution to the Lorenz differential equations."""
fig = plt.figure()
ax = fig.add_axes([0, 0, 1, 1], projection='3d')
ax.axis('off')
# prepare the axes limits
ax.set_xlim((-25, 25))
ax.set_ylim((-35, 35))
ax.set_zlim((5, 55))
def lorenz_deriv(x_y_z, t0, sigma=sigma, beta=beta, rho=rho):
"""Compute the time-derivative of a Lorenz system."""
x, y, z = x_y_z
return [sigma * (y - x), x * (rho - z) - y, x * y - beta * z]
# Choose random starting points, uniformly distributed from -15 to 15
np.random.seed(1)
x0 = -15 + 30 * np.random.random((N, 3))

好好哋
咁又完乜嘢？

PHP 的教訓

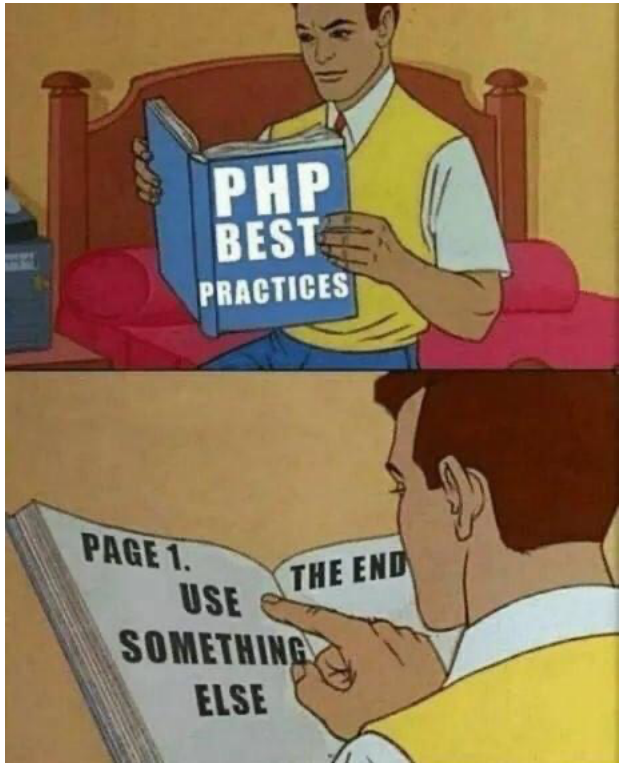


This chart uses a logarithmic scale. It can show your favorite languages
PHP, Python in a country Worldwide

http://pypl.github.io/PYPL.html

> *So what happened to PHP? From its start PHP was the Visual Basic for web design: easy to learn, easy to deploy, but mainly used by web designers with a limited software engineering background. The downside of PHP's simplicity was that it was relatively easy to shoot security holes in it. PHP has been struggling with this for a long time.*

