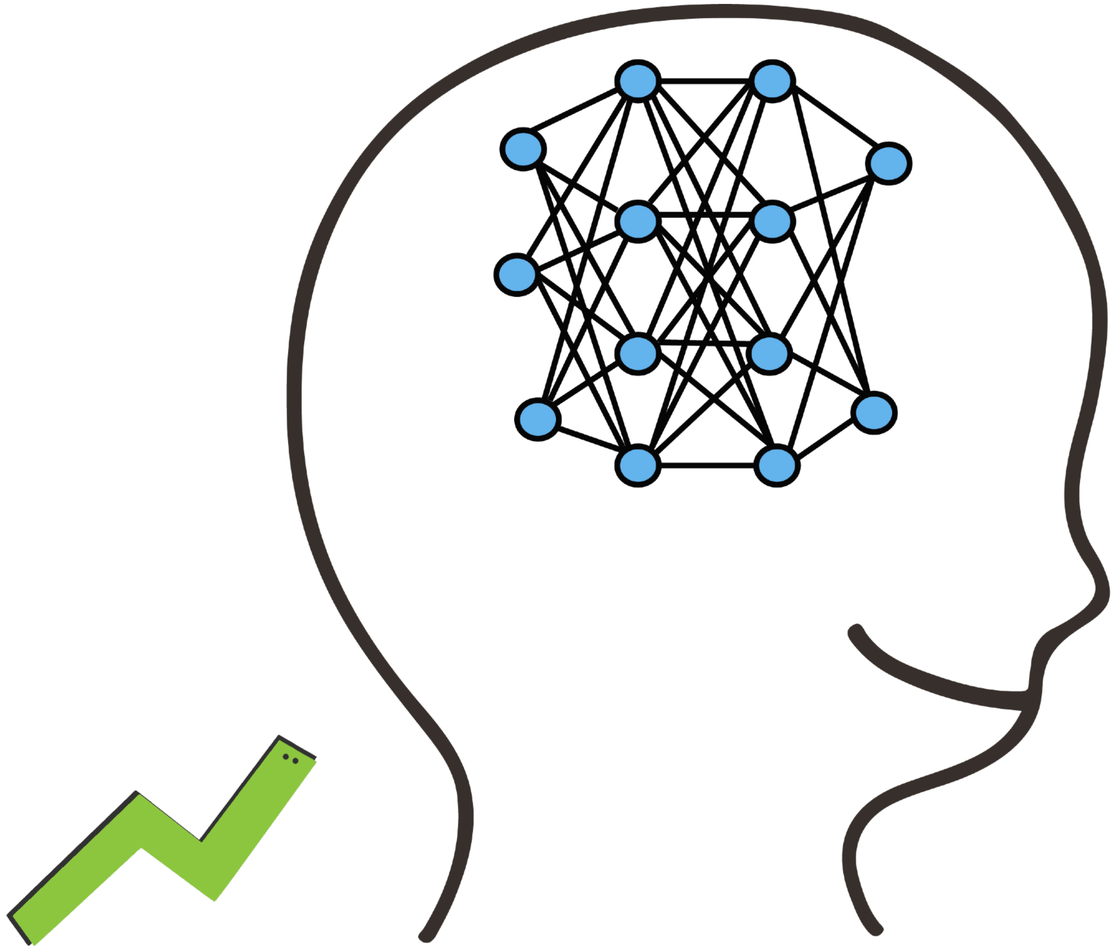


Python 數據分析實作環境

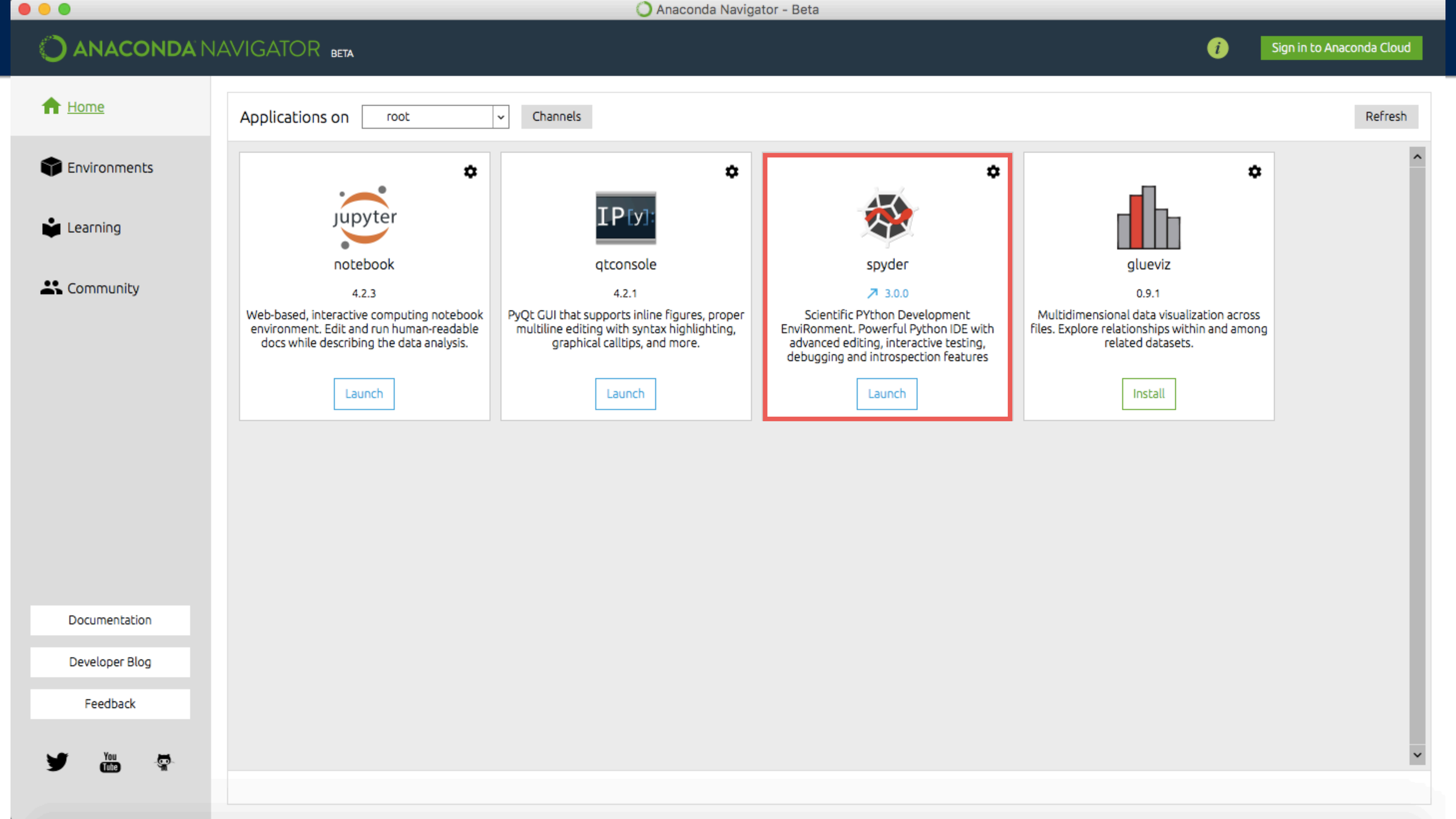
Development Environment of Python for Data Analytics

Anaconda 簡介

- Anaconda 是一款由Python 和C語言開發而成的資料科學集成式開發環境
- 開源、免費
- 可使用Python、R、Scala語言
- 內含套件管理系統
- Jupyter、Spyder、Terminal等開發環境
- Anaconda 下載頁面 (for Windows, MacOS, Linux)
  - https://www.continuum.io/downloads

Spyder 簡介

- 整合開發環境（Integrated Development Environment, IDE）
  - IPython / Python 交互式環境
  - 程式編輯
  - 變數瀏覽
  - 檔案目錄


Anaconda Navigator - Beta
ANACONDA NAVIGATOR BETA
Sign in to Anaconda Cloud
Home
Environments
Learning
Community
Documentation
Developer Blog
Feedback
Applications on
root
Channels
Refresh
notebook
4.2.3
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
qtconsole
4.2.1
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Launch
spyder
3.0.0
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
Launch
glueviz
0.9.1
Multidimensional data visualization across files. Explore relationships within and among related datasets.
Install

Spyder (Python 3.5)

/Users/pyda

Editor - /Users/pyda/.spyder-py3/temp.py

temp.py

```
# -*- coding: utf-8 -*-
"""
Spyder Editor

This is a temporary script file.
"""

```

程式碼編輯區

Variable explorer

Name	Type	Size	Value
df	DataFrame	(4, 2)	Column names: A, B
test	list	5	[1, 2, 3, 4, 5]

