Lab 00 How to Survive & Introduction to Git

Software Studio DataLab, CS, NTHU

Notice

- These slides will focus on how to submit you code by using Git command line
- You can also use other Git GUI tool or built-in Git tool in other IDE/editor

Teaching Assistants



Shao-Che Feng 馮卲哲



Chun-Ping Fang 方竣平



Tzu-Ling Hsieh 謝紫翎

How to Find Us?

- Office Hour (TAs)
 - Mon. 10:10~12:00 at Delta 729
- Email (Personal question only)
 - ssta2025@datalab.cs.nthu.edu.tw
 - Shao-Che Feng: scrip@datalab.cs.nthu.edu.tw
 - Chun-Ping Fang: cpfang@datalab.cs.nthu.edu.tw
 - Tzu-Ling Hsieh: tlhsieh@datalab.cs.nthu.edu.tw
- Online Forum
 - eeclass



If I have Question?

- Always Google first!
 - Learn how to google is important.
- If you try your best but still can't catch it.
 - · Feel free to ask us on eeclass or office hour.

Today's exercise (1/2)

- Install Git command line tool in your computer.
 - Follow appendix "Git Command-line Tool Installation".
- Follow following steps.

Outline

- General Rule
- Introduction to Git
 - Version control
 - Git Basics
 - Try Git!
 - Remote Repositories
- How to Submit Your Code to Gitlab
- Tools & References

Outline

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The Policy of Labs

- All labs need to be submitted to GitLab.
- Late submission will not be accepted.
- Plagiarism will not be tolerated.
 - If we find you copy someone's code, you will get
 0 point for that lab.
- Grading
 - Submission before lab ends gets 100% score
 - Submission before 11:59pm gets 60% score

Grading Example

- 4 problems, 25% each
- Solved 4 during the lab
 - 100
- Solved 3 during the lab, 1 before 11:59pm
 - -75 + 25*0.6 = 90
- Solved 4 after the lab, before 11:59pm
 - -100*0.6=60

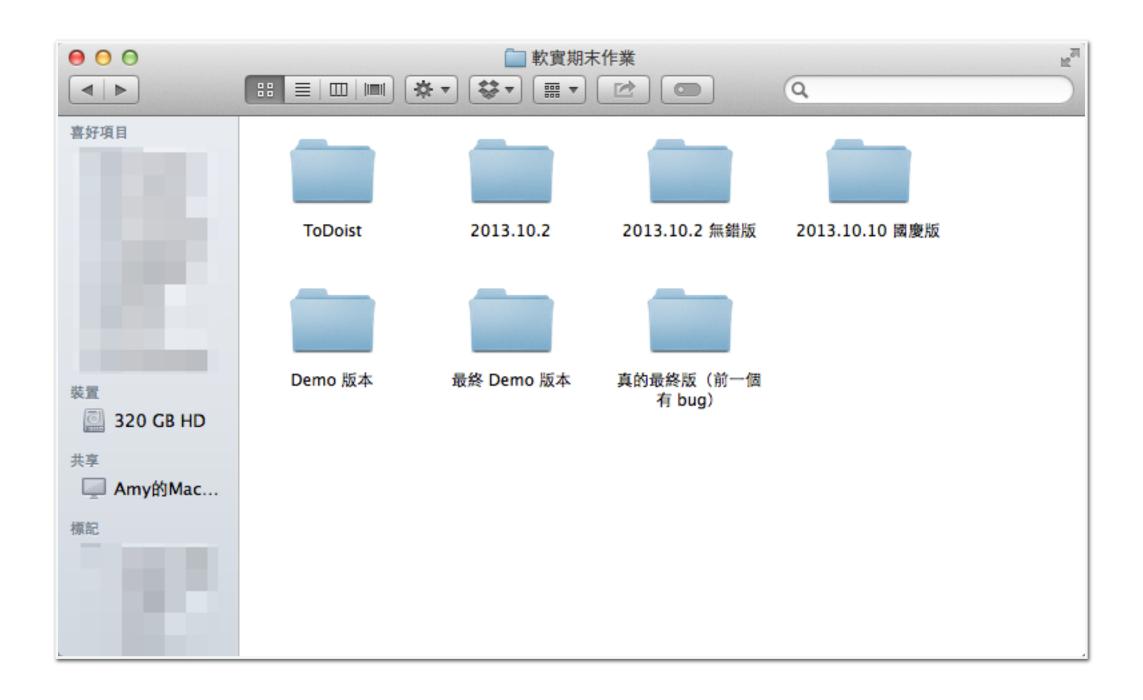
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Why use version control?

We want to track what we did and when we did it.

Students' VCS



Why use VCS?

- Managing your projects tracking your files and modifications.
- Synchronization between modifications made by different developers.
- Revision history is still very helpful even if you work alone.

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Git



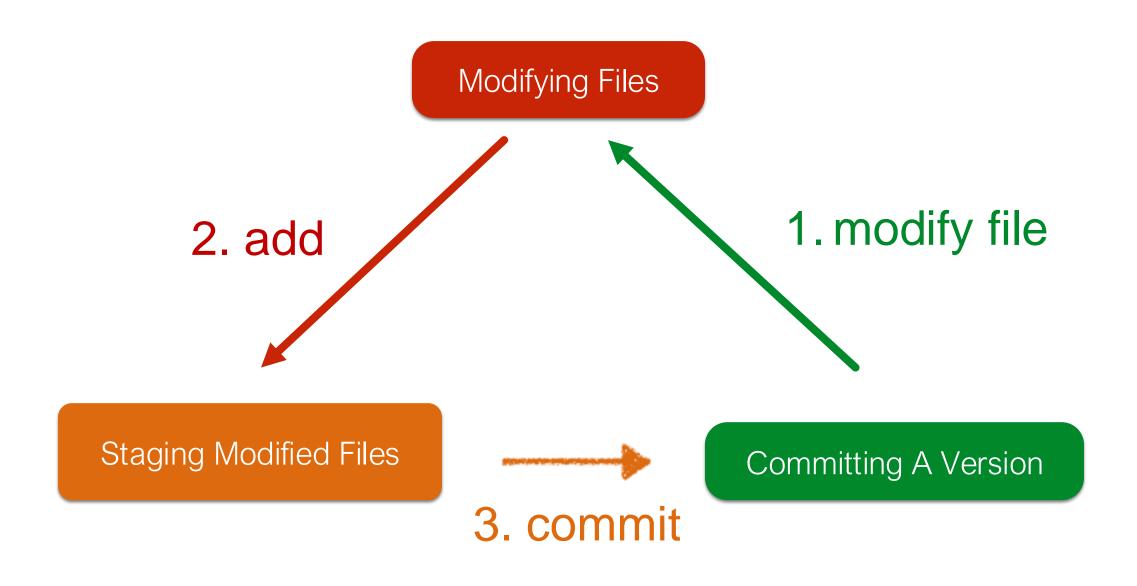
Git

- Git is a popular version control system which is
 - Fast
 - Easy to use
 - Distributed
- A git repository is a mini database that tracks your files.

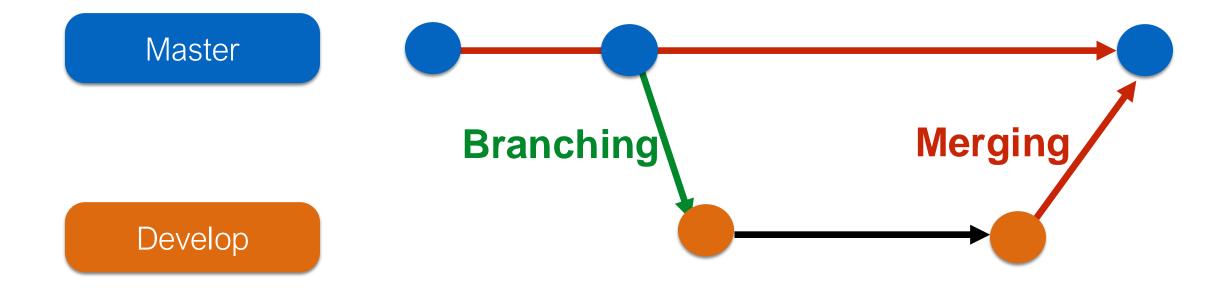
Git Workflow (1/2)

- With a local repository in your computer, you'll need following operations to make git track your work:
 - 1. Create/modify files
 - 2. Let git monitor the files by *adding* them to staging files.
 - 3. Commit your changes to and git will create snapshots (versions) of the files for you.

Git Workflow (2/2)



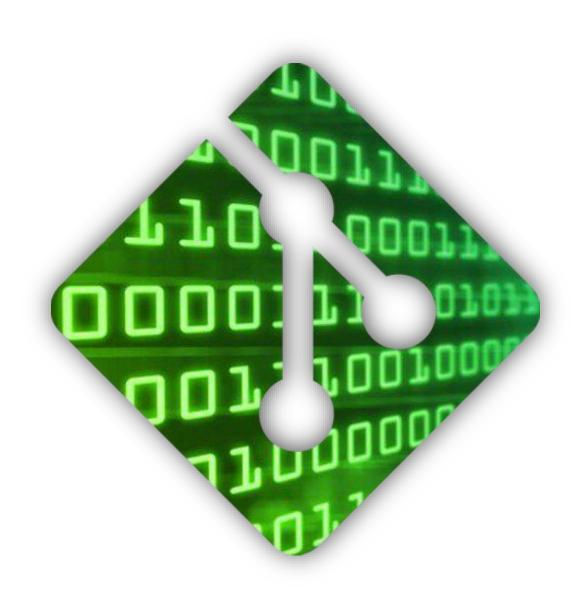
Git Branch



Outline

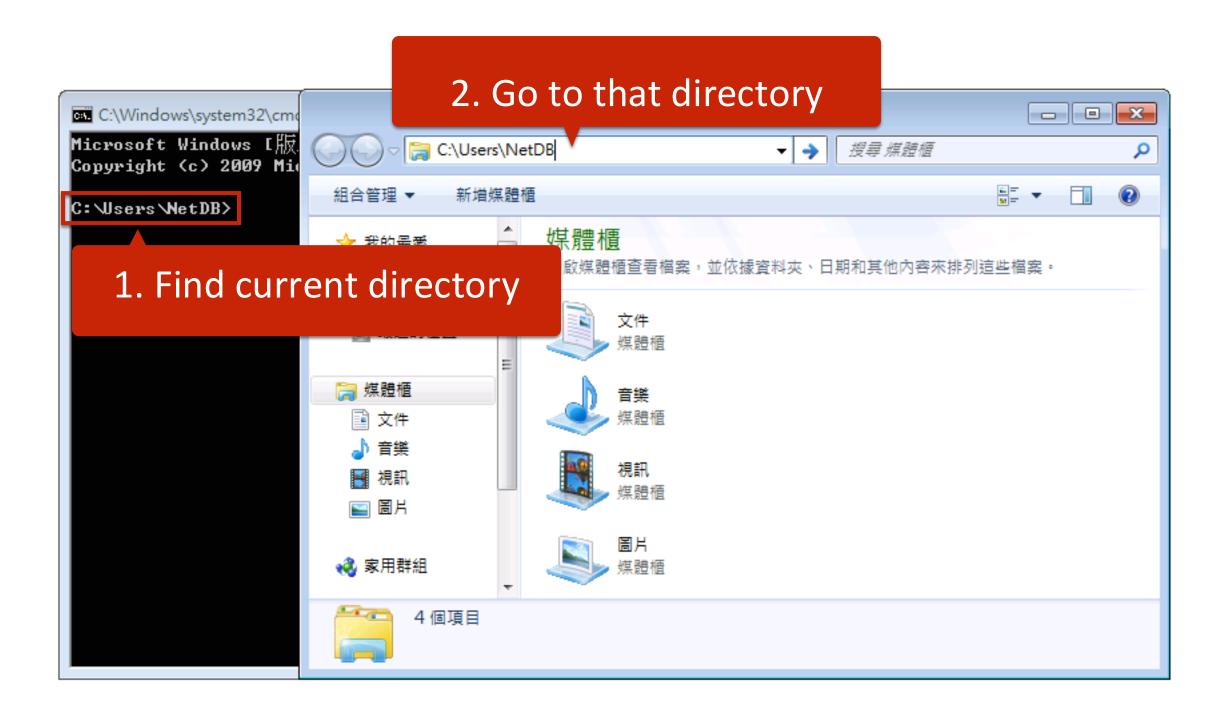
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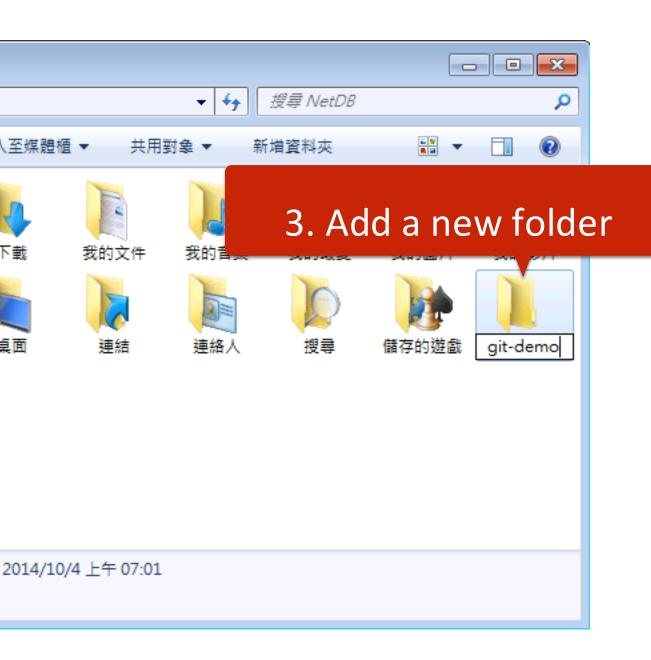
Be Professional