易學　易部署　易用


PHP
BEST
PRACTICES
PAGE 1.
USE
SOMETHING
ELSE
THE END

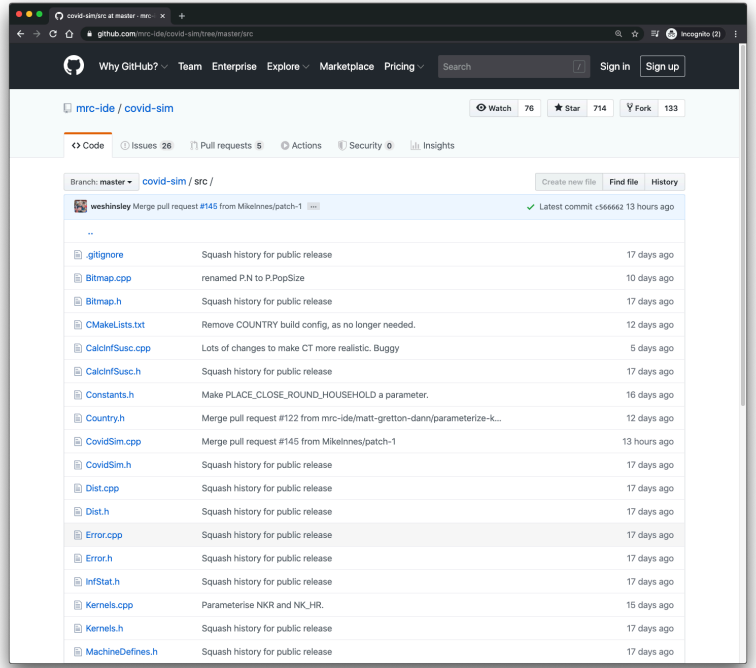
TECKY ACADEMY

Data Science != Software Engineering

https://github.com/mrc-ide/covid-sim/blob/master/src/CovidSim.cpp

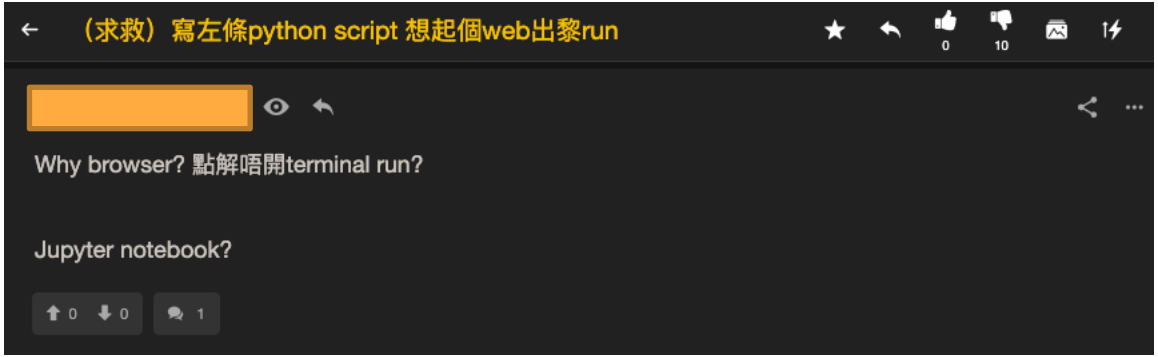
```
5381                                    {
5382                                            FindFlag++;
5383                                            if (n == 1)
5384                                                    sscanf(match, "%lf", ((double**)ItemPtr)[j + Offset] + i + Offset); //changed from
5385                                            else
5386                                                    sscanf(match, "%i", ((int**)ItemPtr)[j + Offset] + i + Offset);
5387                                    }
5388                                    else
5389                                    {
5390                                            i = NumItem2;
5391                                            j = NumItem;
5392                                    }
5393                            }
5394                            //Offset=Offset+(NumItem2-1); //added this line to get the correct offset in address position when incremer
5395                    } //added these braces
5396            }
5397    }
5398    //      fprintf(stderr,"%s\n",SItemName);
5399    return FindFlag;
5400 }
5401
5402
```

https://github.com/mrc-ide/covid-sim/blob/master/src/CovidSim.cpp

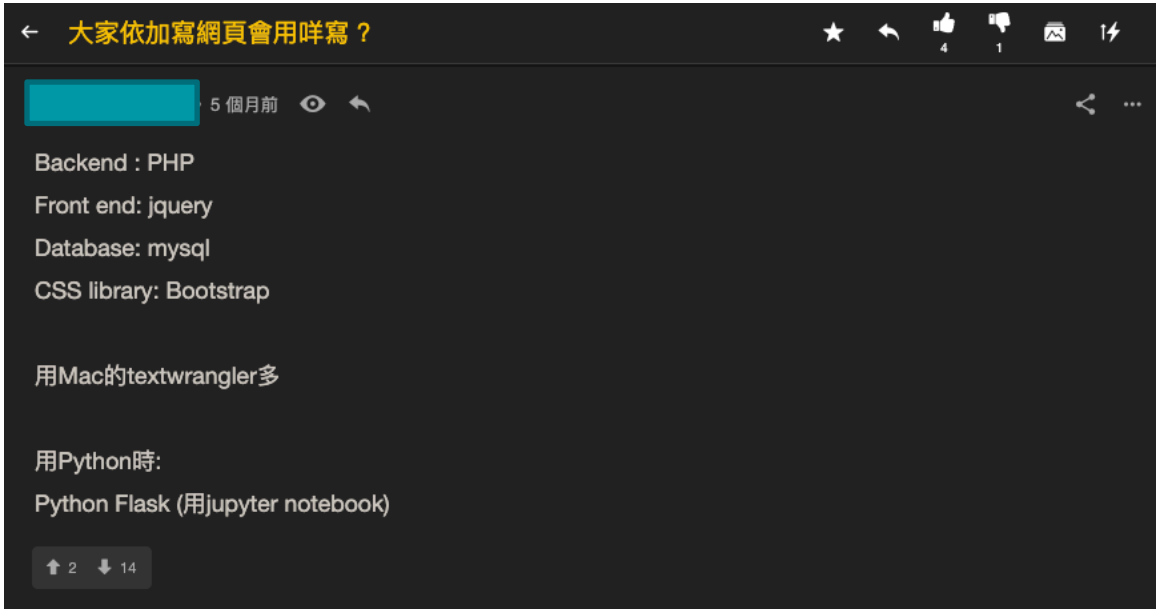


Jupyter Notebook 唔好咩？

鼓勵 Bad Practice


（求救）寫左條python script 想起個web出黎run
0
10
Why browser? 點解唔開terminal run?
Jupyter notebook?
0
0
1


Flask
web development,
one drop at a time


大家依加寫網頁會用咩寫？
4
1
5 個月前
Backend : PHP
Front end: jquery
Database: mysql
CSS library: Bootstrap
用Mac的textwrangler多
用Python時:
Python Flask (用jupyter notebook)
2
14


Flask
web development,
one drop at a time

大家依加寫網頁會用咩寫？

[redacted] 5 個月前

Backend : PHP

Front end: jquery

Database: mysql

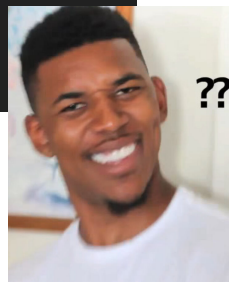
CSS library: Bootstrap

用Mac的textwrangler多

用Python時:

Python Flask (用jupyter notebook)

