

# 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



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馮邵哲



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方竣平



Tzu-Ling Hsieh

謝紫翎

# How to Find Us?

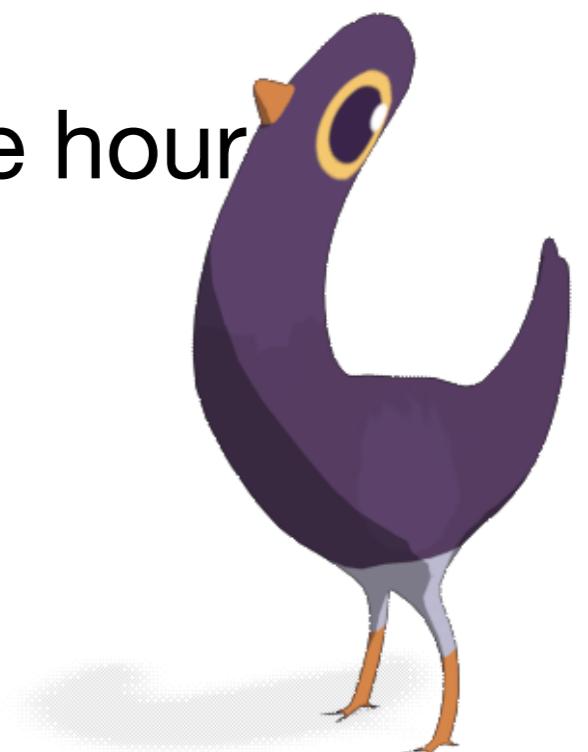
- Office Hour (TAs)
  - Tue. 1:30pm-3:30pm at Delta 729
  - Thur. 10:00am-12:00pm at Delta 729
- Email
  - [ssta2025@datalab.cs.nthu.edu.tw](mailto:ssta2025@datalab.cs.nthu.edu.tw)
- Online Forum
  - eeclass

# If I have Question?



# If I have Question?

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



# Today's exercise

- Install Git command line tool in your computer
  - Follow appendix “Git Command-line Tool Installation”.
- Try to submit in GitLab.
- Set up flutter environment (If we have time)

# Outline

- General Rule
- Introduction to Git
- Version control
- Branch and merge
- How to Submit Your Code to Gitlab
- Tools & References

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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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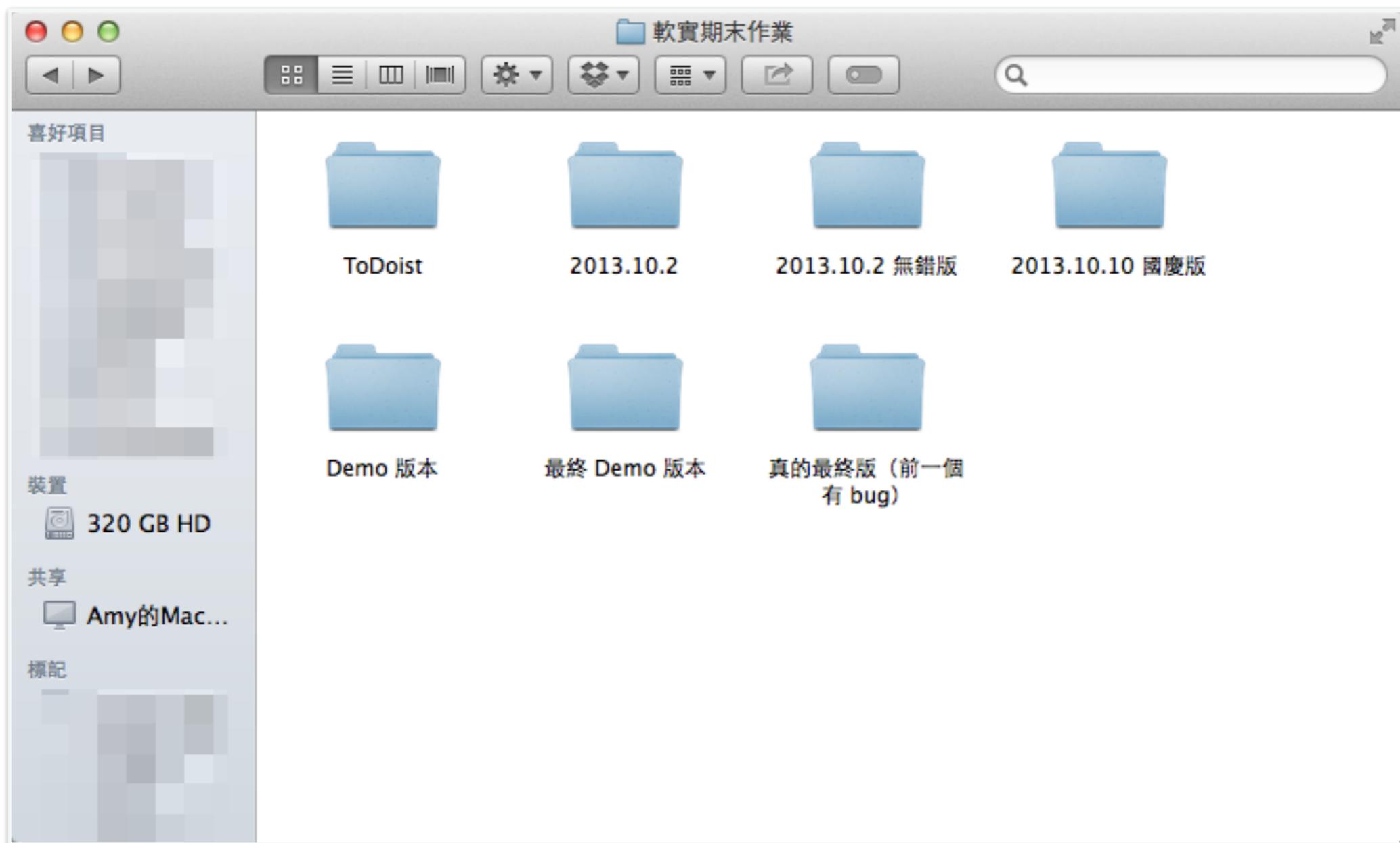
# Why should we use version control?

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

# Why use version control system?

- 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.

# Students' VCS



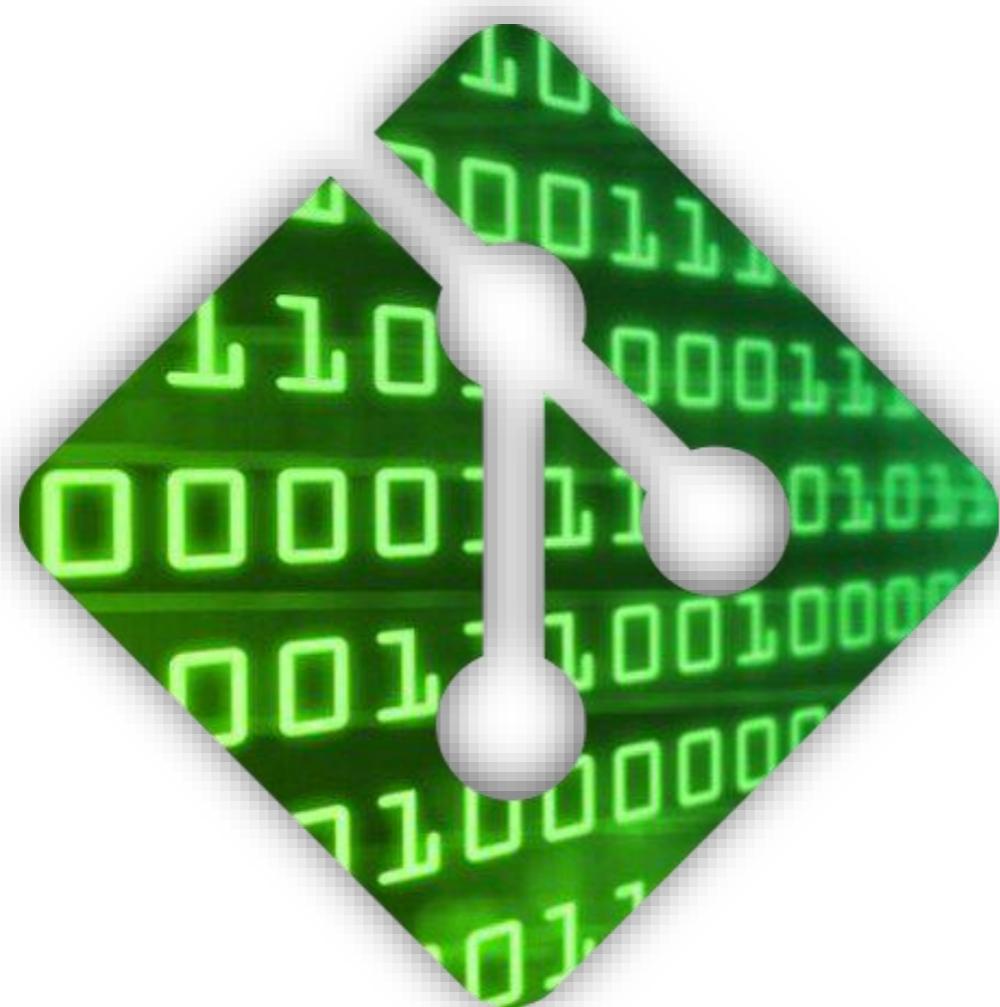
# Git



# 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.

# Be Professional



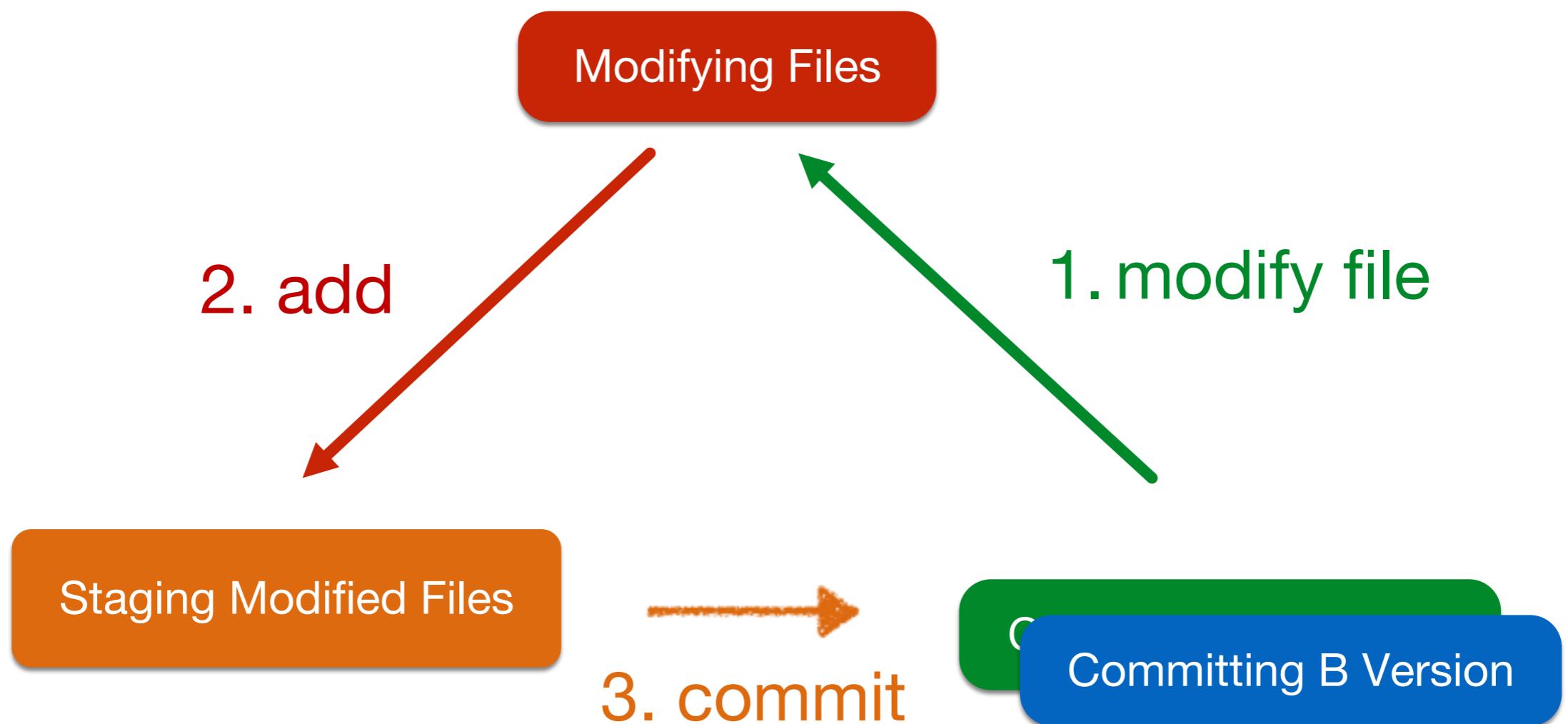
# Outline

- General Rule
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# Git VCS (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 VCS (2/2)