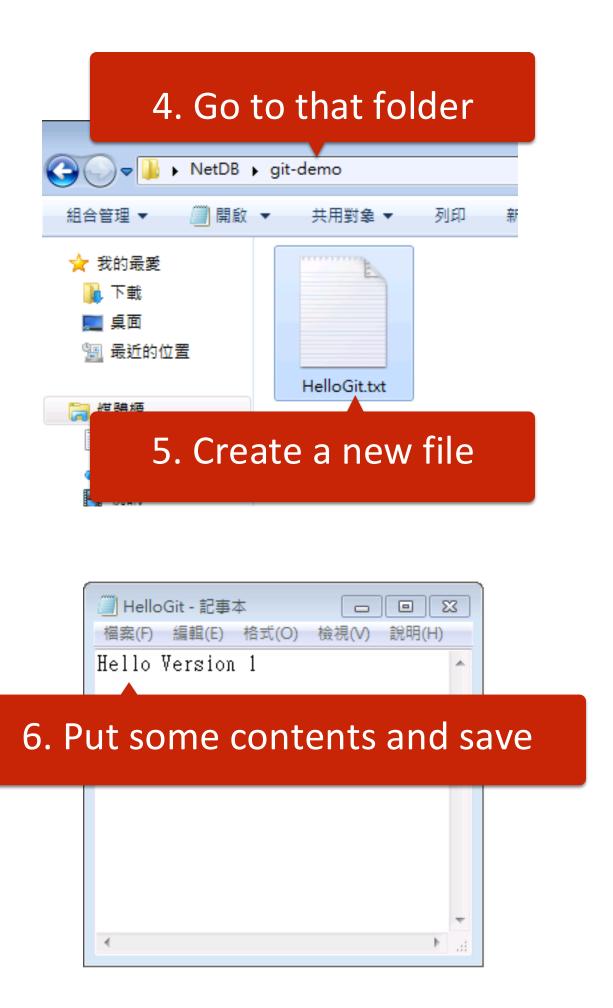


Basic Git Commands

- git init
 - Initialize a repository at current directory.
- git add [file_name] (* git add . * → means add all files)
 - Add files to git repository and let git track them.
- git commit -m "commit messages"
 - Save the changes to the git repository and create snapshots of the files.
- git checkout [version]
 - Go to a specific version.



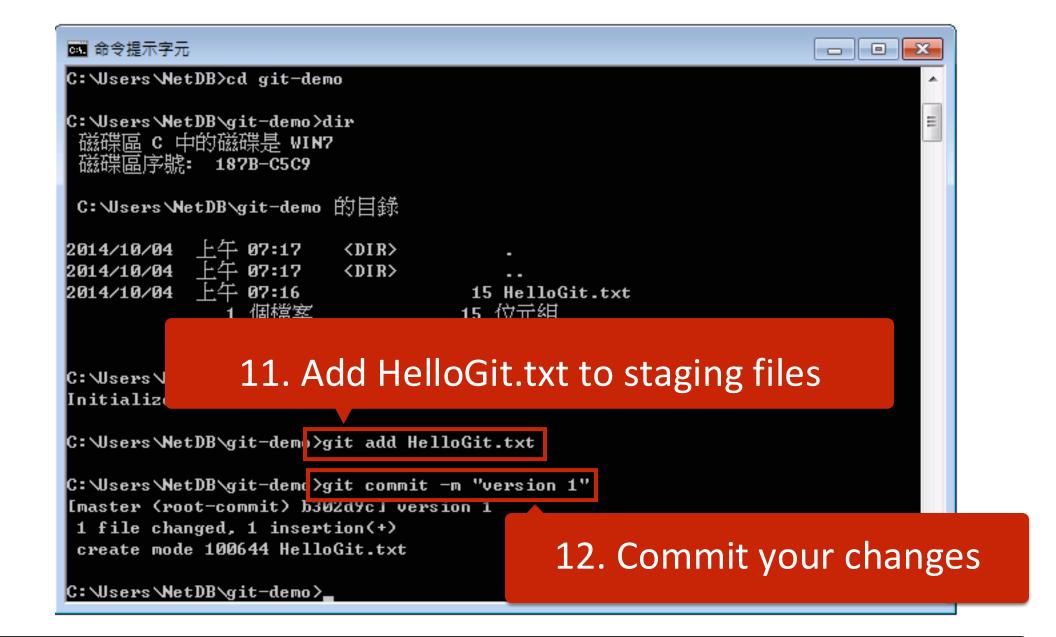




```
命令提示字元
     Microsoft Windows [版本 6.1.7601]
     Copyright (c) 2009 Microsoft Corporation. All rights reserved.
     C:\Users\MetDI\git config --global user.name "cyhsu"
     C:\Users\MetDI>git config --global user.email "cyhsu@netdb.cs.nthu.edu.tw"
     C:∖Use:
              7. Setup user information
                           With --global: for all repositories in computer
                           Without --global: for current repository
$ git config --global user.name "name"
$ git config --global user.email "email"
```

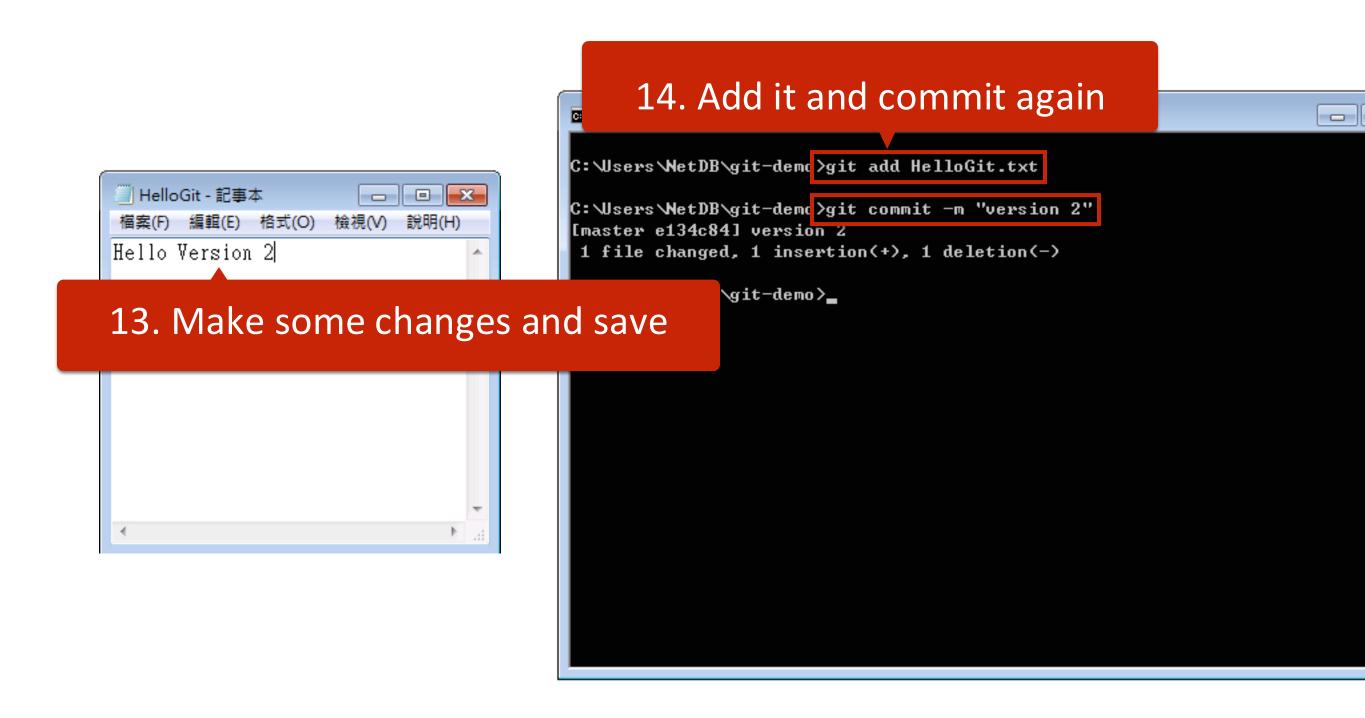
```
- - X
             命令提示字元
             Microsoft Windows [版本 6.1.7601]
             Copyright (c) 2009 Microsoft Corporation. All rights reserved.
             C: Wser:
                                                     'c yhsu"
                      8. Go to "git-demo"
             C:\User:
                                                      "cyhsu@netdb.cs.nthu.edu.tw"
             C:\Users\NetDI>cd git-demo
                                          9. Show the files in "git-demo"
             C:\Users\MetDB\git-dema\dir
              磁碟區 C 中的磁碟是 WIN7
              磁碟區序號: 187B-C5C9
             C:\Users\NetDB\git-demo 的目錄
                4/10/04 上生 09·19 (DIR)
                                              15 HelloGit.txt
10. Initialize a Git repository
                                            5,944 位元組可用
             C:\Users\NetDB\git-dema\git init
             Initialized empty Git repository in C:/Users/NetDB/git-demo/.git/
             C:\Users\NetDB\git-demo}_
```

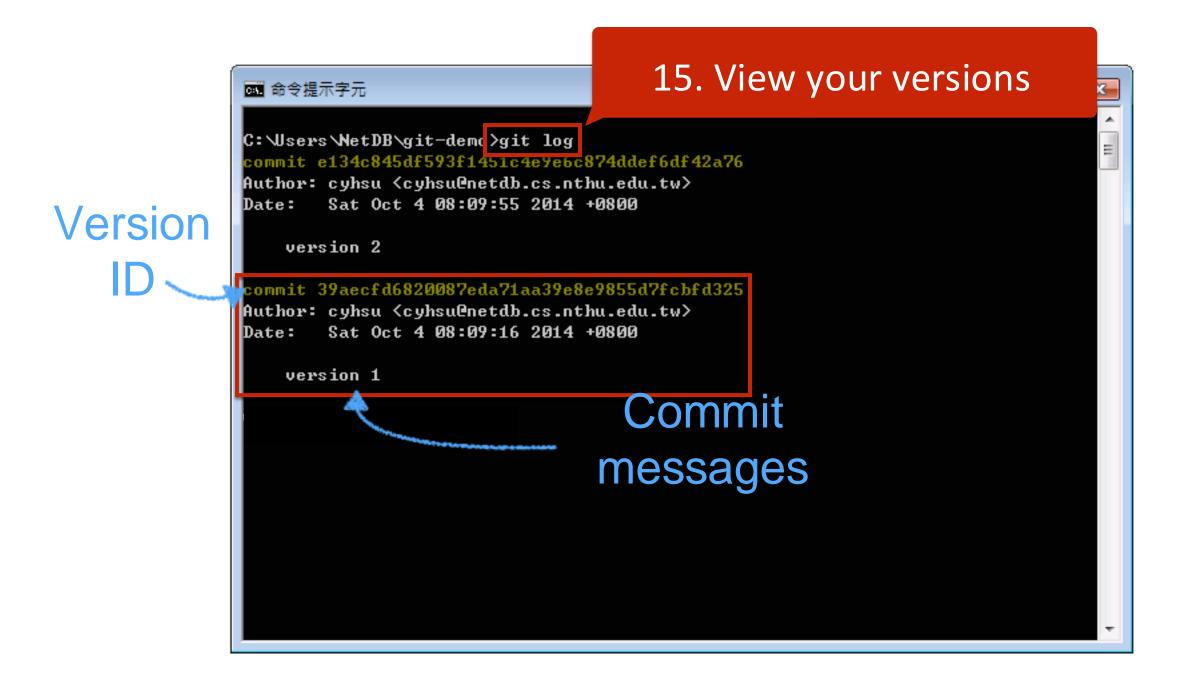
```
$ cd git-demo # go to git-demo directory
$ dir # list the files
$ git init # initialize a repository
```



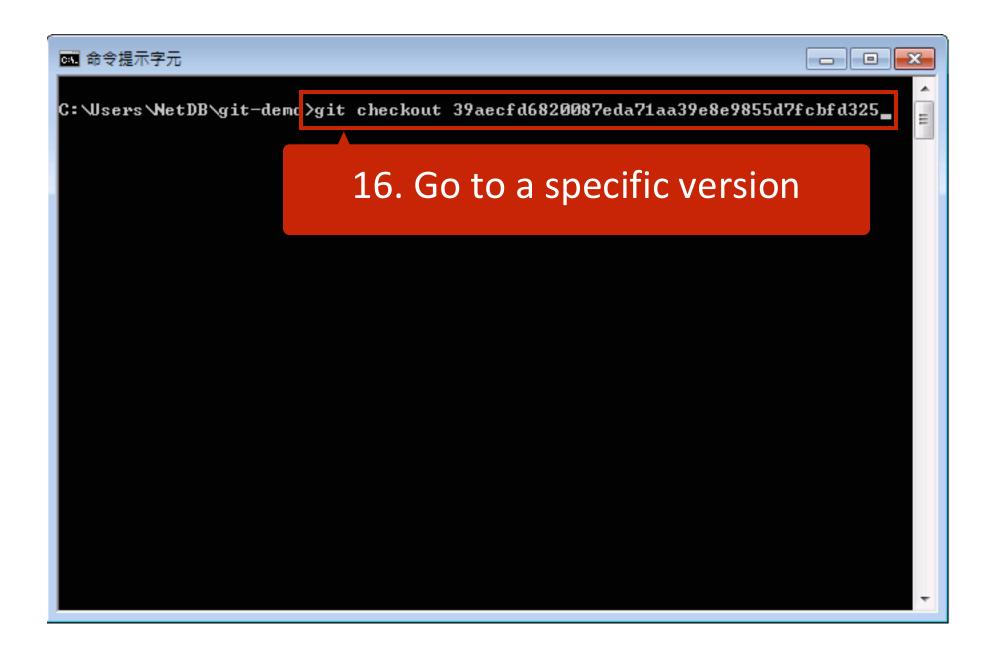
Add HelloGit.txt to staging files
\$ git add HelloGit.txt

Commit the changes to the repository
where "version 1" is the commit message
\$ git commit -m "version 1"





Show the versions you've created so far \$ git log



Go to a specific version \$ git checkout {version_id}

LIFE IS TOO SHORT TO TYPE THAT VERSION ID:

which is 40 characters long...

