

環境建置與可用平台

Outline



一 Python



二 環境建置



三 可用平台



— Python

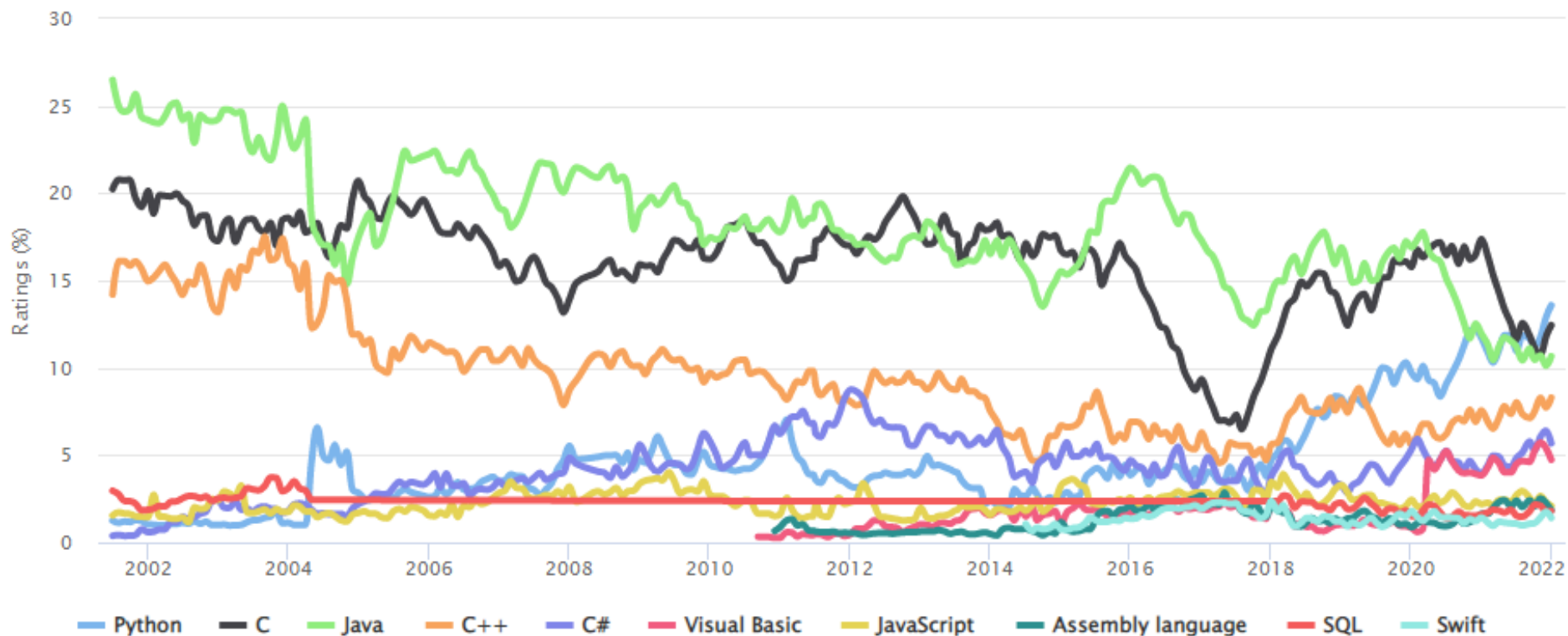
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Python

Jan 2022	Jan 2021	Change	Programming Language	Ratings	Change
1	3	▲	 Python	13.58%	+1.86%
2	1	▼	 C	12.44%	-4.94%
3	2	▼	 Java	10.66%	-1.30%

Source: www.tiobe.com



資料來源

Python

- 能跨平台開發
- 入門門檻不高且功能強大，同時具備高效率的資料結構處理能力
- 有非常強大的分享平台Github
- 有大量第三方函式庫可使用，例如自然語言(Natural language toolkit, NLTK)、機器學習與資料分析(Scikit-learn)、視覺化(Matplotlib)等
- 訓練機器學習或深度學習的模型很方便
- 套件好安裝
- ...

Python

- 網路爬蟲與擷取資訊
- 數據處理分析與視覺化應用
- 機器學習與人工智慧
- 自動化測試
- 軟體開發
- 商業與多媒體應用
- ...

