

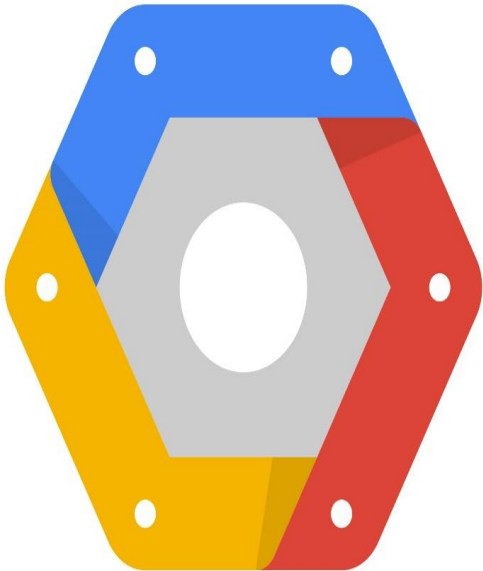
Cloud DataLab



Bear Su



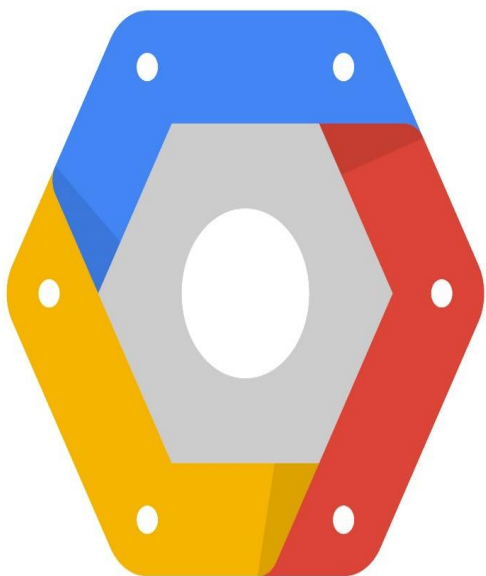
Overview



Introduction

Setup

Usage



Introduction

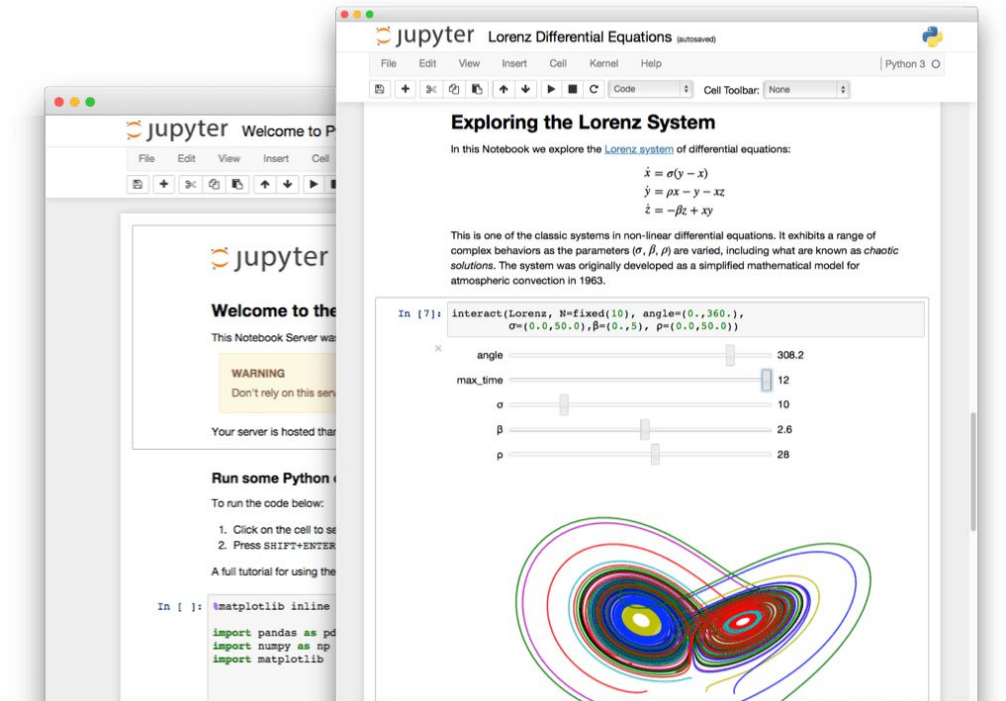
Setup

Usage

Introduction



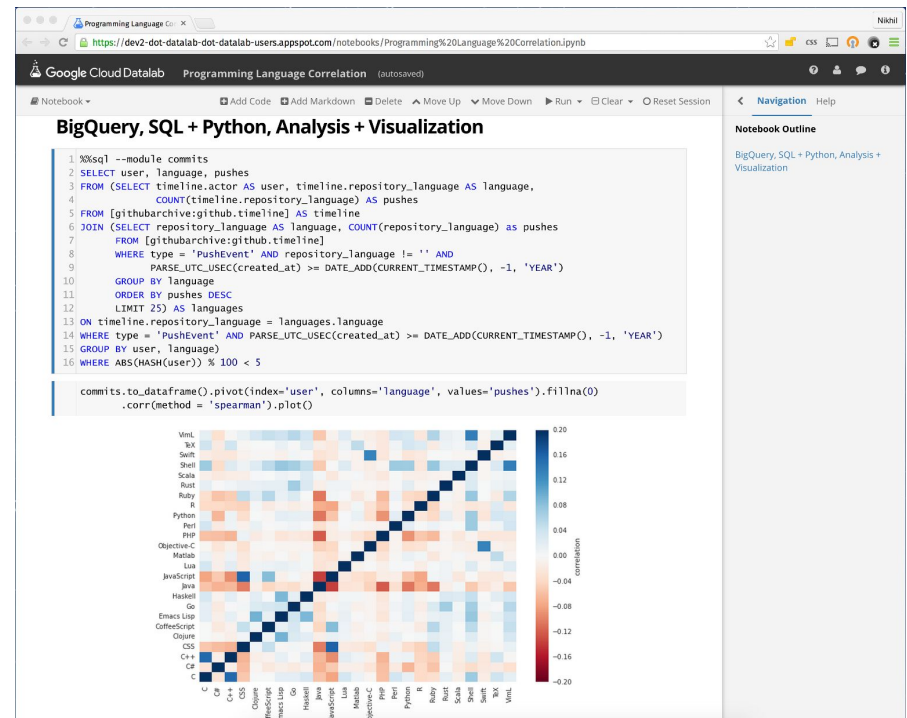
- 基於 Jupyter (IPython)
- 互動式介面，即時輸出結果

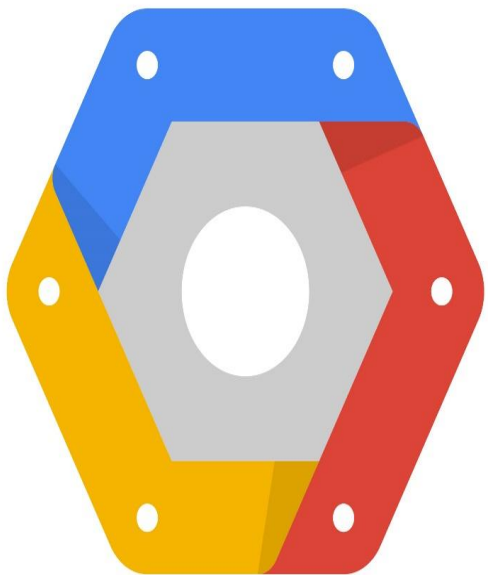


Introduction



- 使用 Python
- 整合 Google 服務
 - Google BigQuery
 - Cloud Machine Learning Engine
 - Google Compute Engine
 - Google Cloud Storage
- 開放原始碼專案





