

Git/GitHub for beginners

Brainhack 2018

Singapore
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2018
OHBM
SINGAPORE
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Microsoft

GitHub



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Contents

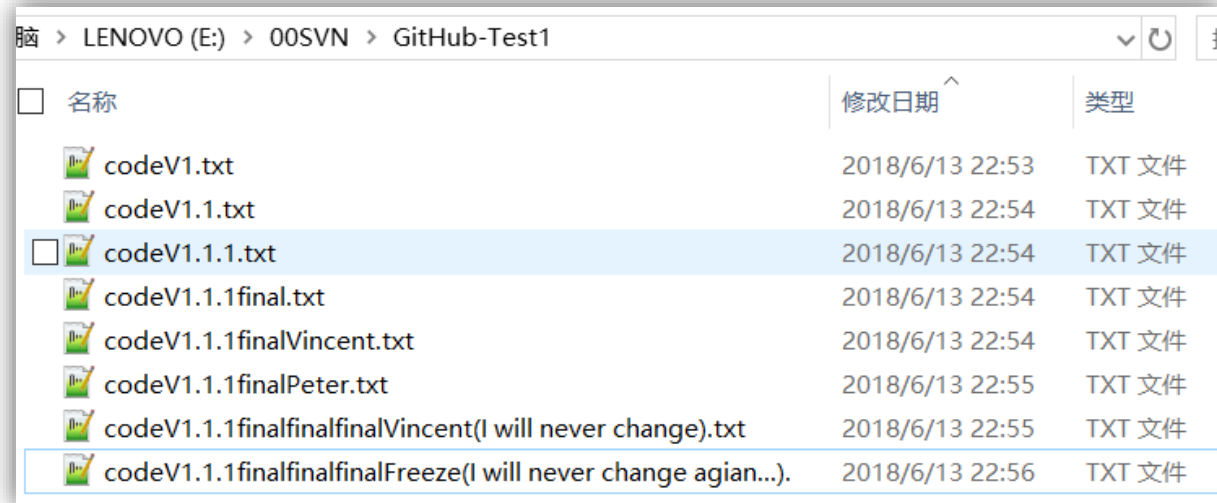
1 What and why is Git/GitHub

2 Basics

3 Teamwork and OPEN SCIENCE

4 More resources

1. What and why is Git/GitHub?

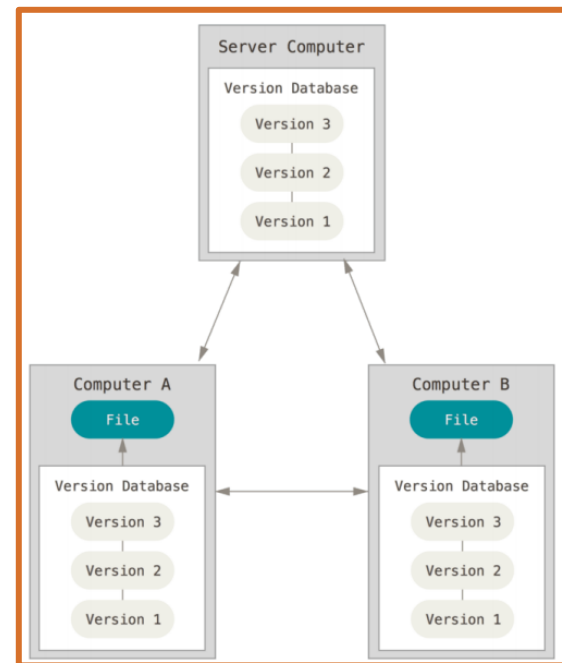
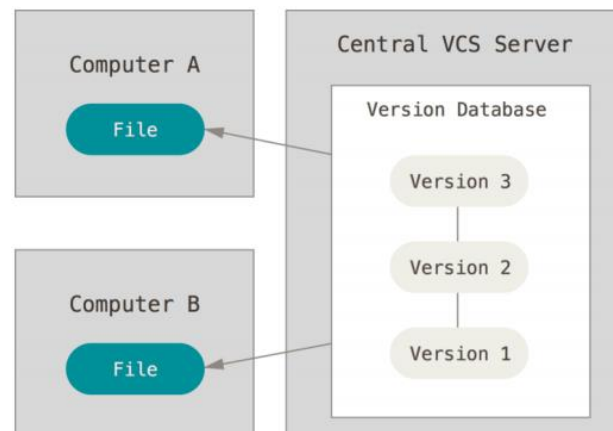
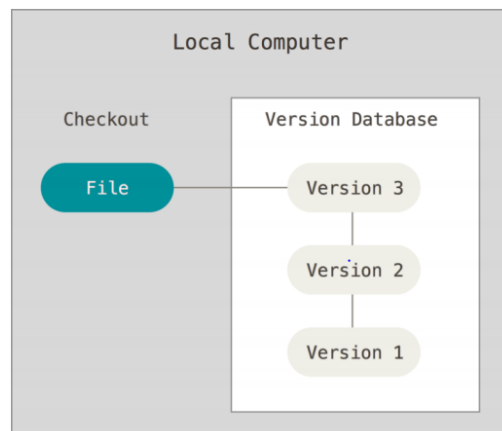


名称	修改日期	类型
codeV1.txt	2018/6/13 22:53	TXT 文件
codeV1.1.txt	2018/6/13 22:54	TXT 文件
codeV1.1.1.txt	2018/6/13 22:54	TXT 文件
codeV1.1.1final.txt	2018/6/13 22:54	TXT 文件
codeV1.1.1finalVincent.txt	2018/6/13 22:54	TXT 文件
codeV1.1.1finalPeter.txt	2018/6/13 22:55	TXT 文件
codeV1.1.1finalfinalfinalVincent(I will never change).txt	2018/6/13 22:55	TXT 文件
codeV1.1.1finalfinalfinalFreeze(I will never change agian...).	2018/6/13 22:56	TXT 文件

1. Version control;

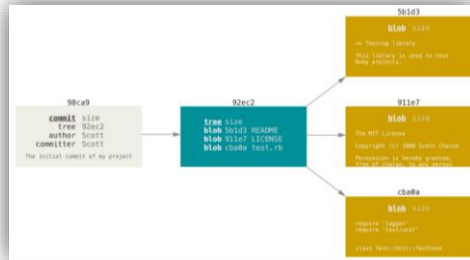
1. Centralized Version control System (SVCS, CVS Subversion...);
2. Distributed Version Control System (DVCS, *Git*, Mercurial, Bazaar...);

2. Git / GitHub.



1. What and why is Git/GitHub?

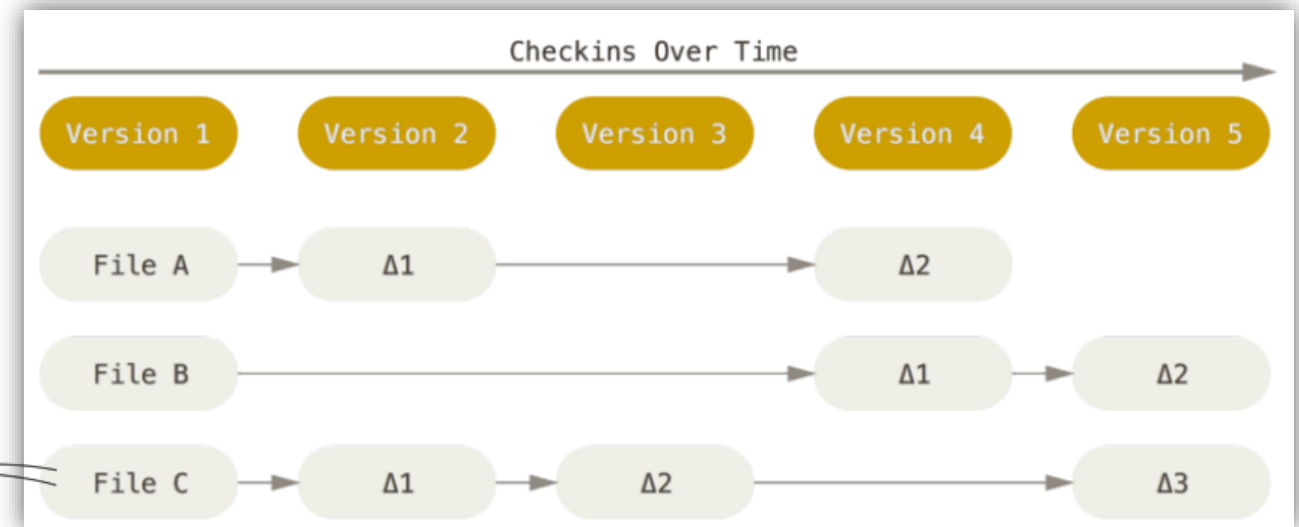
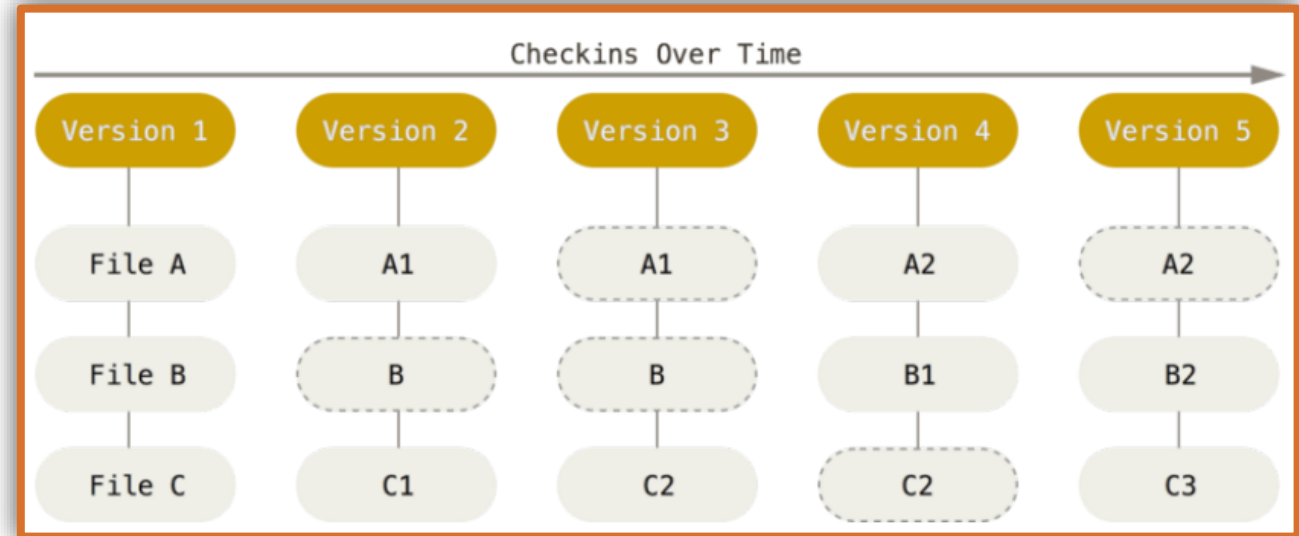
1. Basic mechanism (commit object);