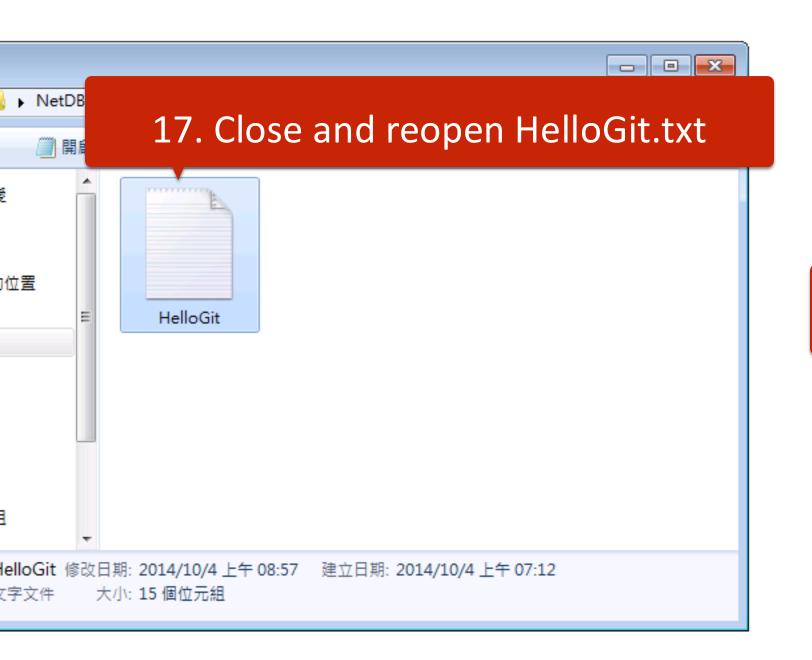
Version ID <

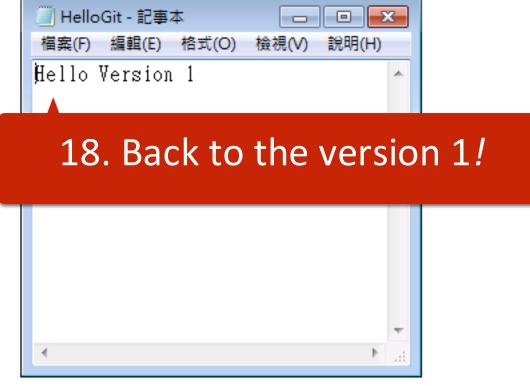
```
■ 命令提示字元
                                                       C:\Users\NetDB\git-dema\git log --oneline
134c84 version 2
39aecfd version 1
                     15. Show versions with short version ID
C:\Users\NetDB\git-demo
                                                 56%
                                               shorter!
```

Show versions with short version id \$ git log --oneline

```
■ 命令提示字元
                                                                 ---
C:\Users\MetDB\git-demc<mark>>git checkout 39aecfd_</mark>
                         16. Go to a specific version
```

```
# Go to a specific version.
# In fact, you only need to type
# the first 5 characters.
$ git checkout {short_version_id}
```





Try yourself (1/2)

- Branching steps
 - Creating a new branch

```
git branch [branch name]
```

Checking out the branch

```
git checkout [branch name]
```

Try yourself (2/2)

- Merging steps
 - Checking out a branch to merge

```
git checkout [branch 1 name]
```

Merging another branch

```
git merge [branch 2 name]
```

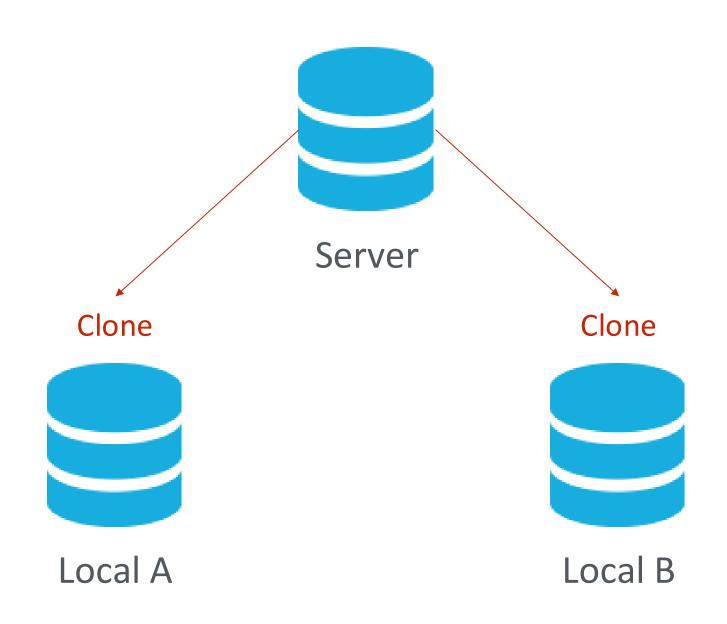
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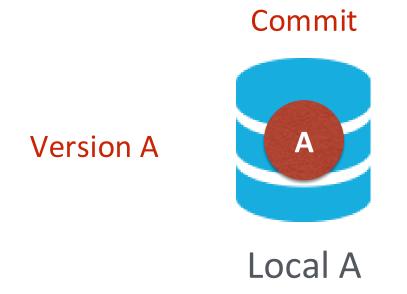
Collaboration

- To work with others using git, you'll need a server that store the repository.
- Git is distributed, which means
 - Everyone can store a copy of the repository downloaded from the server to their computer and do their jobs independently.

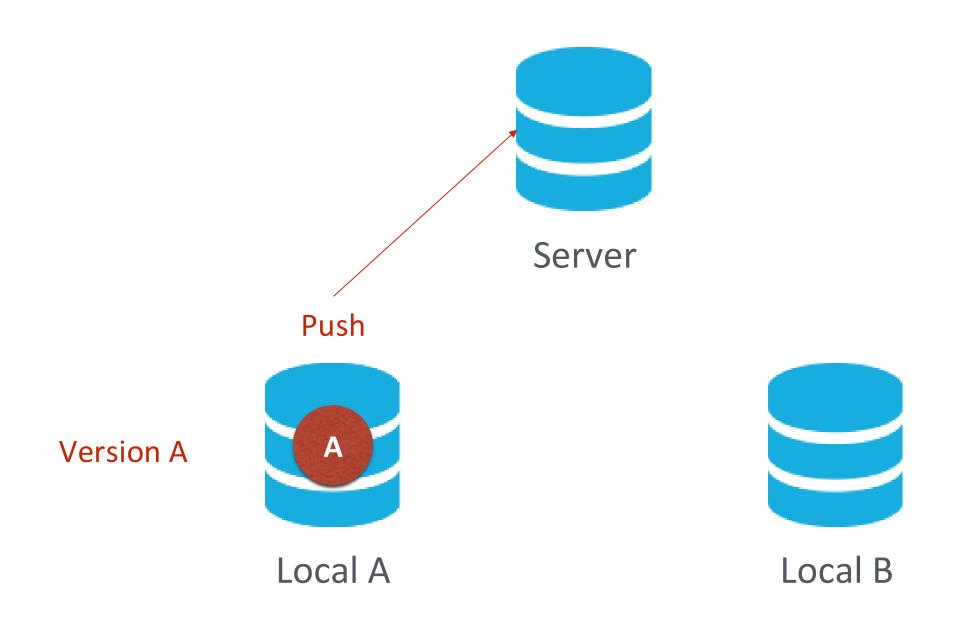
- 1. If you don't have the project, *clone* (download) the repository from the server.
- 2. Do your work and commit the changes at local. Once done, *push* (upload) the repository to the server.
- 3. If someone else modified the project, you can *pull* (sync) the repository to get the updated project.
- 4. Repeat 2 and 3.

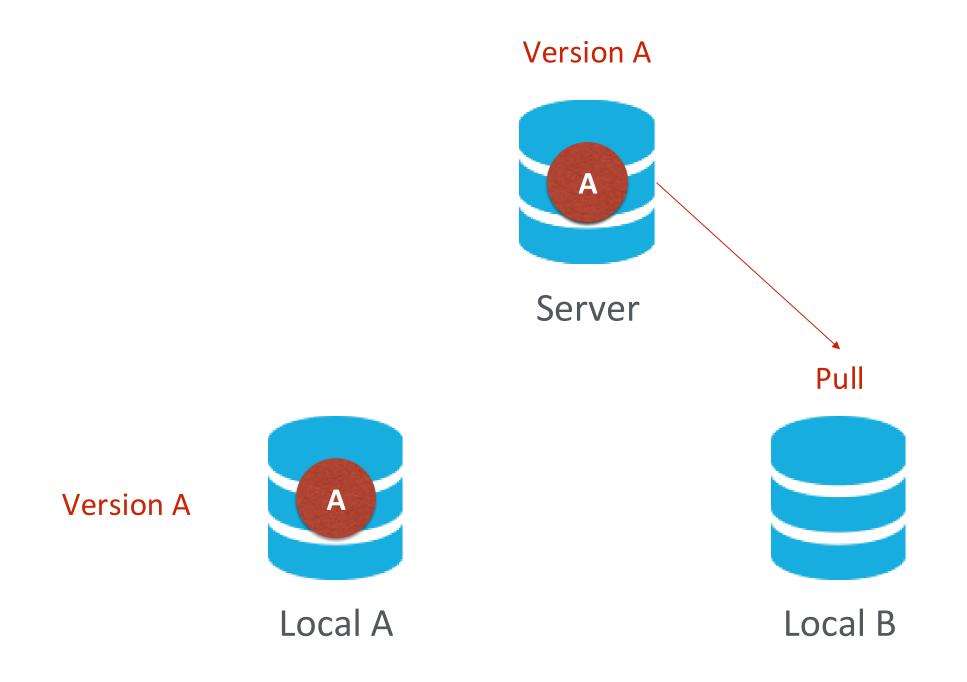


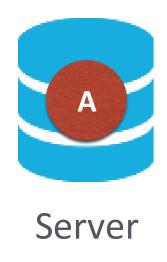


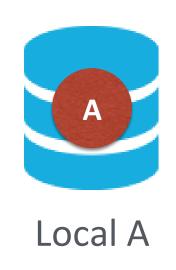








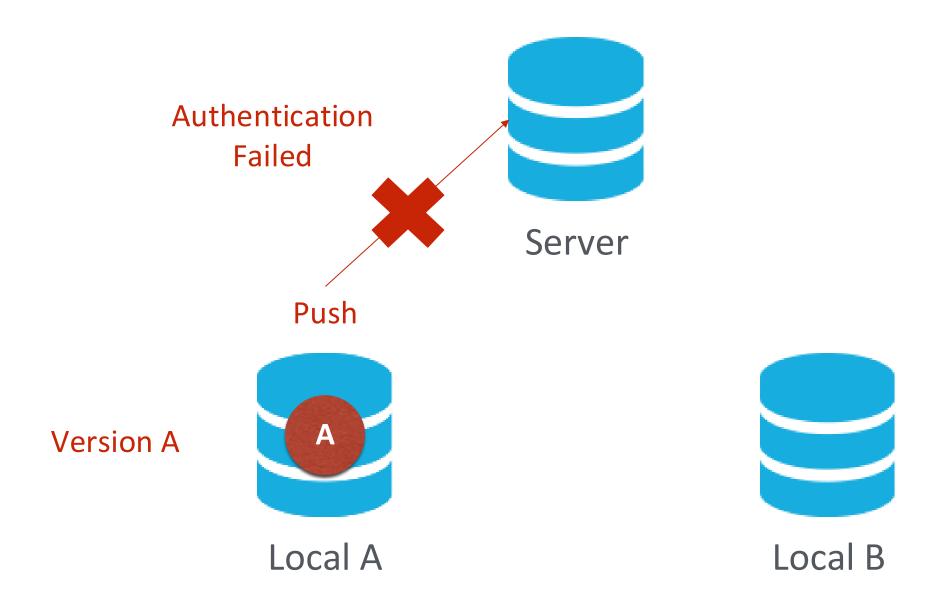






Something went wrong.

Authentication Failed



Why Authentication Failed?

