Introduction to Computer Science Fall 2022 git and github
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Topics

- 開發環境介紹
  - **onlinegdb**
  - VS Code
  - Git
  - Github
- Homework #1

onlinegdb

VS Code

- Visual Studio Code
- Microsoft
- Open source
- 目前最多人使用的開發IDE環境
  - 網路上資源很多，請自行google

https://vscode.dev

EXPLORER

DEFAULT (WORKSPACE)
- theCatSaidNo
  - .github
  - .vscode
  - assets
  - static
    - images
      - catpaw.png
      - dogpaw.png
      - vscode.png
    - javascript
      - main.js
    - stylesheets
      - style.css
    - favicon.ico
  - templates
    - home.html
  - .deployment
  - .gitignore
  - app_test.py
  - app.py
  - README.md
  - requirements.txt
  - vscode.github-issues

home.html — theCatSaidNo > templates > home.html > ...

```html
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5      <title>The Cat said No!</title>
6      <link href="https://fonts.googleap
7      <link rel="stylesheet" href="https
8          integrity="sha384-BVYiiSIFeK1d
9      <link rel="stylesheet" href="https
10     <link rel="stylesheet" href='../st
11 </head>
12
13 <body class="preload">
14     <div class="centered">
15
16         <button type="button" class="b
17             onclick="togglePaw()" id='
18             <div class="handle"></div>
19         </button>
20         <div class="catpaw-container">
21             <img class="catpaw-image"
22         </div>
23         <div>
24             <h1 style="text-align:cent
25         </div>
26         <script src="https://ajax.goog
27         <script src="../static/javascr
28         <script>
29             $(window).load(function (
30                 $("body").removeClass(
31             });
32         </script>
33         <script src="https://maxcdn.bo
34             integrity="sha384-Tc5IQib0
35             crossorigin="anonymous"></
36 </body>
37
```

style.css 4 — theCatSaidNo > static > stylesheets > style.css > body

```css
1  body {
2      font-family: 'Montserrat', 'Lato', 'O
3      color: #6b7381;
4      background: white;
5      -webkit-touch-callout: none;
6      -webkit-user-select: none;
7      -khtml-user-select: none;
8      -moz-user-select: none;
9      -ms-user-select: none;
10     user-select: none;
11     transition: background-color 0.25s;
12 }
13
14 .jumbotron {
15     background: #6b7381;
16     color: #bdc1c8;
17 }
18 .jumbotron h1 {
19     color: #fff;
20 }
21 .example {
22     margin: 4rem auto;
23 }
24 .example > .row {
25     margin-top: 2rem;
26     height: 5rem;
27     vertical-align: middle;
28     text-align: center;
29     border: 1px solid rgba(189, 193, 20
30 }
31 .example > .row:first-of-type {
32     border: none;
33     height: auto;
34     text-align: left;
35 }
36 .example h3 {
37     font-weight: 400;
```

main.js — theCatSaidNo > static > javascript > main.js > ...

```js
1  pawToggled = false;
2  var myTimeout;
3
4  function callbackToggle() {
5      return function () {
6          if (pawToggled) {
7              document.getElementById(
8          }
9      }
10 }
11
12 function togglePaw() {
13     if (!pawToggled) {
14         // Runs when we toggle the b
15         document.getElementsByClassN
16         myTimeout = setTimeout(callb
17     } else {
18         document.getElementsByClassN
19         clearTimeout(myTimeout);
20     }
21
22     pawToggled = !pawToggled;
23 }
24
```

Ln 11, Col 1   Spaces: 4   UTF-8   LF   JavaScript   Layout: U.S.

5

Git

- Git Commands
- Git Flow
- GitHub

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

去github

建立一個 cs101 repo

Owner *   Repository name *

cjwu ▾ / cs101 ✓

Great repository names are short and memorable. Need inspiration? How about cautious-succotash?

Description (optional)

⦿ 📖 **Public**
Anyone on the internet can see this repository. You choose who can commit.

◯ 🔒 **Private**
You choose who can see and commit to this repository.

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A repository contains all project files, including the revision history. Already have a project repository elsewhere? **Import a repository.**

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[🧑 cjwu ▾] / [cs101 ✓]

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Description (optional)

[   ]

⦿ 📖 **Public**
    Anyone on the internet can see this repository. You choose who can commit.