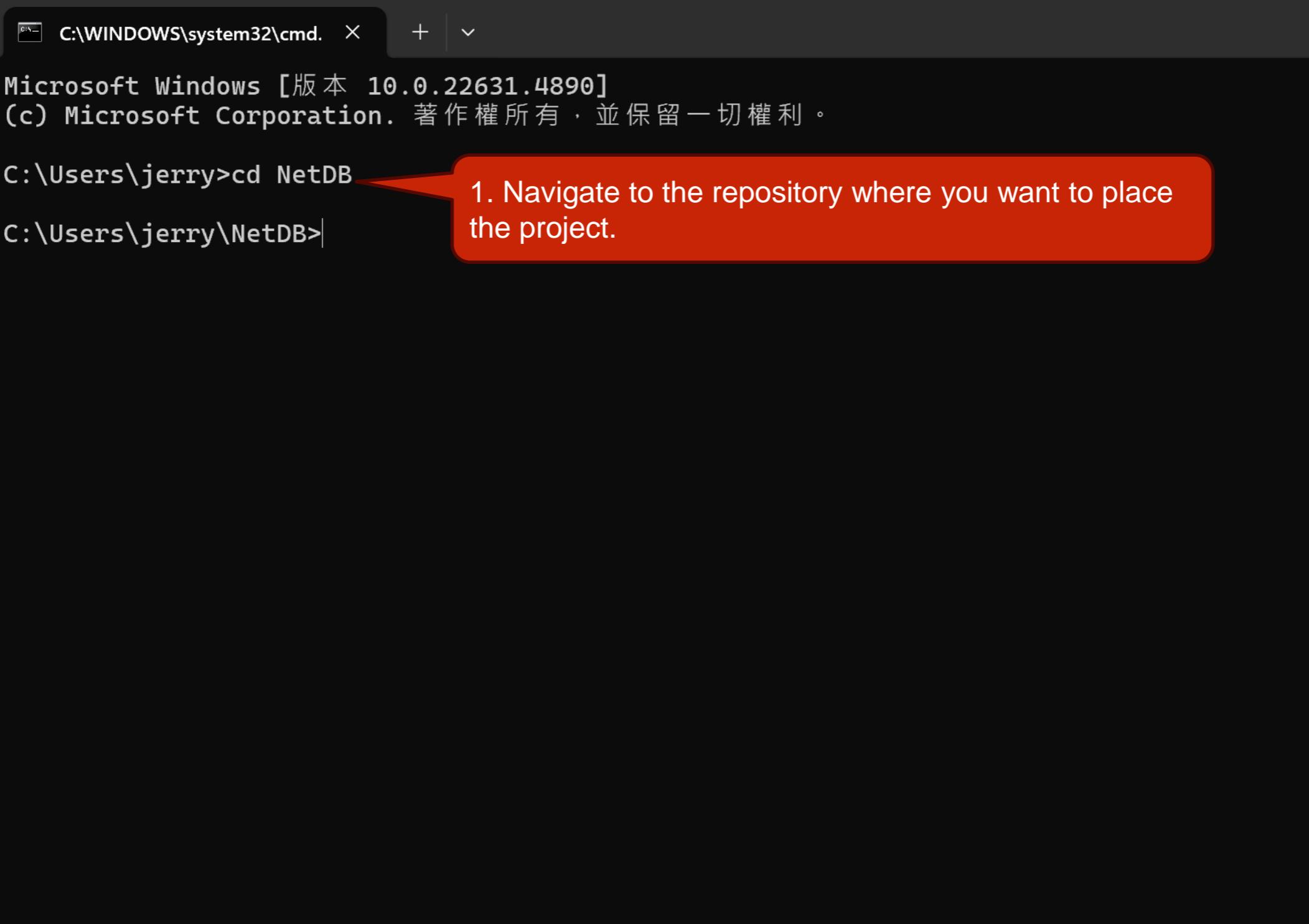


# Basic Git Commands

- **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.