Python



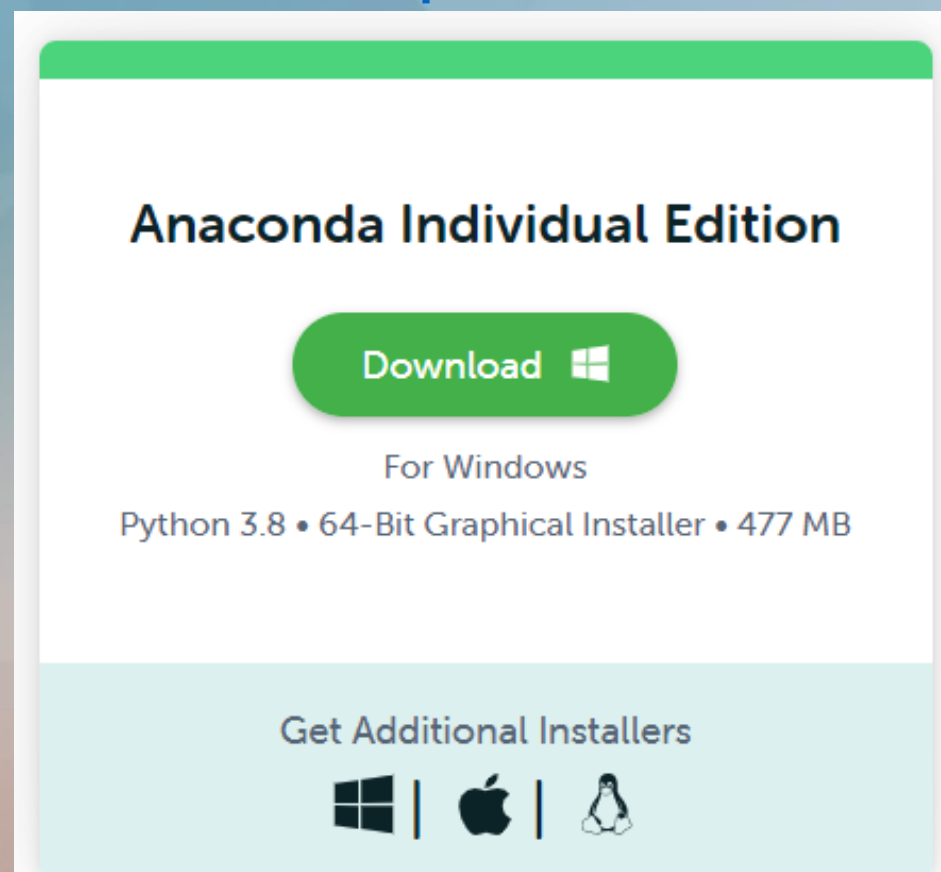
二 環境建置

•

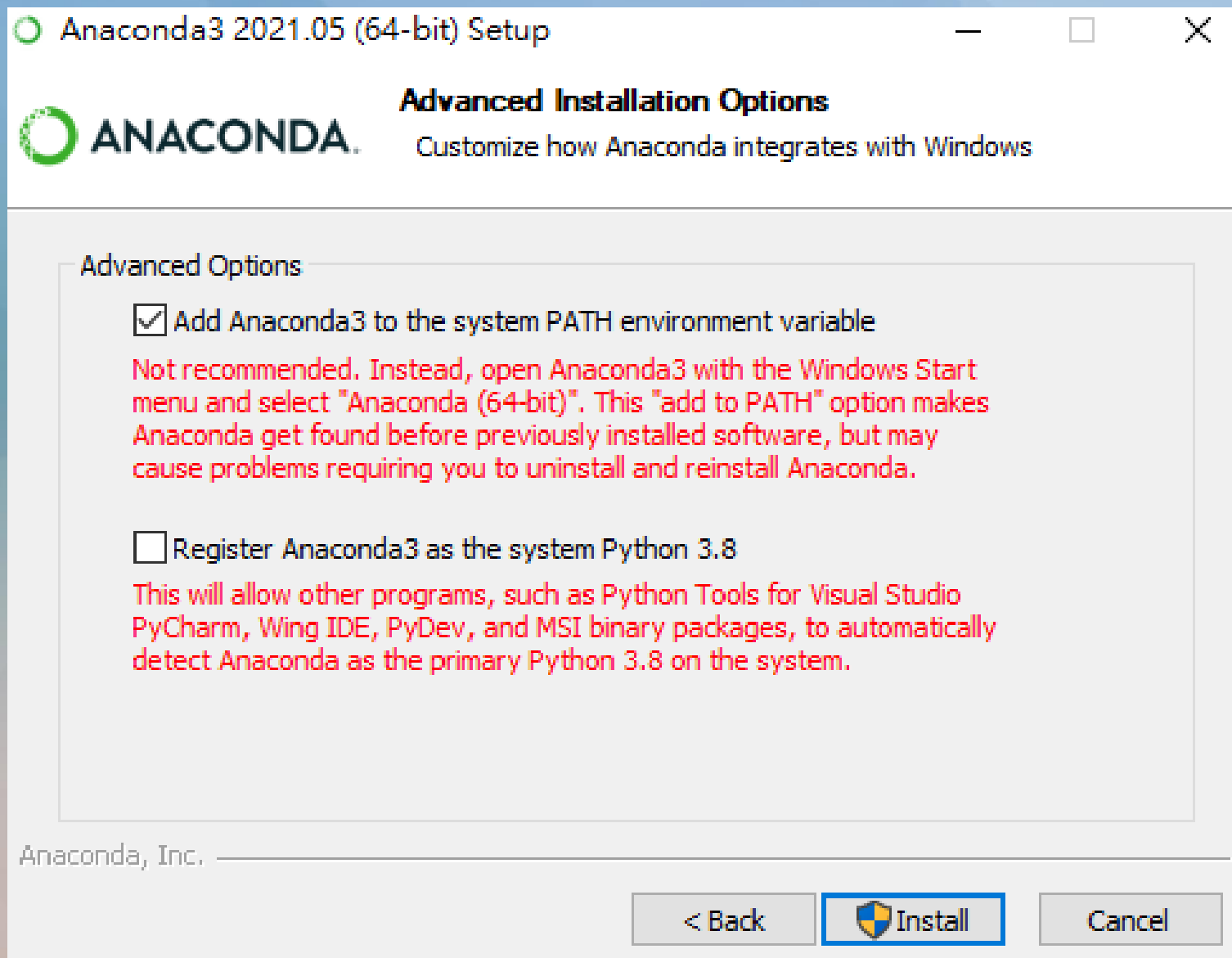
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環境建置 - Anaconda

- It can help you easy install Python and packages
- It can be downloaded from <https://www.anaconda.com/products/individual>