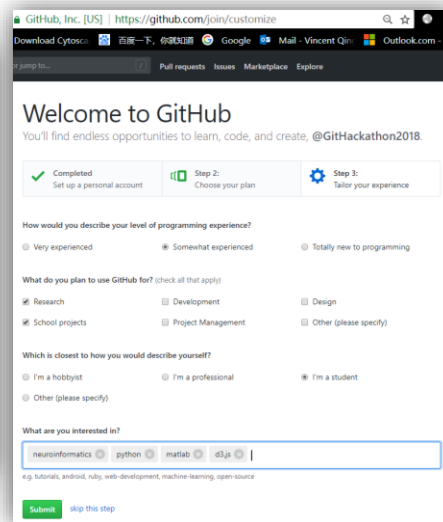
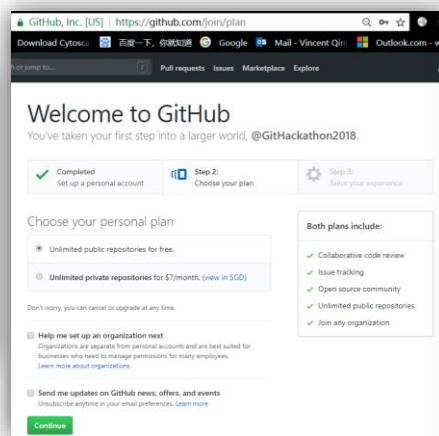
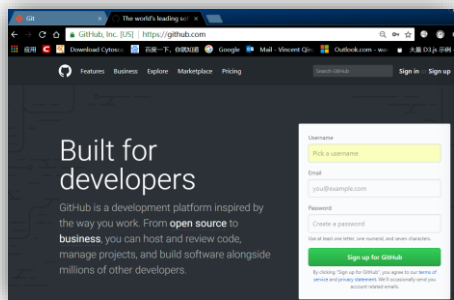
2. Git (*tool*);

3. GitHub (*platform, online service*):

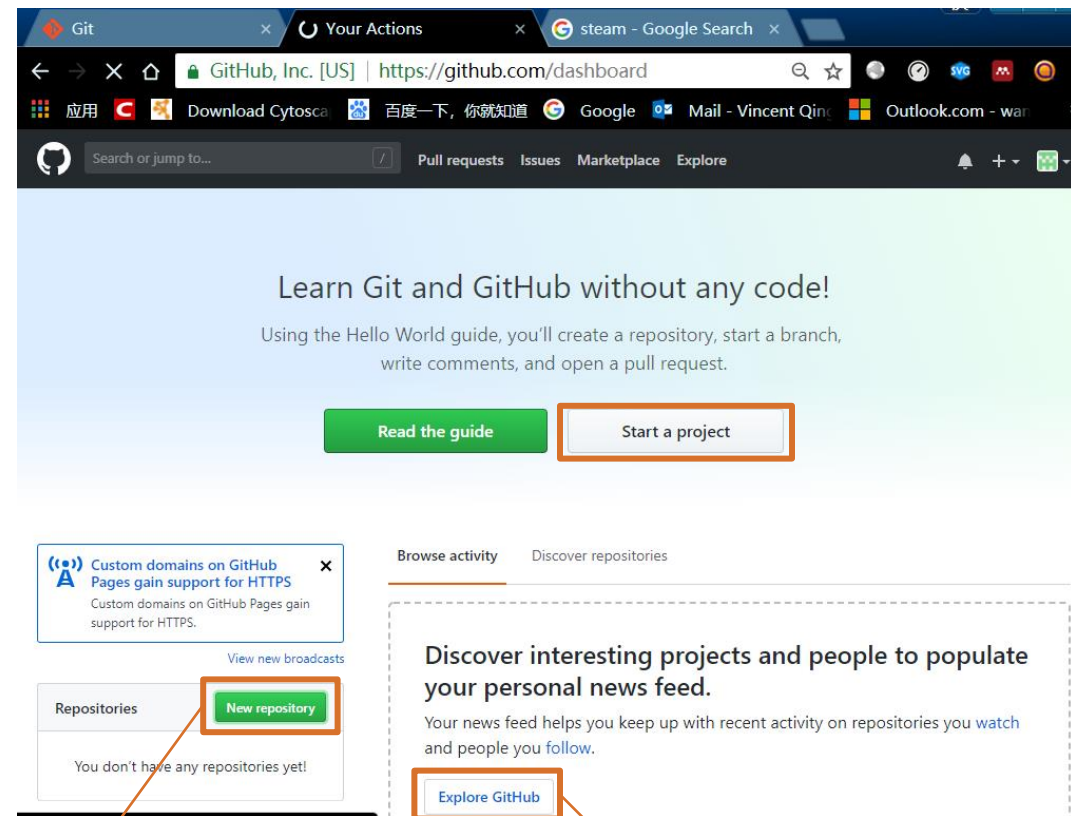
- hosts your repositories (projects)
- helps you work with collaborators
- interface support
 - Online
 - GitHub Desktop App
 - Command line using 'Git'
 - RStudio for R fans



Register GitHub



Create your repo

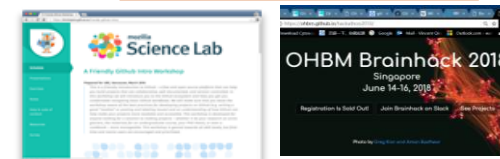


Discover interesting projects and people to populate your personal news feed.

