

Colab

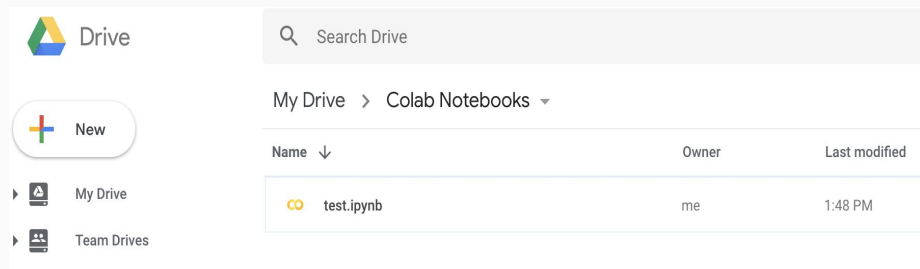
Ching-Yi Lee

2018/09/07

Introduction

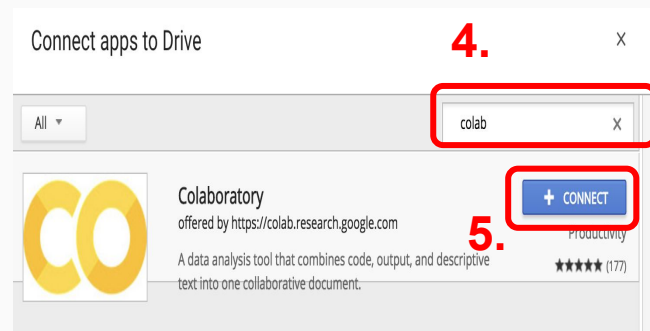
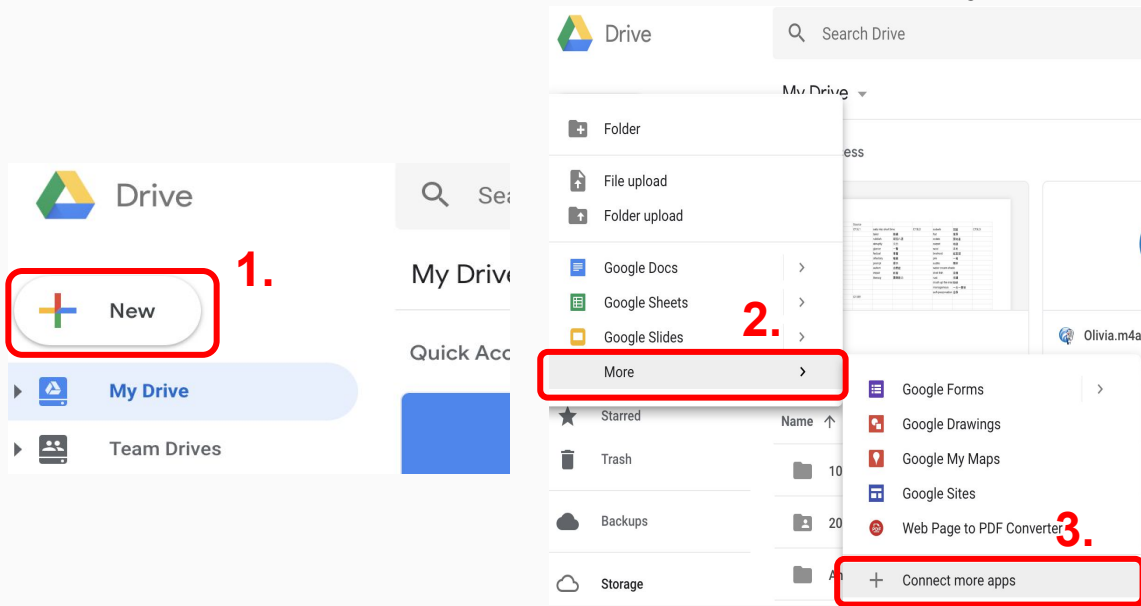
- 類似Jupyter Notebook，互動式介面，及時輸出結果
- 儲存在Drive 上，可以共同編輯
- 背後有VM 在運作
- 可連續使用免費的 Tesla K80 GPU 12小時(每次)
- 許多套件已事先安裝，例如：TensorFlow, Scikit-learn, Matplotlib