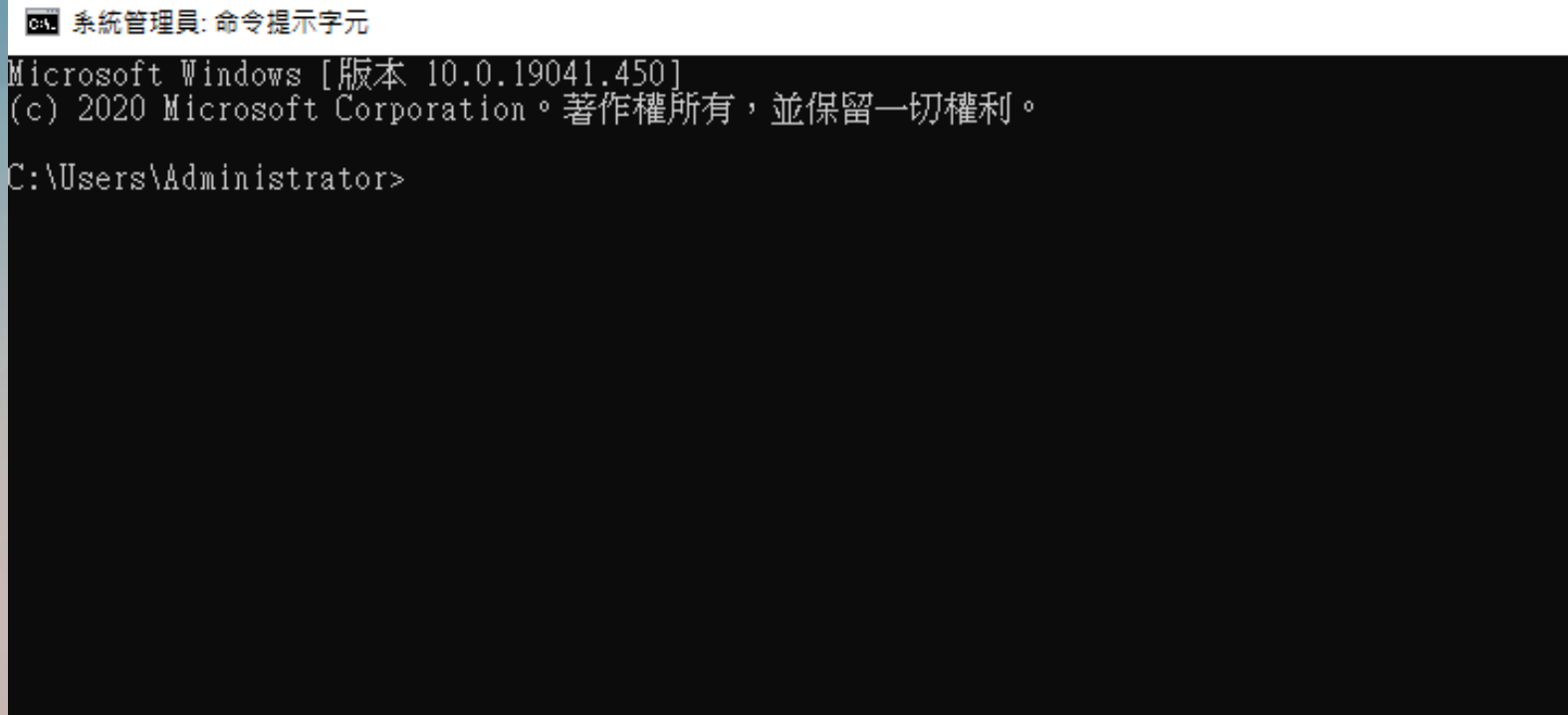


環境建置 - Anaconda



環境建置 - Anaconda

- Windows command line (avoid the powershell and anaconda prompt)
- Virtual environment
- conda or pip commands



```
系統管理員: 命令提示字元
Microsoft Windows [版本 10.0.19041.450]
(c) 2020 Microsoft Corporation。著作權所有，並保留一切權利。
C:\Users\Administrator>
```

環境建置 - Anaconda

- Virtual environment
 - `conda create -n "envname" python=="version"`

系統管理員: 命令提示字元 - `conda create -n CI python==3.8`

```
C:\Users\Administrator>conda create -n CI python==3.8
Collecting package metadata (current_repodata.json): done
Solving environment: failed with repodata from current_repodata.json, will retry with next repodata source.
Collecting package metadata (repodata.json): done
Solving environment: done
```

環境建置 - Anaconda

- Virtual environment
 - `conda create -n "envname" python=="version"`

```
## Package Plan ##

environment location: D:\ProgramEnvironment\Anaconda3\envs\CI

added / updated specs:
- python==3.8

The following NEW packages will be INSTALLED:

ca-certificates      pkgs/main/win-64::ca-certificates-2021.7.5-haa95532_1
certifi              pkgs/main/win-64::certifi-2021.5.30-py38haa95532_0
openssl              pkgs/main/win-64::openssl-1.1.1k-h2bbff1b_0
pip                  pkgs/main/win-64::pip-21.2.2-py38haa95532_0
python                pkgs/main/win-64::python-3.8.0-hff0d562_2
setuptools            pkgs/main/win-64::setuptools-52.0.0-py38haa95532_0
sqlite                pkgs/main/win-64::sqlite-3.36.0-h2bbff1b_0
vc                    pkgs/main/win-64::vc-14.2-h21ff451_1
vs2015_runtime       pkgs/main/win-64::vs2015_runtime-14.27.29016-h5e58377_2
wheel                 pkgs/main/noarch::wheel-0.36.2-pyhd3eb1b0_0
wincertstore         pkgs/main/win-64::wincertstore-0.2-py38_0

Proceed ([y]/n)?
```