Explore GitHub

Explore other projects

User name: GitHackathon2018



2. Basics

concepts1

Repository (Repo)

a project where all your files are, online or on your computer

```
$ git init
```

Commit

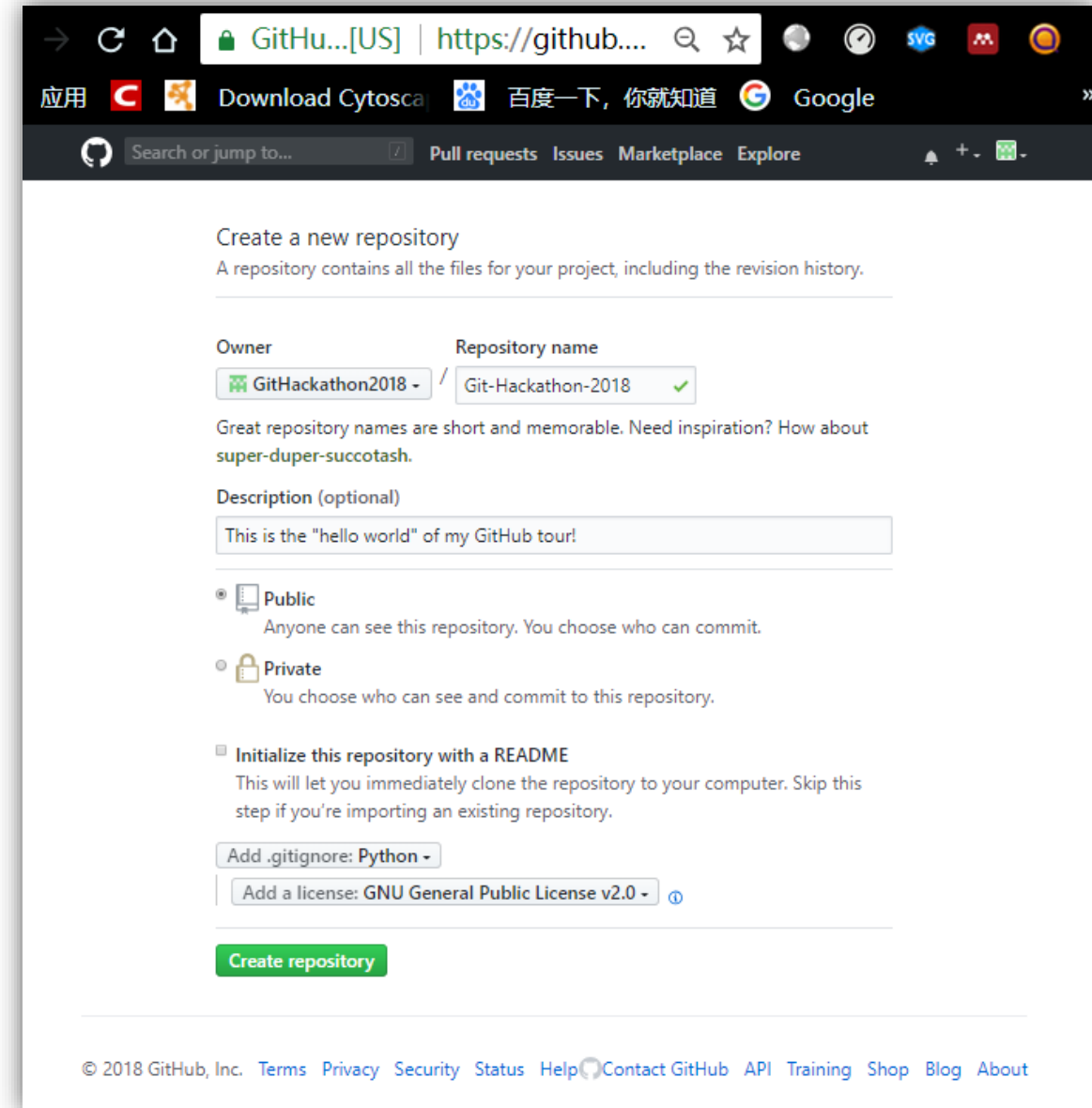
saving a version of file(s) or snapshot

```
$ git add README.md
```

```
$ git commit -m 'My first commit'
```

Issues

to-do list of tasks, bugs and things you wish to accomplish



The screenshot shows the GitHub 'Create a new repository' page. The browser address bar shows 'https://github...'. The page title is 'Create a new repository'. Below the title, it says 'A repository contains all the files for your project, including the revision history.' The form has two main sections: 'Owner' and 'Repository name'. The 'Owner' dropdown is set to 'GitHackathon2018'. The 'Repository name' dropdown is set to 'Git-Hackathon-2018' with a green checkmark. Below these, there is a text input for 'Description (optional)' containing 'This is the "hello world" of my GitHub tour!'. There are two radio button options for visibility: 'Public' (selected) and 'Private'. Below these are checkboxes for 'Initialize this repository with a README' and 'Add .gitignore: Python'. At the bottom, there is a green 'Create repository' button. The footer of the page shows '© 2018 GitHub, Inc.' and various links like 'Terms', 'Privacy', 'Security', 'Status', 'Help', 'Contact GitHub', 'API', 'Training', 'Shop', 'Blog', and 'About'.

2. Basics

concepts2

Branch

A new version of project that goes parallel with the master branch.

Pull request

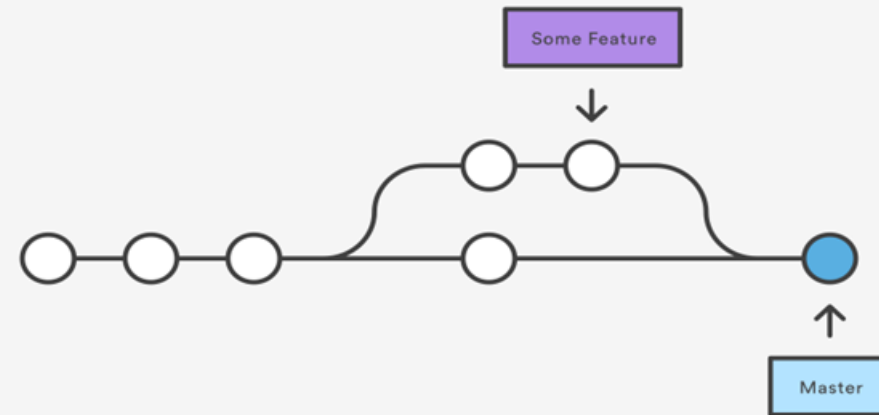
request to add your changes from a branch back into master

Push request

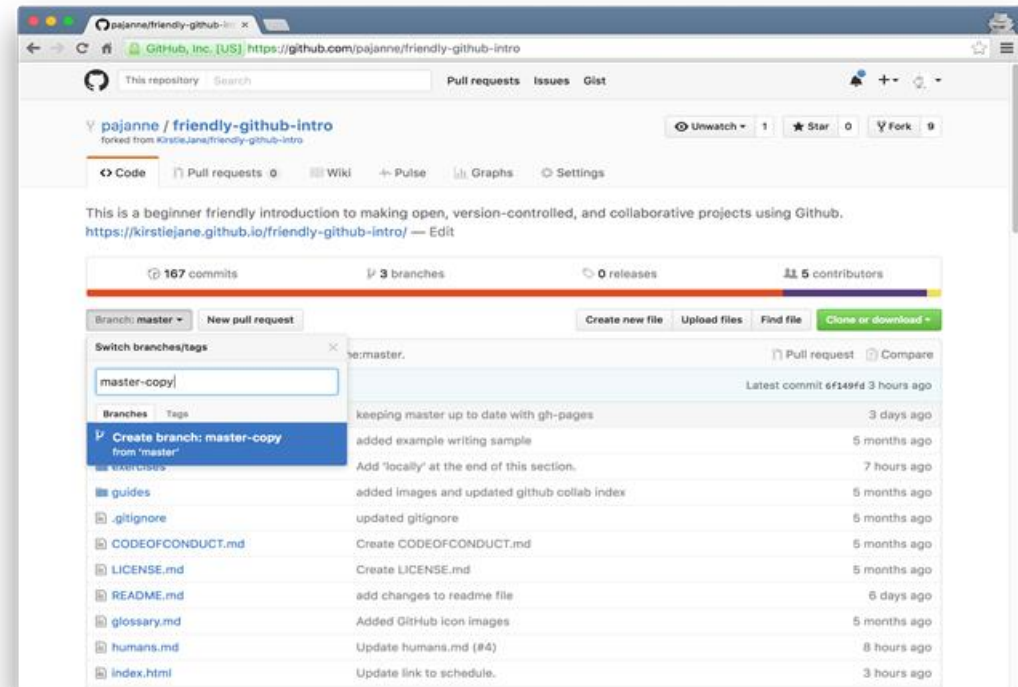
request to add your changes from local branch into remote branch

Merge

act of incorporating new changes (commits) from one branch to another



<https://www.atlassian.com/git/tutorials/using-branches/git-merge>



2. Basics

GUI

Create & manage
“Issues”