○ 🔒 **Private**
    You choose who can see and commit to this repository.

Initialize this repository with:
Skip this step if you're importing an existing repository.

☑ **Add a README file**
    This is where you can write a long description for your project. **Learn more.**

☑ **Add .gitignore** ⟵
    Choose which files not to track from a list of templates. **Learn more.**

    [.gitignore template: C ▾]

☐ **Choose a license**
    A license tells others what they can and can't do with your code. **Learn more.**

This will set ⑂ main as the default branch. Change the default name in your **settings.**

請去了解一下這些是什麼

點這裡

< > Code   ⊙ Issues   ⅃↑ Pull requests   ⊙ Actions   ⊞ Projects   📖 Wiki   ⚠ Security   ⚆ Insights   ⚙ Settings

Quick setup — if you've done this kind of thing before

⌨ Set up in Desktop   or   HTTPS   SSH   https://github.com/cjwu/cs101.git   ⎘

Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

```
echo "# cs101" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/cjwu/cs101.git
git push -u origin main
```

webp

這個Link 就是你要繳交的連結

以下設定是必須的，才可以得到github認證
設定ssh to github：拿到rsa key

```
cjwu@ubuntu:~$ ssh-keygen -t rsa -b 4096 -C "cjwu@mail.cgu.edu.tw"  ←
Generating public/private rsa key pair.
Enter file in which to save the key (/home/cjwu/.ssh/id_rsa):
/home/cjwu/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/cjwu/.ssh/id_rsa
Your public key has been saved in /home/cjwu/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:ZbW2zeVc+i1JaG/WR7rYFYvsSe5vMqsur519rUl75KY cjwu@mail.cgu.edu.tw
The key's randomart image is:
+---[RSA 4096]----+
|        .        |
|       . .       |
|      o o   o|
|     o . = =.|
|    S   + =.+|
|      ..o.*=|
|       +O+B|
|    .. *O.O*|
|     .=*+BE* |
+----[SHA256]-----+
```

```
$ eval $(ssh-agent -s)  ←
```

```
cjwu@ubuntu:~$ ssh-add ~/.ssh/id_rsa  ←
Identity added: /home/cjwu/.ssh/id_rsa (cjwu@mail.cgu.edu.tw)
cjwu@ubuntu:~$ cat .ssh/id_rsa
.id_rsa        id_rsa.pub
```

把rsa key 貼到 GitHub

```
cjwu@ubuntu:~$ cat .ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDhnb1ueUQfyL01cdgf/juNj0GUuyuL7hrh+9PX77H0RzYjHLZg9qt1ctdxqgookg9IXU4JehMHoZ
ynwy/gdcvCbFMpurbk2Ay7cDgolxe/MYf+1V6b+JnSR1LGlq7ZEK3u1yINBqbte1PyhAFDnSDxZIZX387tKRS8Jsx6ehgKpeSy+t9IkL5s12Bkxn4n
JoSYXbZFuUKk7tIYO0o+5qS5DVQ/SiNIikiEWfdBwnmsNcU38MLT8fTCv/y2W5jOQYteVq7oYffzKkA3CReQVTifpKkWdoiHqN+gdEApdMHKcUGeKX
uTURjZZDtdsQNXPr2kY9CAC0fdSj5iF5d+YUyEsbYPbfPzsCUKiW/zOzgKQCMryRYQUUnCBGjEHyGLSGoxl+CZPNGroC7OqOrj2TLYcDgMztkdI1ID
```