環境建置 - Anaconda

- Virtual environment
 - Install completely – activate CI

```
done
#
# To activate this environment, use
#
#   $ conda activate CI
#
# To deactivate an active environment, use
#
#   $ conda deactivate

C:\Users\Administrator>activate CI
(CI) C:\Users\Administrator>
```

環境建置 - Anaconda

- Install Packages
 - conda

```
(CI) C:\Users\Administrator>conda install numpy
Collecting package metadata (current_repodata.json): done
Solving environment: done

=> WARNING: A newer version of conda exists. <=
  current version: 4.10.1
  latest version: 4.10.3

Please update conda by running

  $ conda update -n base -c defaults conda

## Package Plan ##

environment location: D:\ProgramEnvironment\Anaconda3\envs\CI

added / updated specs:
- numpy

The following NEW packages will be INSTALLED:

blas                    pkgs/main/win-64::blas-1.0-mkl
intel-openmp           pkgs/main/win-64::intel-openmp-2021.3.0-haa95532_3372
mkl                    pkgs/main/win-64::mkl-2021.3.0-haa95532_524
mkl-service            pkgs/main/win-64::mkl-service-2.4.0-py38h2bbff1b_0
mkl_fft                pkgs/main/win-64::mkl_fft-1.3.0-py38h277e83a_2
mkl_random             pkgs/main/win-64::mkl_random-1.2.2-py38hf11a4ad_0
numpy                  pkgs/main/win-64::numpy-1.20.3-py38ha4e8547_0
numpy-base            pkgs/main/win-64::numpy-base-1.20.3-py38hc2deb75_0
six                    pkgs/main/noarch::six-1.16.0-pyhd3eb1b0_0

Proceed ([y]/n)?
```