Collaboration Workflow

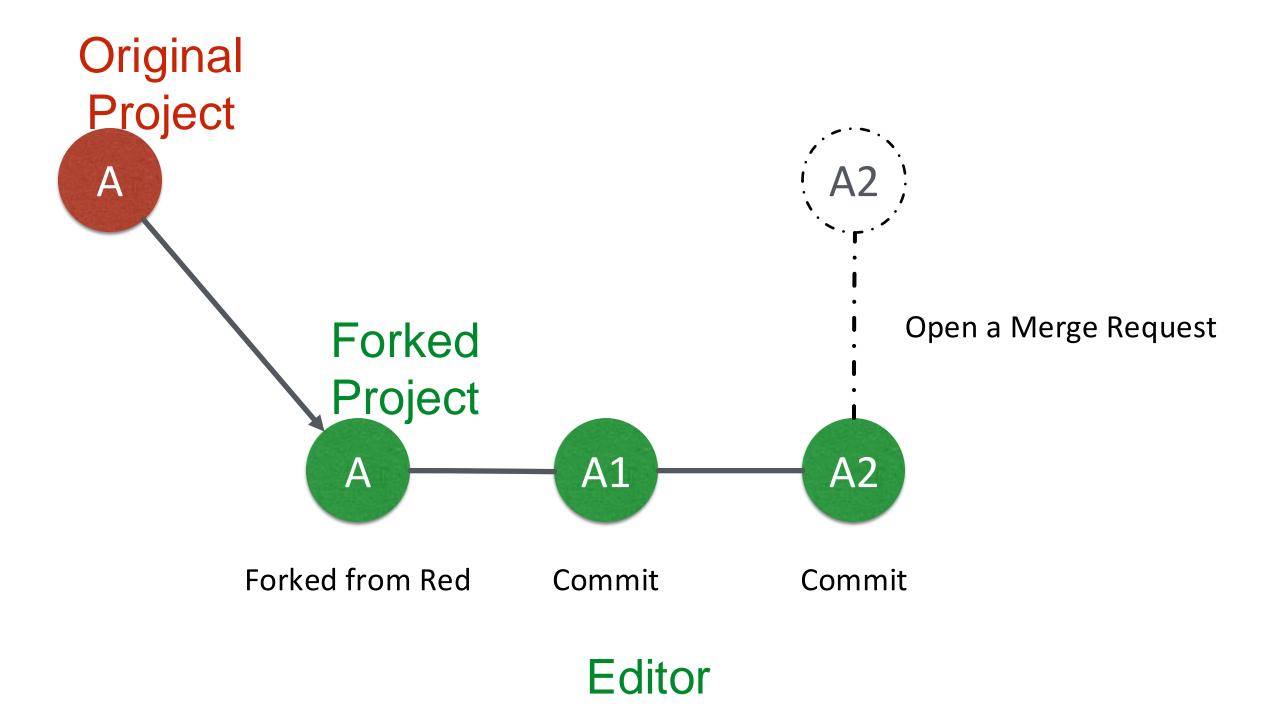
- If you tried to clone the code template from a server and want to push the modified file.
 - You will get authentication failed.
 - It's because it was a project of others, which means you are not able to save the changes back to the server.
- So, how can I copy a project from others on a open source platform like Github?

Introducing

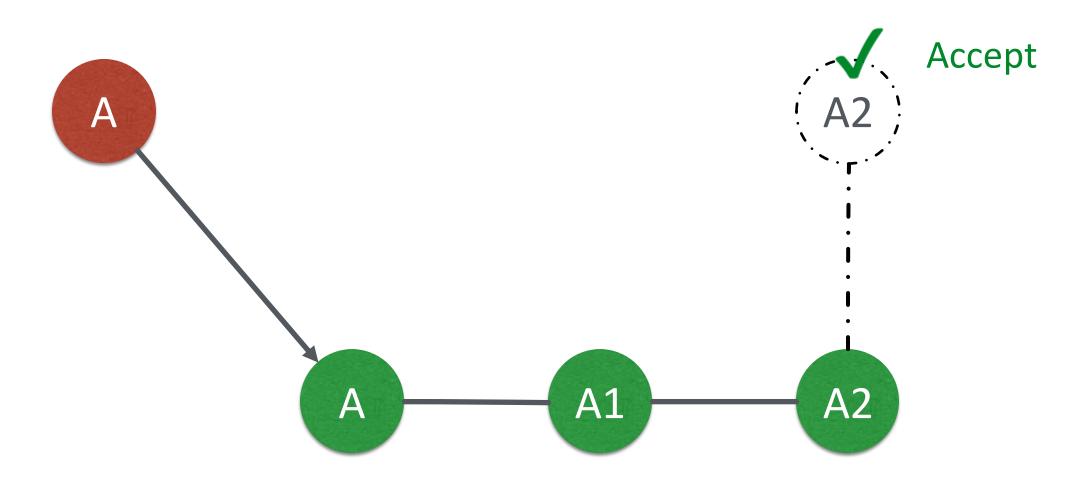
Fork



Author

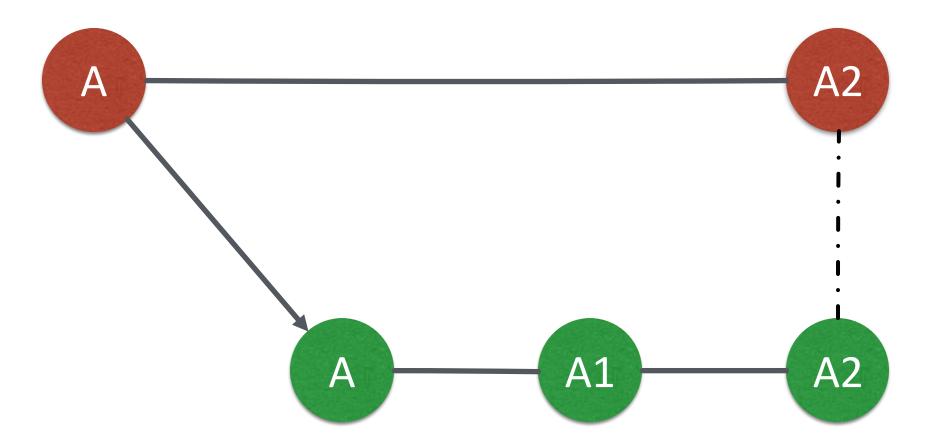


Author



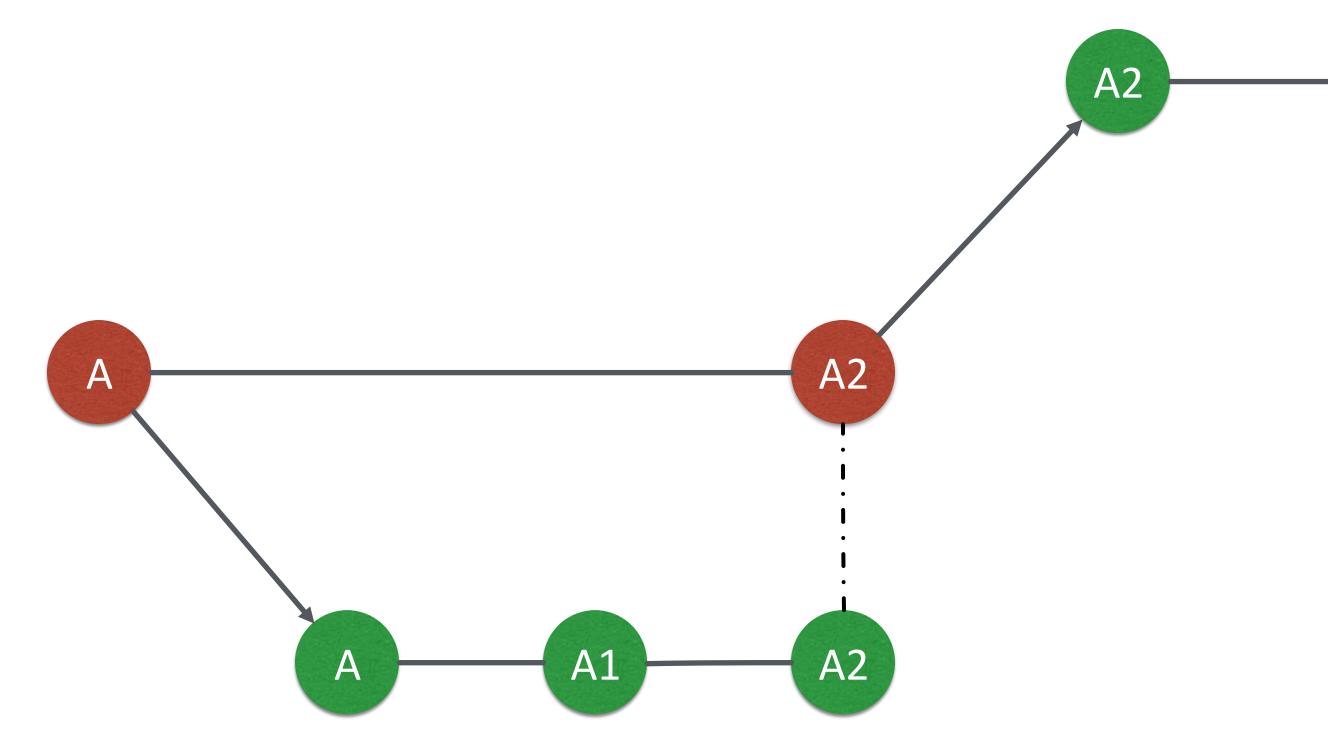
Editor

Author



Editor

Forked from Red A2



Git Collaboration Workflow

- 1. Fork a repository to make a copy of it.
- 2. Clone the repository you forked to your workspace.
- 3. Do your work and *commit* the changes in your workspace.
- 4. Push the repository to the server to synchronize them.
- 5. Open a *merge request* to origin repository .

Basic Git Commands (2/2)

- git clone [url]
 - Clone a repository from remote server
- git push [url] [branch-name]
 - Push committed file to remote server

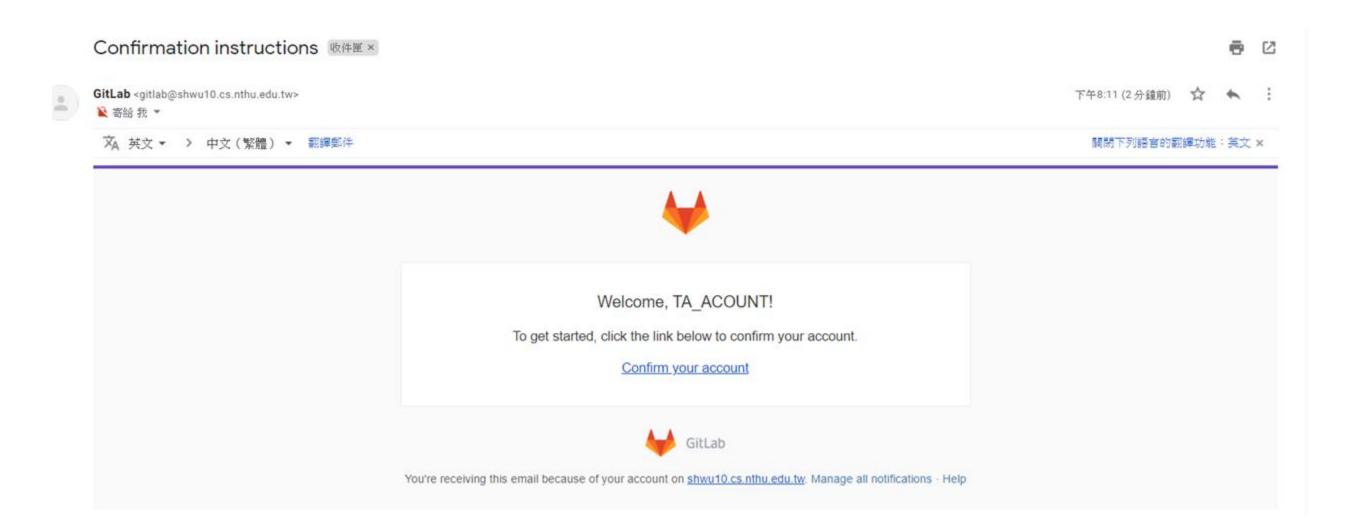
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- We have created account for you
- Account: student ID (e.g. 106012345)
- Password: student ID (e.g. 106012345)



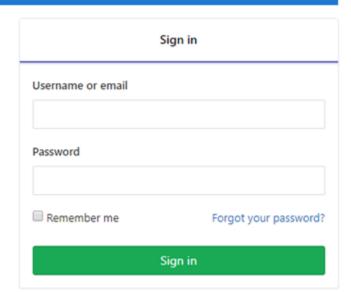




Your email address has been successfully confirmed. Please sign in.

DataLab

Welcome to GitLab for DataLab.



