
Machine Learning HW0

TAs
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Outline

- ◆ 加簽規則
- ◆ 作業說明
- ◆ GitHub設定

加簽規則

- ❖ 欲加簽者需在**明天中午12:00前**完成HW0，依照指定方式繳交，未完成者無法加簽。
- ❖ 助教批改完之後會寄授權碼至同學學校信箱
 - 收信時會收到一份**文件及全部授權碼的照片**，每張授權碼都有編號，請在文件中確認自己學號對應的編號，並依照該編號找到對應的授權碼並至選課系統加簽。

HW0

- ❖ HW0希望確保同學們能夠執行機器學習所需的一些基本操作。
- ❖ 往後的作業會用GitHub繳交，每位同學要有GitHub帳號並將repository設為private。
- ❖ 請依照規定格式繳交，若是格式不符視同錯誤，請不要來跟助教爭論。
- ❖ Q1及Q2皆可自由使用現成套件
- ❖ 助教批改環境：Linux
- ❖ 資料位置：<http://ppt.cc/n7gs4>

Q1 矩陣運算

matrixA.txt , shape(1,50)

matrixB.txt , shape(50,10)

input 矩陣size不固定！

1. 讀取.txt中的矩陣
2. 進行矩陣乘法 - $\text{matrixA} * \text{matrixB}$
3. 將得到的矩陣數值, 由小到大排序後輸出至ans_one.txt
(輸出格式參考下頁)

建議使用套件: [python_numpy](#)

Q1 矩陣運算

1. input矩陣Size是不固定的。
2. input矩陣Size不會超過 $100*100$ 。
(不會在這個地方為難大家請放心)
3. 若相乘結果不是一維,做法也是相同,
請將相乘後得到矩陣中所有數字由小到大排列輸出。
4. input矩陣內數字皆為整數, 所以答案中輸出整數即可。

Q1 矩陣運算 - 輸出範例

一行一個數值，每行開頭即是數值，不要有任何的空格。

請遵守格式，任何其他的格式都算錯誤。

最後一行換不換行都算正確。

```
1 111
2 222
3 333
4 444
5 555
6 666
7 777
8 888
9 999
10 1111
```

Q2

1. 讀取lena.png與lena_modified.png
2. 使用後者異於前者的部分產生相同格式的新圖檔 (ans_two.png)。

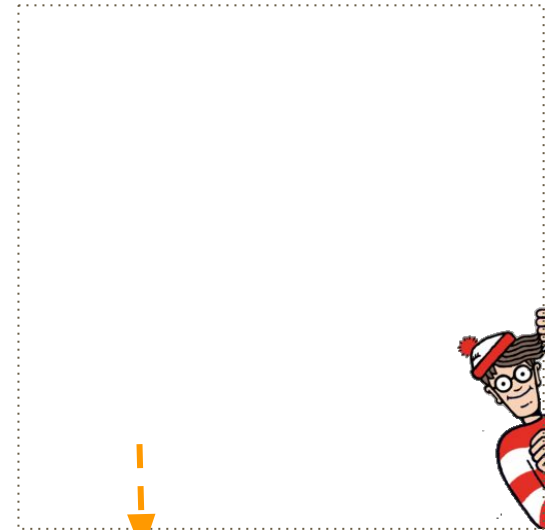
Input 1



Input 2



Output



(0,0,0,0) in RGBA

繳交格式

`./Q1.sh matrixA.txt matrixB.txt`

輸出檔名: `ans_one.txt`

`./Q2.sh lena.png lena_modified.png`

輸出檔名: `ans_two.png`

將這兩個script以及你的程式放在**ML2017/hw0**底下

ML2017是助教改作業的repository, hw0是本次作業的資料夾名稱, 請大家將作業放在正確的地方, 沒放正確是不會被批改的, 位置如下:

`ML2017/hw0/Q1.sh`

`ML2017/hw0/Q2.sh`

填Git Repo URL表單: <https://goo.gl/forms/XtzWWLoENzhk9FSi2>

GitHub

開設GitHub帳號

1. GitHub: <https://github.com/> 使用學校信箱開帳號
 - a. 學校信箱可免費使用private功能
 - b. 可綁定多個信箱
2. 申請學生版的附加功能
 - a. 網址: <https://education.github.com/>
 - b. 點選 Request a discount
 - c. 輸入資料, 靜候佳音

step 1.進入網址

GitHub Education

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TEACH AND LEARN
BETTER, TOGETHER

Request a discount



STUDENT DEVELOPER PACK



Get the Student Developer Pack

Dozens of free resources from great companies to help students learn.