Introduction

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Usage

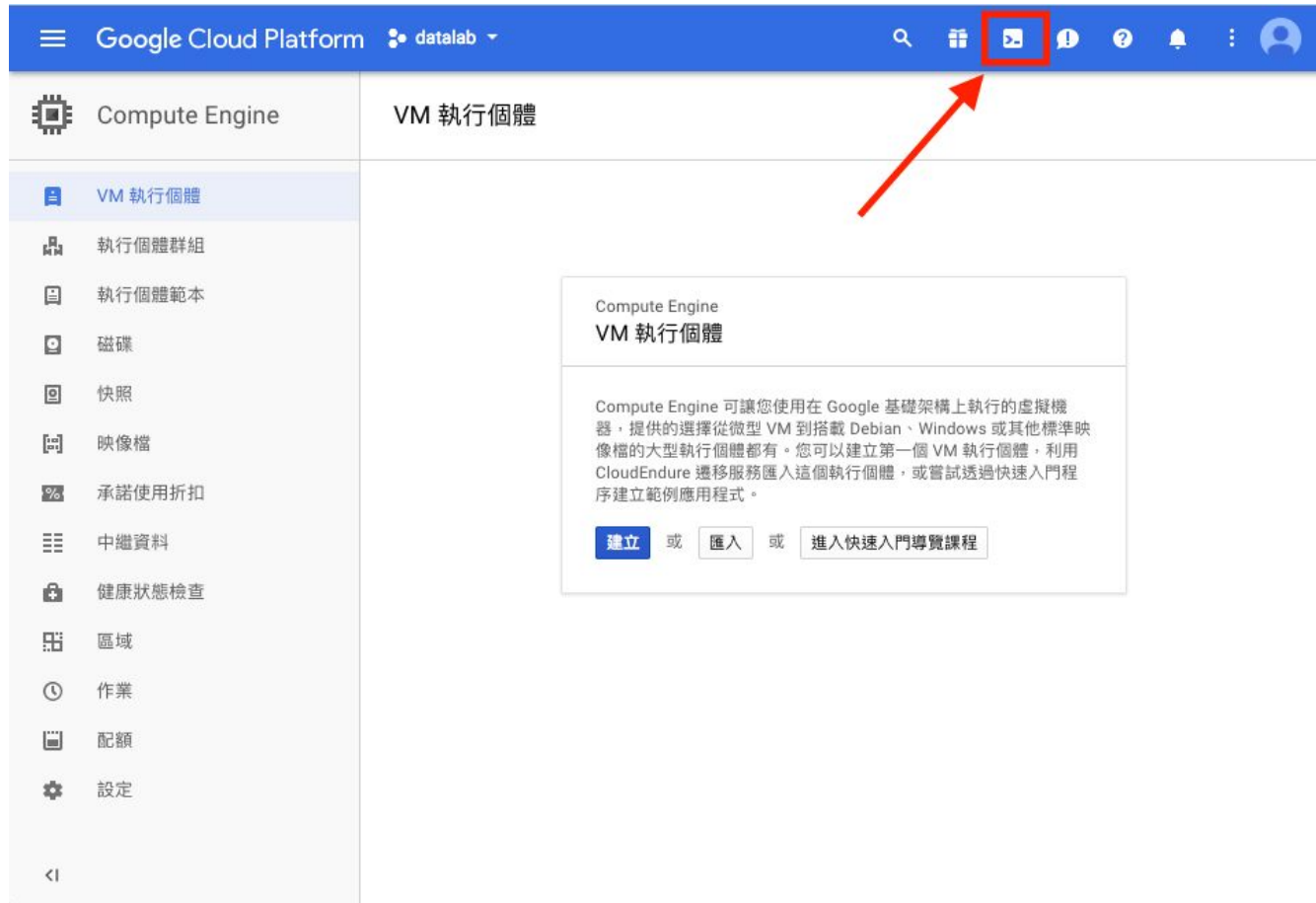


- 建立 GCP 帳號
- 申請免費試用(\$300)
- 建立專案
- 啟用 Compute Engine API
- 開啟 Cloud Shell
- 啟動 Datalab
- text note短網址:

<https://goo.gl/evHFPY>



開啟 Cloud Shell



Setup



點擊「啟動 CLOUD SHELL」

Google Cloud Platform | datalab

Google Cloud Shell

免費為您預先安裝使用 Google Cloud Platform 時的必要工具。 [瞭解詳情](#)

```
bearsu@cloudshell:~$ cd appengine-example
bearsu@cloudshell:~/appengine-example$ appcfg.py -A test-project update app.yaml
10:35 PM Host: appengine.google.com
10:35 PM Application: test-project; version: 1
Starting update of app: test-project, version: 1
10:35 PM Cloning 1 static file.
10:35 PM Cloning 5 application files.
10:35 PM Compilation starting.
10:35 PM Compilation completed.
10:35 PM Starting deployment.
10:35 PM Checking if deployment succeeded.
```

真正的 Linux 作業環境	針對 Google Cloud 設定	支援主流語言
<ul style="list-style-type: none">• Linux Debian 版本作業系統• 5 GB 永久性主目錄• 新增、編輯和儲存檔案	<ul style="list-style-type: none">• Google Cloud SDK• Google App Engine SDK• Docker• Git• 文字編輯器• 建立工具• 查看更多	<ul style="list-style-type: none">• Python• Java• Go• Node.js

[取消](#) [啟動 CLOUD SHELL](#)

Setup



Cloud Shell 的介面

Google Cloud Platform datalab

Compute Engine VM 執行個體

VM 執行個體

執行個體群組

執行個體範本

磁碟

快照

映像檔

Compute Engine VM 執行個體

Compute Engine 可讓您使用在 Google 基礎架構上執行的虛擬機器，提供的選擇從微型 VM 到搭載 Debian、Windows 或其他標準映像檔的大型執行個體都有。您可以建立第一個 VM 執行個體，利用 CloudEndure 遷移服務匯入這個執行個體，或嘗試透過快速入門程序建立範例應用程式。

datalab-187707

```
Welcome to Cloud Shell! Type "help" to get started.
bearsu@datalab-187707:~$
```