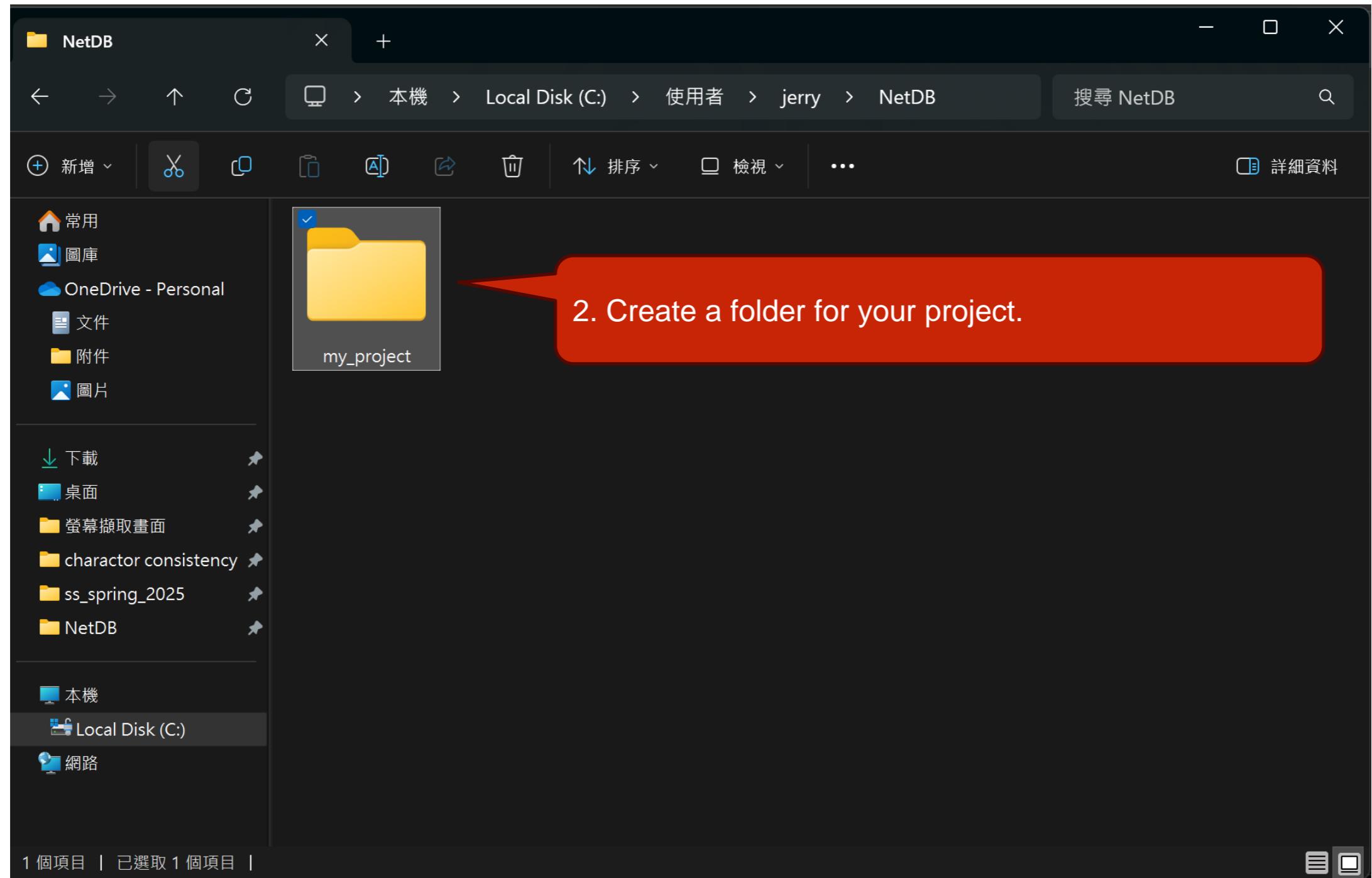
# scenario

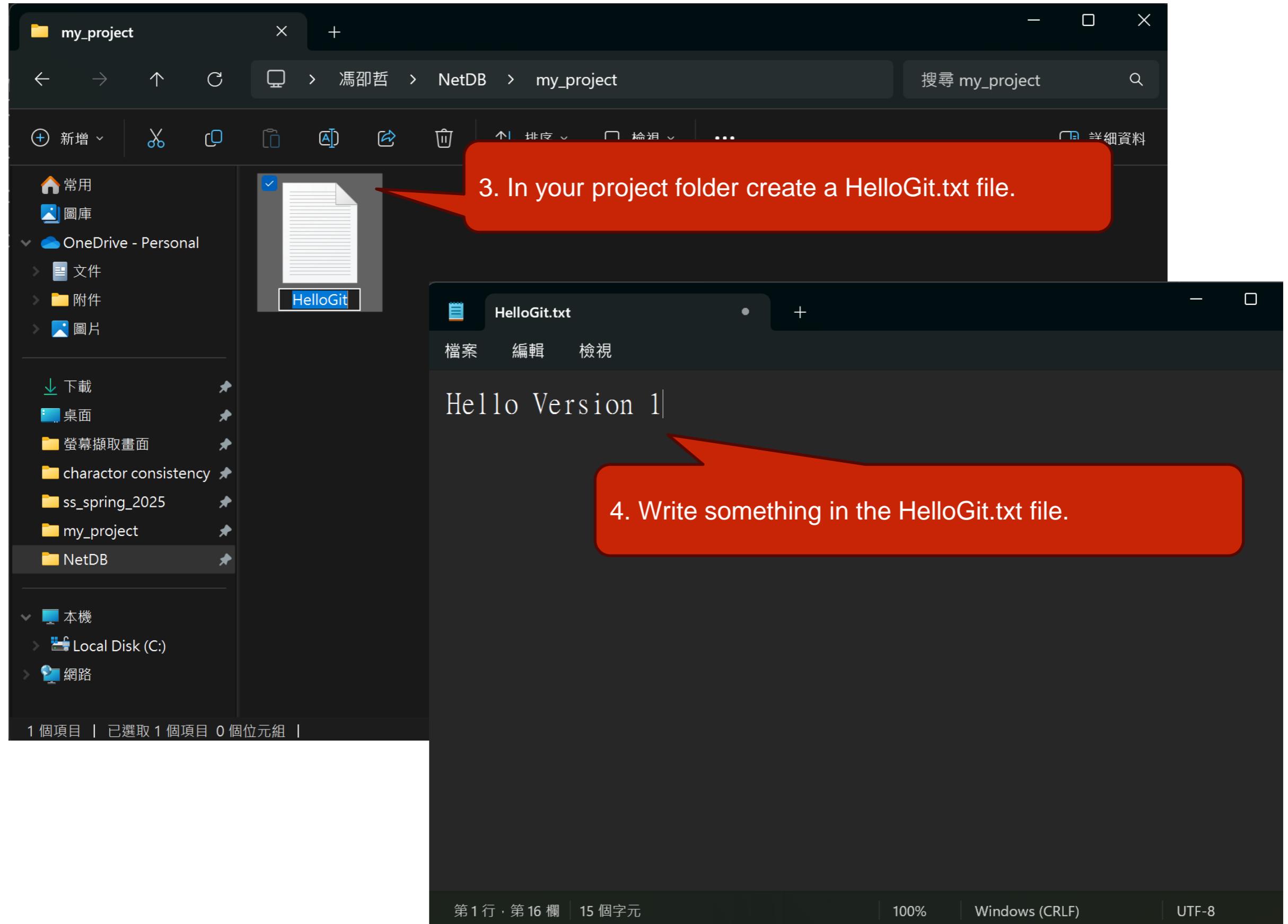
- Create a project repository and initialize Git, and track the *HelloGit.txt* file for version control.



```
C:\WINDOWS\system32\cmd.  X  +  |  v  
Microsoft Windows [版本 10.0.22631.4890]  
(c) Microsoft Corporation. 著作權所有，並保留一切權利。  
C:\Users\jerry>cd NetDB  
C:\Users\jerry\NetDB>
```

1. Navigate to the repository where you want to place the project.





```
C:\WINDOWS\system32\cmd. × + ▾  
Microsoft Windows [版本 10.0.22631.4890]  
(c) Microsoft Corporation. 著作權所有，並保留一切權利。  
  
C:\Users\jerry>cd NetDB  
5. Navigate to the project fold.  
  
C:\Users\jerry\NetDB>cd my_project  
6. Use the "dir" command to list the contents of a  
   folder. (if windows)  
  
C:\Users\jerry\NetDB\my_project>dir  
磁碟區 C 中的磁碟是 Local Disk  
磁碟區序號： 8697-6595  
  
C:\Users\jerry\NetDB\my_project 的目錄  
  
2025/02/18 下午 07:48 <DIR> .  
2025/02/18 下午 07:47 <DIR> ..  
2025/02/18 下午 07:49 15 HelloGIT.TXT.TXT  
    1 個檔案 15 位元組  
    2 個目錄 190,638,534,656 位元組可用  
  
C:\Users\jerry\NetDB\my_project>git init  
7. Use the "git init" command to initialize a Git  
   repository.  
C:\Users\jerry\NetDB\my_project>
```

```
C:\WINDOWS\system32\cmd. × + ▾  
Microsoft Windows [版本 10.0.22631.4890]  
(c) Microsoft Corporation. 著作權所有，並保留一切權利。  
C:\Users\jerry>cd NetDB  
C:\Users\jerry\NetDB>cd my_project  
C:\Users\jerry\NetDB\my_project>dir  
磁碟區 C 中的磁碟是 Local Disk  
磁碟區序號： 8697-6595  
C:\Users\jerry\NetDB\my_project 的目錄  
2025/02/18 下午 07:55 <DIR> .  
2025/02/18 下午 07:47 <DIR> ..  
2025/02/18 下午 07:55 0 HelloGit.txt  
1 個檔案 0 位元組  
2 個目錄 190,626,844,672 位元組可用  
C:\Users\jerry\NetDB\my_project>git init  
Initialized empty Git repository in C:/Users/jerry/NetDB/my_project/.git/  
C:\Users\jerry\NetDB\my_project>git add HelloGit.txt  
C:\Users\jerry\NetDB\my_project>git commit -m "version 1"  
[master (root-commit) 3c0e49e] version 1  
1 file changed, 0 insertions(+), 0 deletions(-)  
create mode 100644 HelloGit.txt  
C:\Users\jerry\NetDB\my_project>
```

8. Use the “git add” command to add HelloGit.txt to staging file.

9. Use the “git commit –m” command to commit the change.

The screenshot shows a Windows terminal window with a dark theme. At the top, there's a tab bar with 'HelloGit.txt' selected. Below it, a menu bar has '檔案' (File) highlighted. The main area of the terminal displays the following command-line session:

```
C:\Users\jerry\NetDB\my_project>dir
磁碟區 C 中的磁碟是 Local Disk
磁碟區序號： 8697-6595

C:\Users\jerry\NetDB\my_project 的目錄

2025/02/18 下午 08:03    <DIR>      .
2025/02/18 下午 08:03    <DIR>      ..
2025/02/18 下午 08:04            15 HelloGit.txt
          1 個檔案           15 位元組
          2 個目錄   190,627,364,864 位元組可用

C:\Users\jerry\NetDB\my_project>git init
Initialized empty Git repository in C:/Users/jerry/NetDB/my_project/.git/

C:\Users\jerry\NetDB\my_project>git add HelloGit.txt
11. Add It and commit again.

C:\Users\jerry\NetDB\my_project>git commit -m "version 1"
[master (root-commit) 7135d48] version 1
 1 file changed, 1 insertion(+)
  create mode 100644 HelloGit.txt

C:\Users\jerry\NetDB\my_project>git add HelloGit.txt
10. Modify the hello.txt and save the change.

C:\Users\jerry\NetDB\my_project>git commit -m "version 2"
[master 7a9ac7f] version 2
 1 file changed, 1 insertion(+), 1 deletion(-)

C:\Users\jerry\NetDB\my_project>
```

Annotations with red arrows and boxes highlight specific steps:

- A red arrow points from the text "Hello version 2" in the code editor to the step "10. Modify the hello.txt and save the change." in the terminal history.
- A red arrow points from the command "git add HelloGit.txt" in the terminal to the step "11. Add It and commit again." in the terminal history.

```
C:\WINDOWS\system32\cmd. + ▾ C:\Users\jerry\NetDB\my_project>git init  
Initialized empty Git repository in C:/Users/jerry/NetDB/my_project/.git/  
  
C:\Users\jerry\NetDB\my_project>git add HelloGit.txt  
  
C:\Users\jerry\NetDB\my_project>git commit -m "version 1"  
[master (root-commit) 7135d48] version 1  
 1 file changed, 1 insertion(+)  
 create mode 100644 HelloGit.txt  
  
C:\Users\jerry\NetDB\my_project>git  
  
C:\Users\jerry\NetDB\my_project>git  
[master 7a9ac7f] version 2  
 1 file changed, 1 insertion(+), 1 deletion(-)  
  
C:\Users\jerry\NetDB\my_project>git log  
commit 7a9ac7fd7121170f61cca5e69d29ec423f987911 (HEAD -> master)  
Author: jerry <jerryfeng1103@gmail.com>  
Date:   Tue Feb 18 20:05:49 2025 +0800  
  
    version 2  
  
commit 7135d48a4ed19a2bb13a85408e1669ed8aa8340b  
Author: jerry <jerryfeng1103@gmail.com>  
Date:   Tue Feb 18 20:04:50 2025 +0800  
  
    version 1  
  
C:\Users\jerry\NetDB\my_project>
```

10. Use the “git log” command to view your versions.

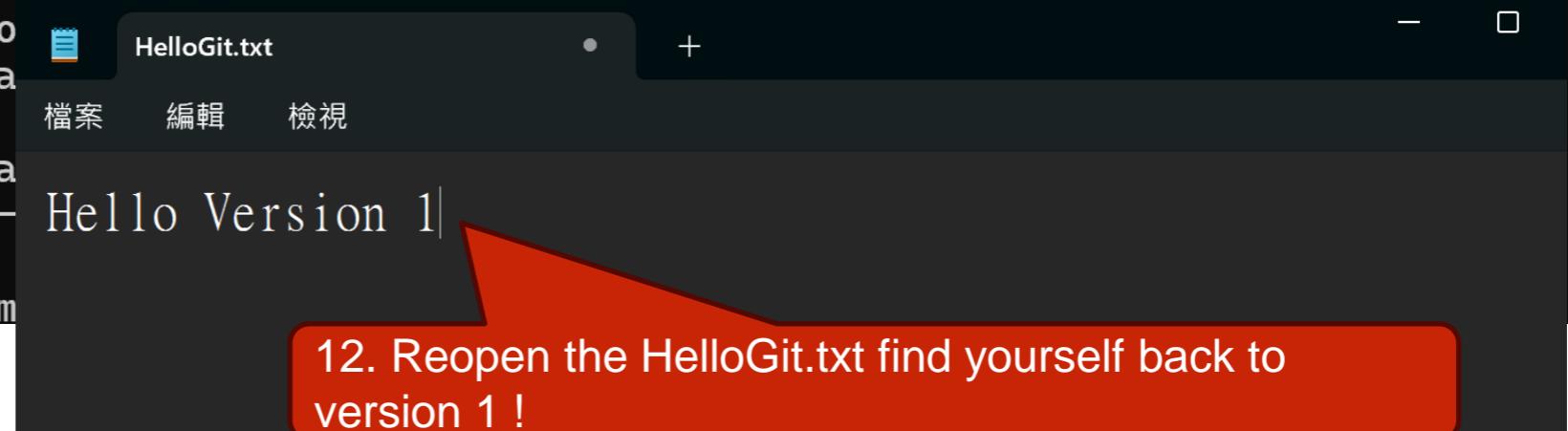
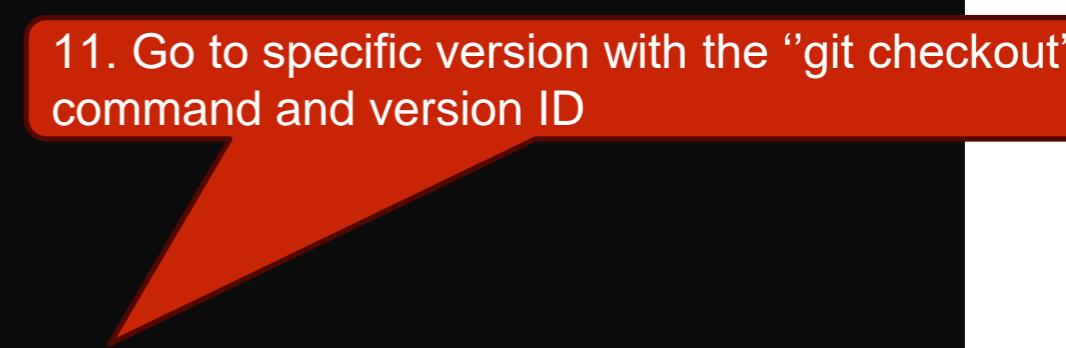
**Head:**

A reference to where you are currently working on.