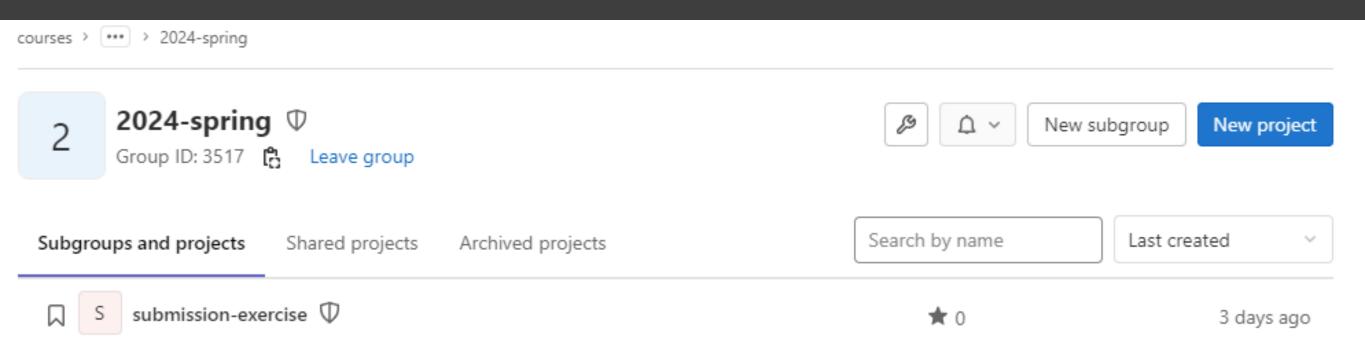
Workflow

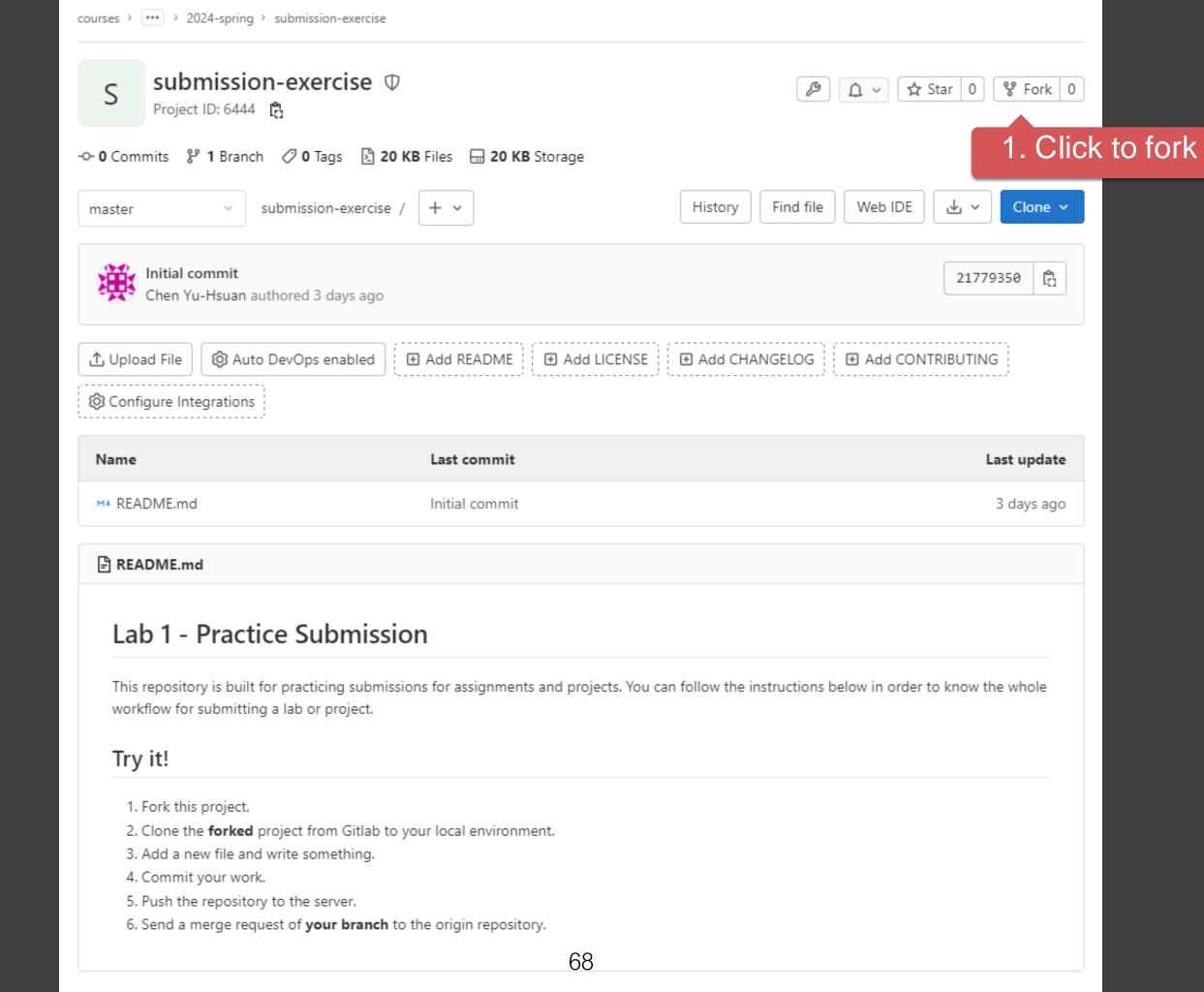
- For each lab, you should follow the workflow below
 - 1. Fork our template repository on Gitlab
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 - 6. Send merge request of your branch to our template repository

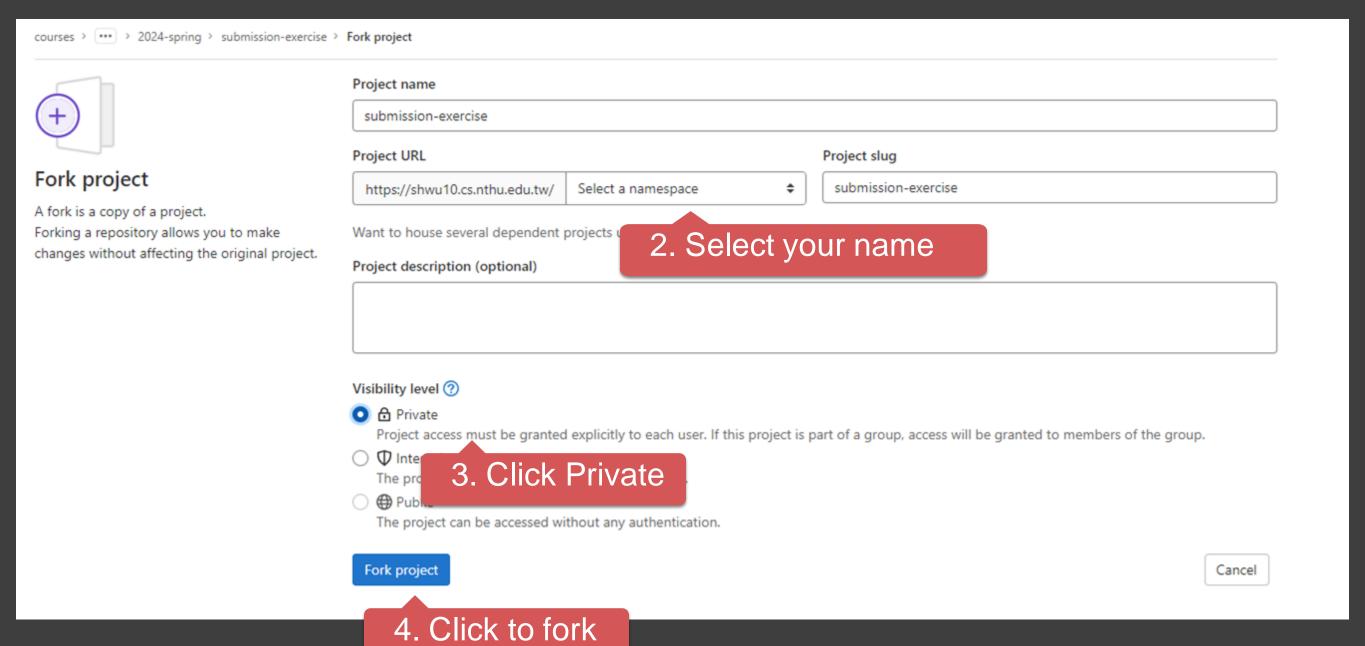
Workflow

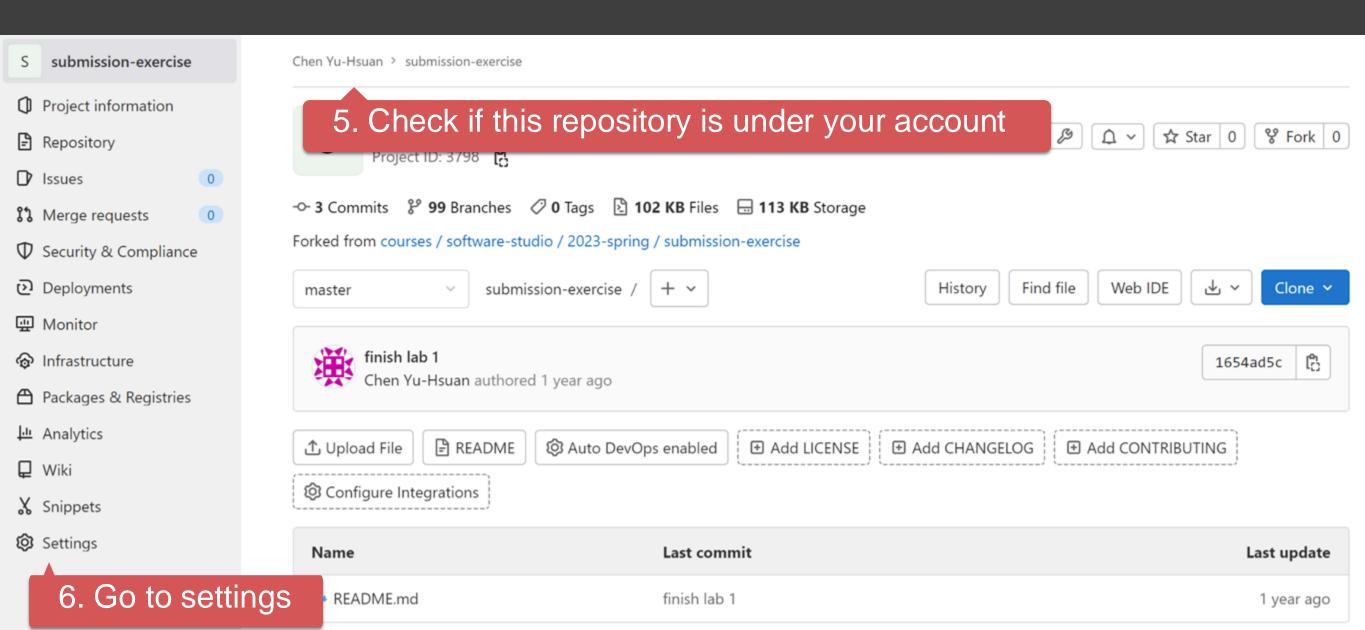
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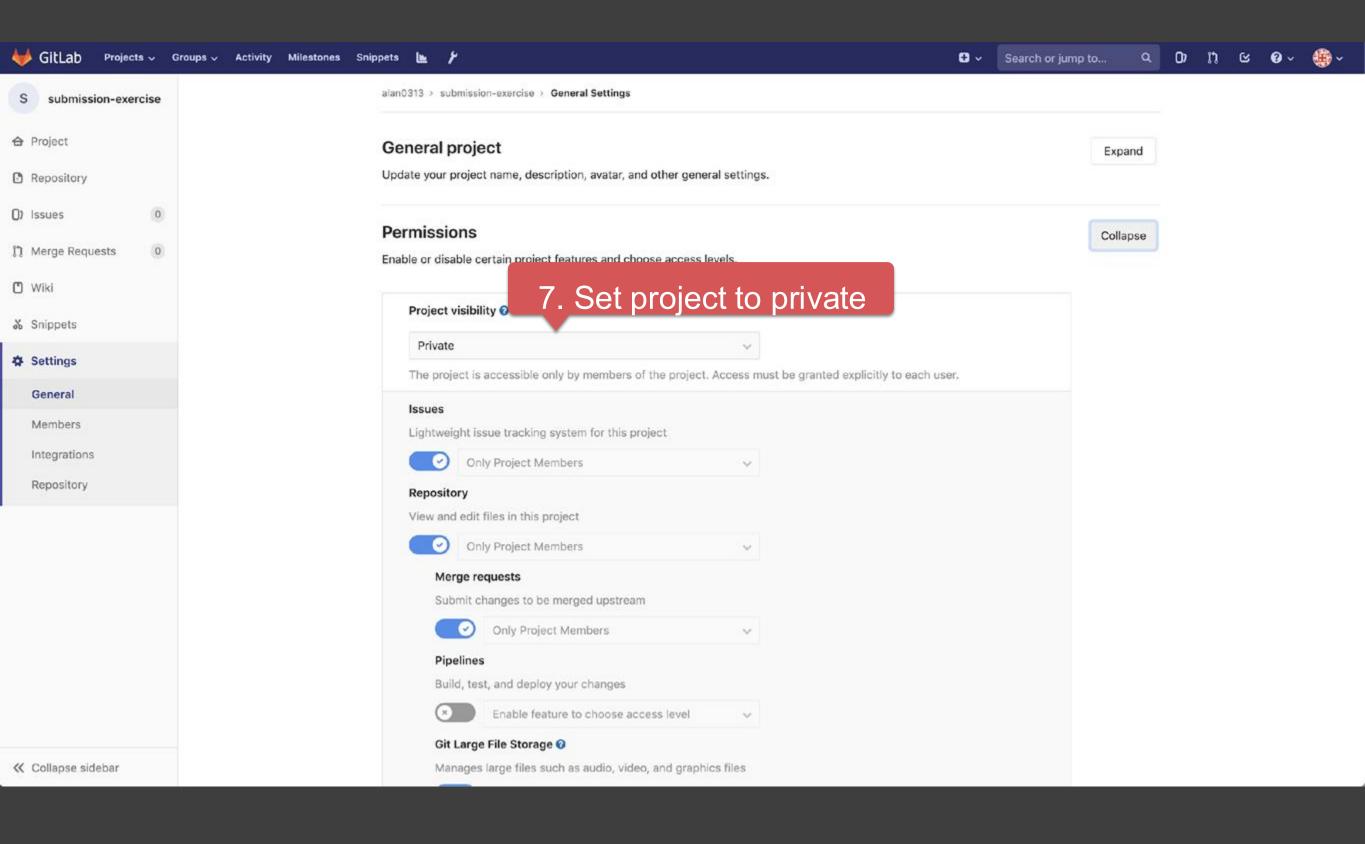
You can access course projects in this group