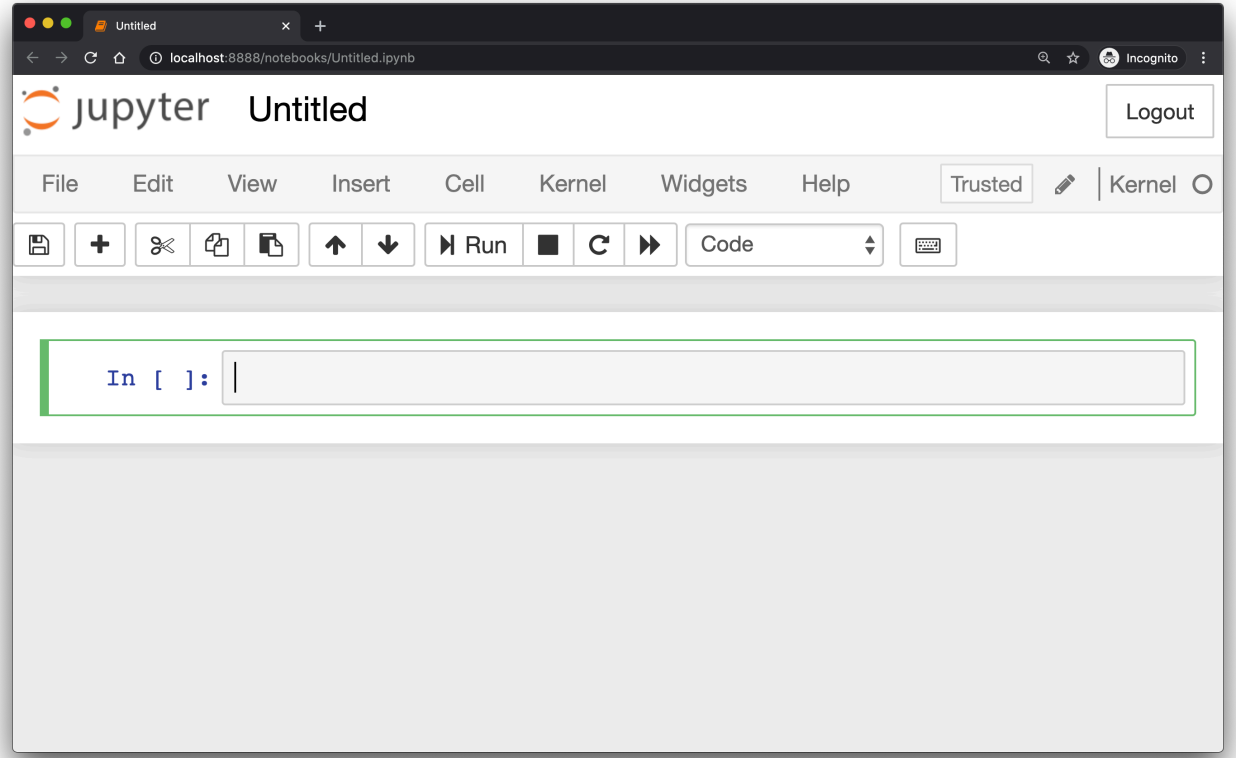
2 14

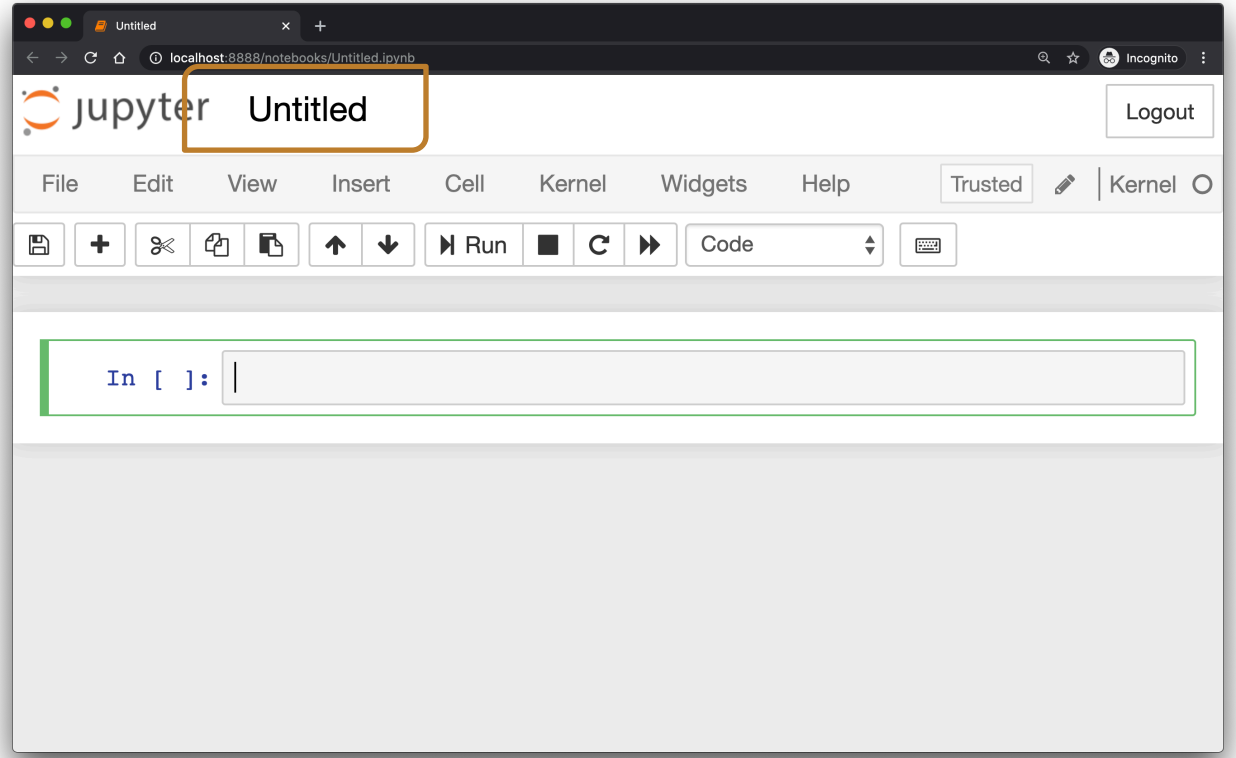


Flask
web development,
one drop at a time

jupyter

Untitled幾.ipynb


Untitled
localhost:8888/notebooks/Untitled.ipynb
Incognito
jupyter
Untitled
Logout
File
Edit
View
Insert
Cell
Kernel
Widgets
Help
Trusted
Kernel
Run
Code
In [ ]:


Untitled
localhost:8888/notebooks/Untitled.ipynb
Incognito
jupyter
Untitled
Logout
File
Edit
View
Insert
Cell
Kernel
Widgets
Help
Trusted
Kernel
Run
Code
In [ ]:

一般 IDE/Editor

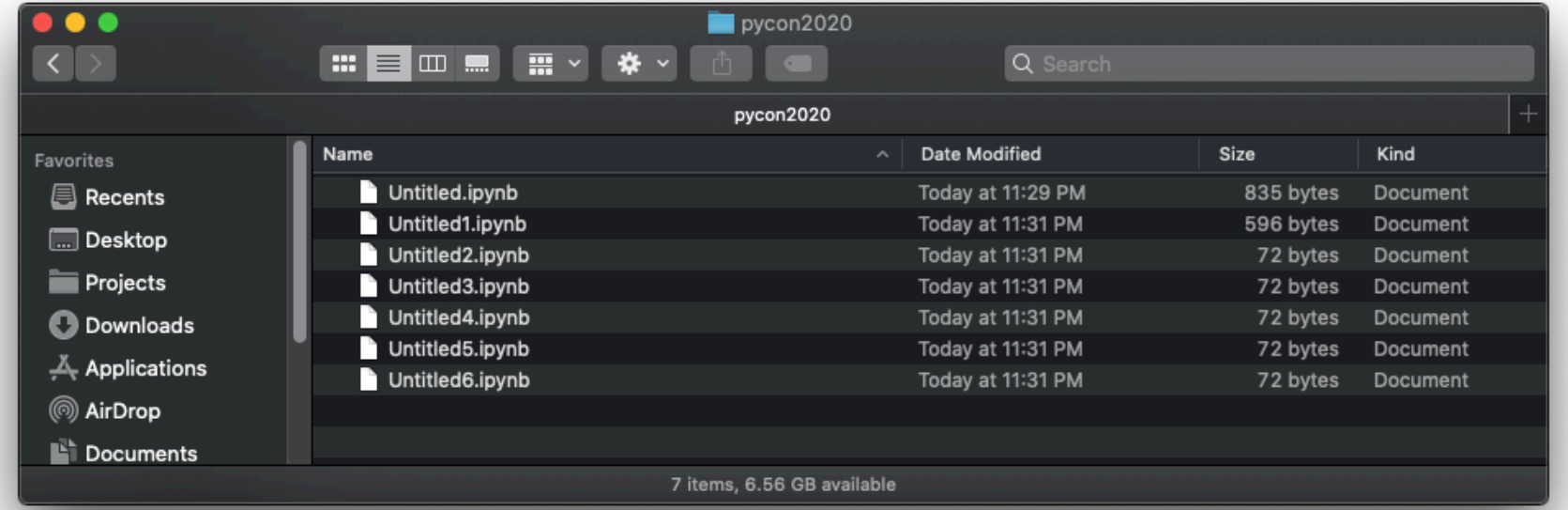
開新檔案

結束

開新檔案

結束

完


pycon2020
Search
pycon2020
Favorites
Recents
Desktop
Projects
Downloads
Applications
AirDrop
Documents
Name
Date Modified
Size
Kind
Untitled.ipynb
Today at 11:29 PM
835 bytes
Document
Untitled1.ipynb
Today at 11:31 PM
596 bytes
Document
Untitled2.ipynb
Today at 11:31 PM
72 bytes