**Master:**

The default branch in a Git repository, typically where the final, stable version of the project is maintained.

```
C:\WINDOWS\system32\cmd. × + ▾  
Switched to branch 'master'  
  
C:\Users\jerry\NetDB\my_project>git log  
commit 7a9ac7fd7121170f61cca5e69d29ec423f987911 (HEAD -> master)  
Author: jerry <jerryfeng1103@gmail.com>  
Date: Tue Feb 18 20:05:49 2025 +0800  
  
version 2      Version ID  
commit 7135d48a4ed19a2bb13a85408e1669ed8aa8340b  
Author: jerry <jerryfeng1103@gmail.com>  
Date: Tue Feb 18 20:04:50 2025 +0800  
  
version 1  
  
C:\Users\jerry\NetDB\my_project>git checkout 7135d48a4ed19a2bb13a85408e1669ed8aa8340b  
Note: switching to '7135d48a4ed19a2bb13a85408e1669ed8aa8340b'.  
  
You are in 'detached HEAD' state. You can look around, make experimental  
changes and commit them, and yo state without impacting any bra  
If you want to create a new bra do so (now or later) by using - git switch -c <new-branch-nam  
git switch -c <new-branch-nam
```



11. Go to specific version with the "git checkout" command and version ID

12. Reopen the HelloGit.txt find yourself back to version 1 !

```
C:\WINDOWS\system32\cmd. + ^

commit 7a9ac7fd7121170f61cca5e69d29ec423f987911 [master]
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 20:05:49 2025 +0800

version 2

commit 7135d48a4ed19a2bb13a85408e1669ed8aa8340b [HEAD]
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 20:04:50 2025 +0800

version 1

C:\Users\jerry\NetDB\my_project>git checkout master
Previous HEAD position was 7135d48 version 1
Switched to branch 'master'

C:\Users\jerry\NetDB\my_project>git log
commit 7a9ac7fd7121170f61cca5e69d29ec423f987911 [HEAD -> master]
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 20:05:49 2025 +0800

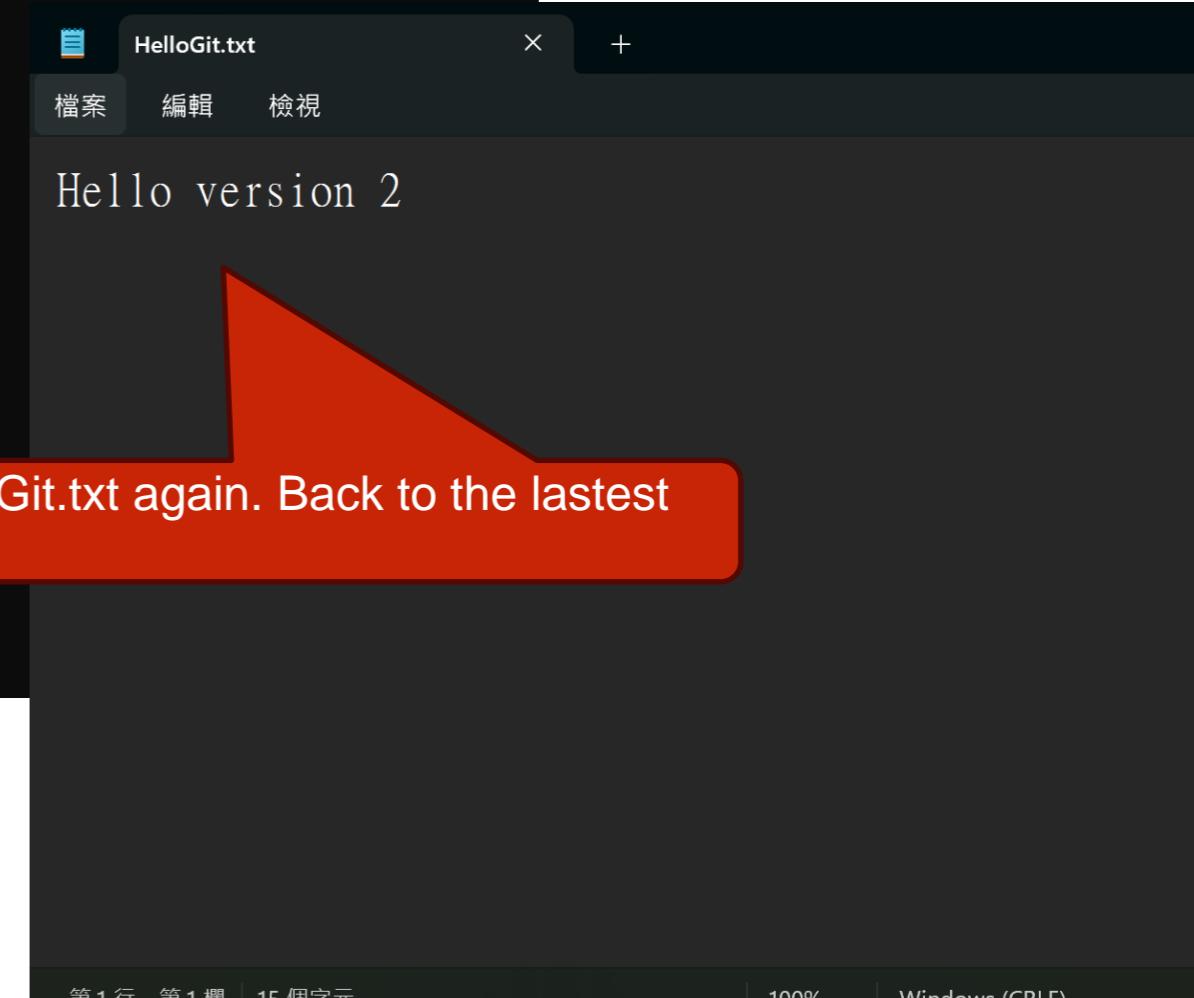
version 2

commit 7135d48a4ed19a2bb13a85408e1669ed8aa8340b
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 20:04:50 2025 +0800

version 1

C:\Users\jerry\NetDB\my_project>
```

13. Use the “git checkout master” command to go back to the final version of your project



14. Reopen the HelloGit.txt again. Back to the lastest version.

LIFE IS  
TOO SHORT  
TO TYPE THAT  
VERSION ID,

which is 40 characters long...

```
C:\WINDOWS\system32\cmd. > + | C:\WINDOWS\system32\cmd. >
```

```
C:\Users\jerry\NetDB\my_project>git log
commit 7a9ac7fd7121170f61cca5e69d29ec423f987911 (HEAD -> master)
Author: jerry <jerryfeng1103@gmail.com>
Date:   Tue Feb 18 20:05:49 2025 +0800

    version 2

commit 7135d48a4ed19a2bb13a85408e1669ed8aa8340b
Author: jerry <jerryfeng1103@gmail.com>
Date:   Tue Feb 18 20:04:50 2025 +0800

    version 1

C:\Users\jerry\NetDB\my_project>git log --oneline
7a9ac7f (HEAD -> master) version 2
7135d48 version 1

C:\Users\jerry\NetDB\my_project>git checkout 7135d48
Note: switching to '7135d48'.
```

You are in 'detached HEAD' state. You can make changes and commit them, and you can discard state without impacting any branches by switching back to a branch. If you want to create a new branch to retain this state, do so (now or later) by using -c with the switch command.  
git switch -c <new-branch-name>

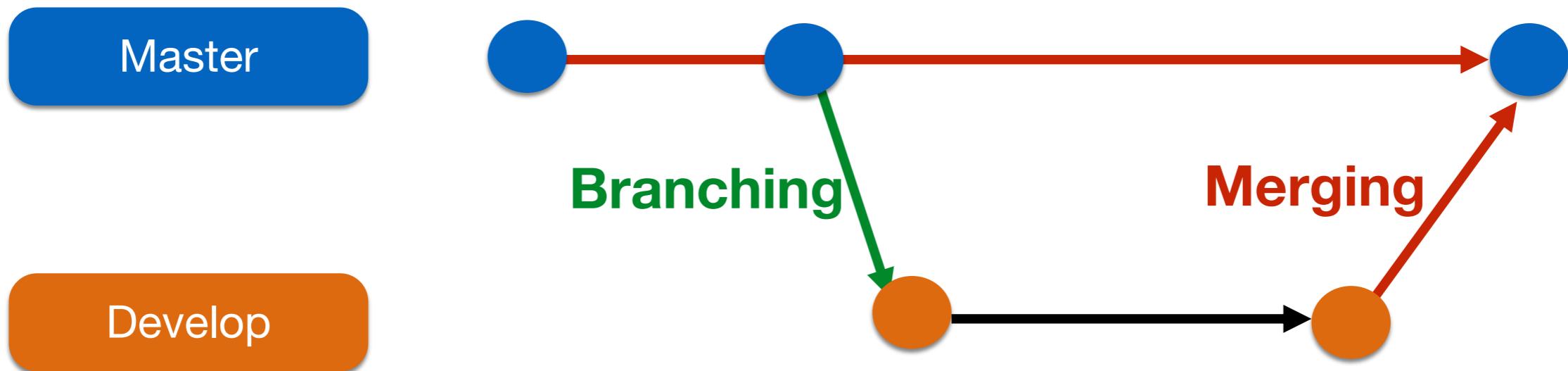
15. Use the “git log --oneline” command to get the shorter version ID.