→ Text Note: goo.gl/vmJGJ4



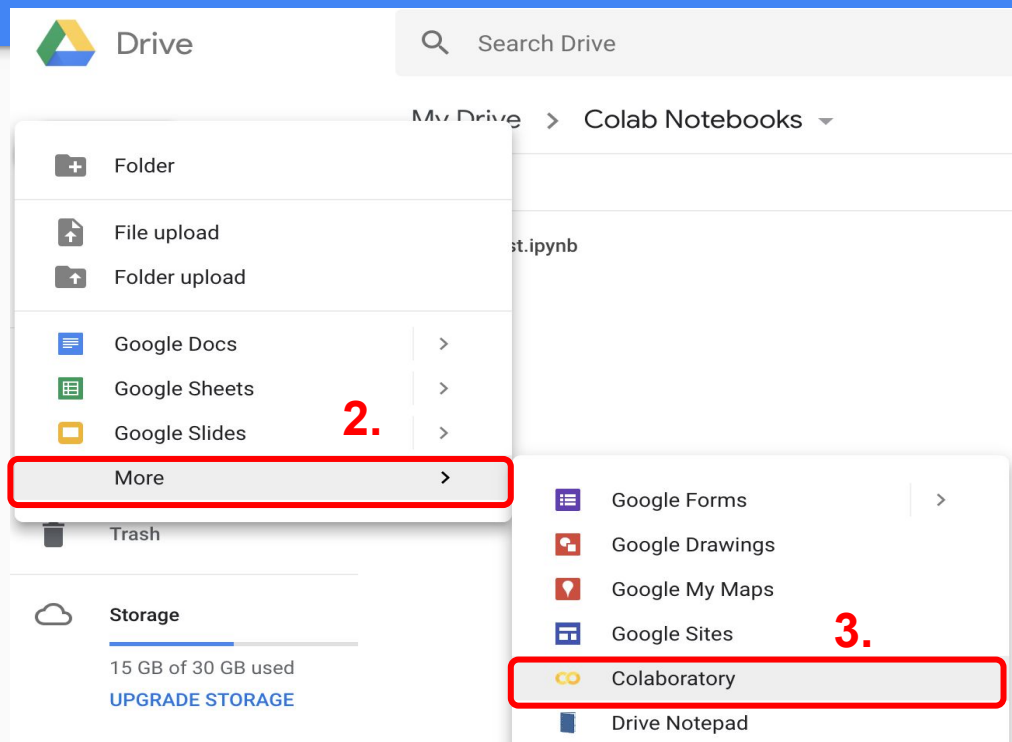
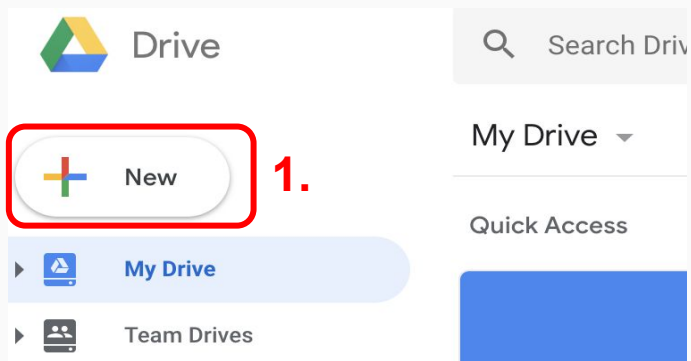
Setup