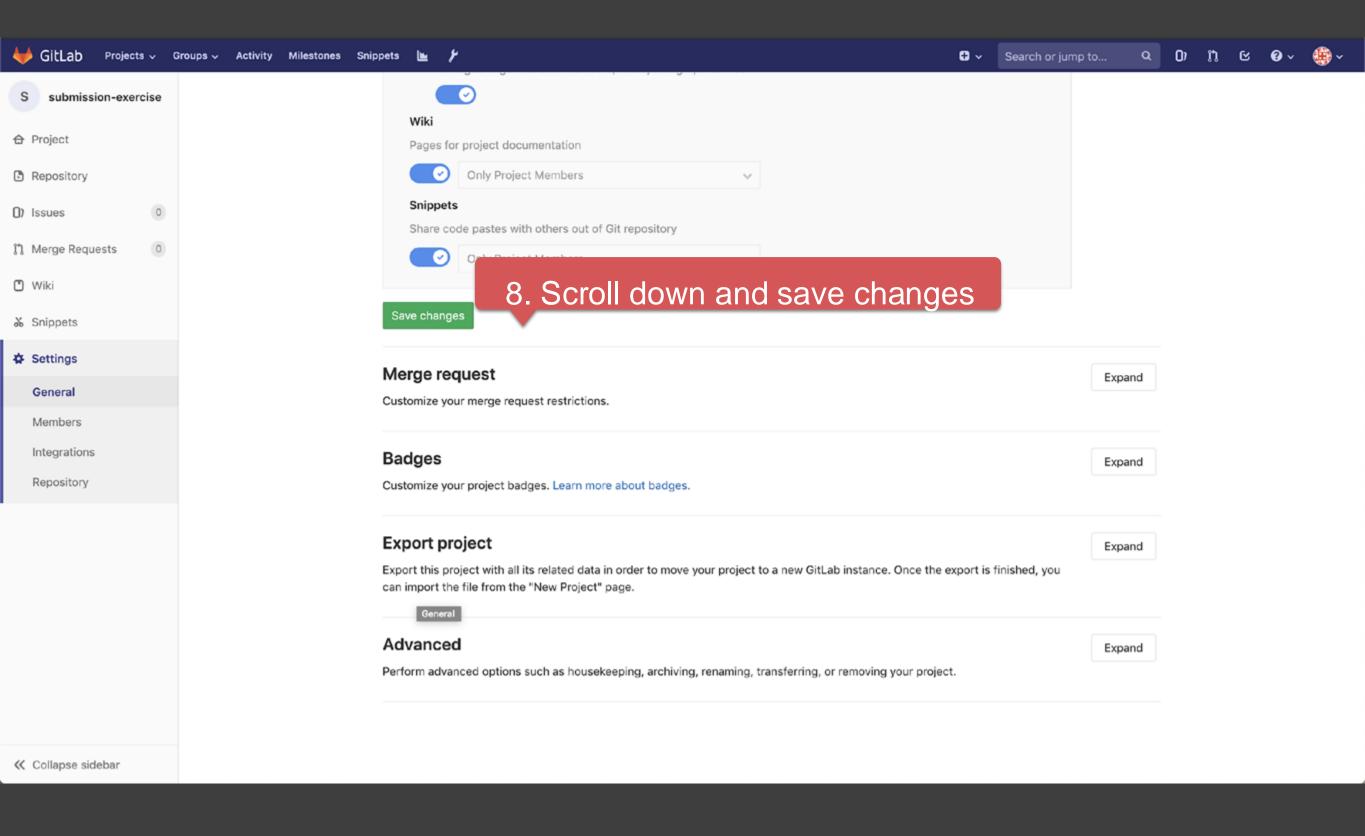






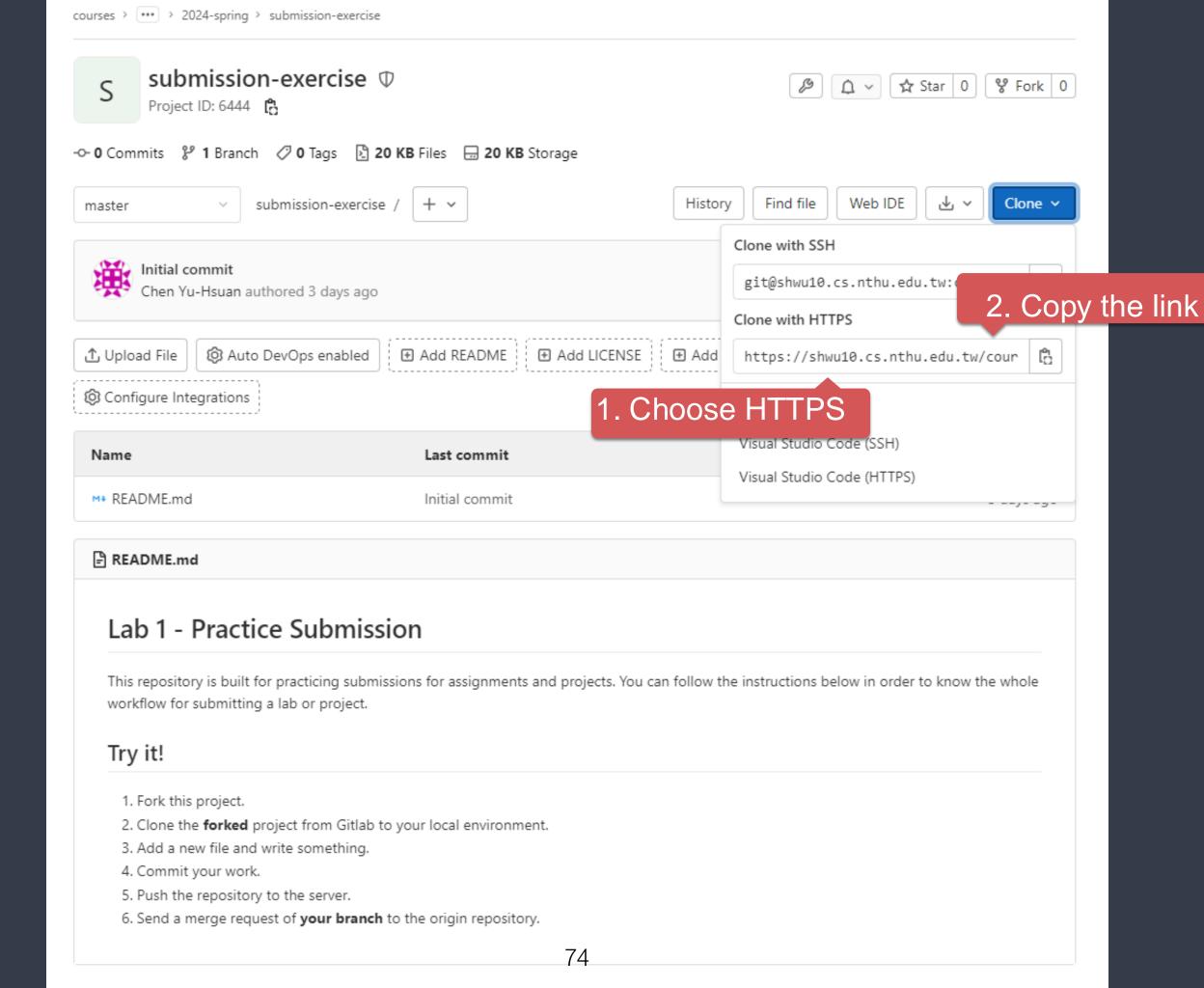




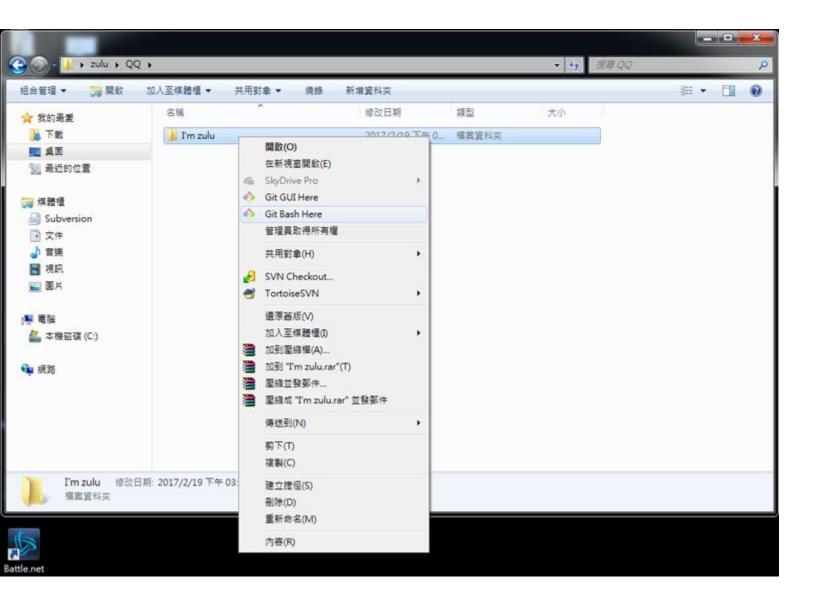


Workflow

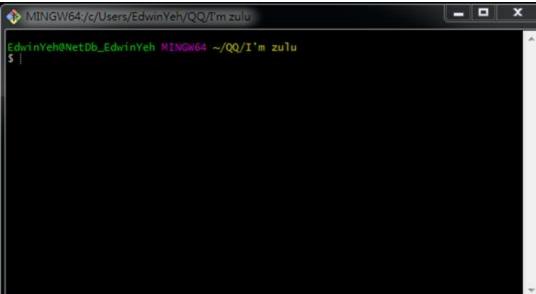
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If You use Windows







3. Create a folder to put your repos

5. The repo has been successfully cloned

Workflow

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```
~/SS-Projects/submission-exercise
                                             vim lab1.js
                                    master
                                                           1. -A means all files
                                             git add -A
~/SS-Projects/submission-exercise
                                    master
                                               git status
~/SS-Projects/submission-exercise
                                     master +
On branch master
Your branch is up-to-date with 'origin/master'.
                                                 2. Check if your file is added to git
Changes to be committed:
 (use "git reset HEAD <file>..." to unstage)
       new file:
                  lab1.js
                                   master +
                                               git commit -m "Finish lab1"
~/SS-Projects/submission-exercise
[master clacaf4] Finish lab1
1 file changed, 1 insertion(+)
                                                         3. Commit your changes
create mode 100644 lab1.js
~/SS-Projects/submission-exercise
                                   7 master
```