CJ   12

Git Commands

- Git init
- Git clone
- Git checkout
- Git add
- Git branch
- Git commit

- Git push
- Git pull
- Git status
- Git diff
- Git log
- Git fetch

- Git rm
- Git stash
- Git merge
- Git revert & reset
- Git rebase
- Git tag

Git 基本操作

1. git clone "ssh"
2. git add "FILE"
3. git commit -m "msg"
4. git push
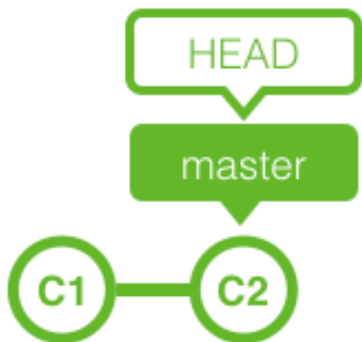
Git clone 下來
會有一個新目錄webp裡面會有一個master branch和一個以上commit
注意：
1. 不要去github上操作任何東西避免遇到問題！等你熟悉了再說
2. 如果有問題，把local repo 整個刪掉，再重新git clone，可以解決問題，等你熟悉git 就知道怎麼處理

```
$ git diff  ←
diff --git a/a.js b/a.js
index 01aafe1..2f6fc14 100644
--- a/a.js
+++ b/a.js
@@ -1,10 +1,4 @@
   this.retrieveUnitTypes = function(req, res, next) {

-    if (foo) {
-        return '1';
-    } else if (bar) {
-        return '2';
-    }
-
    return 3;
  };
```

列出與上一個commit
不一樣的更新

Git branch
一開始只有一個main (master) branch
透過 git branch 創造一個叫 dev 的branch
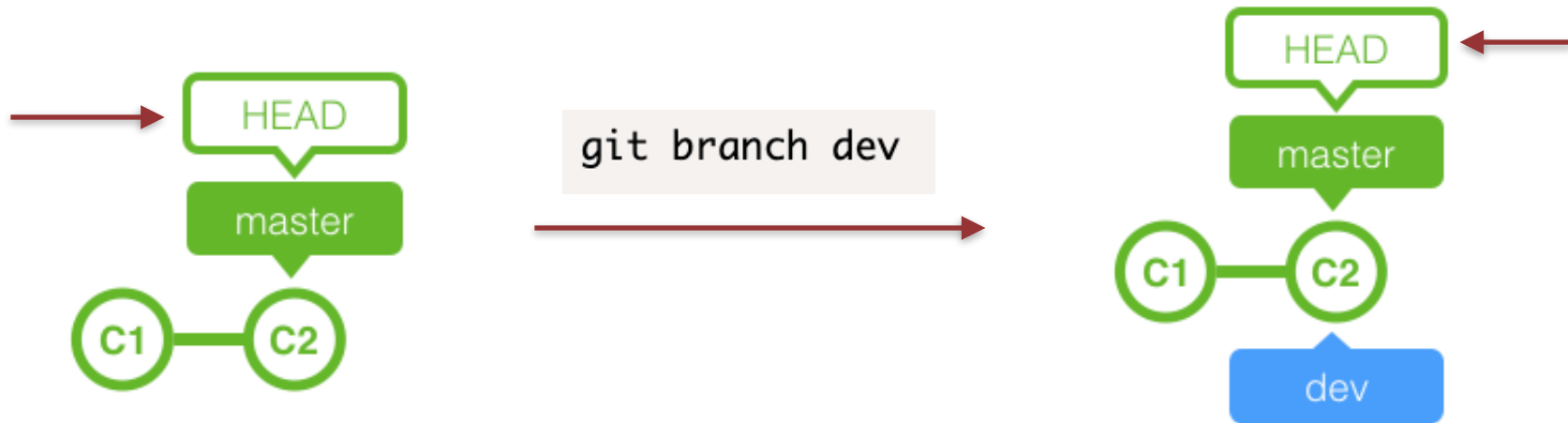
`git branch dev`