變數瀏覽/檔案目錄

Variable explorer | File explorer | Help

IPython console

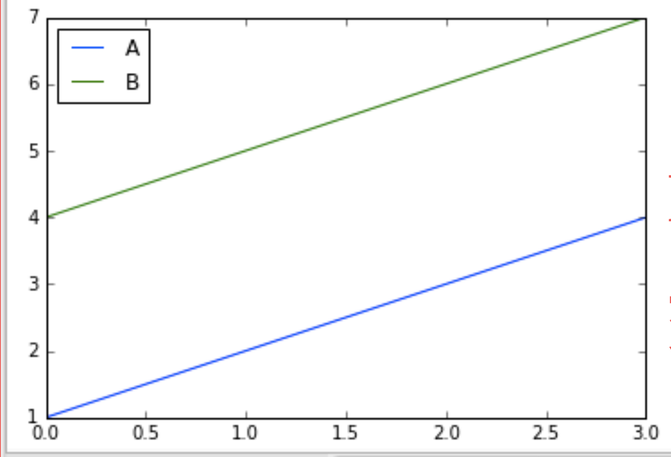
Console 1/A

```
In [3]: import pandas as pd

In [4]: df = pd.DataFrame({'A':[1,2,3,4],'B':[4,5,6,7]})

In [5]: df
Out[5]:
   A  B
0  1  4
1  2  5
2  3  6
3  4  7

In [6]: df.plot()
Out[6]: <matplotlib.axes._subplots.AxesSubplot at 0x114437278>
```