```
vim lab1.html
~/SS-Projects/submission-exercise
                                      master
                                      master | git add -A
~/SS-Projects/submission-exercise
~/SS-Projects/submission-exercise
                                      master + git commit -m "Finish lab1"
[master 8a603d9] Finish lab1
Committer: Real Wei < realwei@Realweis-MBP.local>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly:
   git config --global user.name "Your Name"
   git config --global user.email you@example.com
After doing this, you may fix the identity used for this commit wit
    git commit --amend --reset-author
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 lab1.html
~/SS-Projects/submission-exercise
                                     master
```

If you see these message, type git config --global user.name "{name}" git config --global user.email "{email}"

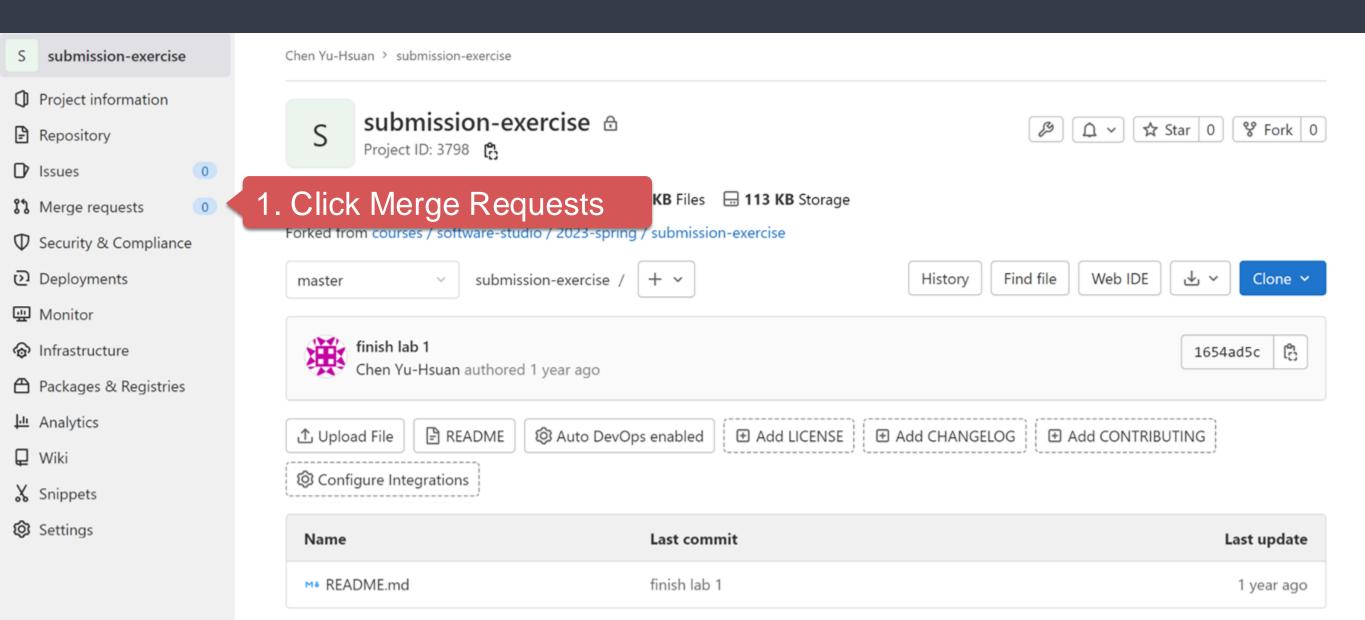
{email} is the email you use on gitlab

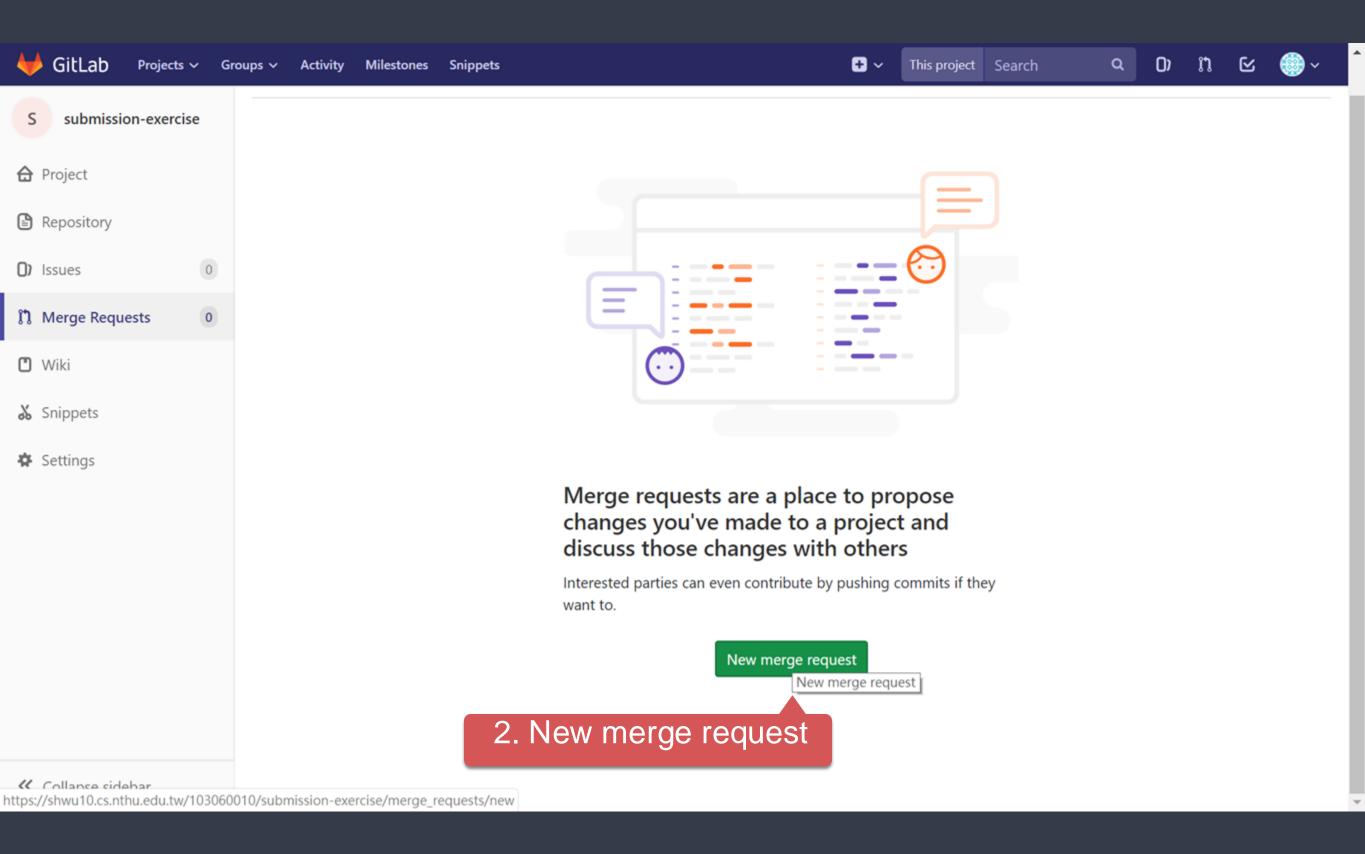
Workflow

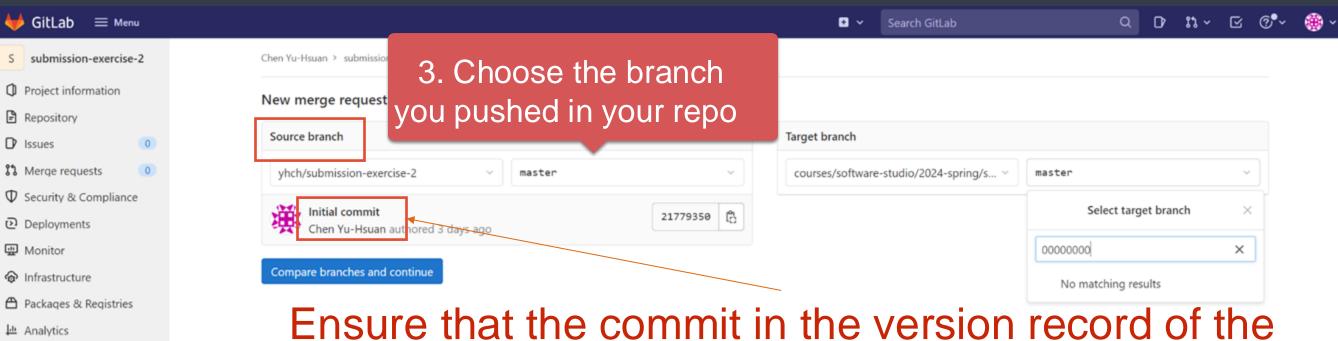
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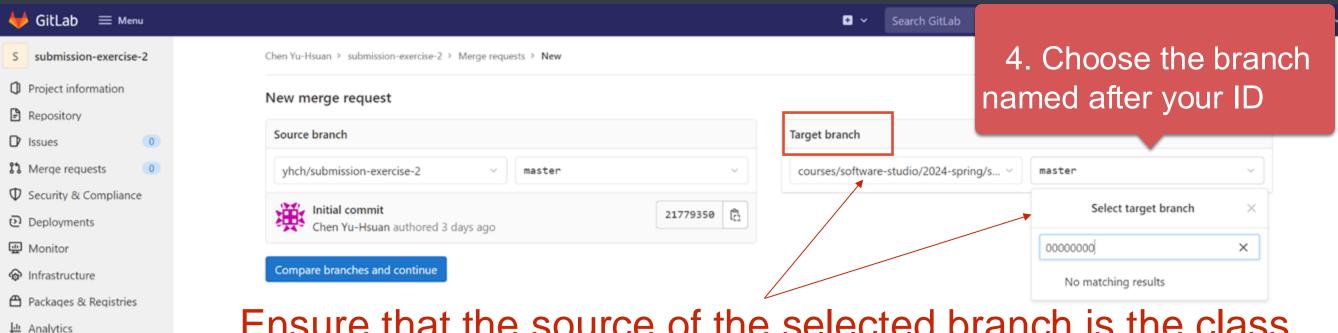




☐ Wiki

SnippetsSettings

selected branch matches the commit name of the final version you have in mind.

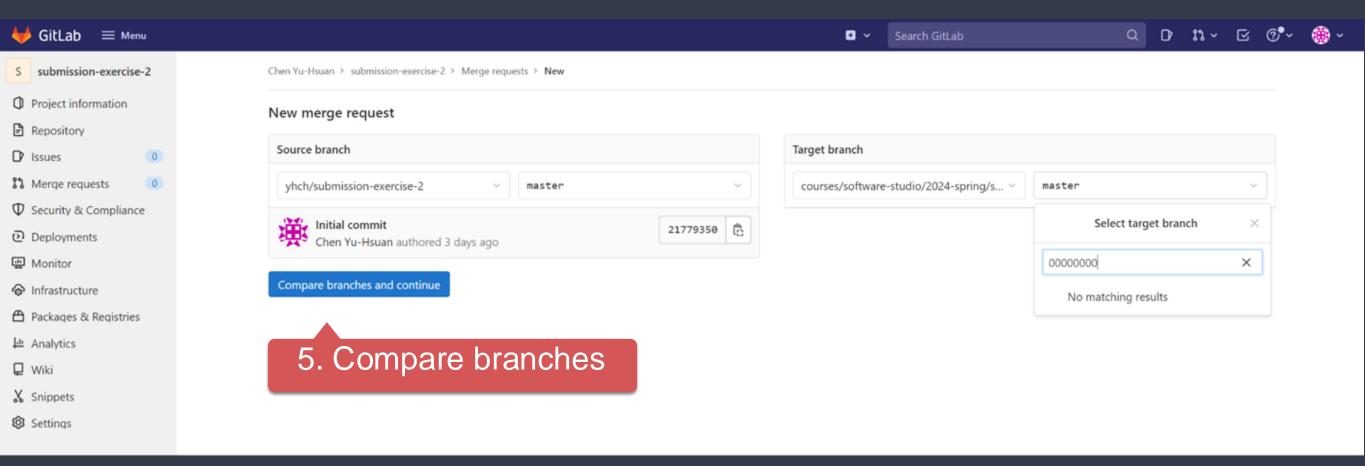


☐ Wiki

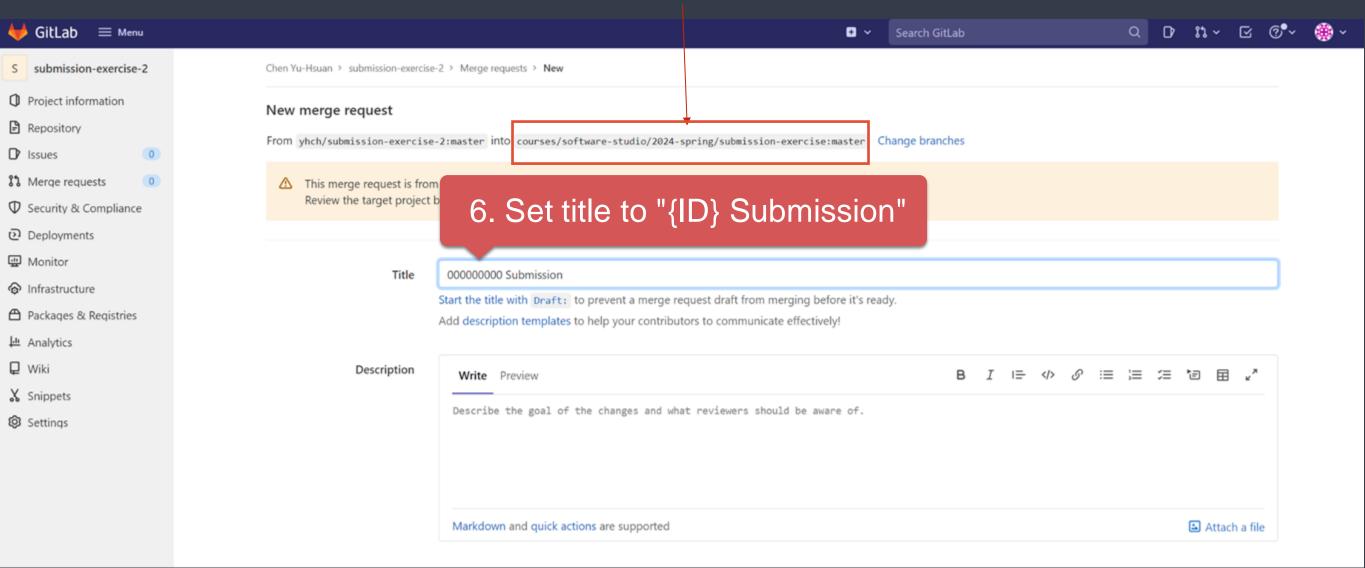
X Snippets

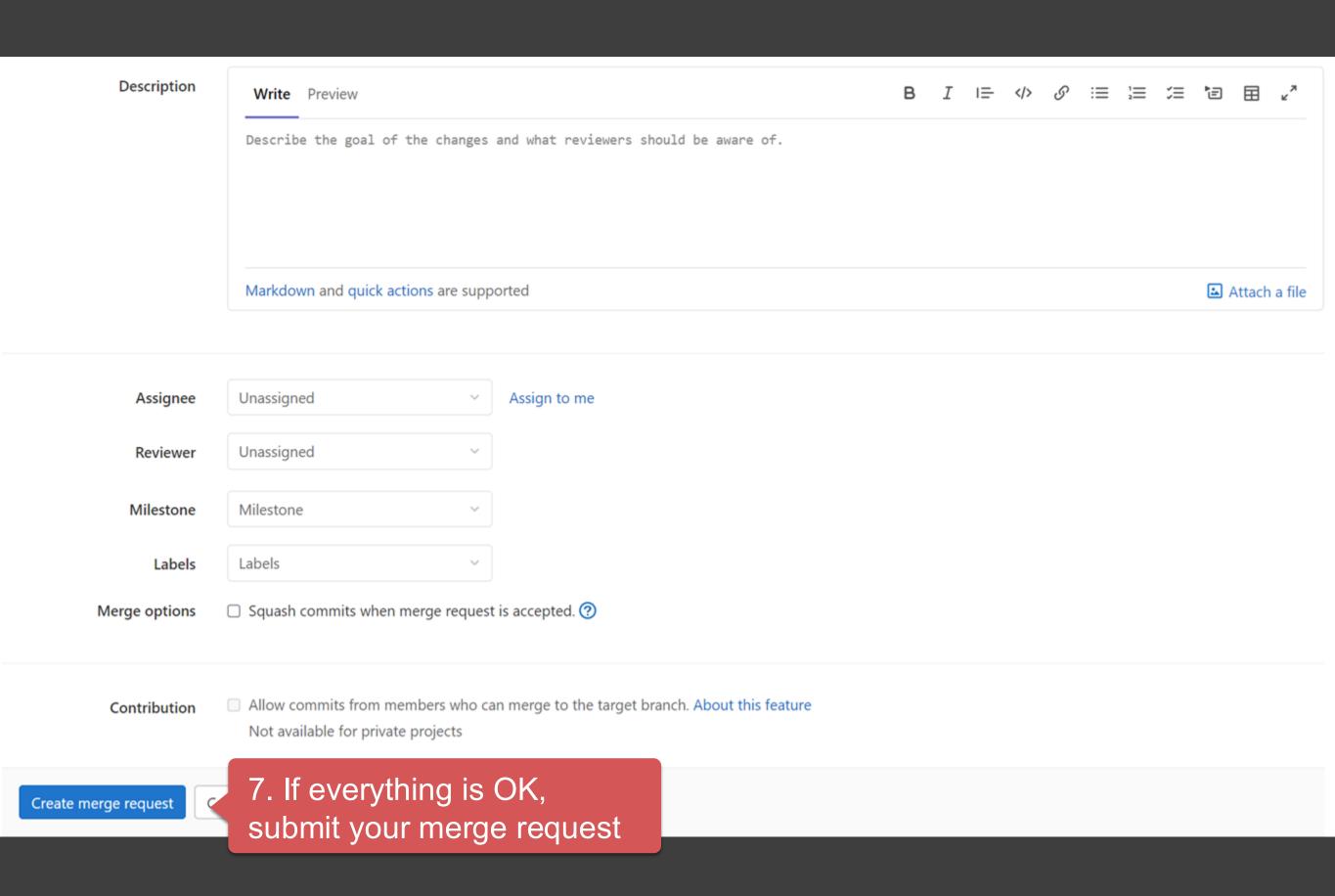
Settings

Ensure that the source of the selected branch is the class folder (courses/software-studio/2024-spring/submission-exercise) and your student ID (not master or someone else's student ID).



You can also confirm or change whether the selected branch is correct in this section. For instance, in the picture, the course branch selected is master, which is incorrect. The correct one should be courses/software-studio/2024-spring/submission-exercise: {your student ID}.





Notice - Don't do this



Notice - Don't do this



約有 8,300,000 項結果 (搜尋時間: 0.45 秒)

GitLab

https://gitlab.com/ ▼ 翻譯這個網頁 這項網站搜尋結果說明因為網站的 robots.txt 而無法提供 瞭解詳情

GitLab.com | GitLab

https://about.gitlab.com/gitlab-com/▼翻譯這個網頁

GitLab.com. unlimited free repositories and collaborators. Sign Up. Free public & private repositories and unlimited collaborators. Runs GitLab Enterprise Edition ...

GitLab介紹— Practical guide for git users 0.1 文档

git-tutorial.readthedocs.io/zh/latest/gitlab.html >

GitLab介紹¶. 目前最流行的線上Git專案管理系統可以說是非GitHub 莫屬,對於一般OpenSource的專案選擇使用GitHub做為線上Git專案管理系統即可,也免收任何 ...

GitHub - gitlabhq/gitlabhq: GitLab CE | Please open new issues in our ...

https://github.com/gitlabhq/gitlabhq ▼ 翻譯這個網頁

README.md. GitLab. Build status CE coverage report Code Climate Core Infrastructure Initiative Best Practices. Canonical source. The canonical source of ...

Gitlab - 維基百科,自由的百科全書 - Wikipedia

https://zh.wikipedia.org/zh-tw/Gitlab •

GitLab是一個利用Ruby on Rails開發的開源應用程式,實現一個自代管的Git專案倉庫,可通過Web介面進行存取公開的或者私人專案。 它擁有與GitHub類似的功能, ...

Notice - Don't do this

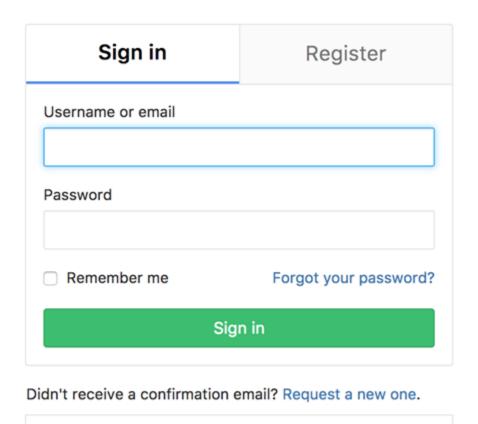
GitLab.com

GitLab.com offers free unlimited (private) repositories and unlimited collaborators.

- Explore projects on GitLab.com (no login needed)
- More information about GitLab.com
- GitLab.com Support Forum

By signing up for and by signing in to this service you accept our:

- Privacy policy
- · GitLab.com Terms.



Sign in with g

The GitLab setup in our laboratory is accessible through the link.

Shan-Hung Wu

Description

Announcement

Curriculum -

Resources

Resources

Here are some course materials and resources related to this course. For code and its details (such as assigned reading, project links, quiz, etc.) please refer to the GitLab. For online forum please refer to the iLMS system.



Here!!!!!

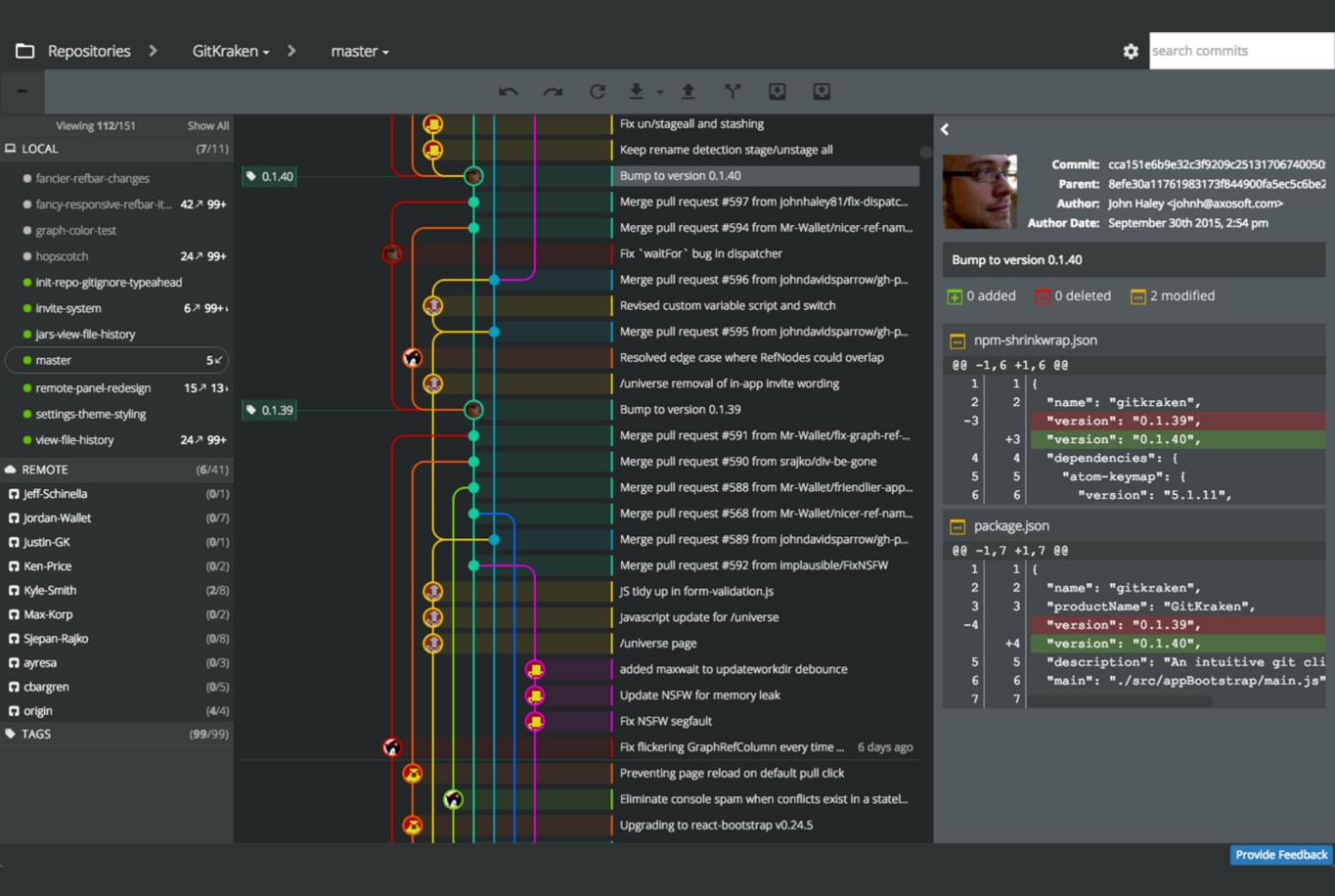
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Tools

- Git GUI
 - GitKraken
- Editor / IDE
 - Visual Studio Code
 - Atom
 - Sublime Text
 - Brackets
 - Notepad++
 - Webstorm





XI VS Code

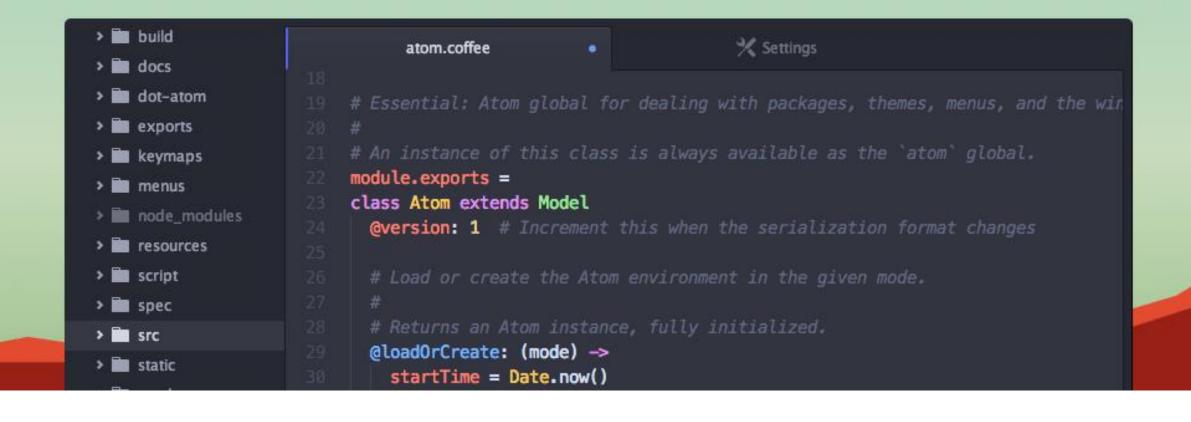
```
Ⅲ 🖗 ×
      EXPLORE
                                 navigation.js js
                                   1 var scriptbase = _spPageContextInfo.webServerRelativeUrl + "/_layouts/15/";
     03.jpg img
                                    $(document).ready(function () {