- 進入Google Drive 連接到Colaboratory

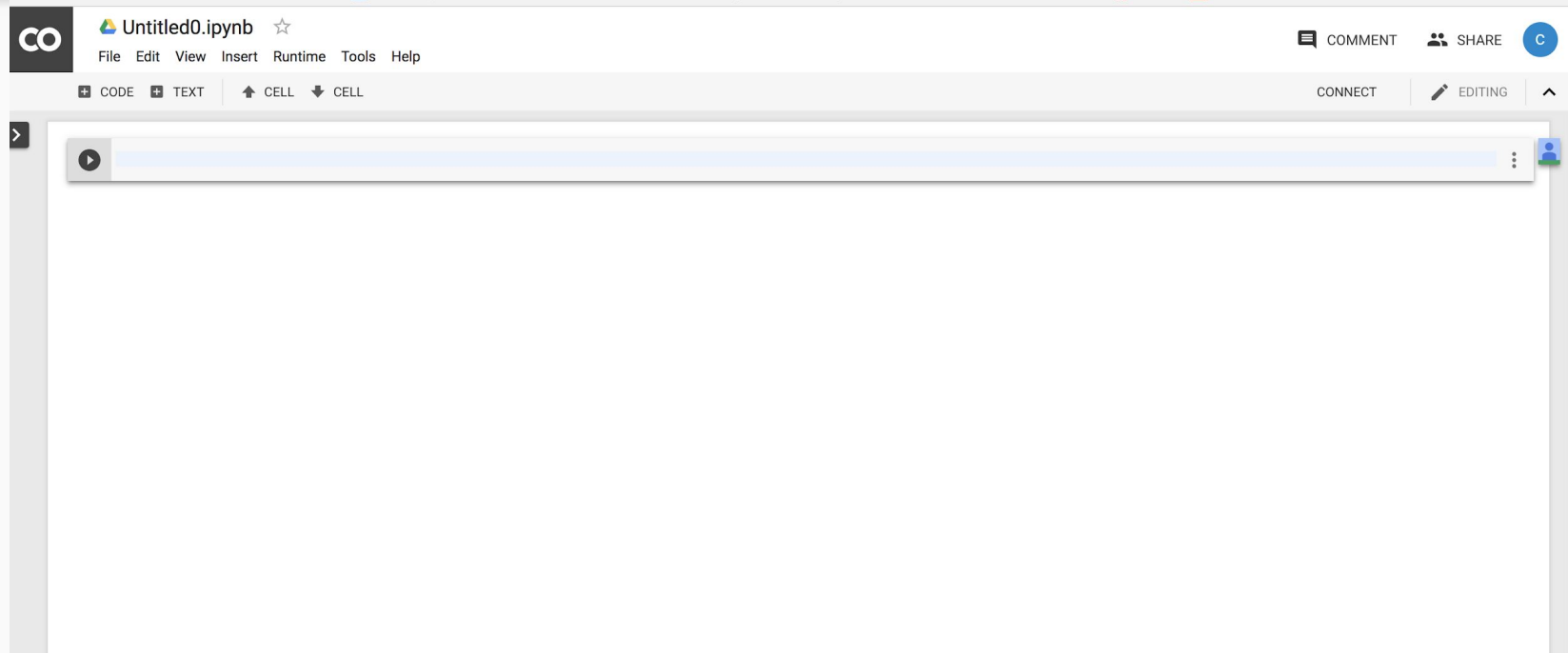


Setup

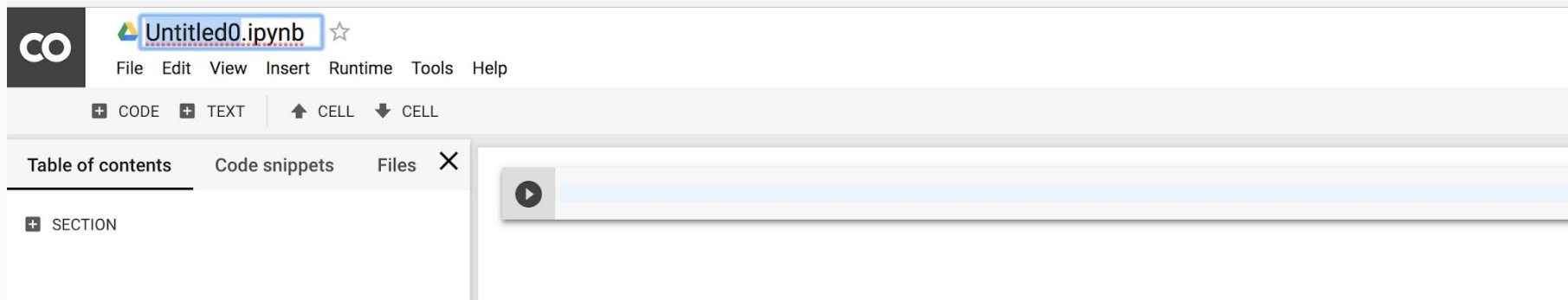
- 建立一個新的Colaboratory



建立完成



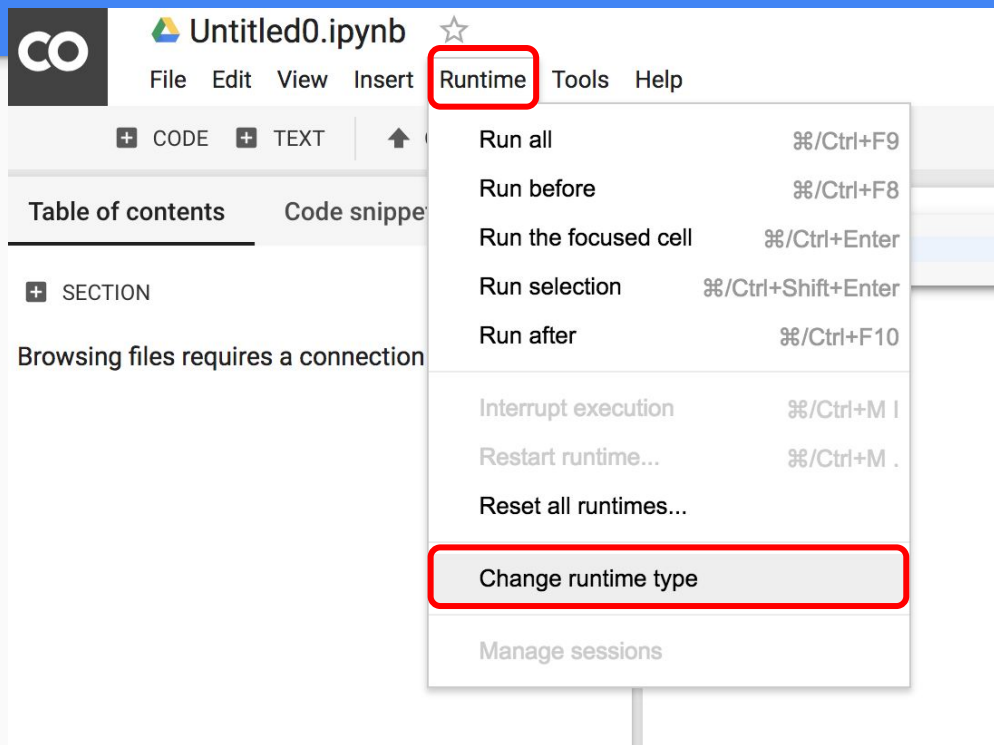
修改名稱



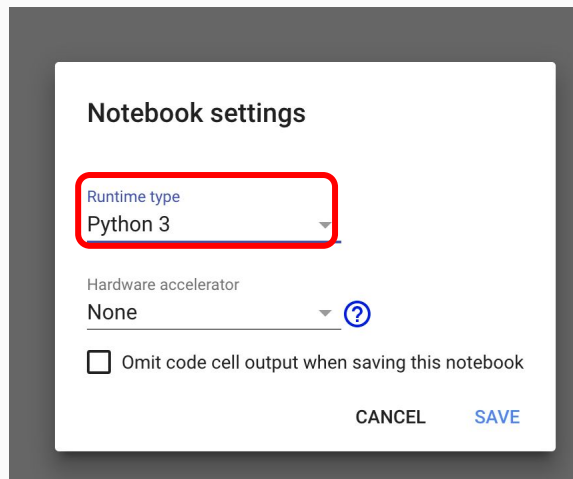
查看档案

The screenshot displays the JupyterLab web interface. At the top, the title bar shows 'Untitled0.ipynb' with a star icon and a menu bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. On the right side of the title bar are icons for 'COMMENT', 'SHARE', and a user profile. Below the title bar, a toolbar contains buttons for 'CODE', 'TEXT', 'CELL', and 'CELL'. A sidebar on the left is titled 'Table of contents' and contains a 'SECTION' header and a message: 'Browsing files requires a connection to a runtime.' The 'Table of contents' tab is highlighted with a red box. The main area of the interface is currently empty, showing a play button icon on the left and a user profile icon on the right.

修改Runtime



- 使用 Python 3



連接VM

The screenshot displays the JupyterLab web interface. At the top, the title bar shows 'Untitled0.ipynb' with a star icon. Below it is a menu bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. A secondary bar contains '+ CODE', '+ TEXT', '↑ CELL', and '↓ CELL'. On the left, a sidebar shows 'Table of contents', 'Code snippets', and 'Files' with a close button. The main area is a large white space with a play button icon in the top left corner. On the right side of the main area, a 'CONNECT' dropdown menu is open, showing two options: 'Connect to hosted runtime' and 'Connect to local runtime...'