Document
Untitled3.ipynb
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72 bytes
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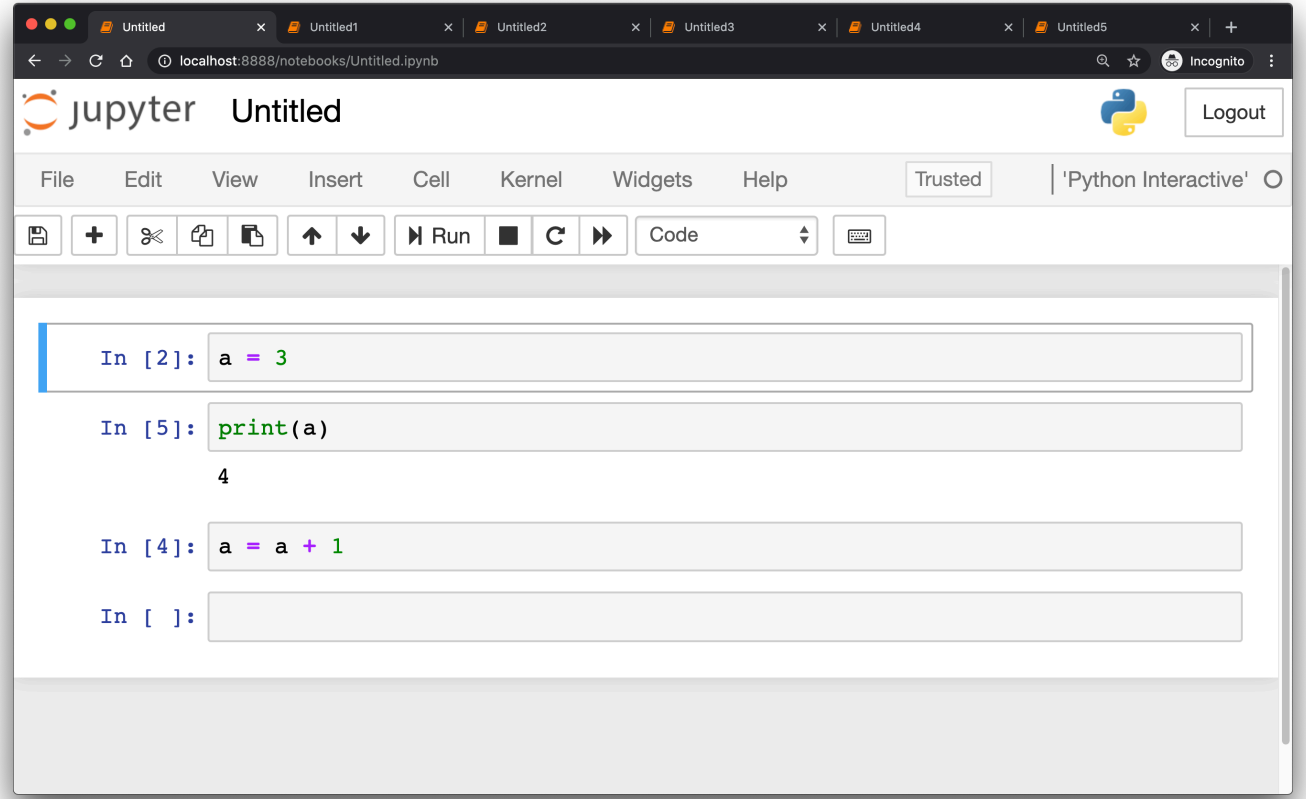
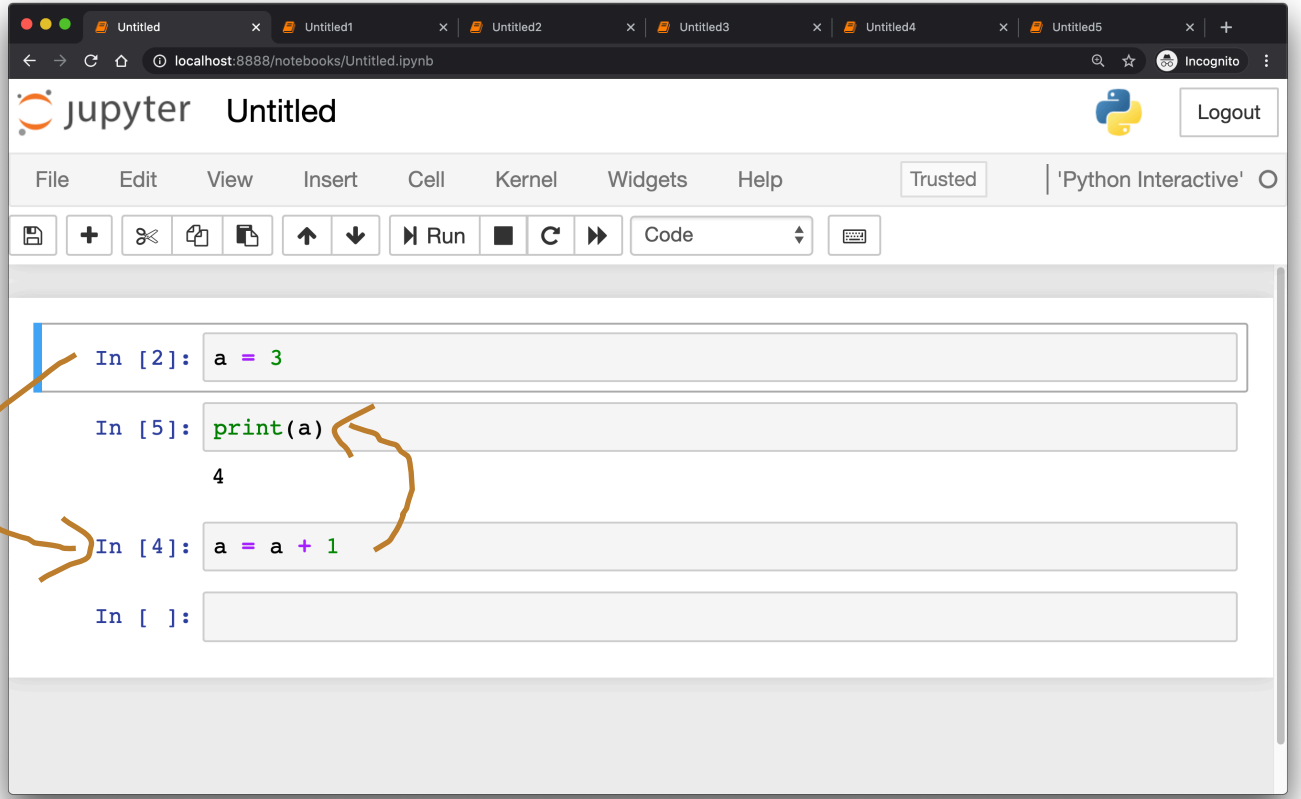
Untitled5.ipynb
Today at 11:31 PM
72 bytes
Document
Untitled6.ipynb
Today at 11:31 PM
72 bytes
Document
7 items, 6.56 GB available