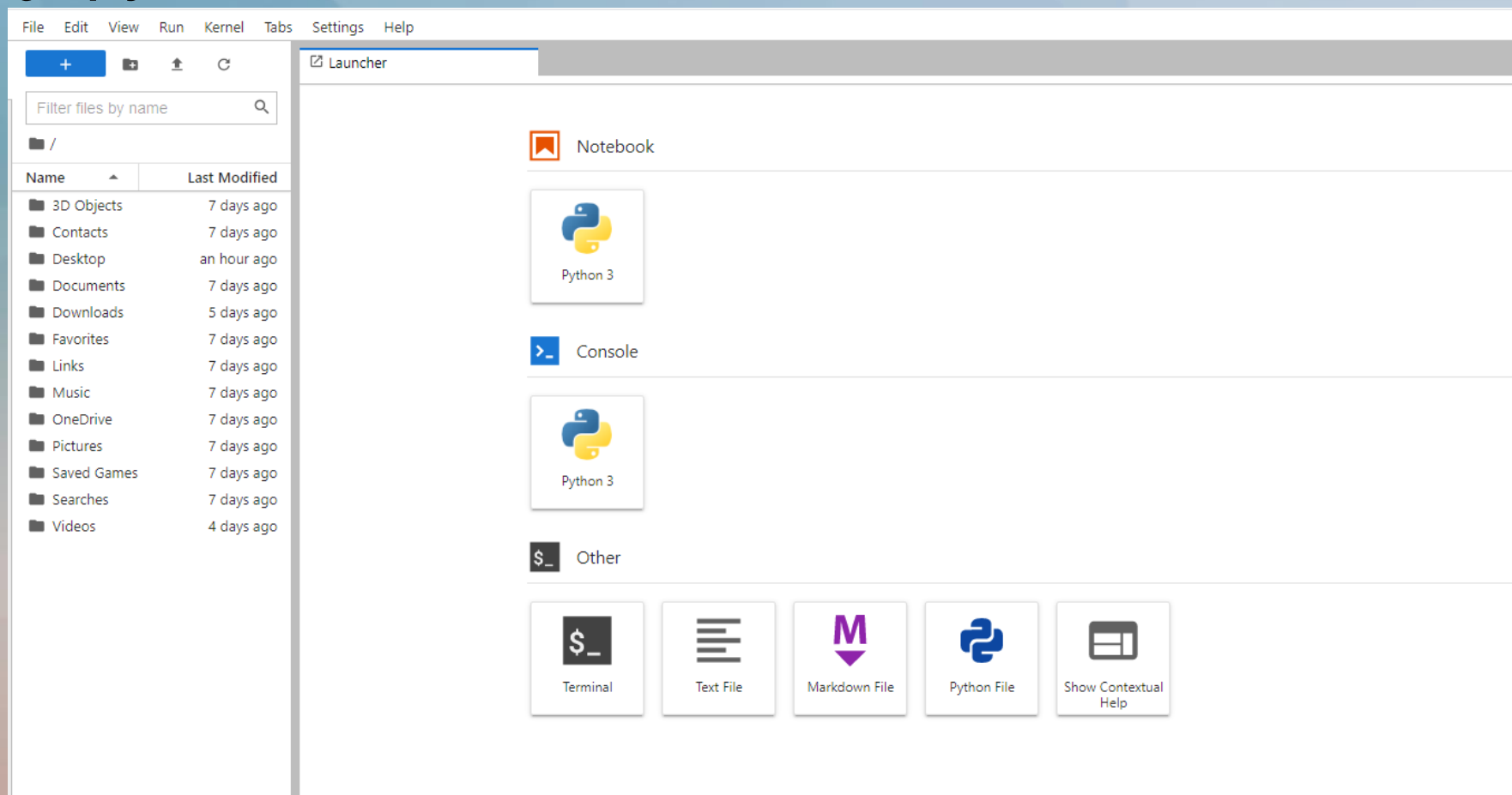

環境建置 - Keras

- Check tensorflow is using GPU or not
 - run python
 - import tensorflow as tf
 - print("Num GPUs Available: ", len(tf.config.experimental.list_physical_devices('GPU')))
 - print(tf.test.gpu_device_name())

```
(CI) C:\Users\Administrator>python
Python 3.8.12 (default, Oct 12 2021, 03:01:40) [MSC v.1916 64 bit (AMD64)] :: Anaconda, Inc. on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import tensorflow as tf
>>> print("Num GPUs Available: ", len(tf.config.experimental.list_physical_devices('GPU')))
Num GPUs Available: 1
>>> print(tf.test.gpu_device_name())
2022-01-21 15:22:43.846218: I tensorflow/core/platform/cpu_feature_guard.cc:151] This TensorFlow binary is optimized with oneAPI Deep
Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX AVX2
To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.
2022-01-21 15:22:44.229440: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1525] Created device /device:GPU:0 with 6641 MB memory
: -> device: 0, name: NVIDIA GeForce GTX 1070, pci bus id: 0000:01:00.0, compute capability: 6.1
/device:GPU:0
>>>
```

環境建置 - JupyterLab

- Install packages
 - conda install jupyterlab
 - jupyter-lab



環境建置 - JupyterLab

```
Launcher x 系統管理員: x Untitled.ipynb x Console 1 x  
Windows PowerShell  
Copyright (C) Microsoft Corporation. 著作權所有，並保留一切權利。  
請嘗試新的跨平台 PowerShell https://aka.ms/pscore6  
PS C:\Users\Administrator> █
```

```
Launcher x 系統管理員: x Untitled.ipynb ● Console 1 x  
+ ✂ █ ▶ ◀ ↺ ▶▶ Code ▾  
[7]: import numpy as np  
    ## pip install numpy
```

```
Launcher x 系統管理員: x Untitled.ipynb ● Console 1 x  
Python 3.8.11 (default, Aug 6 2021, 09:57:55) [MSC v.1916 64 bit (AMD64)]  
Type 'copyright', 'credits' or 'license' for more information  
IPython 7.26.0 -- An enhanced Interactive Python. Type '?' for help.  
[1]: import math
```

環境建置 - JupyterLab

```
[1]: conda install numpy
```

```
Collecting package metadata (current_repodata.json): ...working... done  
Solving environment: ...working... done
```

```
# All requested packages already installed.
```

```
Note: you may need to restart the kernel to use updated packages.
```

```
==> WARNING: A newer version of conda exists. <==  
  current version: 4.10.1  
  latest version: 4.10.3
```

```
Please update conda by running
```

```
$ conda update -n base -c defaults conda
```

| 可用平台 – Google Colabrary (Colab)

An Example