Pull Request to add your
changes into forked repo

Fork this repo

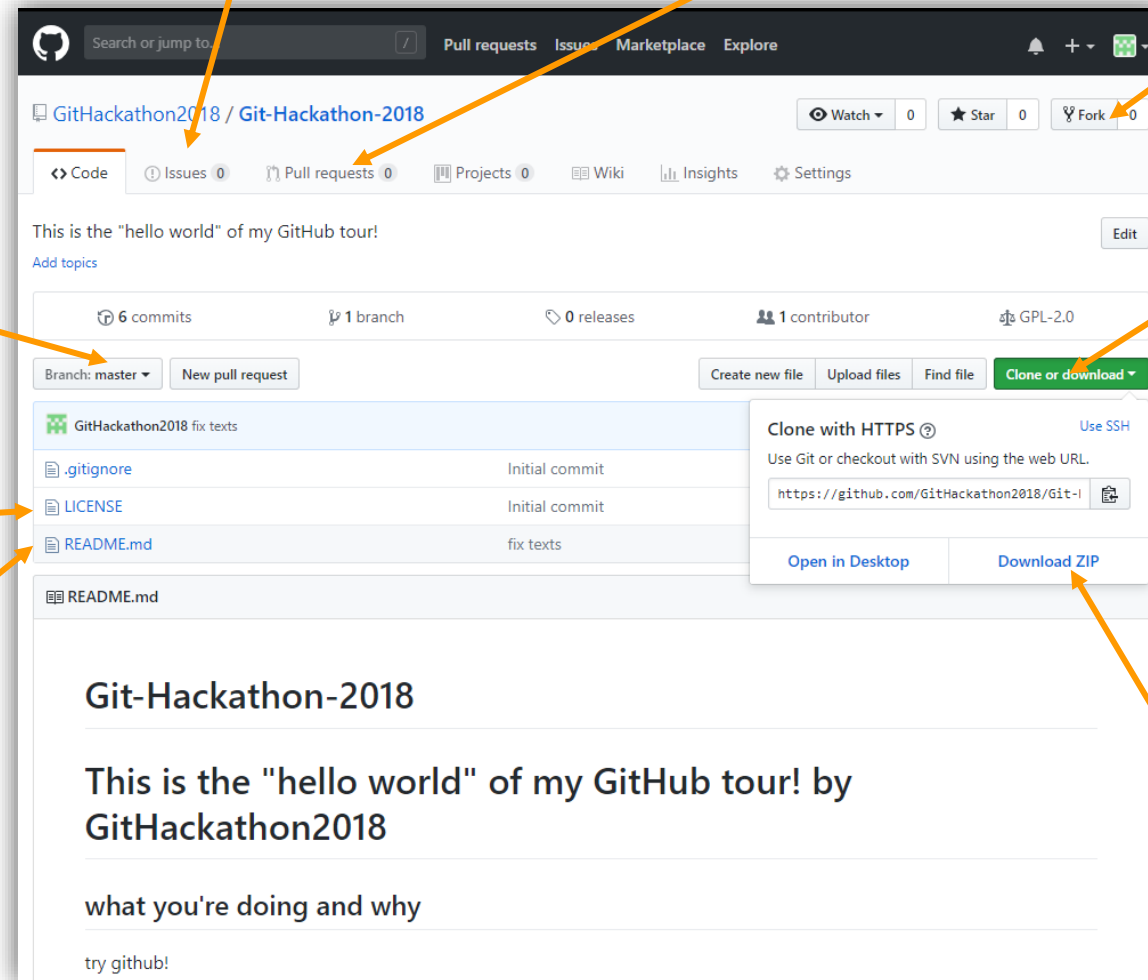
Your default **branch**
is “master” - but you
can switch or add
branches here

Choose the license
“LICENSE.md”

The “README.md”
is automatically
rendered when you
visit a repo

Clone to your
computer from
the web using
GitHub Desktop
or git command

Download Zip to
download the
zipped repo onto
your computer

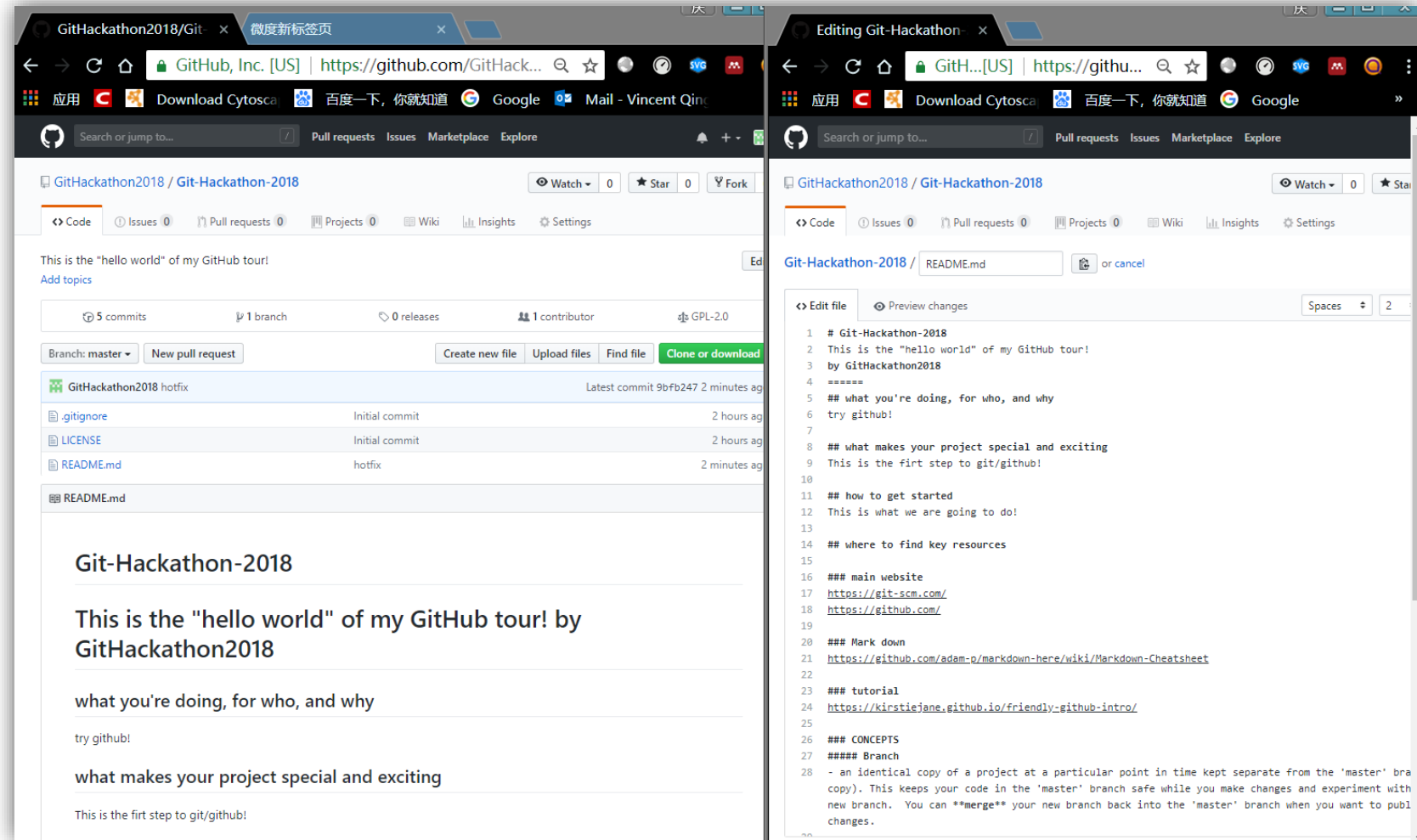


2. Basics

README.md

The basic description of the repo

- In root directory
- all caps
- in markdown (.md)



2. Basics

markdown

- Language of documents
- GitHub automatically renders anything written in Markdown;
- eg: README...

Headers

```
# H1
## H2
### H3
#### H4
##### H5
##### H6
```

Alternatively, for H1 and H2, an underline-ish style:

```
Alt-H1
=====
```

```
Alt-H2
-----
```

H1

H2

H3

H4

H5

H6

Alternatively, for H1 and H2, an underline-ish style:

Alt-H1

Alt-H2

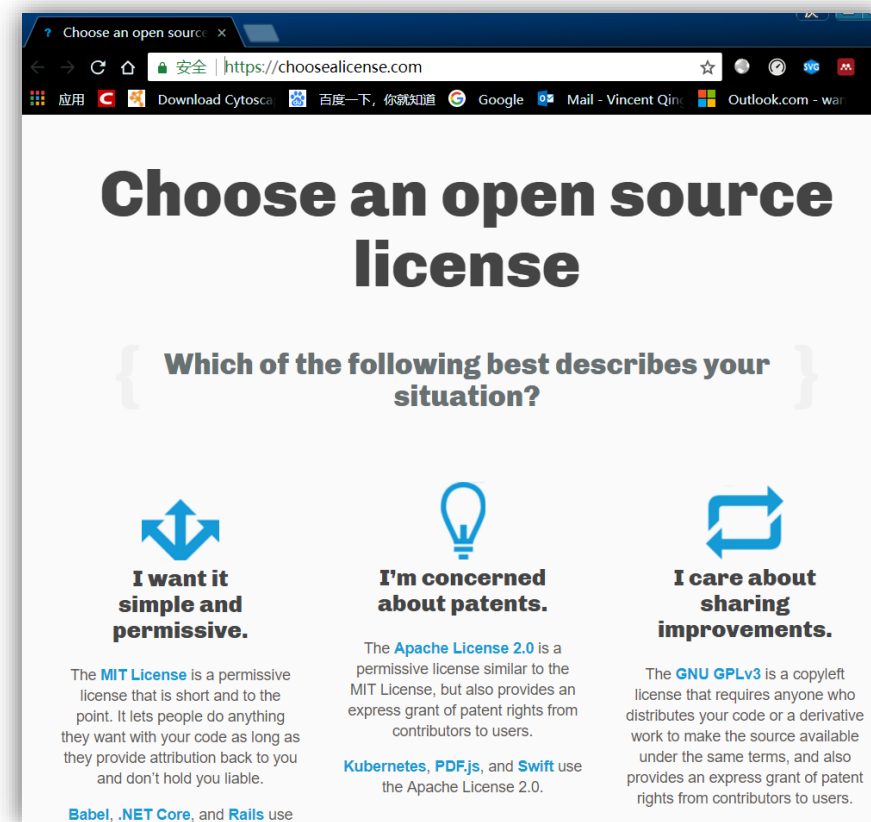
2. Basics

LICENSE.md

Finding the right license:

It's about how people can use that project;
[ChooseALicense.com](https://choosealicense.com) to help you make decision.