極秘 隱世 邪惡
State


Untitled
Untitled1
Untitled2
Untitled3
Untitled4
Untitled5
localhost:8888/notebooks/Untitled.ipynb
Incognito
jupyter
Untitled
Logout
File
Edit
View
Insert
Cell
Kernel
Widgets
Help
Trusted
'Python Interactive'
Run
Code
In [2]:
a = 3
In [5]:
print(a)
4
In [4]:
a = a + 1
In [ ]:


Untitled
Untitled1
Untitled2
Untitled3
Untitled4
Untitled5
localhost:8888/notebooks/Untitled.ipynb
Incognito
jupyter
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Kernel
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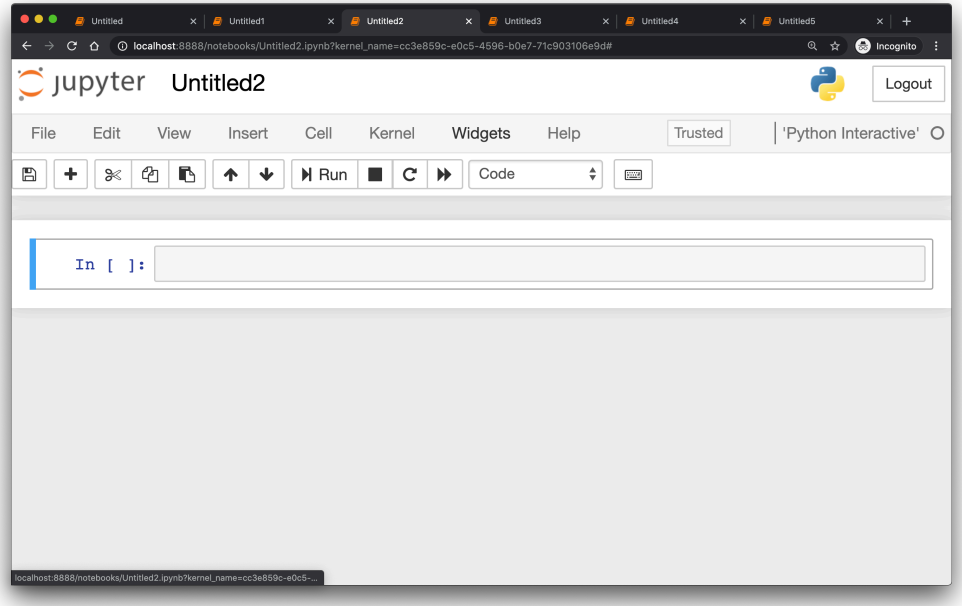
Help
Trusted
'Python Interactive'
Run
Code
In [2]:
a = 3
In [5]:
print(a)
4
In [4]:
a = a + 1
In [ ]:

版本控制

```
{
"cells": [
{
"cell_type": "code",
"execution_count": null,
"metadata": {},
"outputs": [],
"source": []
}
],
"metadata": {
"kernelspec": {
"display_name": "'Python Interactive'",
"language": "python",
"name": "cc3e859c-e0c5-4596-b0e7-71c903106e9d"
},
"language_info": {
"codemirror_mode": {
"name": "ipython",
"version": 3
},
"file_extension": ".py",
"mimetype": "text/x-python",
"name": "python",
"nbconvert_exporter": "python",
"pygments_lexer": "ipython3",
"version": "3.7.4"
}
},
"nbformat": 4,
"nbformat_minor": 2
}
```

少年，現在是 2020 年 5 月
好多正嘢出咗黎喇！

TECKY ACADEMY

有 conflict

TECKY ACADEMY

有 conflict

任何文字編輯器解決

有 conflict

任何文字編輯器解決

完

有 conflict

任何文字編輯器解決

完

TECKY ACADEMY

清 output 再黎過

nbstrip_jq

整多件 python text file 黎 commit

jupytext

無晒 output!