16. Use shorter version ID to check specific version.

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# Git Branch



# Git commands (1/2)

- Branching steps
  - Creating a new branch

`git branch [branch name]`

- Checking out the branch

`git checkout [branch name]`

# Git commands (2/2)

- Merging steps
  - Checking out a branch to merge

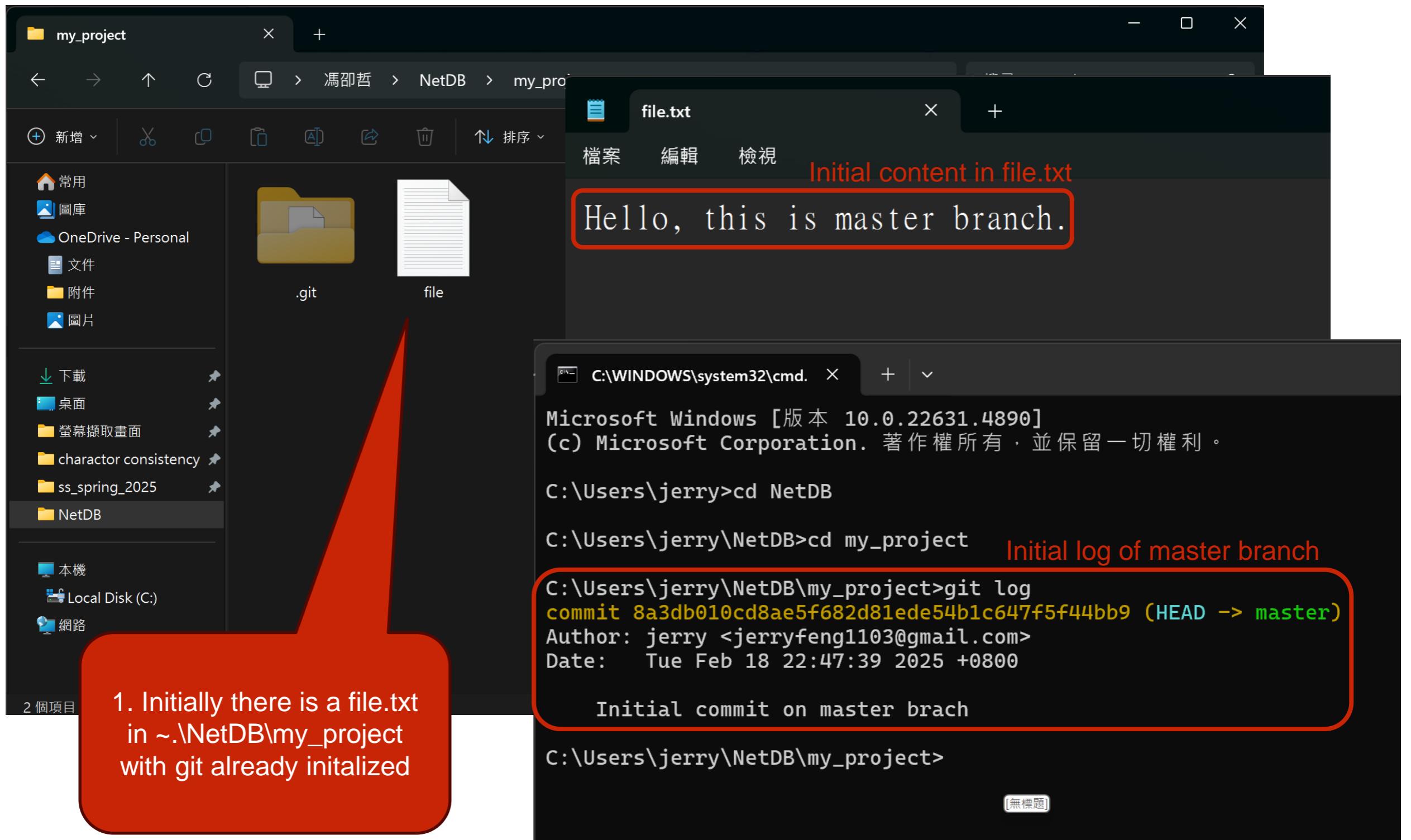
```
git checkout [branch 1 name]
```

- Merging another branch

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

# scenario

- Assume you are working on a new feature in a Git repository and want to create a separate branch work on it and then merge it back into master branch
-



```
C:\WINDOWS\system32\cmd. + ▾  
Microsoft Windows [版本 10.0.22631.4890]  
(c) Microsoft Corporation. 著作權所有，並保留一切權利。  
C:\Users\jerry>cd NetDB  
C:\Users\jerry\NetDB>cd my_project  
C:\Users\jerry\NetDB\my_project>git log  
commit 8a3db010cd8ae5f682d81ede54b1c647f5f44bb9 (HEAD ->  
Author: jerry <jerryfeng1103@gmail.com>  
Date:   Tue Feb 18 22:47:39 2025 +0800  
  
    Initial commit on master branch  
C:\Users\jerry\NetDB\my_project>git branch feature-branch  
C:\Users\jerry\NetDB\my_project>git checkout feature-branch  
Switched to branch 'feature-branch'  
C:\Users\jerry\NetDB\my_project>
```

2. Create a new Branch using the “git branch [branch name]” command

3. Switch to the new branch using the “git checkout [branch name]” command

```
file.txt
檔案 編輯 檢視
Hello, this is the master branch.
This is a new feature.
```

3. Make Changes in the feature branch

```
C:\WINDOWS\system32\cmd. + 
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 23:01:19 2025 +0800
Initial commit on master branch
C:\Users\jerry\NetDB\my_project>git branch feature-branch

C:\Users\jerry\NetDB\my_project>git checkout feature-branch
Switched to branch 'feature-branch'

C:\Users\jerry\NetDB\my_project>git add *
C:\Users\jerry\NetDB\my_project>git commit -m "Added a new feature"
[feature-branch dfd304e] Added a new feature
 1 file changed, 1 insertion(+)

C:\Users\jerry\NetDB\my_project>git log
commit dfd304ed1b565bf1c21f3c0a4e9f7cf0b7a8ff8 (HEAD -> feature-branch)
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 23:03:46 2025 +0800

  Added a new feature

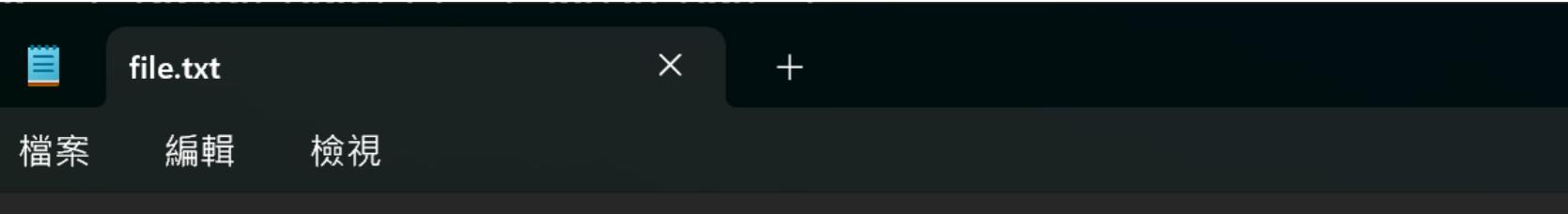
commit fb903f40d1c918951ca48ce41347c805ab203a21 (master)
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 23:01:19 2025 +0800

  Initial commit on master branch

C:\Users\jerry\NetDB\my_project>
```

3. Add and commit the check in feature branch. (use “git add \*” to stage all files in the current directory)

Since we already switch to feature branch. “git log” will show the log in feature branch



Hello, this is the master branch.  
This is a new feature.  
This is a second feature.

3. Perform another change, repeat the previous steps, and observe the Git log.

```
C:\WINDOWS\system32\cmd. × + ▾
Date: Tue Feb 18 23:01:19 2025 +0800
Initial commit on master branch

C:\Users\jerry\NetDB\my_project>git add *
C:\Users\jerry\NetDB\my_project>git commit -m "Addend a second feature"
[feature-branch 22d4ba2] Addend a second feature
 1 file changed, 2 insertions(+), 1 deletion(-)

C:\Users\jerry\NetDB\my_project>git log
commit 22d4ba229447145c0565807a898433f7bf8cbb6e (HEAD -> feature-branch)
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 23:09:08 2025 +0800

  Addend a second feature

commit dfd304ed1b565bf1c21f3c0a4e9f7cf0b7a8ff8
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 23:03:46 2025 +0800

  Added a new feature

commit fb903f40d1c918951ca48ce41347c805ab203a21 (master)
Author: jerry <jerryfeng1103@gmail.com>
Date: Tue Feb 18 23:01:19 2025 +0800

  Initial commit on master branch

C:\Users\jerry\NetDB\my_project>
```

The screenshot shows a Windows Command Prompt window and a file viewer window side-by-side.

**Command Prompt (Top Window):**

- Path: C:\Users\jerry\NetDB\my\_project
- Command: git checkout master
- Output: Switched to branch 'master'

**File Viewer (Bottom Window):**

- File: file.txt
- Content: Hello, this is the master branch.

**Annotations:**

- A red callout points from the "Switch Back to master branch" text to the "git checkout master" command in the cmd window.
- A red callout points from the "The log remains unchanged in the master branch." text to the git log output in the cmd window.
- A red callout points from the "Reopen the file.txt and the content go back to initial" text to the file content in the file viewer window.

A screenshot of a Windows desktop environment. At the top, there is a taskbar with several pinned icons. Below the taskbar, a file editor window titled "file.txt" is open, showing the text "Hello, this is the master branch. How are you?". The word "How" is highlighted with a red rectangle. Below the file editor, a command-line interface (cmd) window is open, showing the following git log output:

```
C:\Users\jerry\NetDB\my_project>git log
commit fb903f40d1c918951ca48ce41347c805ab203a21 (HEAD -> master)
Author: jerry <jerryfeng1103@gmail.com>
Date:   Tue Feb 18 23:01:19 2025 +0800

    Initial commit on master branch
```

Below the log, the user has entered the command "git add \*". The next line shows the result of the commit:

```
C:\Users\jerry\NetDB\my_project>git commit -m "add content to master branch"
[master e3363b1] add content to master branch
 1 file changed, 1 insertion(+)
```

A red callout bubble points from the text "Try to also make change in master branch and commit the change" to the line "[master e3363b1] add content to master branch".

```
C:\WINDOWS\system32\cmd. × + ▾  
C:\Users\jerry\NetDB\my_project>git log master --oneline  
e3363b1 (HEAD -> master) add content to master branch  
fb903f4 Initial commit on master branch  
  
C:\Users\jerry\NetDB\my_project>git log feature-branch --oneline  
22d4ba2 (feature-branch) Addend a second feature  
dfd304e Added a new feature  
fb903f4 Initial commit on master branch  
  
C:\Users\jerry\NetDB\my_project>
```

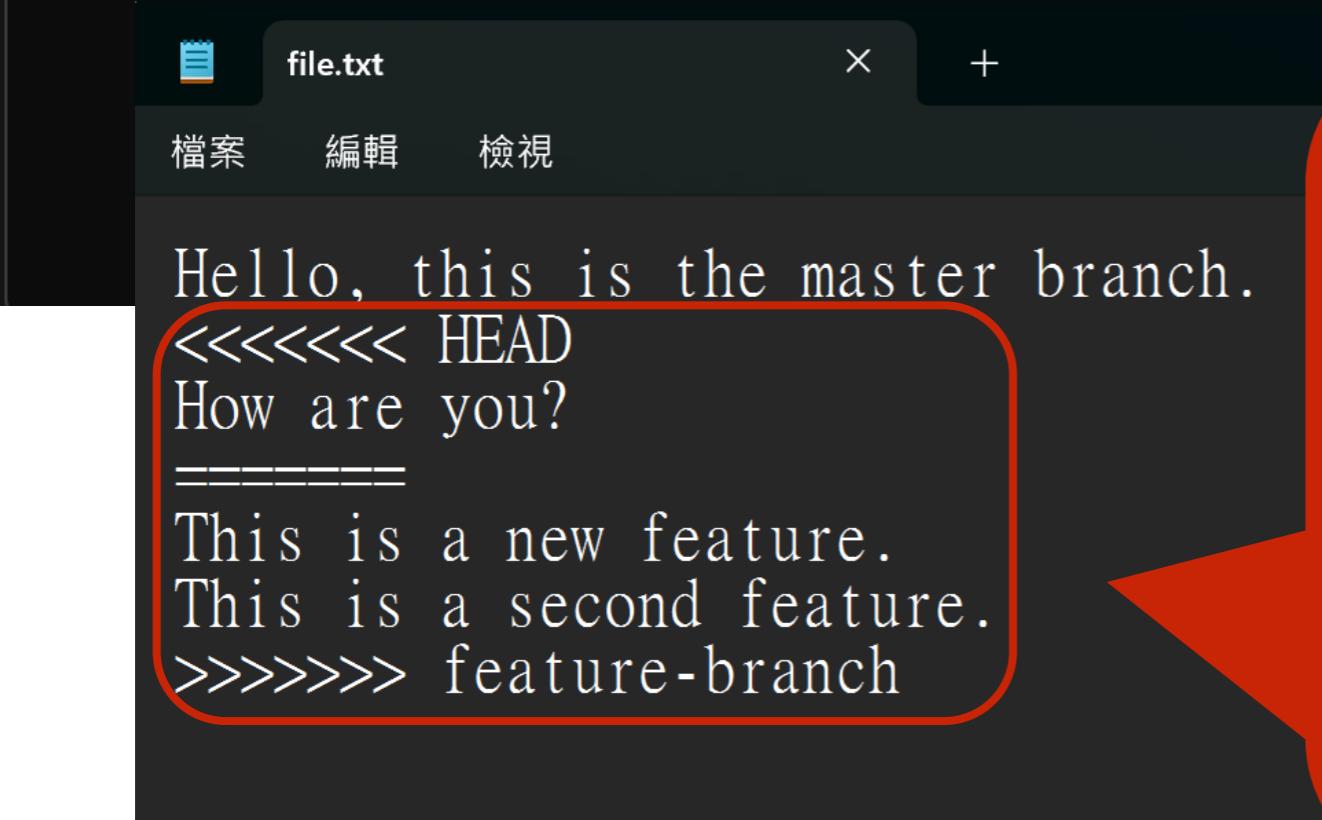
As observed in the log, a commit in one branch will not affect another branch.

```
C:\WINDOWS\system32\cmd. × + | v  
C:\Users\jerry\NetDB\my_project>git checkout master  
Already on 'master'  
  
C:\Users\jerry\NetDB\my_project>git merge feature-branch  
Auto-merging file.txt  
CONFLICT (content): Merge conflict in file.txt  
Automatic merge failed; fix conflicts and then commit the result.  
  
C:\Users\jerry\NetDB\my_project>
```