. A red arrow points from the play button icon to the 'CONNECT' dropdown menu. The 'CONNECT' dropdown menu is highlighted with a red border. To the right of the 'CONNECT' dropdown menu are icons for 'COMMENT', 'SHARE', and a user profile icon.

co Untitled0.ipynb ☆

File Edit View Insert Runtime Tools Help

+ CODE + TEXT ↑ CELL ↓ CELL

Table of contents Code snippets Files X

+ SECTION

CONNECT

- Connect to hosted runtime
- Connect to local runtime...

COMMENT SHARE C

EDITING

連接完成

The screenshot displays a Jupyter Notebook environment. At the top, the title bar shows 'Untitled0.ipynb' with a star icon. Below the title bar is a menu bar with options: File, Edit, View, Insert, Runtime, Tools, and Help. To the right of the menu bar are buttons for COMMENT, SHARE, and a user profile icon labeled 'C'. Below the menu bar is a toolbar with buttons for CODE, TEXT, and two CELL buttons (one with an up arrow, one with a down arrow). To the right of the toolbar are status indicators: 'CONNECTED' with a green checkmark and 'EDITING' with a pencil icon. On the left side, there is a file explorer panel with tabs for 'Table of contents', 'Code snippets', and 'Files'. The 'Files' tab is active, showing a folder named 'sample_data' which contains several files: README.md, anscombe.json, california_housing_test.csv, california_housing_train.csv, mnist_test.csv, and mnist_train_small.csv. The main area on the right is a large white space for code editing, with a play button icon in the top left corner.