有 conflict

完

TECKY ACADEMY

有 conflict

任何文字編輯器解決

完

將啲 output 變做 HTML

nbconvert

多樣嘢 conflict?!

有 conflict

完

TECKY ACADEMY

有 conflict

任何文字編輯器解決

完

視覺化合併 + 註解

reviewnb

只 support GitHub

有 conflict

完

鼓勵 Shift-Enter 教學

- Easy to get started
- Support for $\LaTeX$ formatted labels and texts
- Great control of every element in a figure, including figure size and DPI.
- High-quality output in many formats, including PNG, PDF, SVG, EPS, and PGF.
- GUI for interactively exploring figures *and* support for headless generation of figure files (useful for batch jobs).

One of the key features of matplotlib that I would like to emphasize, and that I think makes matplotlib highly suitable for generating figures for scientific publications is that all aspects of the figure can be controlled *programmatically*. This is important for reproducibility and convenient when one needs to regenerate the figure with updated data or change its appearance.

More information at the Matplotlib web page: http://matplotlib.org/

To get started using Matplotlib in a Python program, either include the symbols from the `pylab` module (the easy way):

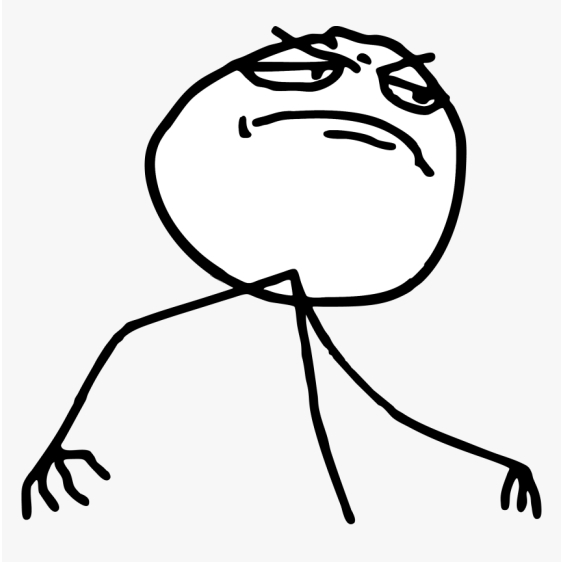
In [ ]:
```
from pylab import *
```

or import the `matplotlib.pyplot` module under the name `plt` (the tidy way):

In [ ]:
```
import matplotlib
import matplotlib.pyplot as plt
```

In [ ]:
```
import numpy as np
```

MATLAB-like API



六堂學好 Python
準備改變世界了

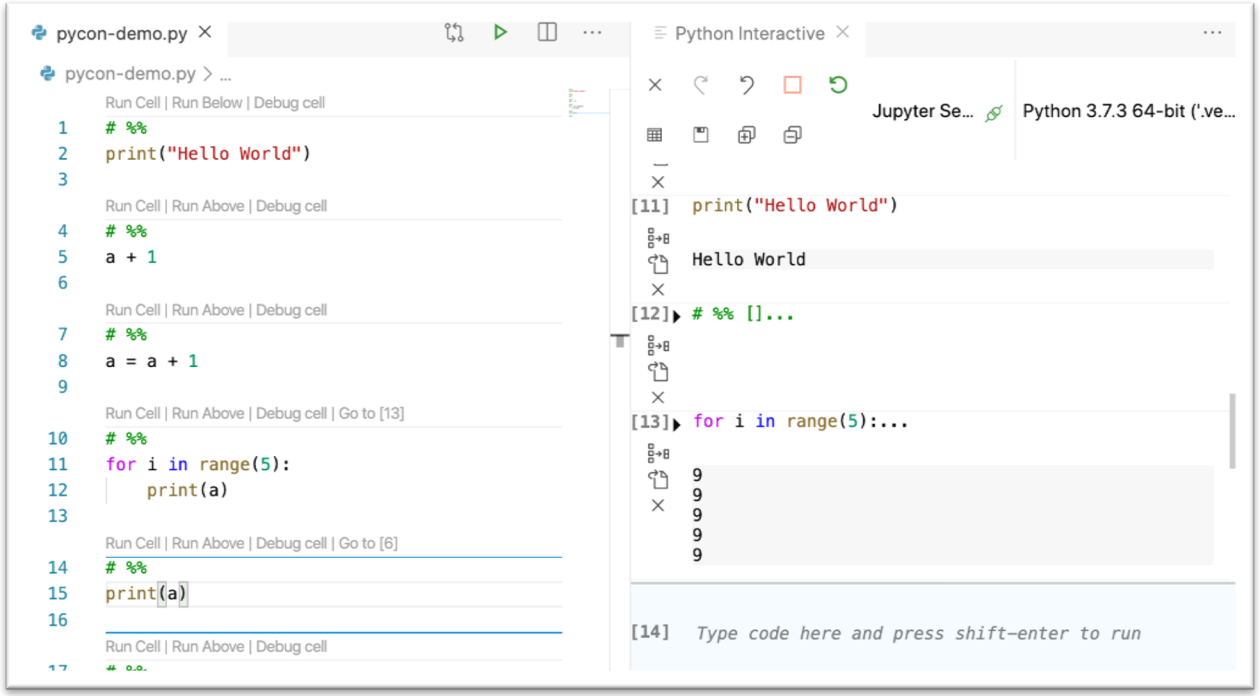
講咗咁耐，有咩高見？

何謂 “The end”