Ensure to move back to master branch  
(or any target branch you want to merge with)

Use the “git merge [branch name]” to merge the branch

Note that there is a merge conflict



```
file.txt  
檔案 編輯 檢視  
Hello, this is the master branch.  
<<<<< HEAD  
How are you?  
=====  
This is a new feature.  
This is a second feature.  
>>>>> feature-branch
```

Reopen the file.txt file then you found that there is merge conflict mark  
**<<<<< HEAD:**  
Show the change from your target branch.

**=====:**  
Separator between the conflicting change

**>>>>> feature-branch**  
The changes from the branch you are trying to merge with the target branch



Decide which version to keep and edit the file to resolve a merge conflict and save the change. In this case I reserve all the version.

```
C:\WINDOWS\system32\cmd. × + | ▾
Already on 'master'

C:\Users\jerry\NetDB\my_project>git merge feature-branch
Auto-merging file.txt
CONFLICT (content): Merge conflict in file.txt
Automatic merge failed; fix conflicts and then commit with -m.
C:\Users\jerry\NetDB\my_project>git add *
C:\Users\jerry\NetDB\my_project>git commit -m "Resolved merge conflict in file.txt"
[master 2aed399] Resolved merge conflict in file.txt

C:\Users\jerry\NetDB\my_project>
```

Add and commit again

# Outline

- General Rule
- Introduction to Git
- Version control
- Branch and merge
- How to Submit Your Code to Gitlab
- Tools & References

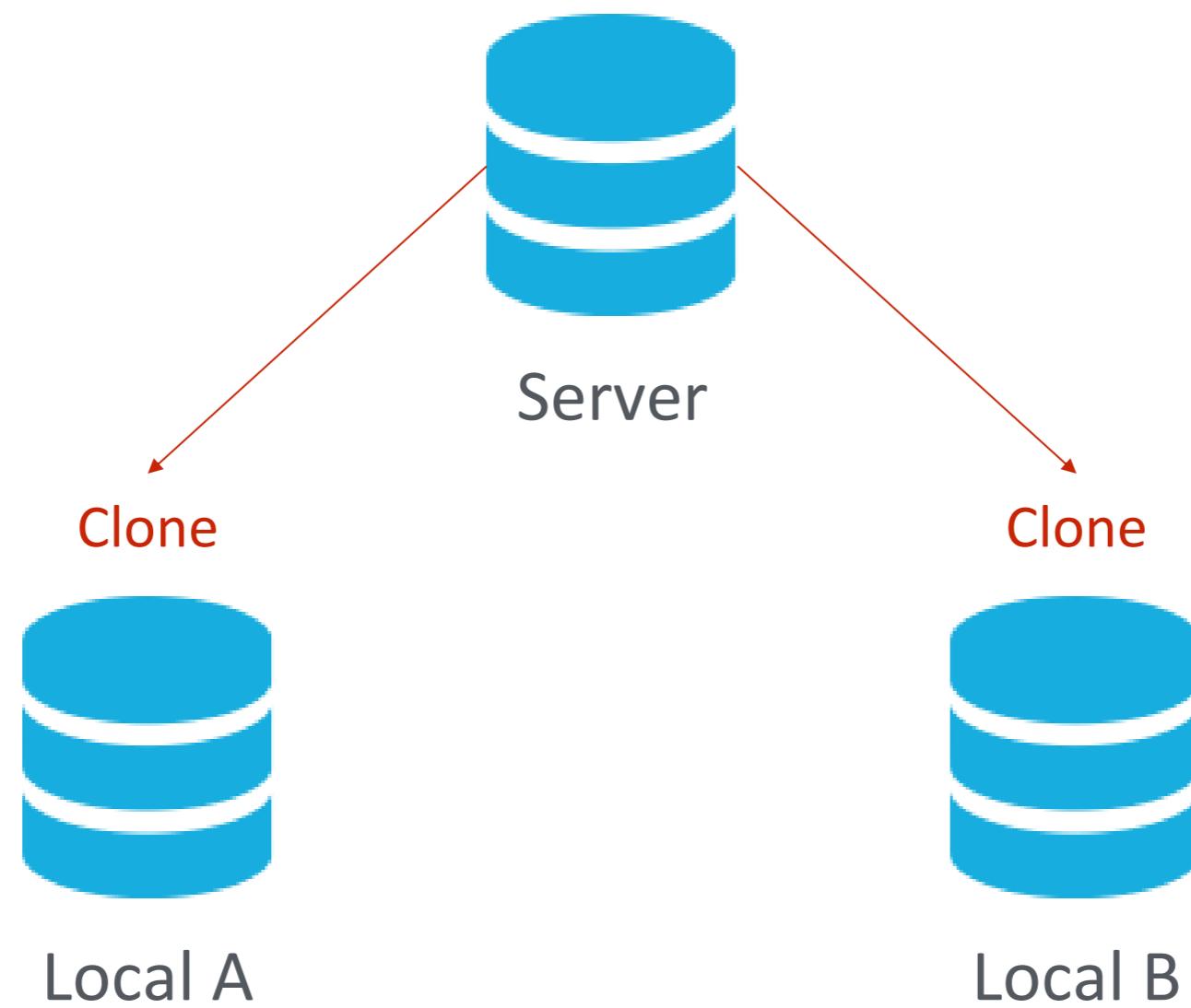
# Collaboration

- 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.

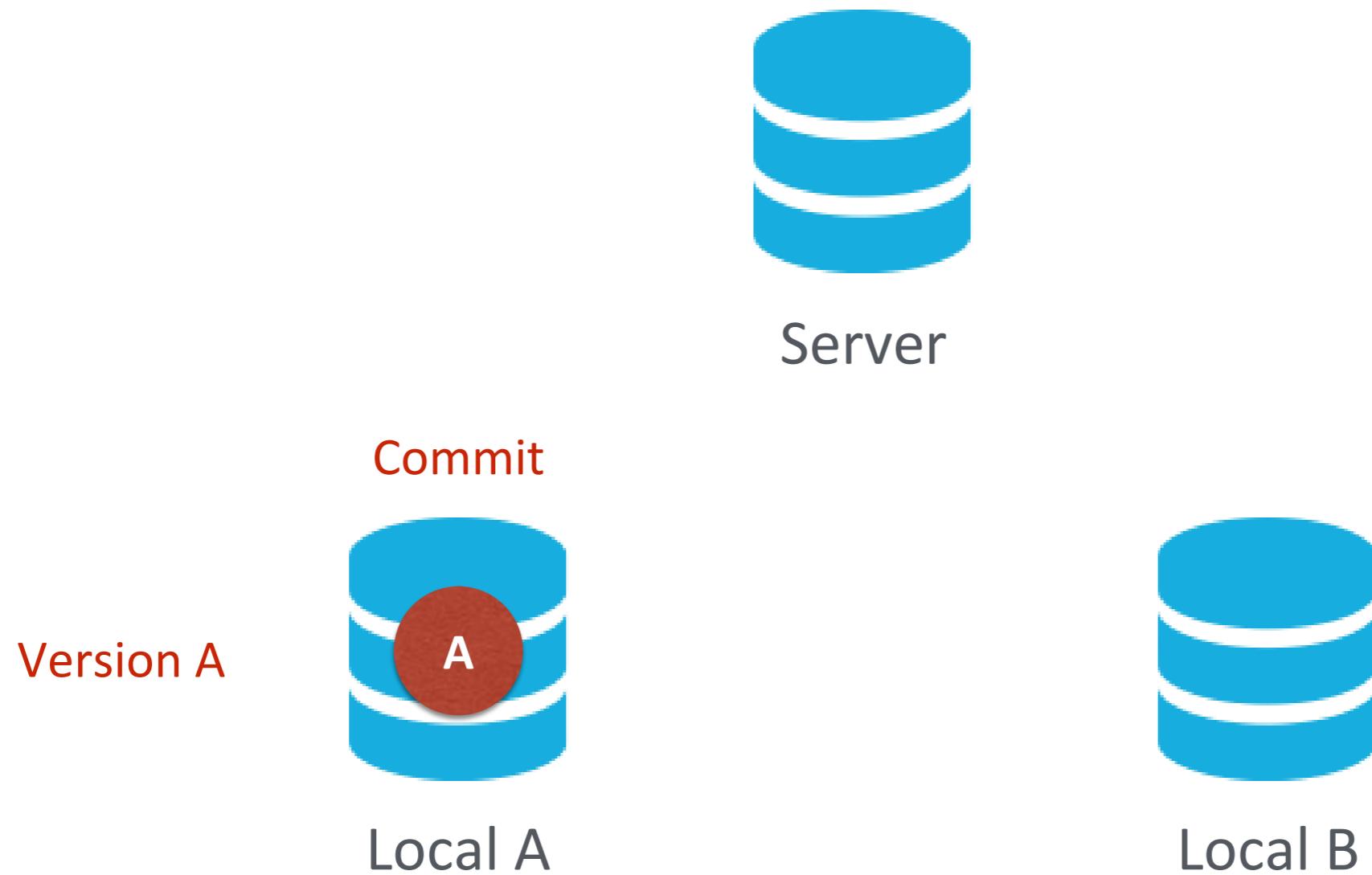
# Collaboration Workflows (1/2)

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.