$ git branch

列出目前
Local repo 中的 branch
和遠端repo 可能會不一
樣

```
  apollo-frontend
  auth-add-jason
  fauna
  gatsby
  gatsby-graphql
  lint
  lockdown
* master
  nexus
  remotes/origin/apollo-frontend
  remotes/origin/fauna
  remotes/origin/gatsby
  remotes/origin/lint
  remotes/origin/lockdown
  remotes/origin/master
(END)
```
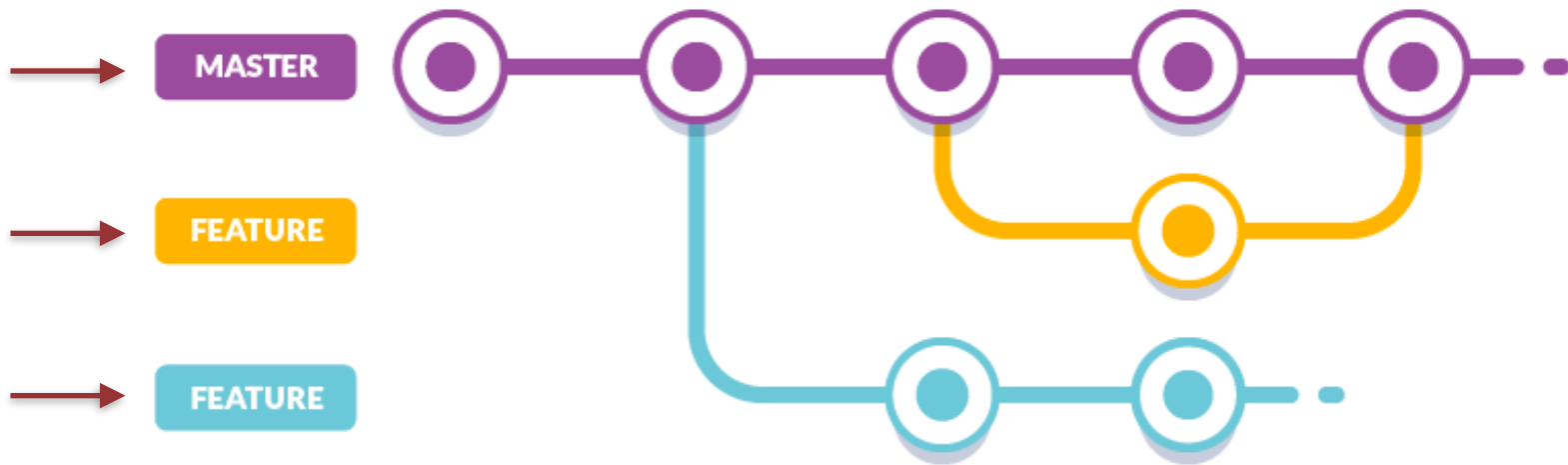
Git checkout
main (master) branch change to dev branch

git checkout dev
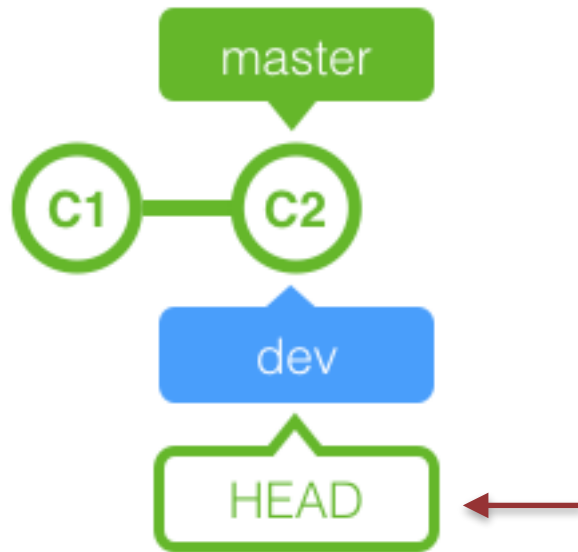
切換目前的分支
兩個分支中的程式不會
互相影響！

Git branch 命名方式

Git 操作：
1. 了解基本操作，單一人工作情形

2. 了解 git branch，可以開分支合併，解衝突 (Conflict)，多人協作情況

3. 了解 gitflow 和 GitHub flow 運作方式，團隊協作情況

QZ#1

1. 申請github帳號

2. Git 安裝 & try it

3. Create cs101 repo (at github)

4. Git clone

5. Make **qz0** directory

6. Add a **readme** file to **qz0**

7. git commit -m "add qz0"

7. Git push

你的 GitHub 頁面

QZ#1

main | **cs101/qz0/** | Go to file

cjwu add readme | b3ef196 on Feb 24 | History

..

README.md | add readme | 9 months ago

README.md

🔗 **cs101**

之後目錄格式：qz1, qz2, qz3
chw1, chw2, chw3, chw4, chw5

請繳交這個Link
注意是**HTTPS**
不是SSH的！

Conclusion

- 開發環境介紹
  - **onlinegdb**
  - VS Code
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Thanks!

Open for any questions

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