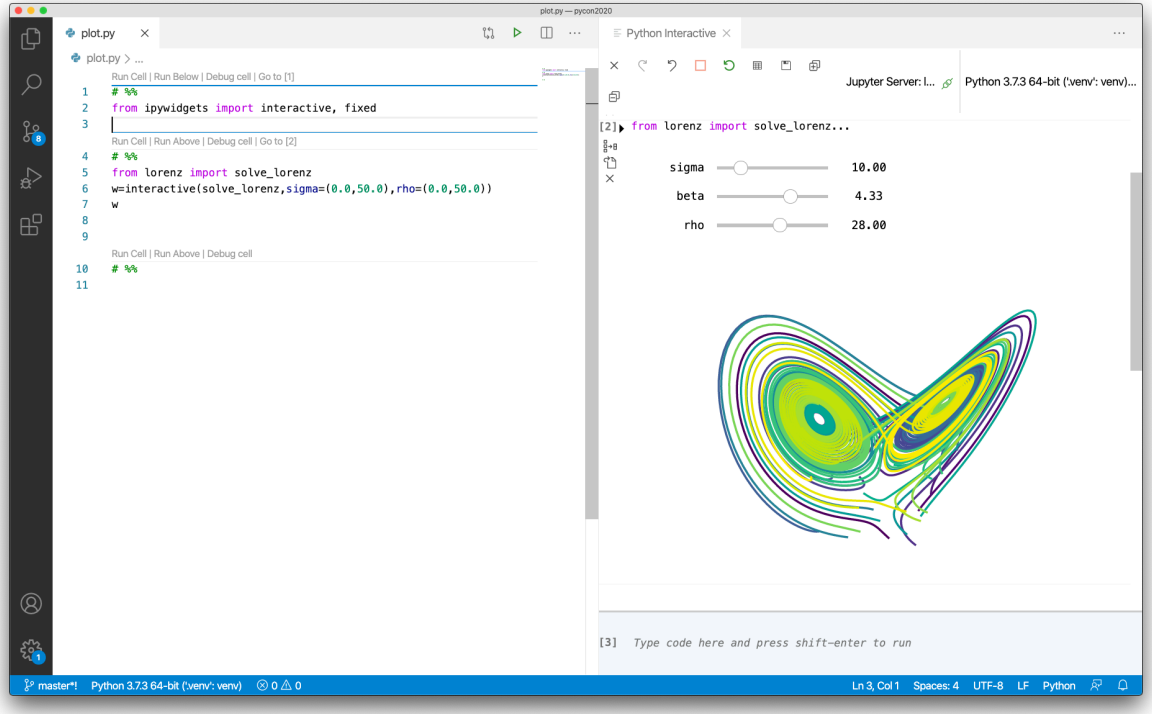
- 用完
- 唔好再用
- 幾時就唔好再用了


jupyter

正：即試即有


pycon-demo.py
pycon-demo.py > ...
Run Cell | Run Below | Debug cell
# %%
print("Hello World")
Run Cell | Run Above | Debug cell
%%
a + 1
Run Cell | Run Above | Debug cell
# %%
a = a + 1
Run Cell | Run Above | Debug cell | Go to [13]
# %%
for i in range(5):
print(a)
Run Cell | Run Above | Debug cell | Go to [6]
# %%
print(a)
Run Cell | Run Above | Debug cell
Python Interactive
Jupyter Se...
Python 3.7.3 64-bit ('.ve...
[11] print("Hello World")
Hello World
[12] # %% []...
[13] for i in range(5):...
9
9
9
9
9
[14] Type code here and press shift-enter to run

正：即試即有


plot.py — pycon2020
plot.py
plot.py > ...
Run Cell | Run Below | Debug cell | Go to [1]
# %%
from ipywidgets import interactive, fixed
Run Cell | Run Above | Debug cell | Go to [2]
# %%
from lorenz import solve_lorenz
w=interactive(solve_lorenz,sigma=(0.0,50.0),rho=(0.0,50.0))
w
Run Cell | Run Above | Debug cell
%%
Python Interactive
Jupyter Server: l...
Python 3.7.3 64-bit ('.venv': venv)...
[2] from lorenz import solve_lorenz...
sigma 10.00
beta 4.33
rho 28.00
[3] Type code here and press shift-enter to run
master*!
Python 3.7.3 64-bit ('.venv': venv)
Ln 3, Col 1
Spaces: 4
UTF-8
LF
Python

Bad Practice

不再

Untitled.ipynb
不再

隱世 State

不再

TECKY ACADEMY

版本控制
唔怕

Shift-Enter 教學

唔係唔得嘅……

立即示範

TECKY ACADEMY

如果你唔同意……

如果你唔同意……

開多個廣東話 Talk 吧！

TECKY ACADEMY

Tecky Academy

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