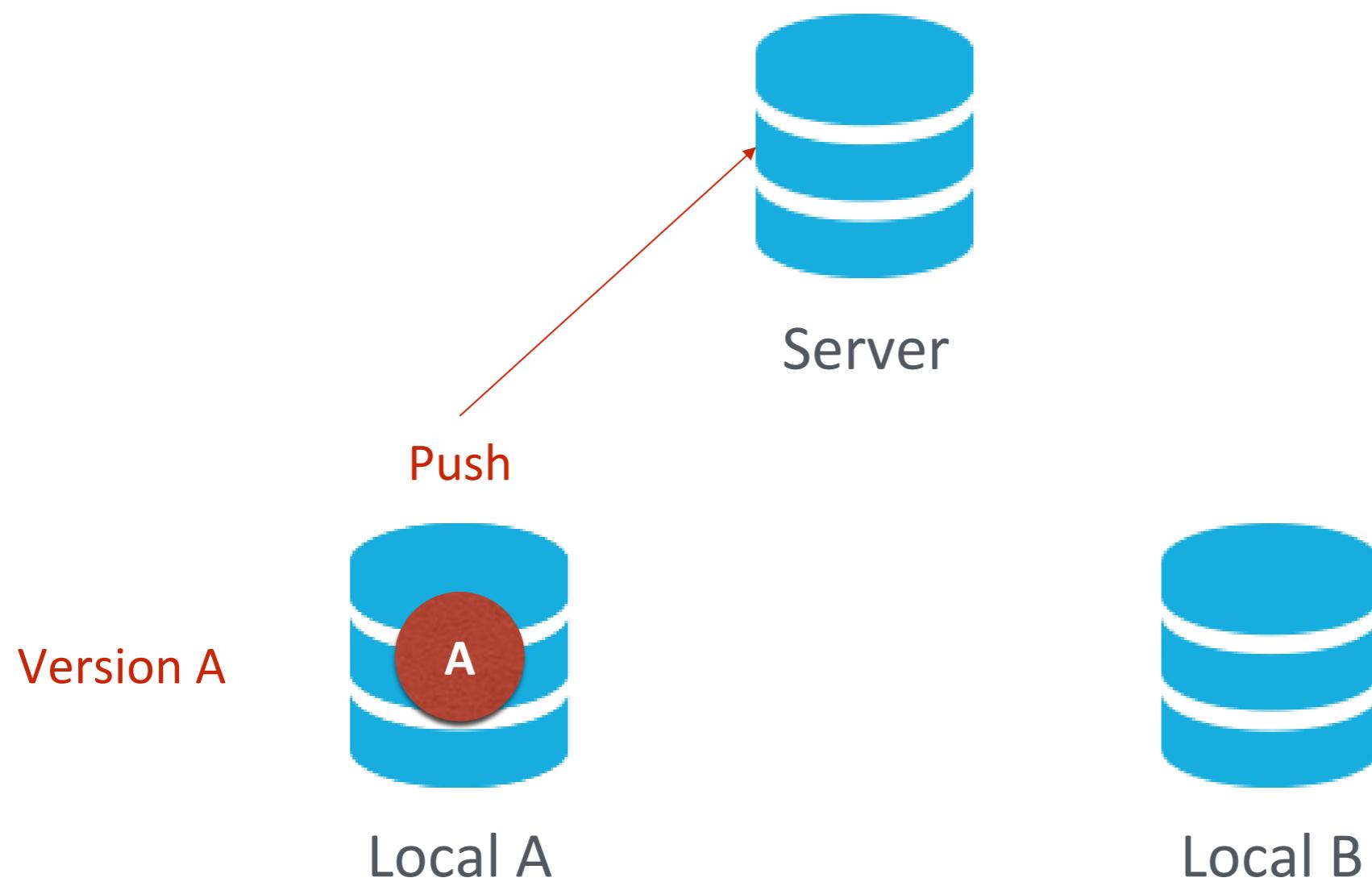
# Collaboration Workflows (2/2)



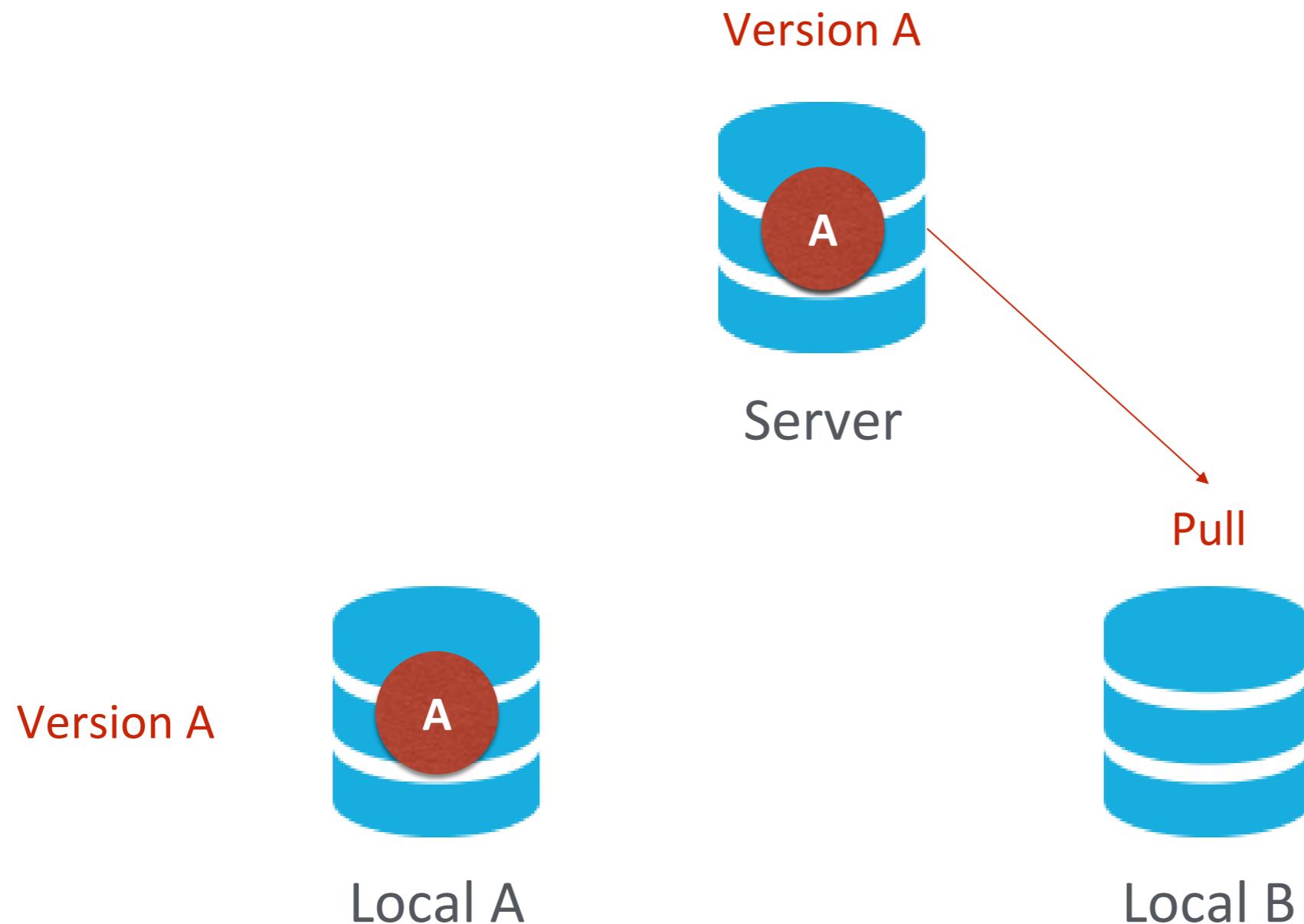
# Collaboration Workflows (2/2)



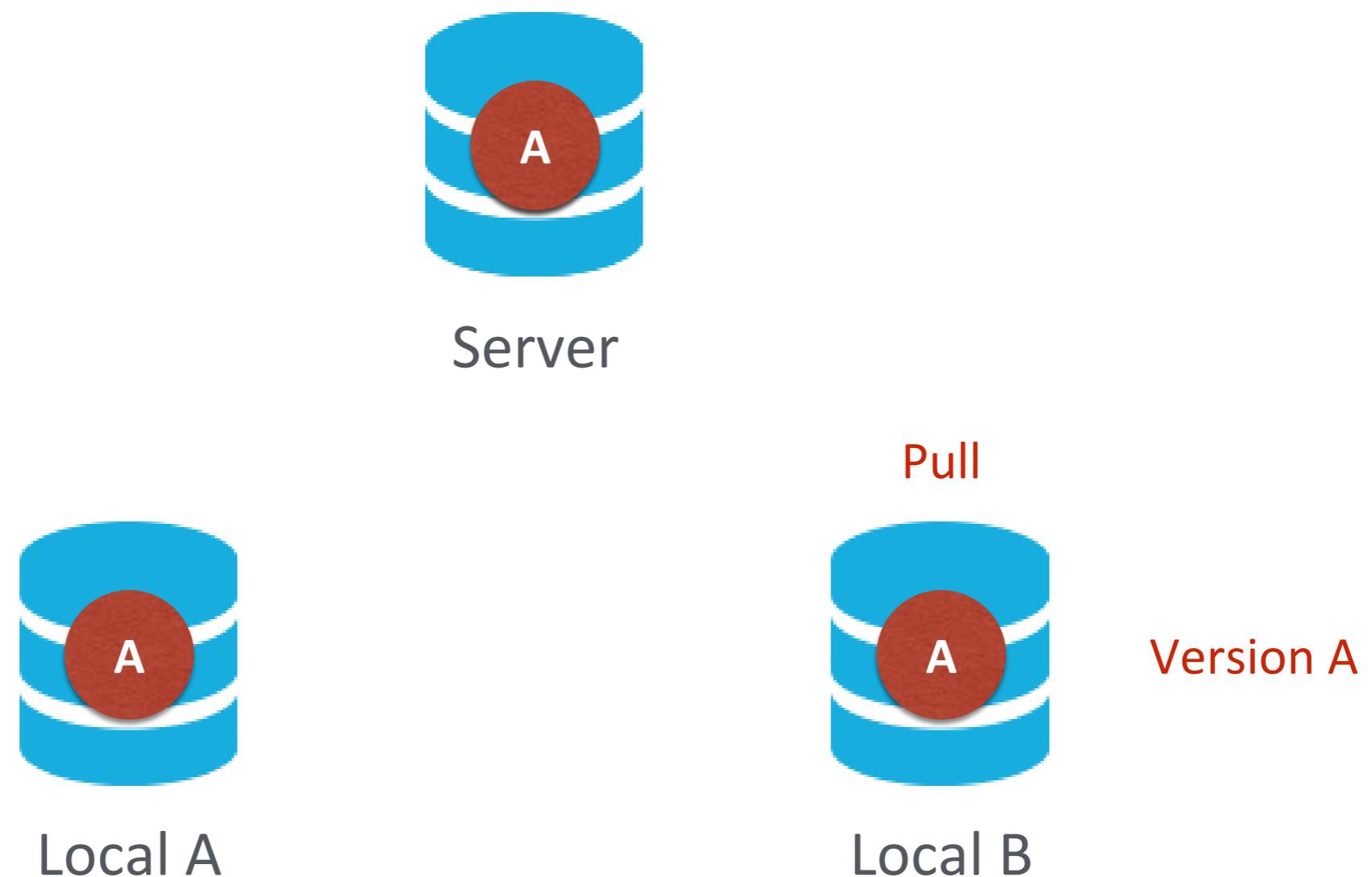
# Collaboration Workflows (2/2)