輸入指令：

```
datalab create lab-machine \  
    --machine-type n1-standard-4 \  
    --zone asia-east1-b
```

```
Welcome to Cloud Shell! Type "help" to get started.  
bearsu@datalab-187707:~$ datalab create lab-machine \  
>   --machine-type n1-standard-4 \  
>   --zone asia-east1-b  
Creating the instance lab-machine  
Created [https://www.googleapis.com/compute/v1/projects/datalab-187707/zones/asia-east1-b/instances/lab-machine].  
Connecting to lab-machine.  
This will create an SSH tunnel and may prompt you to create an rsa key pair. To manage these keys, see https://cloud.google.com/compute/docs/instances/adding-removing-ssh-keys  
Waiting for Datalab to be reachable at http://localhost:8081/  
This tool needs to create the directory [/home/bearsu/.ssh] before  
being able to generate SSH keys.  
  
Do you want to continue (Y/n)? y
```



Datalab 啟動成功

The screenshot shows a terminal window titled "datalab-187707 x" with standard window controls. The terminal output displays a progress indicator consisting of a dashed box with characters inside, followed by status messages: "Updating project ssh metadata...|Updated [https://www.googleapis.com/compute/v1/projects/datalab-187707].", "Updating project ssh metadata...done.", and "Waiting for SSH key to propagate." Below this, a message states: "The connection to Datalab is now open and will remain until this command is killed. Click on the *Web Preview* (square button at top-right), select *Change port > Port 8081*", and "start using Datalab." A red cursor is visible at the bottom of the terminal.

```
|  o . . . B |
|  . . . oo |
| S  + . . |
|  . . o . |
|  . .   |
|  +-----+
+-----+
Updating project ssh metadata...|Updated [https://www.googleapis.com/compute/v1/projects/datalab-187707].
Updating project ssh metadata...done.
Waiting for SSH key to propagate.

The connection to Datalab is now open and will remain until this command is killed.
Click on the *Web Preview* (square button at top-right), select *Change port > Port 8081*, and start using Datalab.
█
```

Setup



依訊息開啟 Datalab 網頁介面

The screenshot shows the Google Cloud Platform console interface. The top navigation bar includes the Google Cloud Platform logo, the 'datalab' dropdown, and various utility icons. The left sidebar shows the 'Compute Engine' section with a list of resources: 'VM 執行個體' (selected), '執行個體群組', '執行個體範本', '磁碟', '快照', and '映像檔'. The main content area is titled 'VM 執行個體' and displays a table of VM instances. The table has columns for '名稱', '區域', '建議', '內部 IP', '外部 IP', and '連線'. A single instance named 'lab-machine' is listed in the 'asia-east1-b' region with an internal IP of 10.140.0.2 and an external IP of 35.185.131.172, connected via SSH. Below the table, a terminal window for 'datalab-187707' is open. It shows the output of the 'gcloud compute ssh' command, indicating that the connection to Datalab is established. A red arrow points to a context menu that appears over the terminal, listing port options: '功能預覽 8080', '變更通訊埠', '關於網頁預覽', '通訊埠 8080', '通訊埠 8081' (highlighted with a red box), '通訊埠 8082', '通訊埠 8083', and '通訊埠 8084'. The terminal text also instructs the user to click the 'Web Preview' button and select 'Change port > Port 8081'.