基本語法 - Python

- 輸入 python 程式碼，點擊「Run」或是「Ctrl + Enter」執行程式碼區塊。



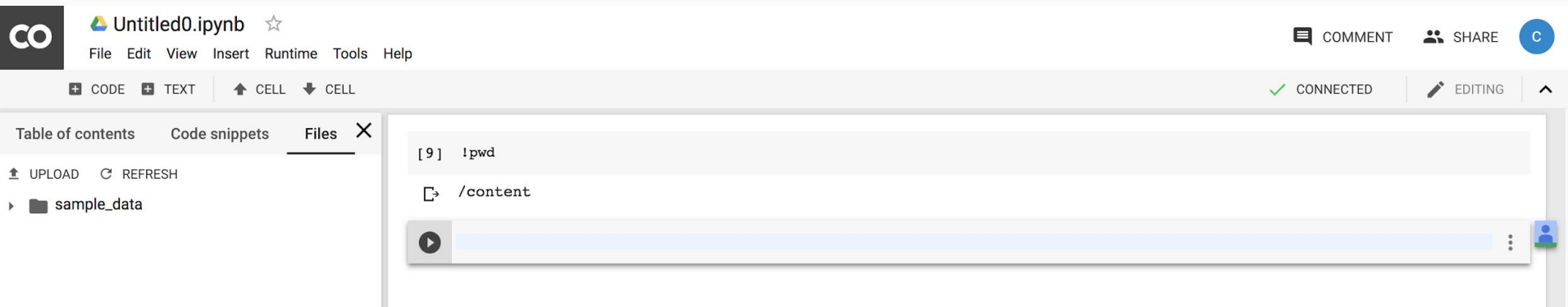
The screenshot displays a Jupyter Notebook interface. At the top left is the 'CO' logo. The title bar shows 'Untitled0.ipynb' with a star icon. Below the title bar is a menu bar with options: File, Edit, View, Insert, Runtime, Tools, and Help. A toolbar below the menu bar contains icons for adding a new code cell (+ CODE), a new text cell (+ TEXT), and navigating between cells (up arrow CELL, down arrow CELL). On the left side, there is a sidebar with 'Table of contents', 'Code snippets', and 'Files' tabs. The 'Files' tab is active, showing an 'UPLOAD' button, a 'REFRESH' button, and a folder named 'sample_data'. The main area of the notebook shows a code cell with the following content:

```
[8] print('Hello World')
```

Below the code cell, the output is displayed as 'Hello World'. At the bottom of the code cell, there is a play button icon and a cursor, indicating that the code is ready to be executed.

基本語法 - Shell

- 前面加上！



The screenshot displays a Jupyter Notebook interface. At the top, the title bar shows 'Untitled0.ipynb' with a star icon. Below the title bar is a menu bar with options: File, Edit, View, Insert, Runtime, Tools, and Help. To the right of the menu bar are buttons for COMMENT, SHARE, and a user profile icon. Below the menu bar is a toolbar with buttons for CODE, TEXT, and CELL (with up and down arrows). To the right of the toolbar are status indicators: 'CONNECTED' with a green checkmark and 'EDITING' with a pencil icon. On the left side, there is a sidebar with a 'Table of contents' section, a 'Code snippets' section, and a 'Files' section. The 'Files' section shows a folder named 'sample_data'. The main area of the notebook contains a code cell with the following text:

```
[9] !pwd
```

```
/content
```

 Below the code cell is a play button icon and a blue bar with a user profile icon.

基本語法 - git

- 從Github 複製檔案, 執行後更新Files的資料夾



The screenshot shows a Jupyter Notebook titled "Untitled0.ipynb". The interface includes a top menu bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help". Below the menu bar are tabs for "CODE", "TEXT", "CELL", and "CELL". On the right side, there are buttons for "COMMENT", "SHARE", and a user profile icon. A status bar at the bottom indicates "CONNECTED" and "EDITING".

The left sidebar shows a "Table of contents" with sections for "Table of contents", "Code snippets", and "Files". Under "Files", there are two folders: "recomm" and "sample_data". A red box highlights the "REFRESH" button next to the "UPLOAD" button.

The main area displays a code cell with the following content:

```
[1] !git clone https://github.com/CloudMile/recommendation_engine_course recomm
```

The output of the command is shown below the code cell:

```
Cloning into 'recomm'...
remote: Counting objects: 313, done.
remote: Compressing objects: 100% (42/42), done.
remote: Total 313 (delta 24), reused 17 (delta 5), pack-reused 266
Receiving objects: 100% (313/313), 54.03 MiB | 38.94 MiB/s, done.
Resolving deltas: 100% (156/156), done.
```