Get the pack

STORIES

step 2.填入資料

Discounted and free plans are available for educational use

You have an active discount on your account. If your current coupon is still active when this request is approved, it will be replaced. There should be no lapse in access to any of your private repositories.

Step 1

Tell us what you need

Step 2

Tell us about you

Name

Verify academic status

Select your **school-issued email address**:

If your school-issued email address isn't listed, please [add and verify it](#), then refresh this page.

School name

Graduation year

step 3. 静候佳音

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Thanks for submitting!

You should be getting an email from us in a few weeks.
Have an Octotastic day!

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作業繳交

1. New repository
 - a. 請將名稱取為 **ML2017**
 - b. 往後所有的作業程式都會在這個路徑下被批改
 - c. 權限請設為private
2. 將助教帳號加入存取權
 - a. 名稱: **ntumlta**

Create New Repository

Overview

Repositories 0

Stars 0

Followers 0

Following 0

Search repositories...

Type: All ▾

 New

Create a new repository

A repository contains all the files for your project, including the revision history.

Owner

Repository name



ntumlta ▾

/

ML2017



Great repository names are short and memorable. Need inspiration? How about **improved-system**.

Description (optional)



Public

Anyone can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Add TA account to Collaborators

The screenshot shows the GitHub repository settings page. The top navigation bar includes links for Code, Issues (0), Pull requests (0), Projects (0), Wiki, Pulse, and Graphs. The **Settings** link, represented by a gear icon, is circled in red. On the left sidebar, the **Collaborators** option is also circled in red. The main content area is titled "Collaborators" with a subtitle "Push access to the repository". It contains the text: "This repository doesn't have any collaborators yet. Use the form below to add a collaborator." Below this is a search instruction: "Search by username, full name or email address" followed by a note: "You'll only be able to find a GitHub user by their email address if they've chosen to list it publicly. Otherwise, use their username instead." At the bottom, there is a text input field containing the username "ntumlta", which is circled in red, and an "Add collaborator" button to its right.