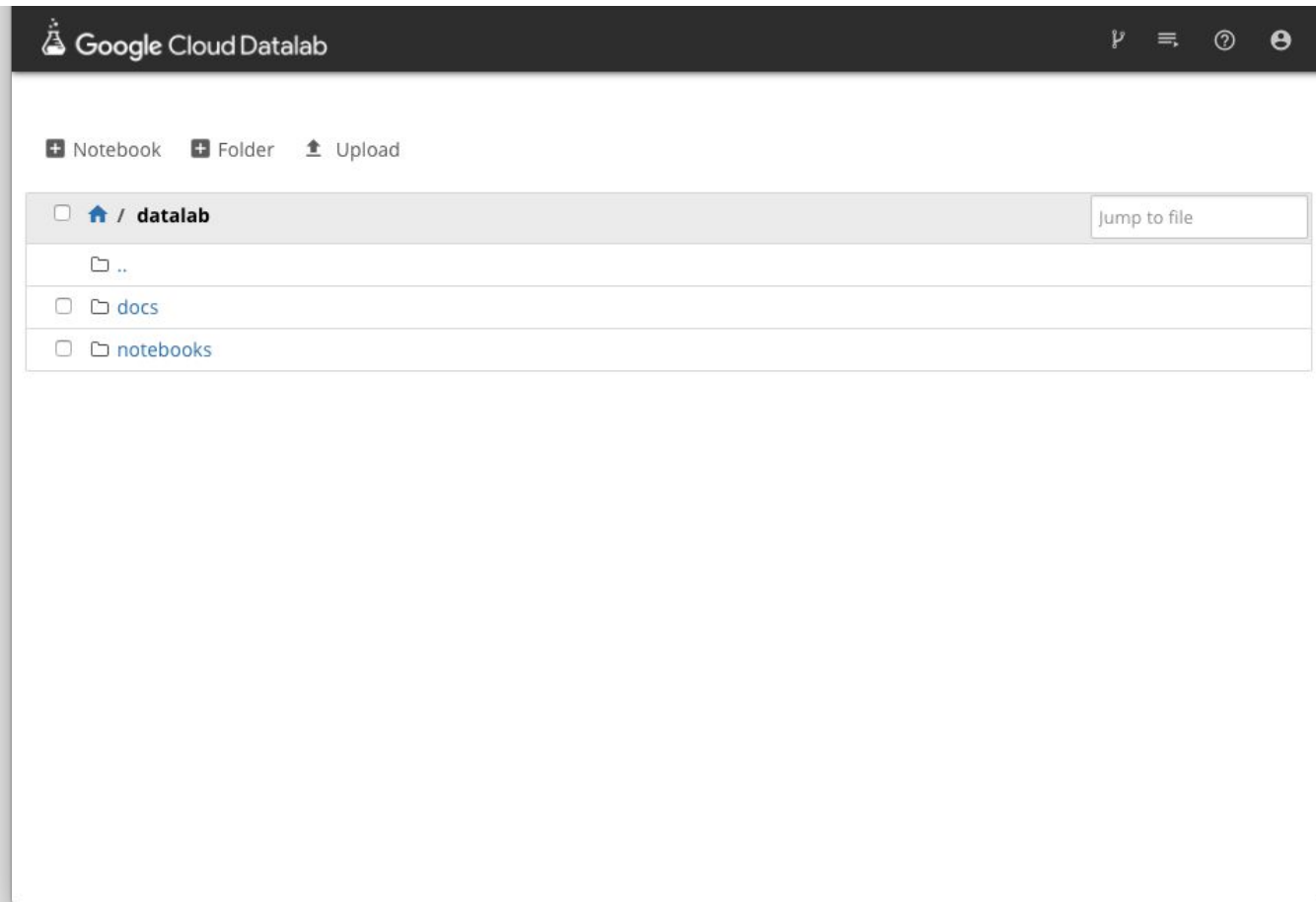
名稱	區域	建議	內部 IP	外部 IP	連線
lab-machine	asia-east1-b		10.140.0.2	35.185.131.172	SSH

```
Updating project ssh metadata...Updated [https://www.googleapis.com/compute/v1/project/datalab-187707].
Updating project ssh metadata...done.
Waiting for SSH key to propagate.

The connection to Datalab is now open and will remain until this command is killed.
Click on the *Web Preview* (square button at top-right), select *Change port > Port 8081*, and start using Datalab.
```



Datalab 介面





重新連上：

```
datalab connect lab-machine
```

停止：

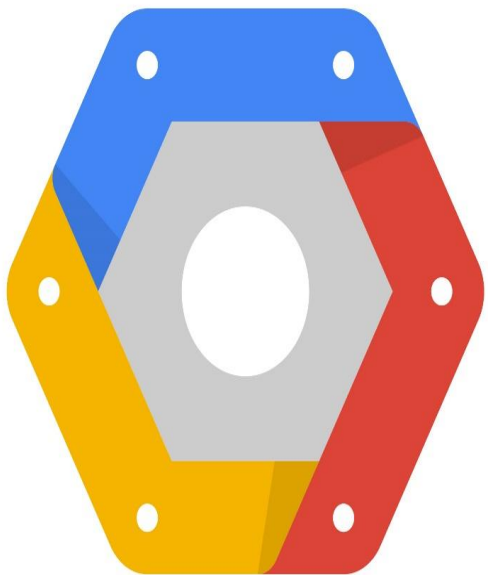
```
datalab stop lab-machine
```

刪除：

```
datalab delete lab-machine
```

刪除(保留硬碟)：

```
datalab delete --keep-disk lab-machine
```



Introduction

Installation

Usage



- 建立 notebook
- 編輯名稱
- 基本語法
- 停止 sessions
- 透過 git 下載 notebooks
- 透過 shell 指令下載檔案



- 建立 notebook
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建立 notebook



點擊「+ Notebook」





- 建立 notebook
- 編輯名稱
- 基本語法
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- 透過 shell 指令下載檔案

編輯名稱



點擊名稱，於彈出視窗編輯

The screenshot shows the Google Cloud Datalab interface. At the top, there is a dark header bar with the Google Cloud Datalab logo and the text 'Untitled Notebook (unsaved changes)'. Below this is a toolbar with various icons and labels: 'Notebook', 'Add Code', 'Add Markdown', 'Delete', 'Move Up', 'Move Down', 'Run', 'Clear', and 'Reset'. The main area of the interface is a light gray rectangle with a small '1' in the top left corner. A 'Rename Notebook' dialog box is open, featuring a title bar with a close button, a text input field containing 'Untitled Notebook', and 'OK' and 'Cancel' buttons at the bottom right.