特殊語法 - 查看

- 在function 前面加上? 或是用help()可以查看documentation

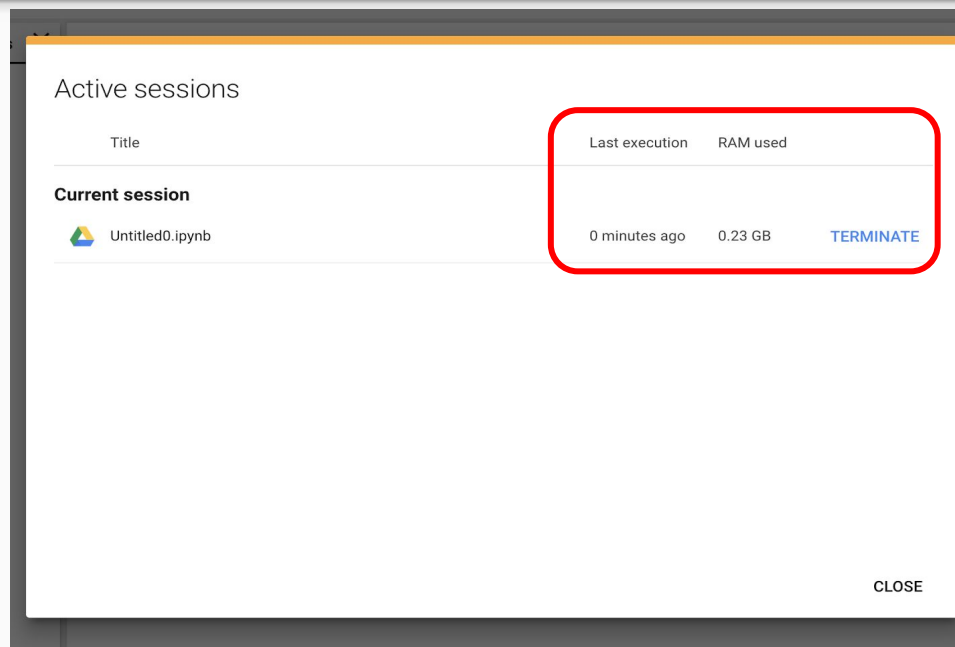
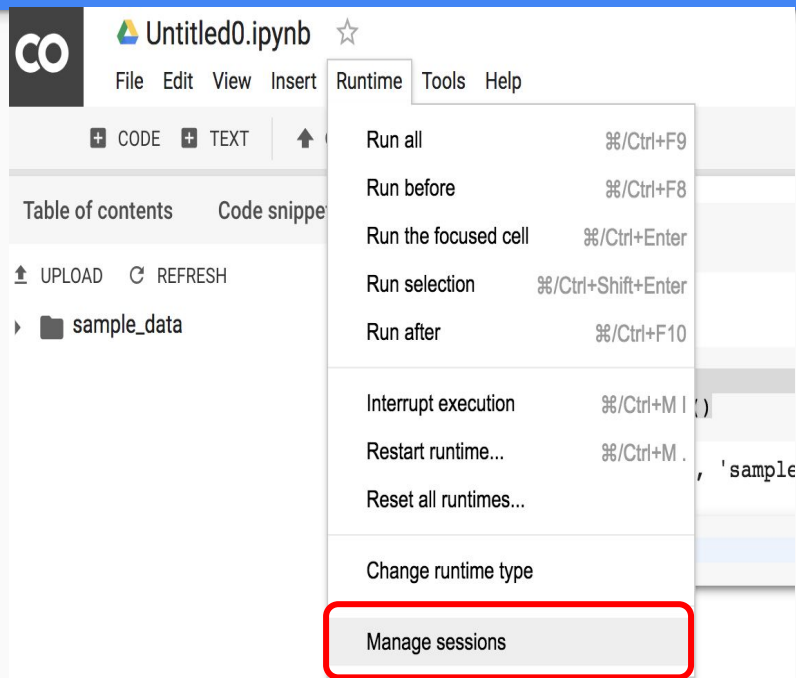
The screenshot shows a Jupyter Notebook titled 'Untitled0.ipynb'. The code cell contains the following code:

```
[1] import numpy as np  
  
np.asarray?  
# help(np.asarray)
```

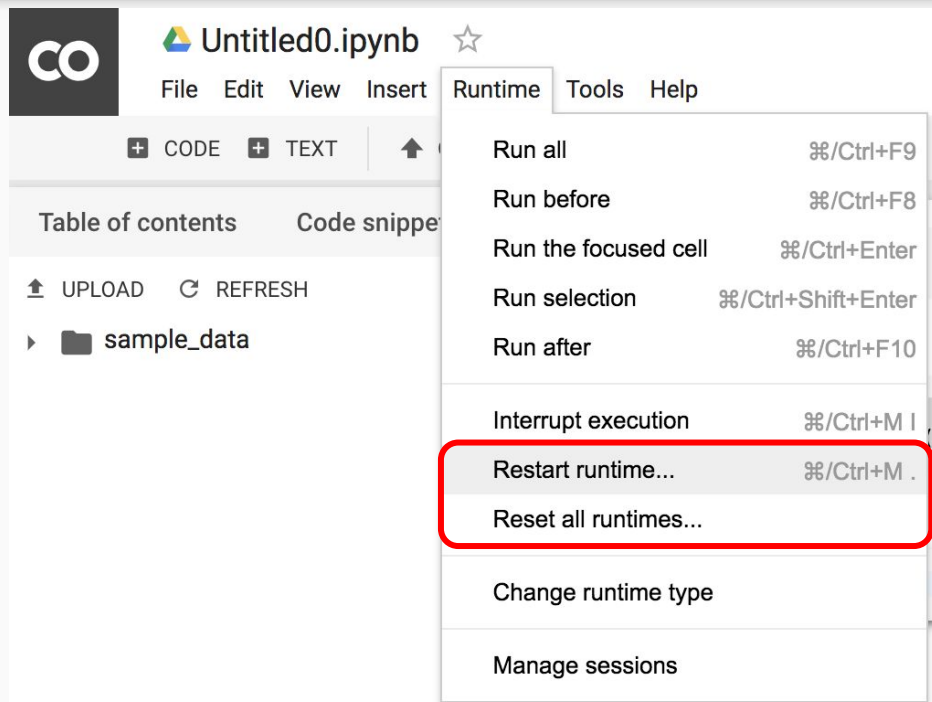
The output of the code cell displays the help documentation for `np.asarray`:

```
Signature: np.asarray(a, dtype=None, order=None)  
Docstring:  
Convert the input to an array.  
  
Parameters  
-----  
a : array_like  
    Input data, in any form that can be converted to an array. This  
    includes lists, lists of tuples, tuples, tuples of tuples, tuples  
    of lists and ndarrays.
```