Code Issues 0 Pull requests 0 Projects 0 Wiki Pulse Graphs **Settings**

Options **Collaborators** Branches Webhooks Integrations & services Deploy keys

Collaborators Push access to the repository

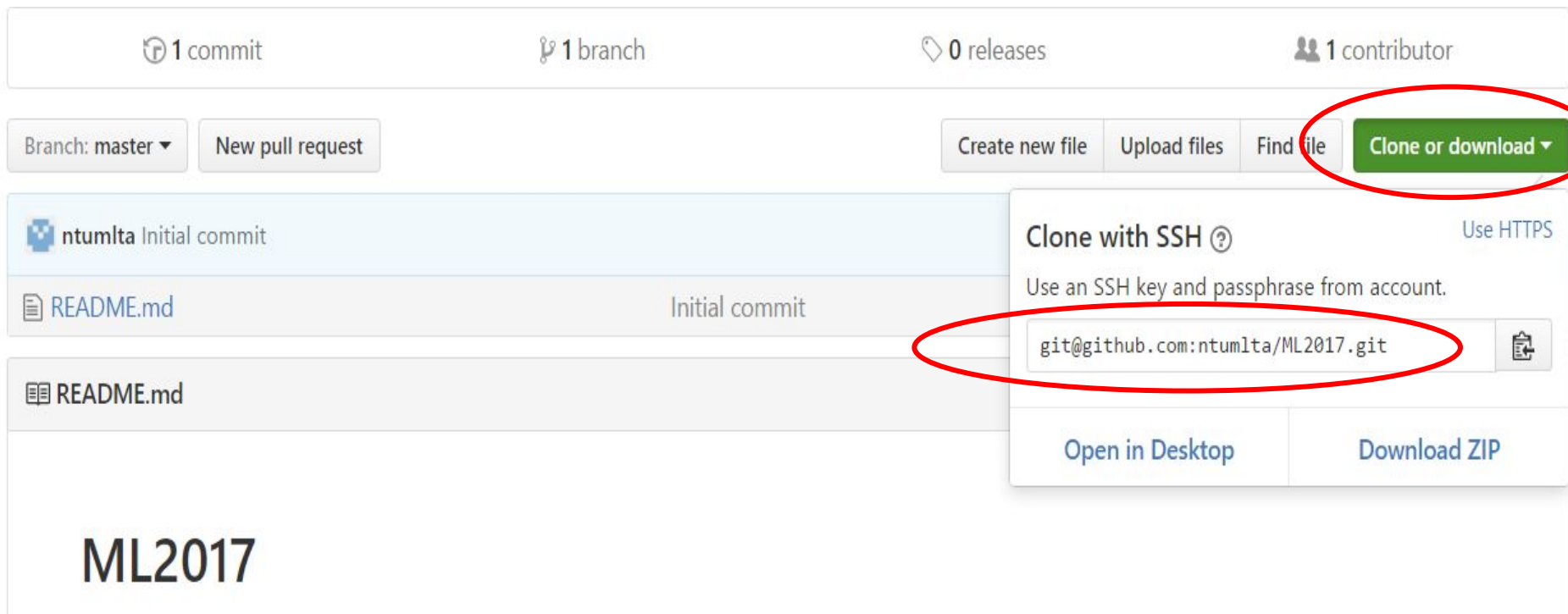
This repository doesn't have any collaborators yet. Use the form below to add a collaborator.

Search by username, full name or email address

You'll only be able to find a GitHub user by their email address if they've chosen to list it publicly. Otherwise, use their username instead.

ntumlta Add collaborator

Get Your Git Repo URL



The screenshot shows a GitHub repository page for a user named 'ntumlta'. At the top, it displays '1 commit', '1 branch', '0 releases', and '1 contributor'. Below this, there are buttons for 'Branch: master', 'New pull request', 'Create new file', 'Upload files', 'Find file', and a green 'Clone or download' button. The 'Clone or download' button is circled in red. A dropdown menu is open from this button, showing two options: 'Clone with SSH' and 'Use HTTPS'. The 'Clone with SSH' option is selected, and the SSH URL 'git@github.com:ntumlta/ML2017.git' is displayed in a text box, which is also circled in red. Below the text box are buttons for 'Open in Desktop' and 'Download ZIP'. The repository name 'ML2017' is visible at the bottom of the page.

1 commit 1 branch 0 releases 1 contributor

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

ntumlta Initial commit

README.md Initial commit

Clone with SSH Use HTTPS

Use an SSH key and passphrase from account.