- In root directory
- all caps
- in markdown (.md)

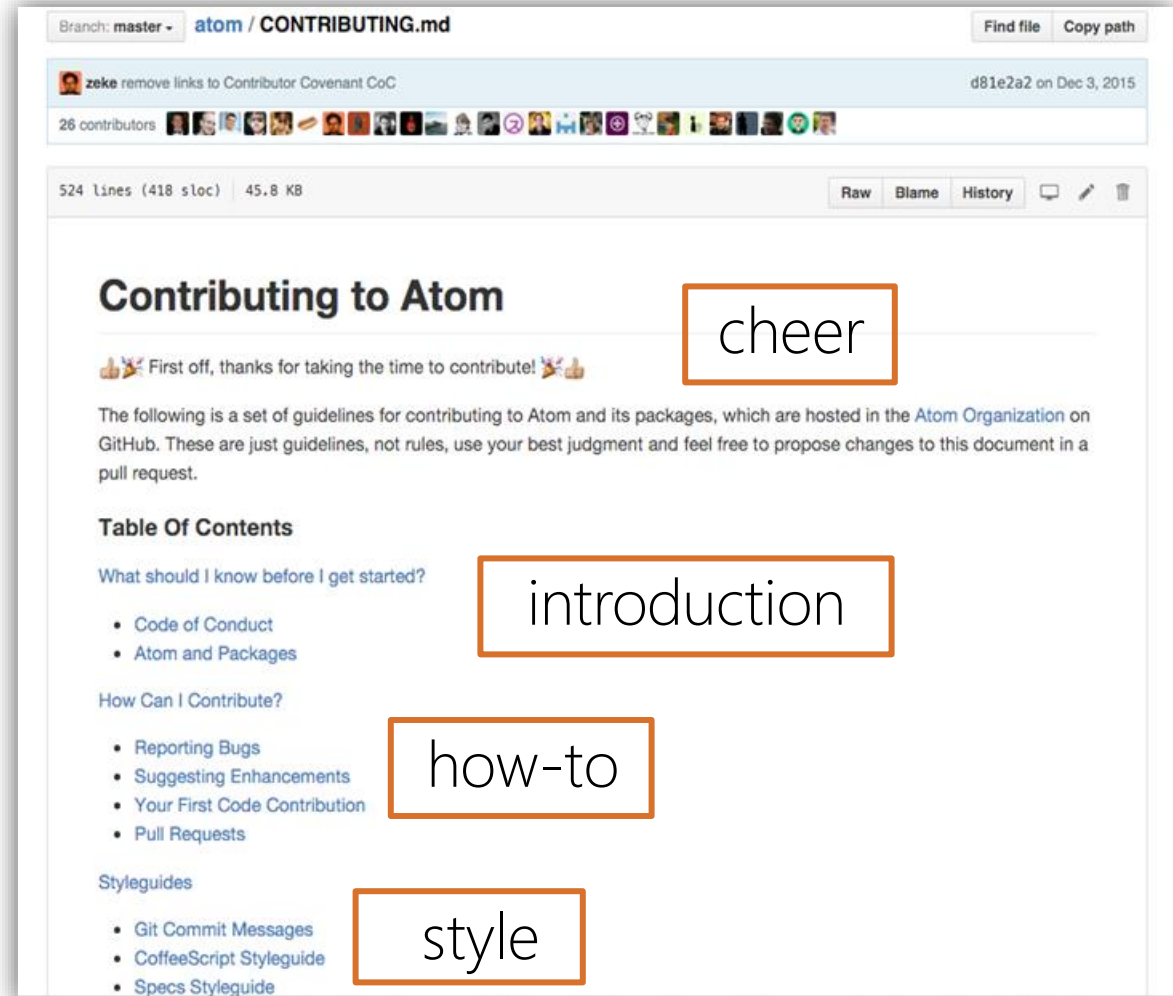


2. Basics

CONTRIBUTING.md

Announce to the contributors of how

- In root directory
- all caps
- in markdown (.md)