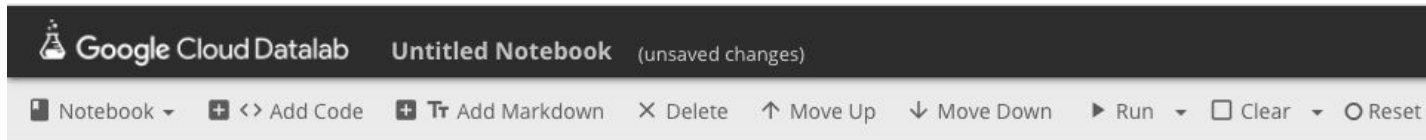


- 建立 notebook
- 編輯名稱
- **基本語法**
- 停止 sessions
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- 透過 shell 指令下載檔案

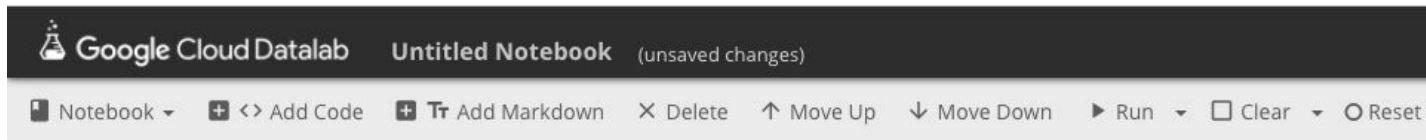
基本語法 - python



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



```
1 # python
2
3 print('Hello world')
```

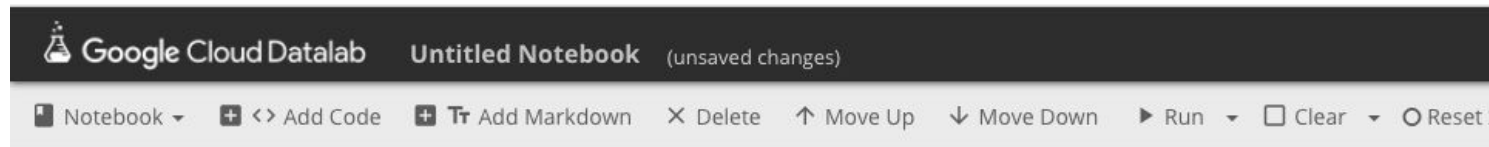


```
1 # python
2
3 print('Hello world')
```

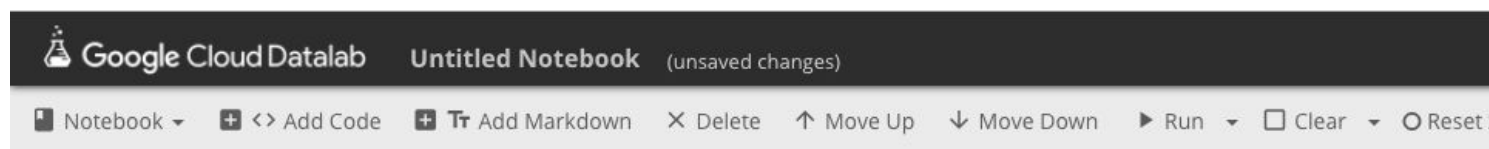
Hello world



shell 指令前面要加上「!」



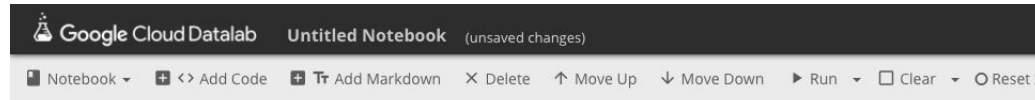
```
1 # shell
2
3 !pwd
```



```
1 # shell
2
3 !pwd
```

/content/datalab/notebooks

基本語法 - javascript



Title

Table of Contents:

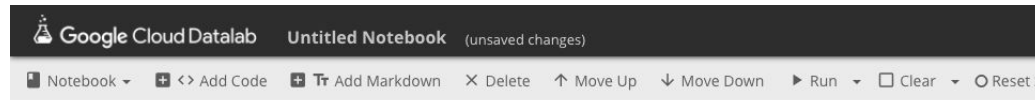
```
1 %%javascript
2 $.getScript('https://kmahe1ona.github.io/ipython_notebook_goodies/ipython_notebook_toc.js')
```

Section 1

description

Section 2

description



Title

Table of Contents:

- [I. Title](#)
 - [I. Section 1](#)
 - [II. Section 2](#)

```
1 %%javascript
2 $.getScript('https://kmahe1ona.github.io/ipython_notebook_goodies/ipython_notebook_toc.js')
```

Section 1

description

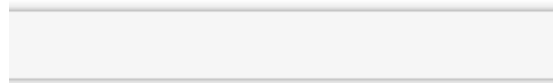
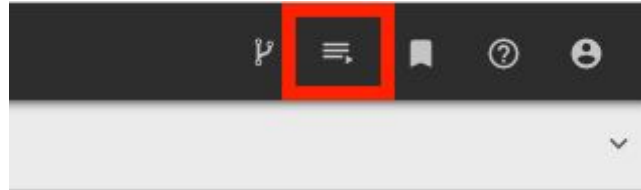
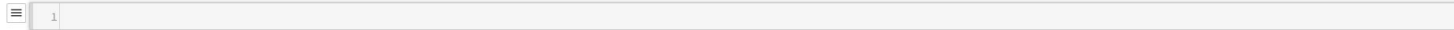
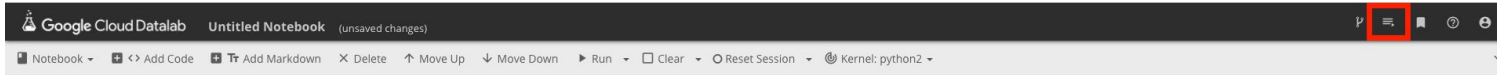
Section 2

description



- 建立 notebook
- 編輯名稱
- 基本語法
- **停止 sessions**
- 透過 git 下載 notebooks
- 透過 shell 指令下載檔案

停止 sessions





- 建立 notebook
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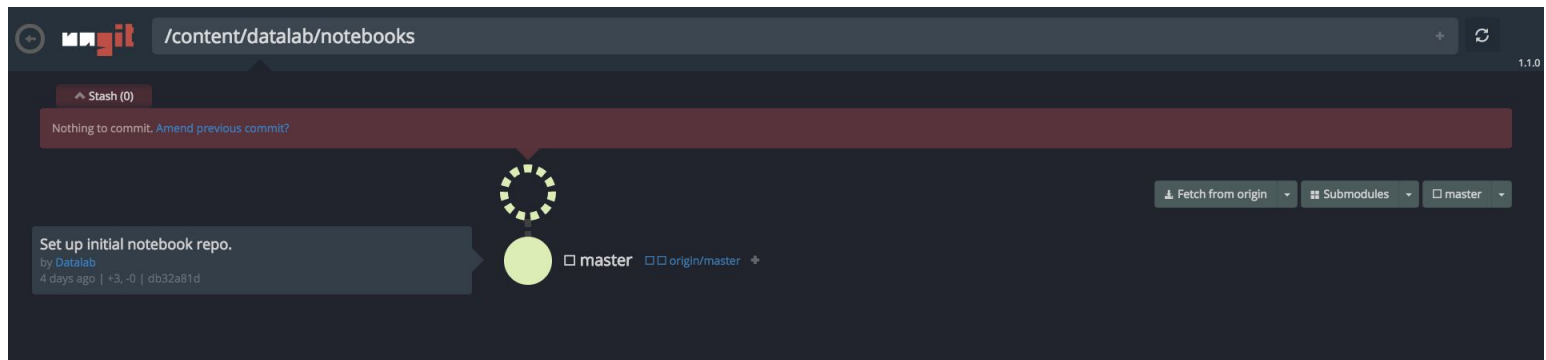
點擊右上角分支圖示