▲ TBL-STYLES

                                        $.getScript(scriptbase + "SP.Runtime.js", function () {
                                            $.getScript(scriptbase + "SP.js", function () {
       ▶ CSS
                                                $.getScript(scriptbase + "SP.Taxonomy.js", function () {
       ▶ img
                                                   context = SP.ClientContext.get_current();
       ⊿ js
                                                   //Call your code here.
                                                   console.log("Navigation - ready to rock.");
          hoverIntent.js
         jquery.dropdown.js
                                                   // Get default termstore
         jquery.more.js
                                                   session = SP.Taxonomy.TaxonomySession.getTaxonomySession(context);
         jquery.more.min.js
                                                   termStore = session.getDefaultSiteCollectionTermStore();
         jquery.plugin.js
                                                   context.load(session);
         jquery.plugin.min.js
                                                    context.load(termStore);
                                                    context.executeQueryAsync(
         mapper.js
                                                       function () {
         maputil.js
                                                           console.log('Got default term store');
         navigation.js
                                                       },
                                                       function(sender, args) {
         smoothscroll.js
                                                           console.log('Could not get default term store. ' + args.get_message());
         tabs.js
                                                   );
                                                });
                                            });
                                        });
                                 30 });
                                 32 var topnavbar;
                                 34 topnavbar +=
                                                    '<div class="tbl-site-navigation">';
                                                        '';
                                 35 topnavbar +=
                                                        '<a href="#">The Brand Code - a</a>';
                                  36 topnavbar +=
                                                       '';
                                  37 topnavbar +=
                                                           '';
                                 38 topnavbar +=
                                 39 topnavbar +=
                                                               '';
                                                                   '<div class="dropdownbox">';
                                 40 topnavbar +=
                                                                      '<div class="dropdownbox-title">Welcome to the Brand Code</div>';
                                 41 topnavbar +=
                                                                      '';
                                 42 topnavbar +=
                                 43 topnavbar +=
                                                                          '<a href="">The importance of Brand Building</a>';
                                                                          ''<a href="">Introduction to the Brand Code</a>';
                                 44 topnavbar +=
                                                                          ''<a href="">You and the Brand Code</a>';
                                 45 topnavbar +=
                                                                      '';
                                 46 topnavbar +=
                                                                  '</div>';
                                 47 topnavbar +=
Ln 38, Col 72 UTF-8 CRLF
                                                                                                                                                                         JavaScript
```



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 \cap

Reference

- Learn Git branching (interactive)
 - http://pcottle.github.io/learnGitBranching/
- Pro Git
 - http://git-scm.com/book/
- · 寫給大家的 Git 教學
 - http://www.slideshare.net/littlebtc/git-5528339

Today's exercise

- Install Git command line tool in your computer.
 - Follow appendix "Git Command-line Tool Installation".
- Try to submit in GitLab.