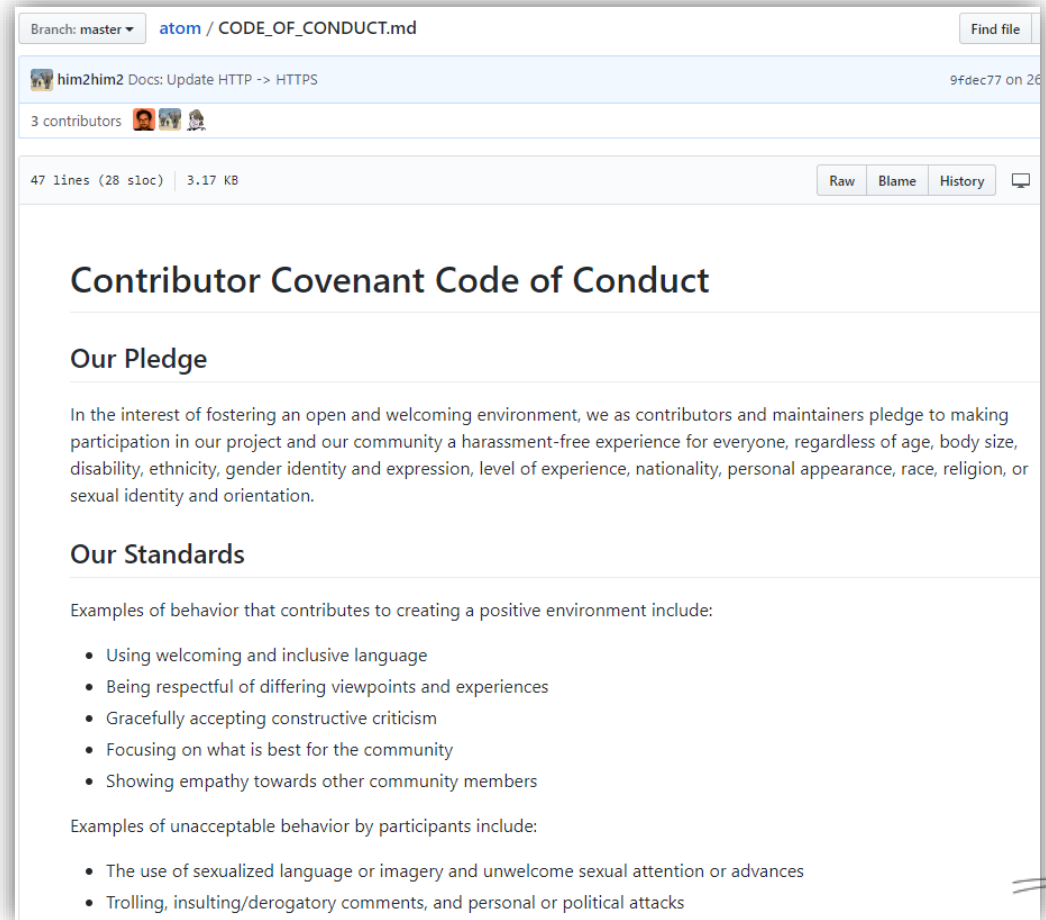


2. Basics

CODEOFCONDUCT.md

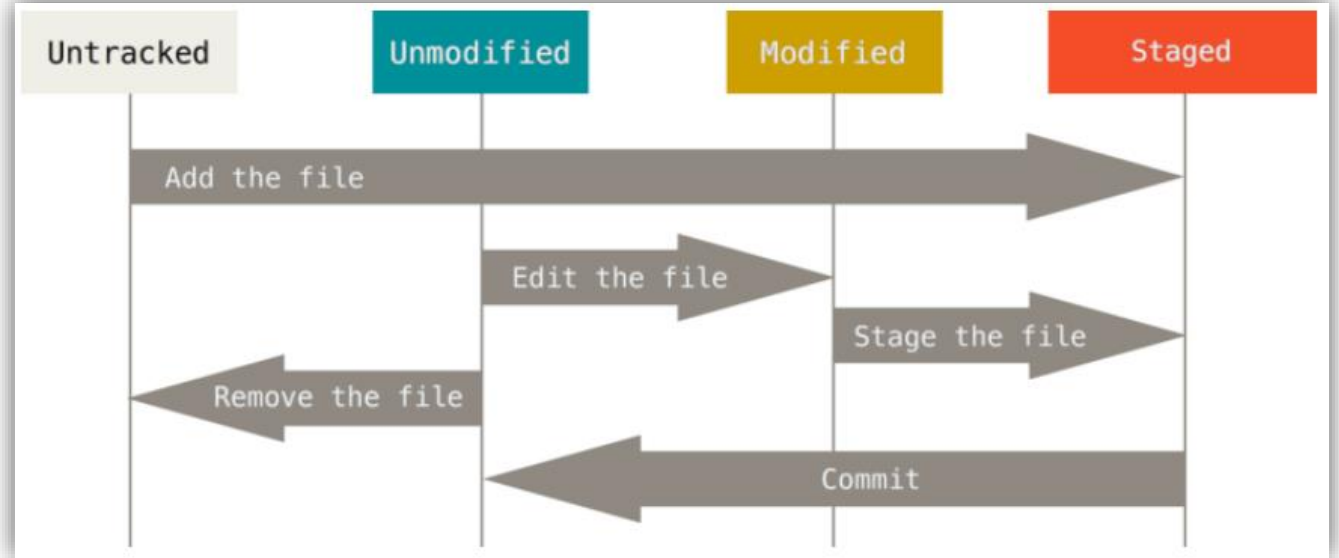
Rules outlining the social norms & rules & responsibilities of an individual project, party or organization.

- In root directory
- all caps
- in markdown (.md)



3. Teamwork and OPEN SCIENCE

Some basic Git commands



```
$ git init
```

```
$ git add file.x
```

```
$ git commit -m -a 'initial project version'
```

```
$ git clone https://github.com/libgit2/libgit2 mylibgit
```

```
$ git status (-s,--short)
```

```
$ cat .gitignore (*.o)
```

```
$ git rm README.md
```

```
$ git mv file_from file_to
```

```
$ git log (--pretty=format)
```

```
$ git tag
```

```
$ git show v1.4
```

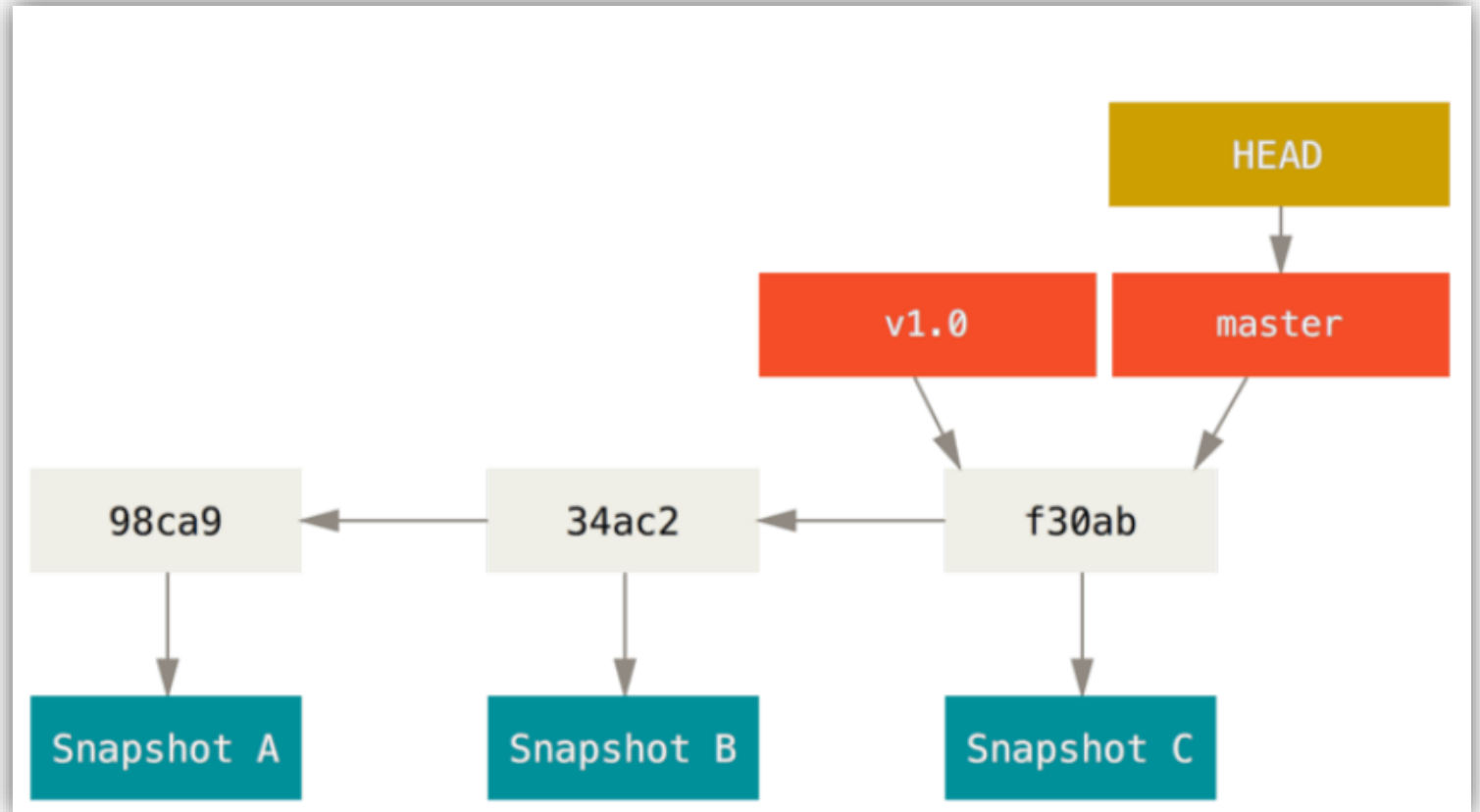
```
$ git config --global alias.co checkout
```

```
$ git revert commit_id
```

3. Teamwork and OPEN SCIENCE

- Current directory (HEAD)
- Create Branch
 - `$ git branch v1.0`
- Change Branch
 - `$ git checkout v1.0`

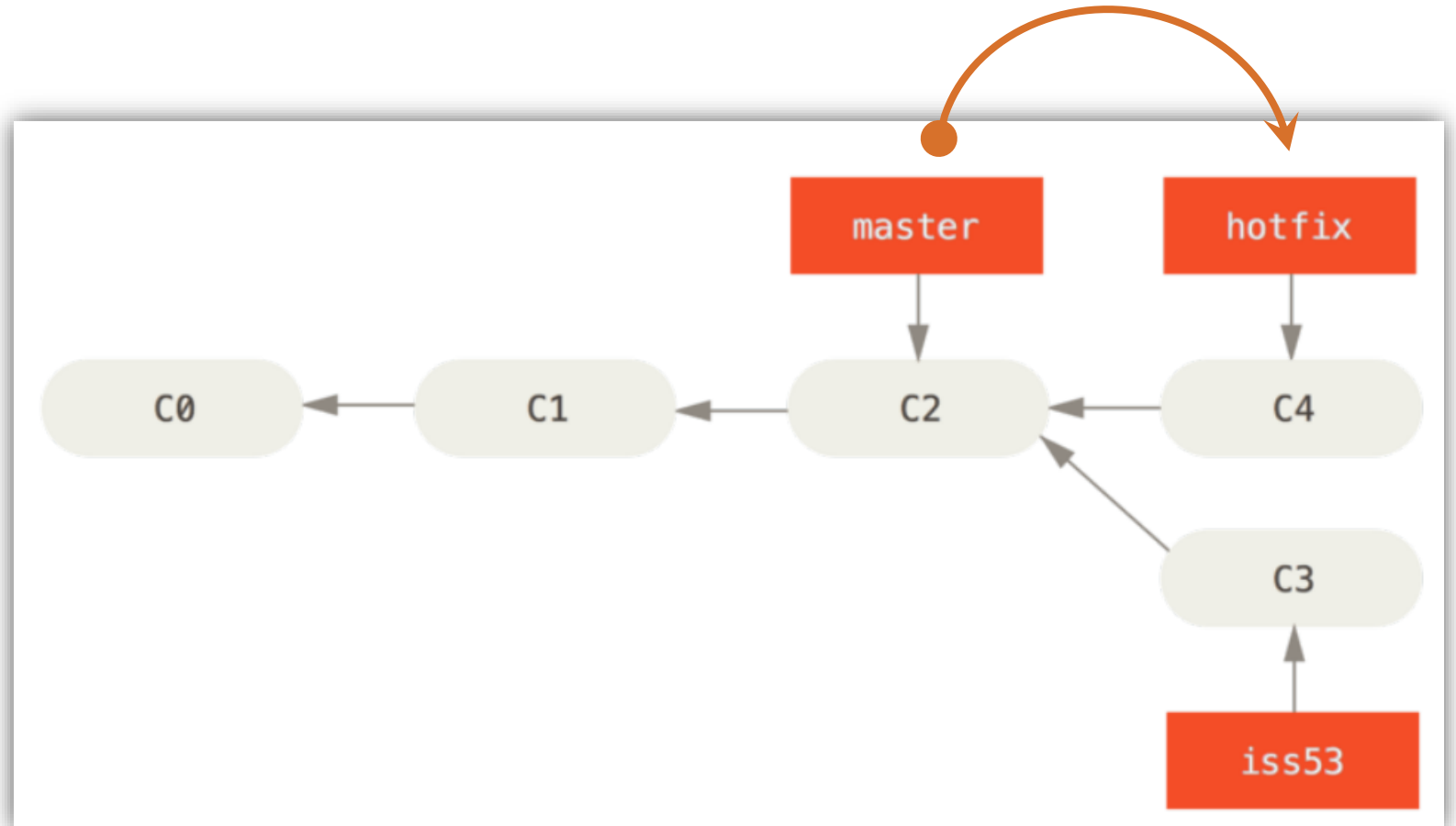
Projects after several commits...