透過 git 下載 notebooks



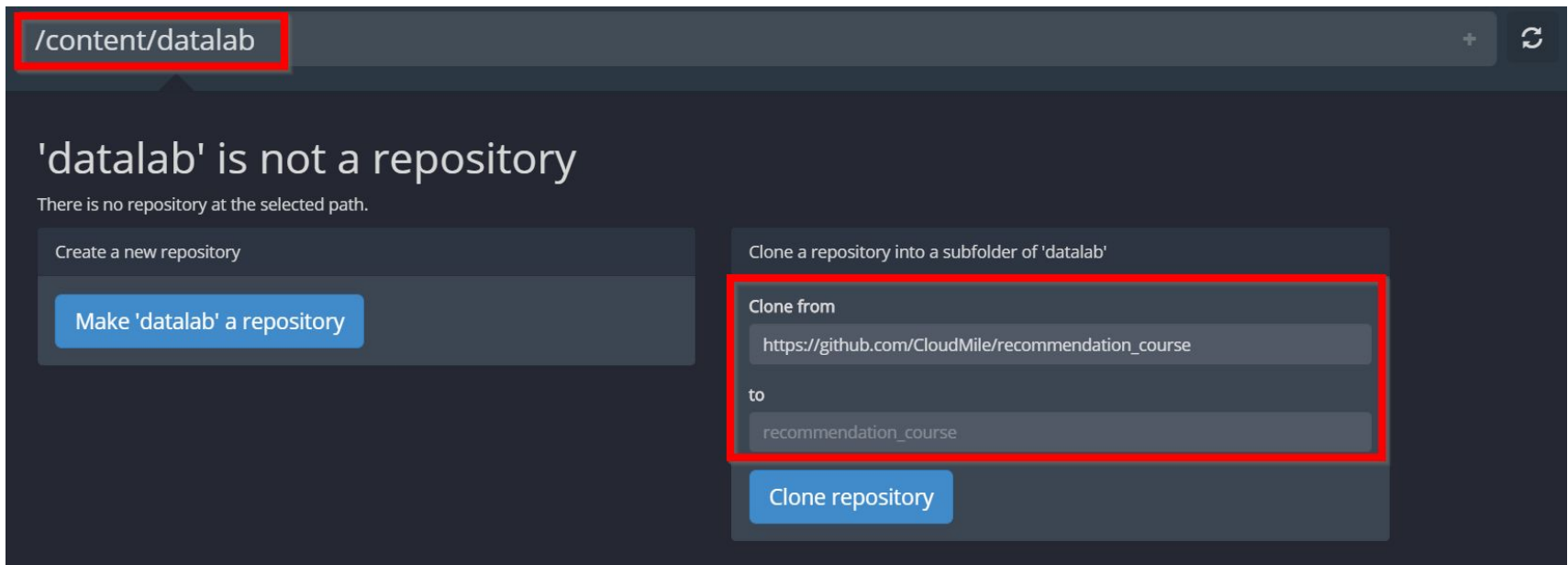
ungit 畫面



透過 git 下載 notebooks



- 修改工作路徑後按下 Enter
- 於「Clone from」欄位填入：
 - https://github.com/CloudMile/recommendation_course
- 於「to」欄位填入
: recommendation_course
- 點擊「Clone repository」





已新增檔案





- 建立 notebook
- 編輯名稱
- 基本語法
- 停止 sessions
- 透過 git 下載 notebooks
- 透過 shell 指令下載檔案

透過 shell 指令下載檔案



輸入 `!wget -O - '下載網址' > 本地檔名`

```
Google Cloud Datalab  Untitled Notebook (unsaved changes)
Notebook + <> Add Code + Tr Add Markdown X Delete ↑ Move Up ↓ Move Down ▶ Run □ Clear ○ Reset S

!ls

README.md  Untitled Notebook.ipynb

!wget -O - 'http://thecatapi.com/api/images/get?format=src&type=gif' > cat.gif

!ls


```

透過 shell 指令下載檔案



```
Google Cloud Datalab  Untitled Notebook (autosaved)
Notebook  Add Code  Add Markdown  Delete  Move Up  Move Down  Run  Clear  Reset Session  Kernel: python2

!ls

README.md  Untitled Notebook.ipynb

1 !wget -O - 'http://thecatapi.com/api/images/get?format=src&type=gif' > cat.gif

--2017-12-05 08:13:02--  http://thecatapi.com/api/images/get?format=src&type=gif
Resolving thecatapi.com (thecatapi.com)... 87.106.120.160
Connecting to thecatapi.com (thecatapi.com)|87.106.120.160|:80... connected.
HTTP request sent, awaiting response... 302 Found
Location: http://25.media.tumblr.com/tumblr_lk64ayaE4h1qbhtrto1_500.gif [following]
--2017-12-05 08:13:03--  http://25.media.tumblr.com/tumblr_lk64ayaE4h1qbhtrto1_500.gif
Resolving 25.media.tumblr.com (25.media.tumblr.com)... 119.161.14.19, 119.161.14.20, 124.108.101.59, ...
Connecting to 25.media.tumblr.com (25.media.tumblr.com)|119.161.14.19|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 510972 (499K) [image/gif]
Saving to: 'STDOUT'

-          100%[=====] 499.00K  --.-KB/s   in 0.04s

2017-12-05 08:13:03 (13.2 MB/s) - written to stdout [510972/510972]

!ls

cat.gif  README.md  Untitled Notebook.ipynb
```



Google Cloud Datalab

Notebook Folder Upload

datalab / notebooks

Jump to file

- ..
- Untitled Notebook.ipynb Running
- cat.gif
- README.md

Reference



- <https://cloud.google.com/datalab/?hl=zh-tw>
- <https://cloud.google.com/datalab/docs/?hl=zh-tw>
- <https://github.com/googledatalab/datalab>
- <http://jupyter.org/>
- <https://codelabs.developers.google.com/> search `datalab`
- <https://cloud.google.com/datalab/docs/reference/command-line/commands>
-