git@github.com:ntumlta/ML2017.git

Open in Desktop Download ZIP

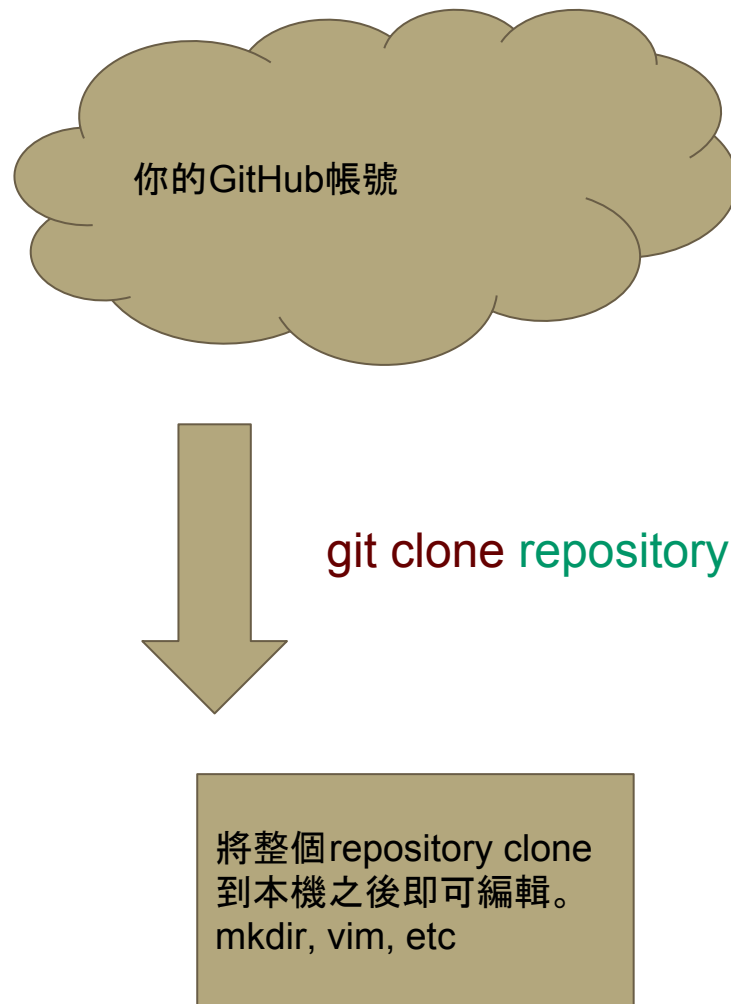
ML2017

填Git Repo URL表單:

<https://goo.gl/forms/XtzWWLoENzhk9FSi2>

GitHub

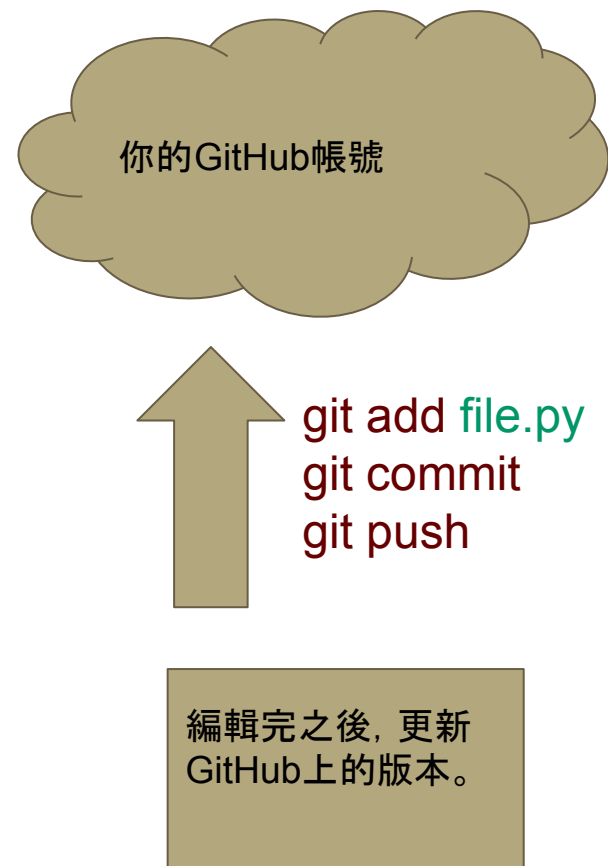
1. Open your terminal.
2. `$git clone git repo url`
3. `$cd ML2017`
4. `$mkdir hw0`
5. ...
6. ...



GitHub

1. `$git add xxx.py`
(請確保所有作業所需檔案
都被成功加入repository
(Q1.sh, Q2.sh, Q1.py Q2.py...))
2. `$git commit`
3. `$git push`
4. 在GitHub網頁上確認master是否已更新

更多: <https://goo.gl/NRRCLm>



Q&A

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Windows系統怎麼辦

安裝Linux virtual box

- a. 優：用起來跟Linux一樣，有問題可以詢問助教
- b. 劣：花一點時間安裝

該使用什麼程式語言

限定使用python, C , C++

建議大家使用Python, 處理檔案方便, 助教的範例也是使用Python。

python2 or 3都可以

如何讀圖

Python有許多現成的工具可以讀圖, ex: PIL

```
from PIL import Image
```

參考資料: <https://goo.gl/Lvvxh1>