3. Teamwork and OPEN SCIENCE

Projects after several branches...

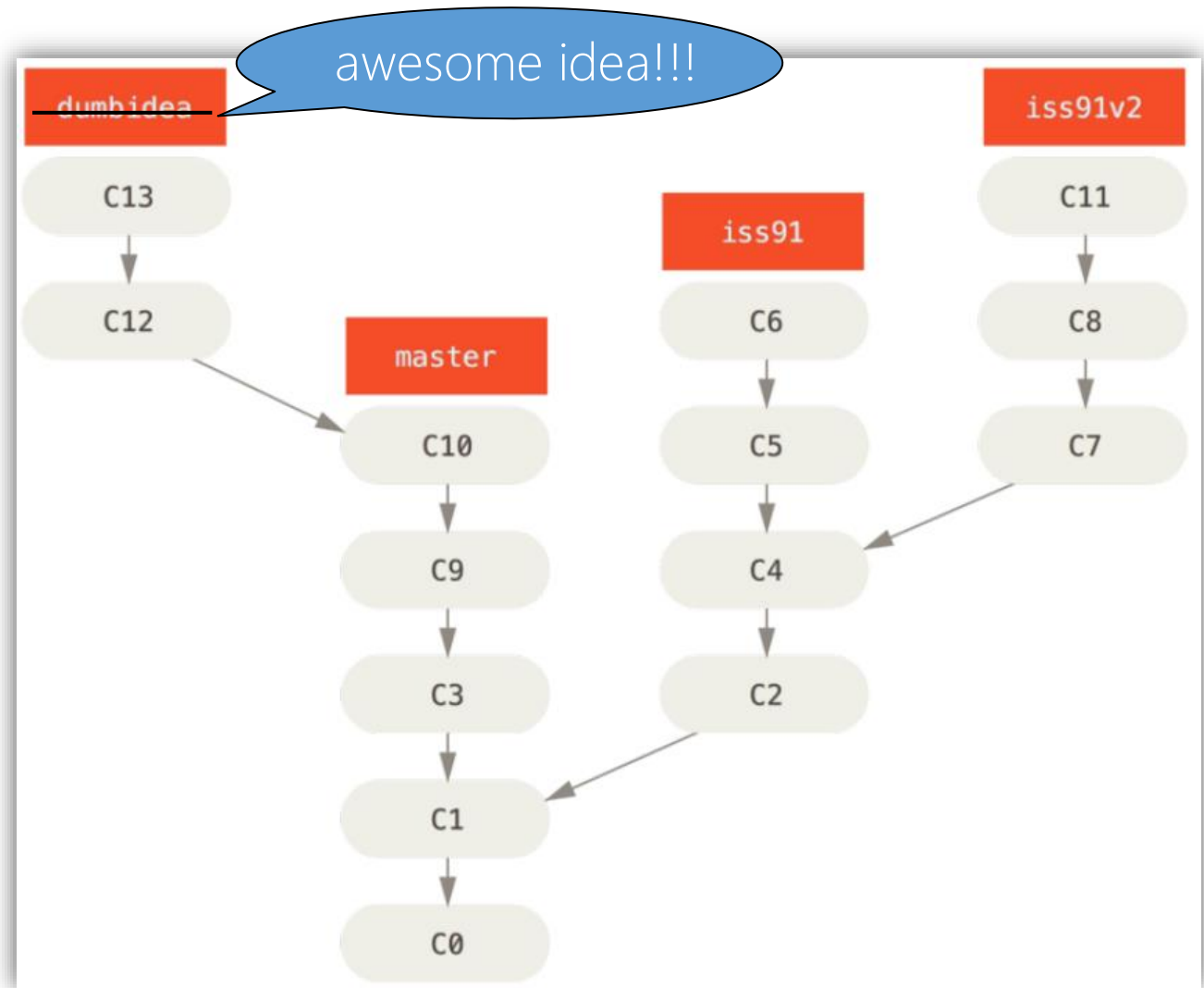
- Merge branches
\$ git checkout master
\$ git merge hotfix



3. Teamwork and OPEN SCIENCE

How your projects may look like...

- Organize OPEN SCIENCE



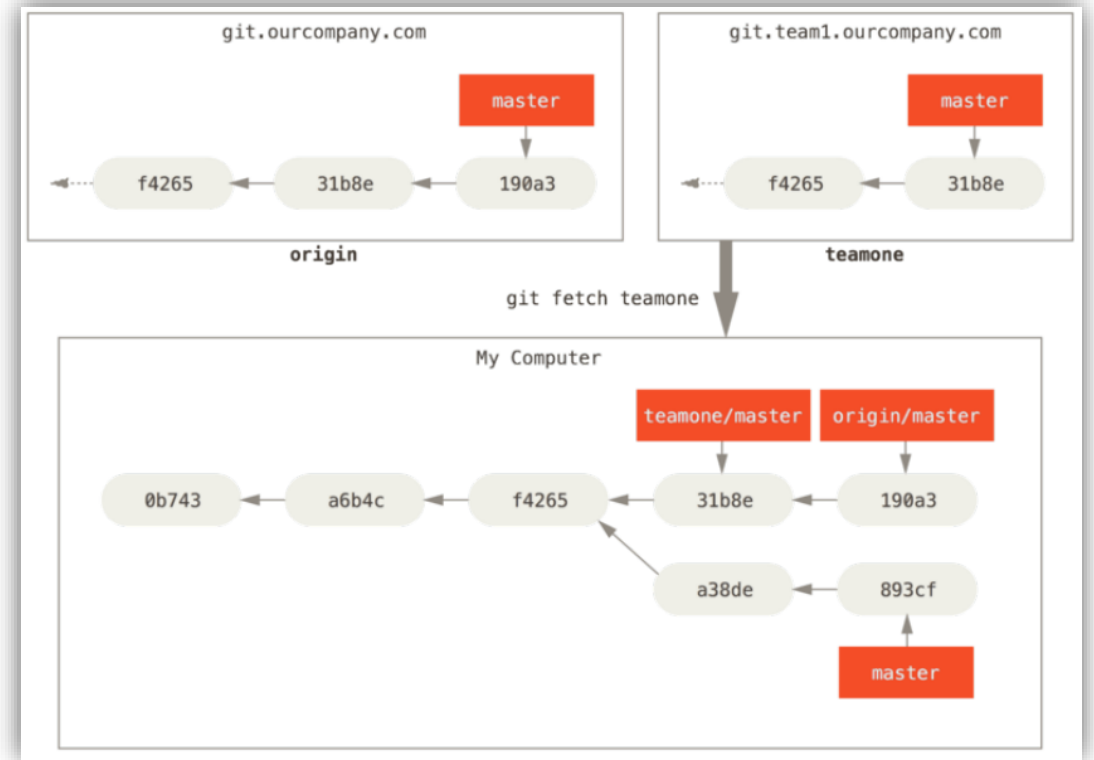
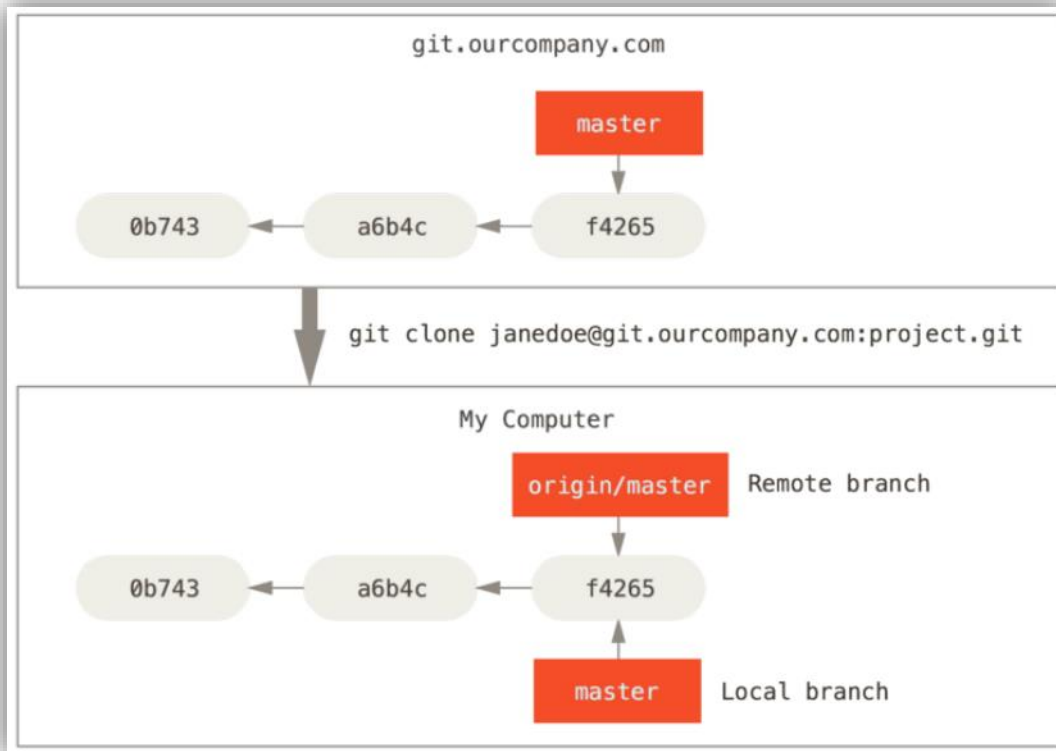
3. Teamwork and OPEN SCIENCE