管理Session



Restart runtime/ Reset runtime



從Colab打開Jupyter Notebook

從網站下載 code 到本機 -> 網址 : github.com/CloudMile/recommendation_engine_course

CloudMile / [recommendation_engine_course](#) Watch 5 Star 0 Fork 2

<> Code Issues 0 Pull requests 1 Projects 0 Wiki Insights

No description, website, or topics provided.

45 commits 1 branch 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find file Clone or download

GaryChenCloudMile Update README.md

data	First commit
model	modify jupyter-notebook program structure!
utils	#
.gitignore	First commit

Clone with HTTPS Use SSH

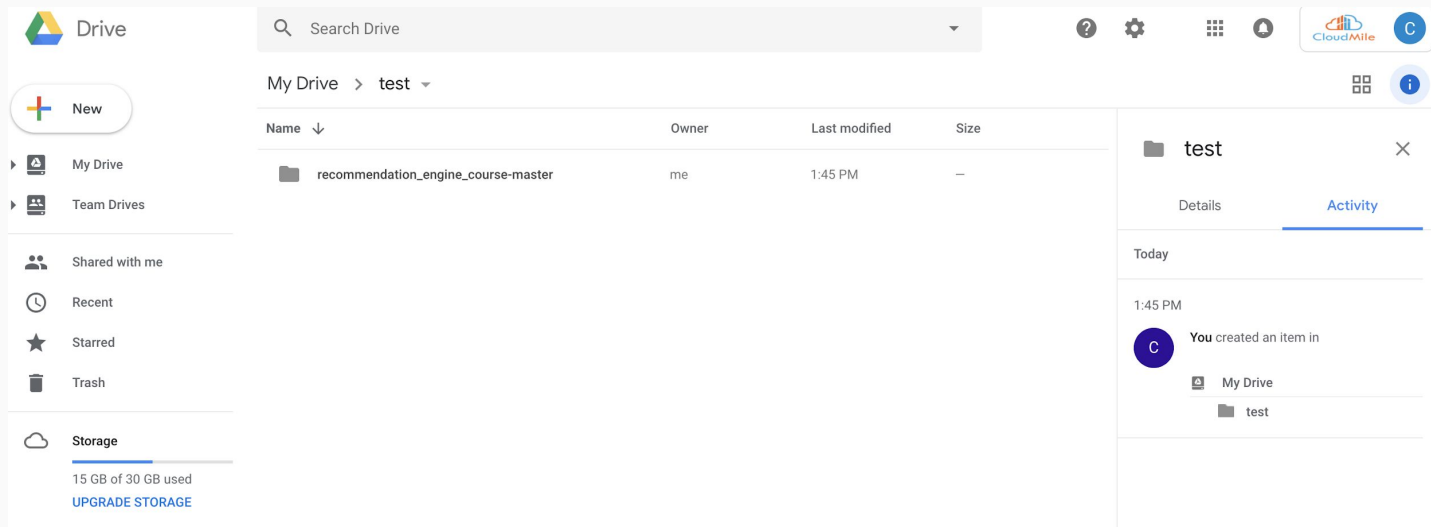
Use Git or checkout with SVN using the web URL.