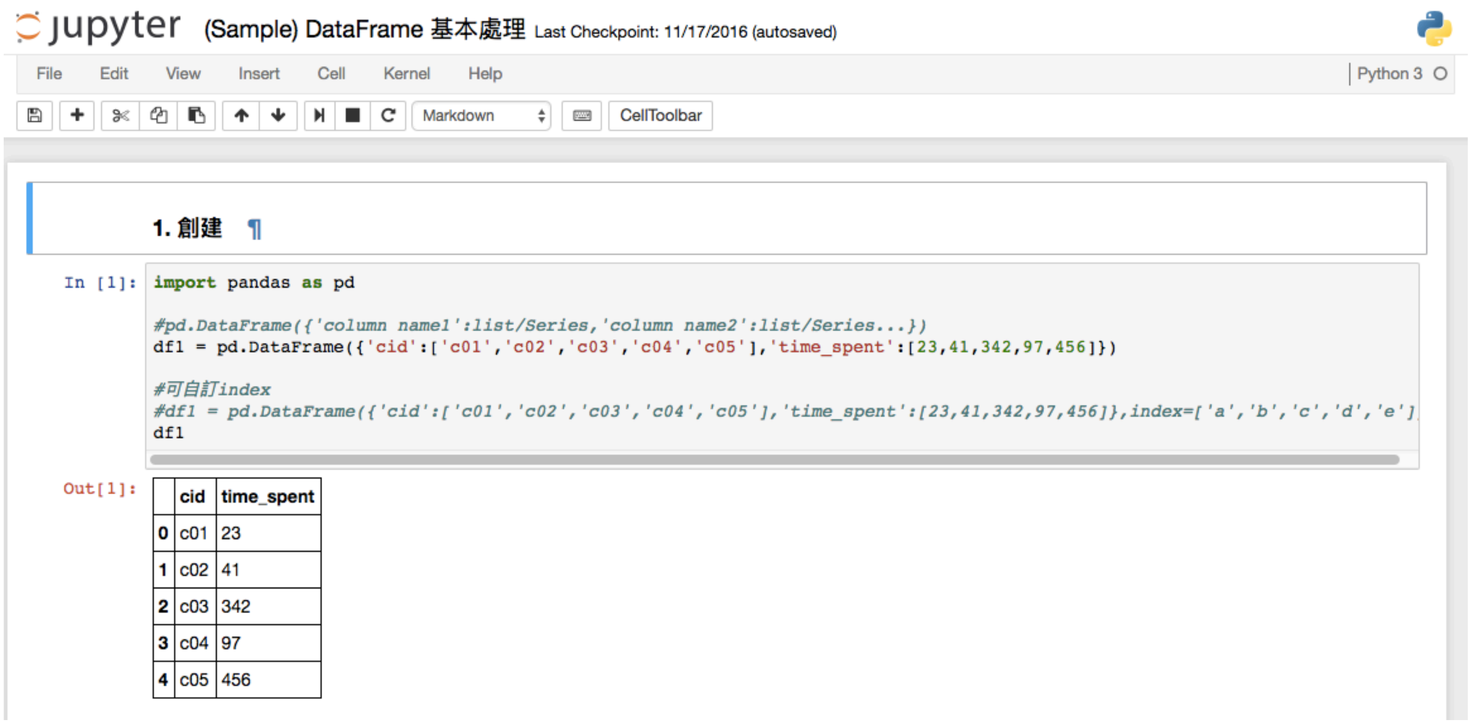
IPython/Python

交互式分析環境

Python console | History log | IPython console

Jupyter Notebook

- 網頁介面、即時交互式分析環境



Notes

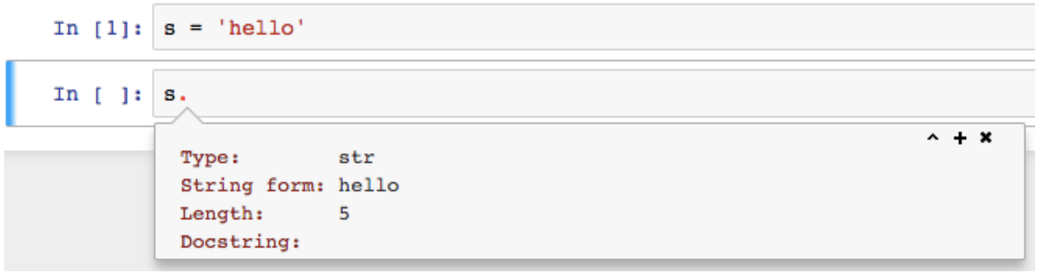
- 後續課程將以Jupyter Notebook進行實作示範，請同學熟悉操作。

Jupyter Notebook 常用快捷鍵

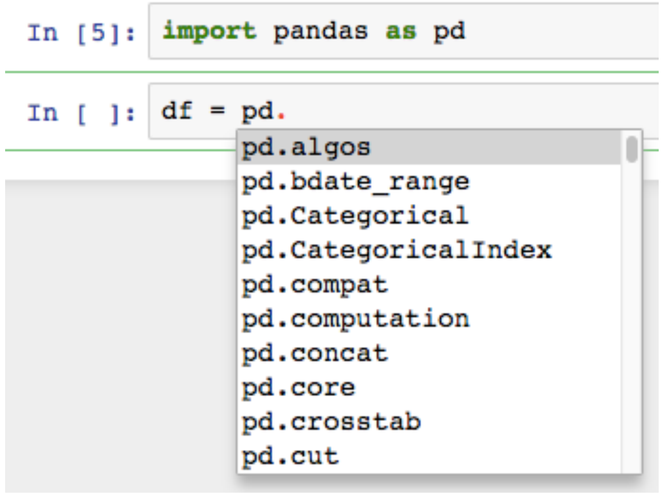
功能	Windows	MacOS
換行編輯	Enter	Enter
執行此單元	Ctrl + Enter	Ctrl + Enter
執行此單元後移至下一單元	Shift + Enter	Shift + Enter
執行此單元後新增下一單元	Alt + Enter	Option + Enter
儲存	Ctrl + S	Command + S

Jupyter Notebook 幫助提示鍵

- Shift + Tab：變數提示



- Tab：可使用的attributes、methods提示（須先完成import）



Jupyter Notebook 幫助提示鍵 (cont.)

? (執行)：變數詳細說明

```
In [1]: s = 'hello'

In [4]: s?

In [ ]:
```

```
Type:        str
String form: hello
Length:      5
Docstring:
str(object='') -> str
str(bytes_or_buffer[, encoding[, errors]]) -> str

Create a new string object from the given object. If encoding or
errors is specified, then the object must expose a data buffer
that will be decoded using the given encoding and error handler.
Otherwise, returns the result of object.__str__() (if defined)
or repr(object).
encoding defaults to sys.getdefaultencoding().
errors defaults to 'strict'.
```

Jupyter Notebook 中使用系統指令

！：使用系統指令

```
In [1]: !pip install numpy
        Requirement already satisfied: numpy in ./anaconda/lib/python3.5/site-packages
```

Notes:

- **用指令安裝套件（當Anaconda Environments 搜尋不到時）**
- pip install + 套件名稱 (for python 2)
- pip3 install + 套件名稱 (for python 3)