From local repo to the upstream repo (GitHub)

```
$ git ls-remote
```

```
$ git pull
```

```
$ git push origin master
```



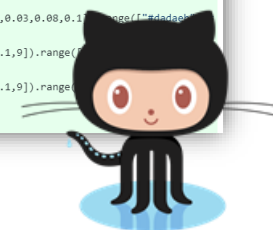
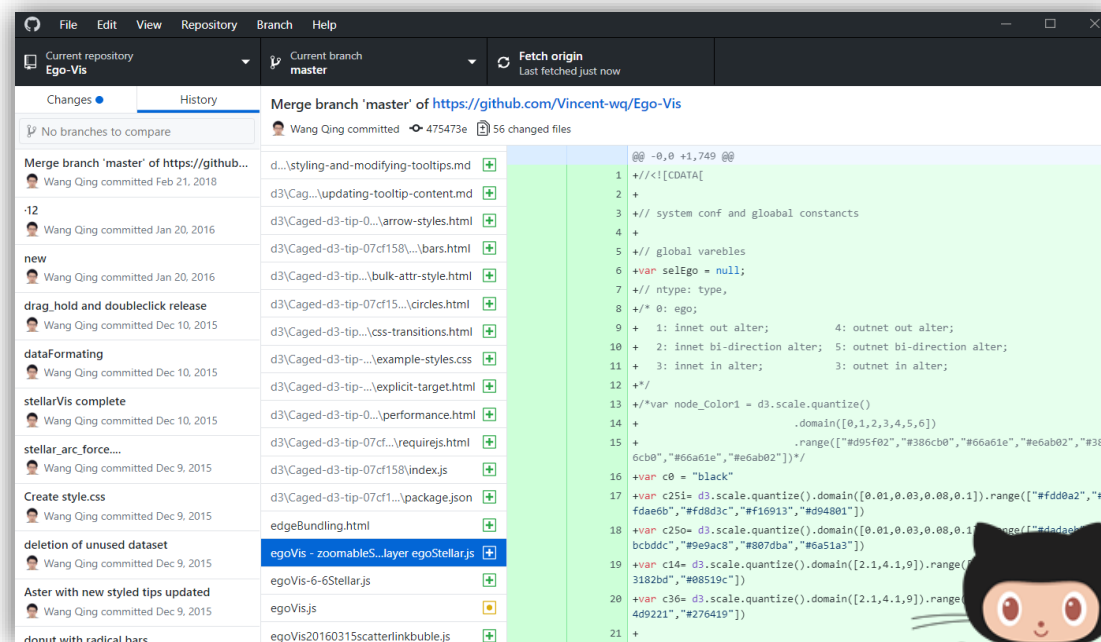
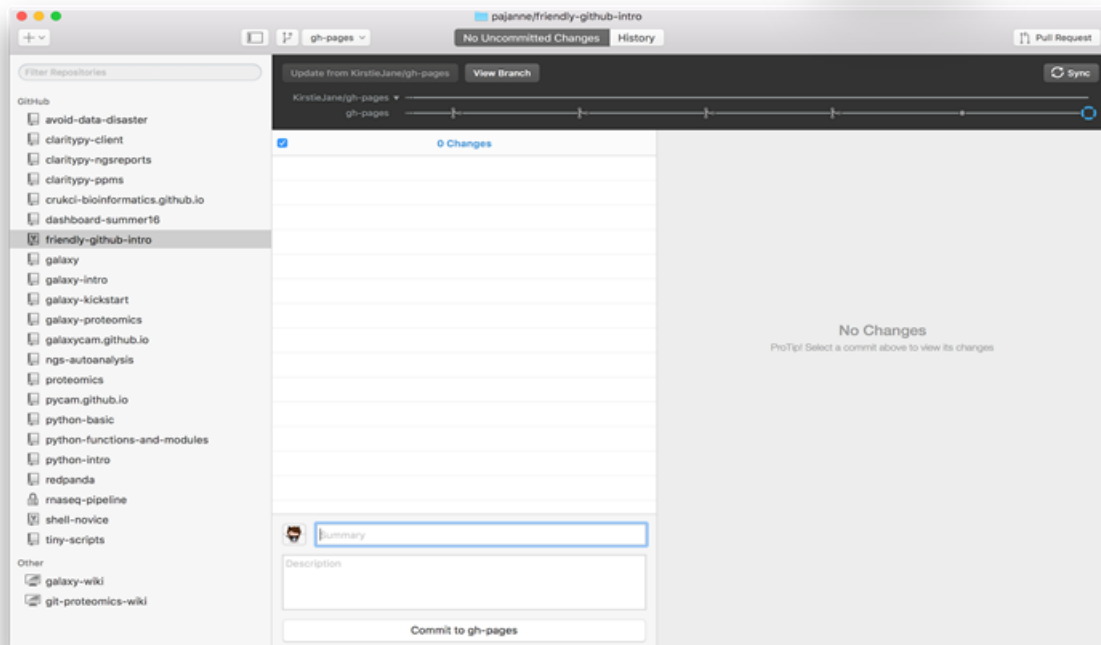
3. Teamwork and OPEN SCIENCE

Do not worry, you have GUIs...



```
MINGW64:/e/00SVN/GitHub-Test1

Vincent@Vincent-Studio MINGW64 /e/00SVN/GitHub-Test1
$ |
```



4. More resources

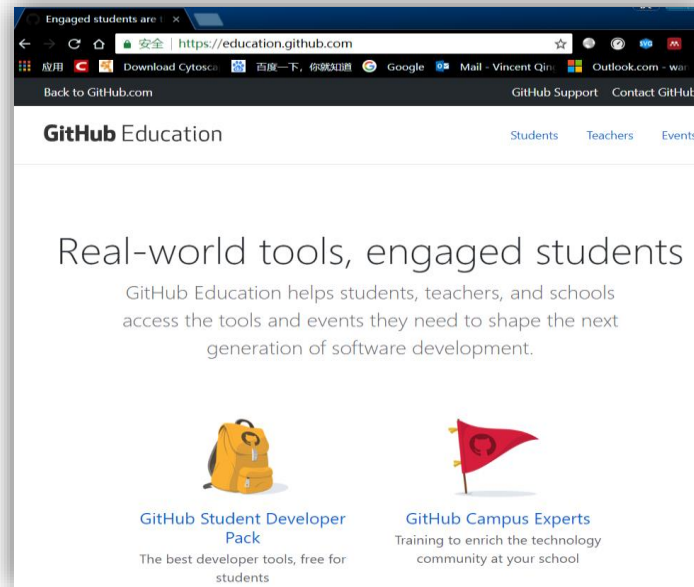
<https://github.com/adam-p/markdown-here/wiki/Markdown-Cheatsheet>

<https://www.webpagefx.com/tools/emoji-cheat-sheet>

[ChooseALicense.com](https://choosealicense.com)

<https://creativecommons.org/>

(thanks for the reminder from Kirstie Whitaker)



<https://git-scm.com/book/zh/v2>

<https://git-scm.com/doc>

<https://github.com/phodal/github>

<https://education.github.com/students>

<https://github.com/phodal/github>

<https://kirstiejane.github.io/friendly-github-intro/>

Thanks

Enjoy your time of Brainhack and TrainTrack!