<https://github.com/CloudMile/recommen>

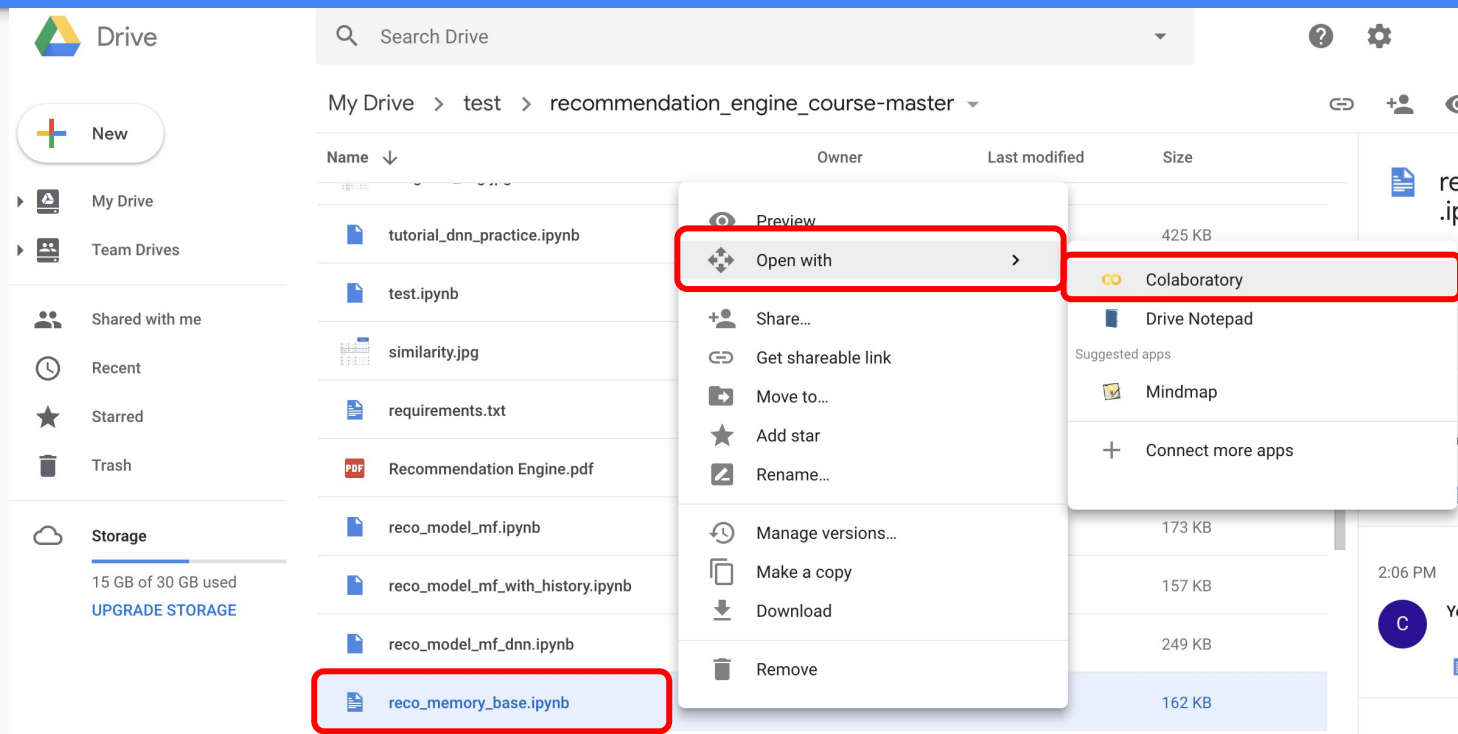
Open in Desktop Download ZIP

從Colab打開Jupyter Notebook

- 解壓縮後，上傳整個資料夾到Google Drive



從Colab打開Jupyter Notebook



從Colab打開Jupyter Notebook

The screenshot displays a Google Colab Jupyter Notebook titled "reco_memory_base.ipynb". The interface includes a top menu bar with options like File, Edit, View, Insert, Runtime, Tools, and Help. Below the menu, there are tabs for CODE, TEXT, and CELL, with the CODE tab currently selected. The notebook is in a "CONNECTED" state, as indicated by a green checkmark and the word "CONNECTED".

The main area of the notebook contains a Python code cell with the following code:

```
[ ] '''
Import some required packages.
'''

# from __future__ import division, print_function, with_statement, absolute_import, unicode_literals
import os, sys, numpy as np, pandas as pd, tensorflow as tf, re, codecs, json
import pickle, collections, random, math, numbers, scipy.sparse as sp

def reload(mName):
    import importlib
    if mName in sys.modules:
        del sys.modules[mName]
    return importlib.import_module(mName)

from sklearn.metrics.pairwise import cosine_similarity, euclidean_distances
from sklearn.metrics import mean_squared_error, mean_absolute_error

from math import sqrt
from sklearn.preprocessing import LabelEncoder, minmax_scale
from matplotlib import pyplot as plt
plt.style.use('ggplot')

utils = reload('utils.utils')
np.set_printoptions(precision=4, suppress=True, linewidth=100)
```

Below the code cell, a warning message is displayed:

```
/Users/jeff/anaconda3/envs/dev/lib/python3.6/site-packages/h5py/_init_.py:36: FutureWarning: Conversion of the second argument of issbdtype from `float
from ._conv import register_converters as _register_converters
```

The notebook content continues with a section titled "MovieLens Small Dataset" and a subsection titled "1. Data Preprocessing".

MovieLens Small Dataset

此資料集含有約100,000筆電影評分(1~5分)。我們將使用此資料預測使用者對各個電影的評分。

1. Data Preprocessing

首先我們需要將資料集做些預處理。

Reference

- https://colab.research.google.com/drive/1jt6Dk2MoUaBZu0nUuQpNAzVfMpm08Vps?authuser=1#scrollTo=zmVS_blsW2Cq
- <https://research.google.com/colaboratory/faq.html#gpu-availability>
- <https://research.google.com/colaboratory/local-runtimes.html>