# Collaboration Workflows (2/2)

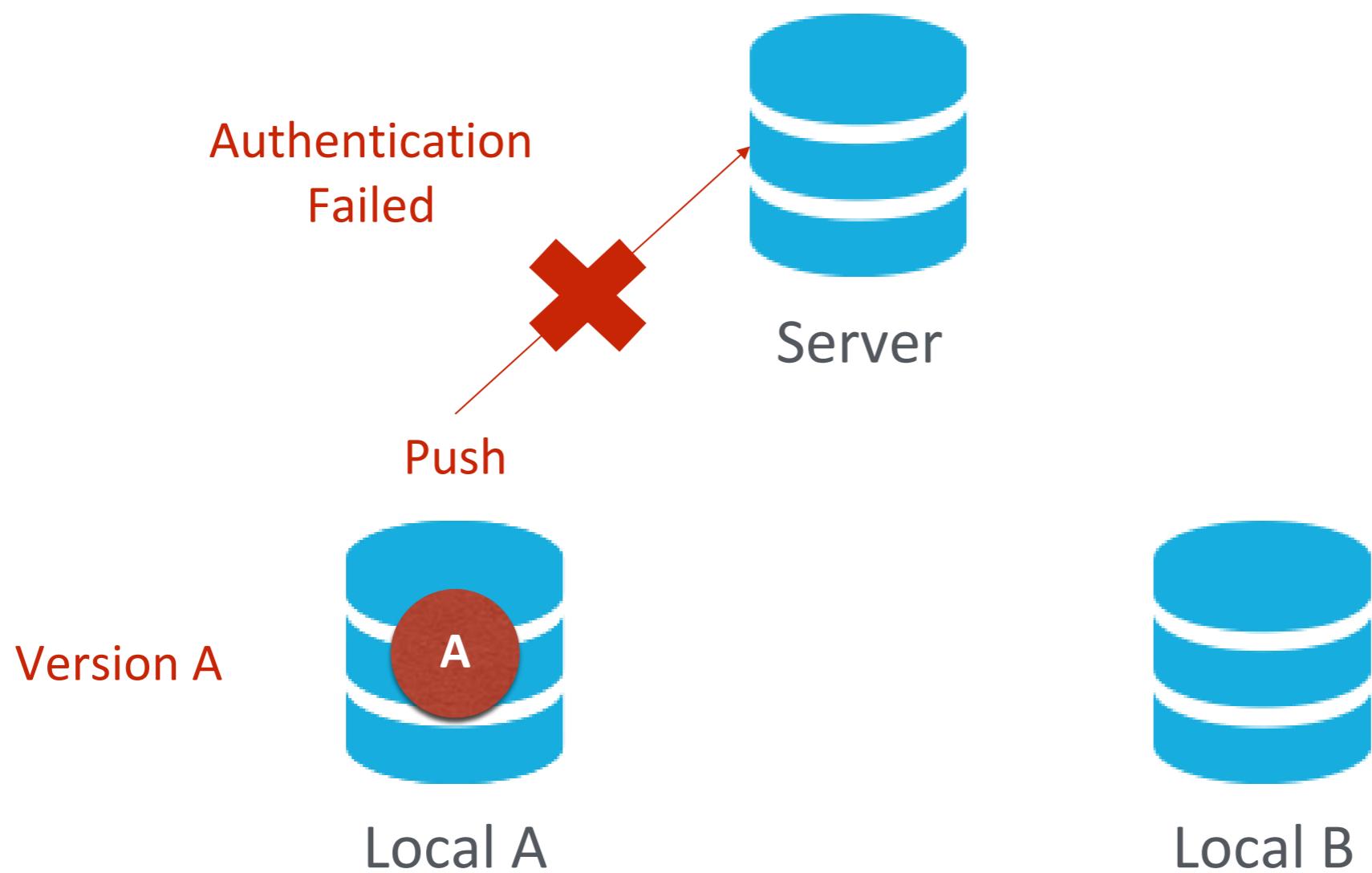


# Collaboration Workflows (2/2)



**Something went wrong.**

# Authentication Failed



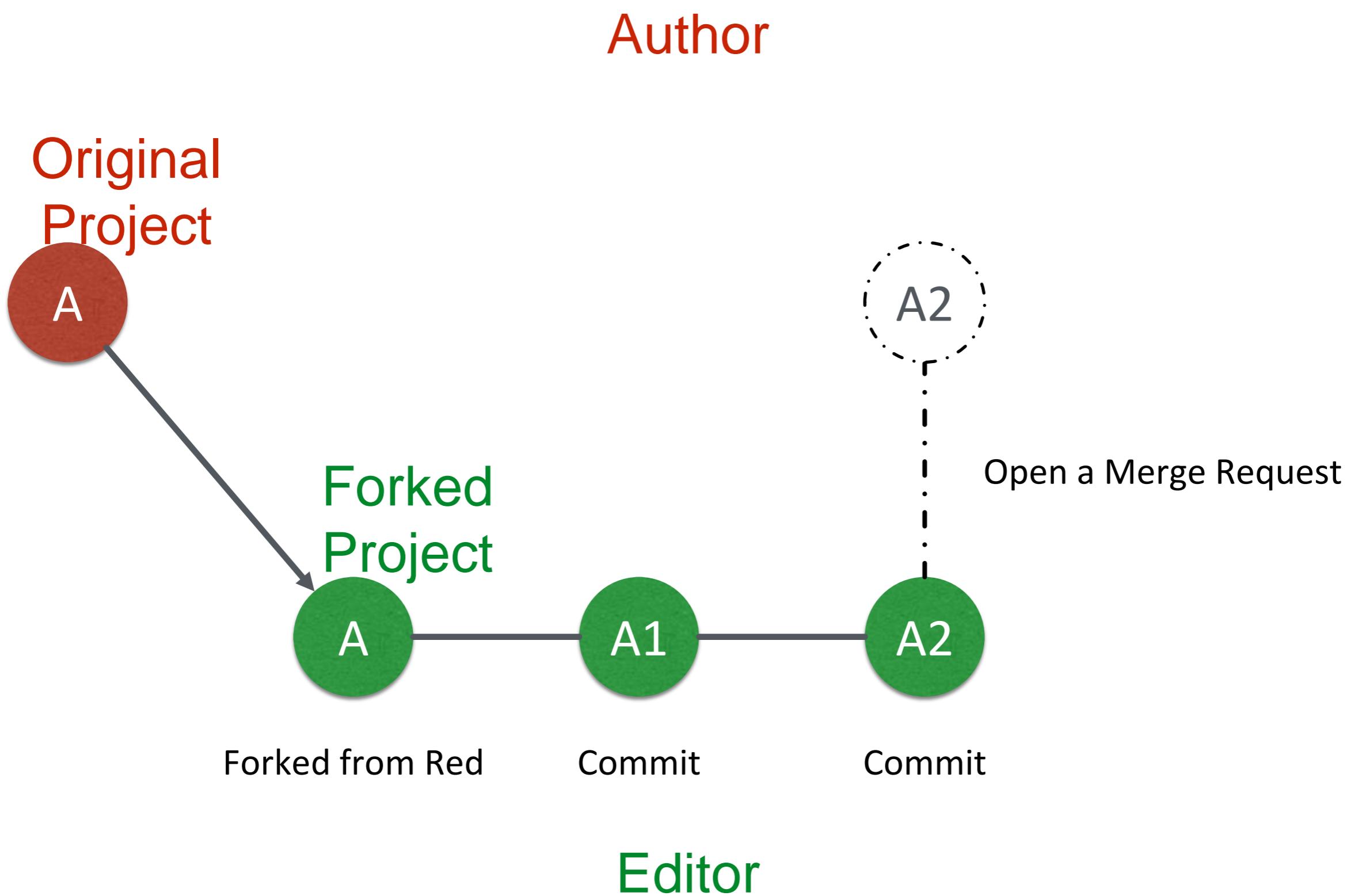
# Why Authentication Failed?

# Collaboration Workflow

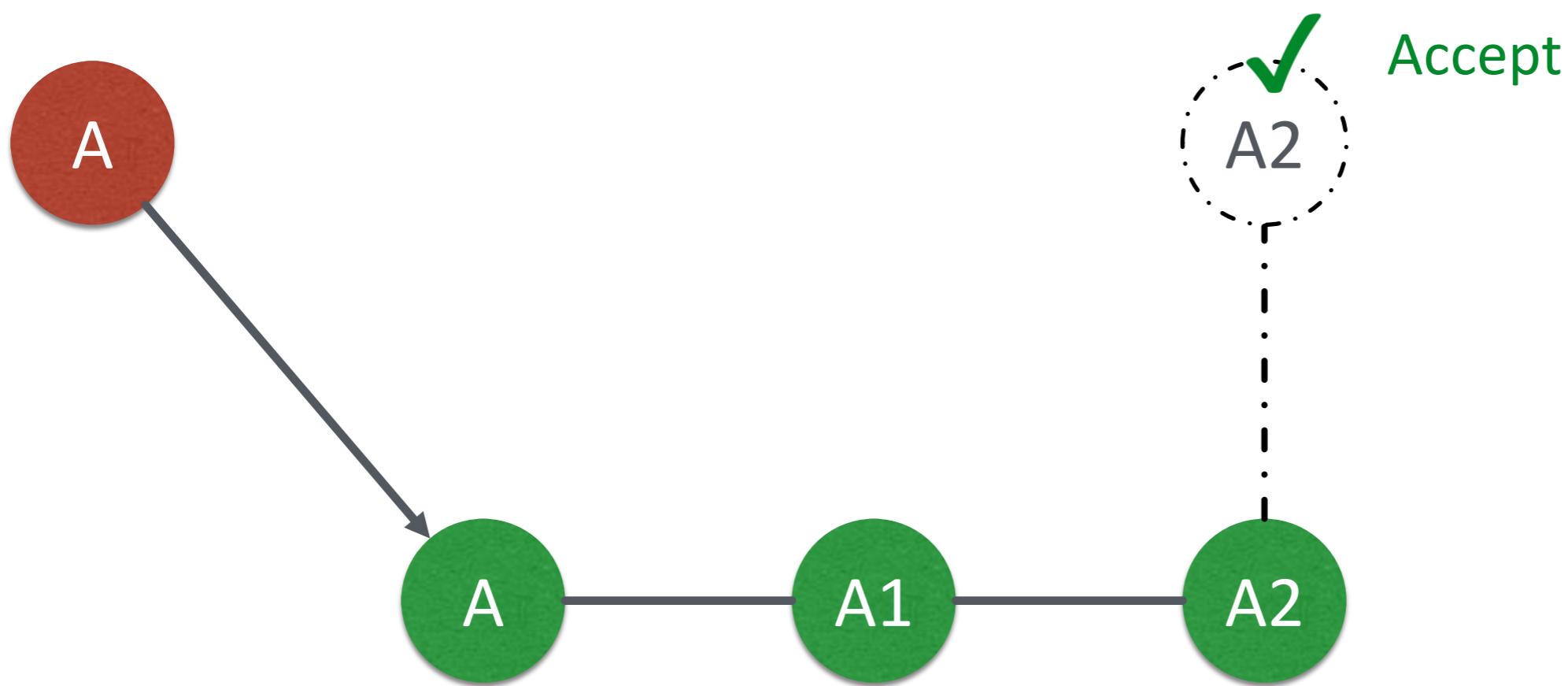
- If you tried to clone the code template from a server and want to **push** the modified file.
  - You will get authentication failed.
  - It's because it was a **project of others**, which means you are not able to save the changes back to the server.
- So, how can I copy a project from others on a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

Introducing  
**Fork**



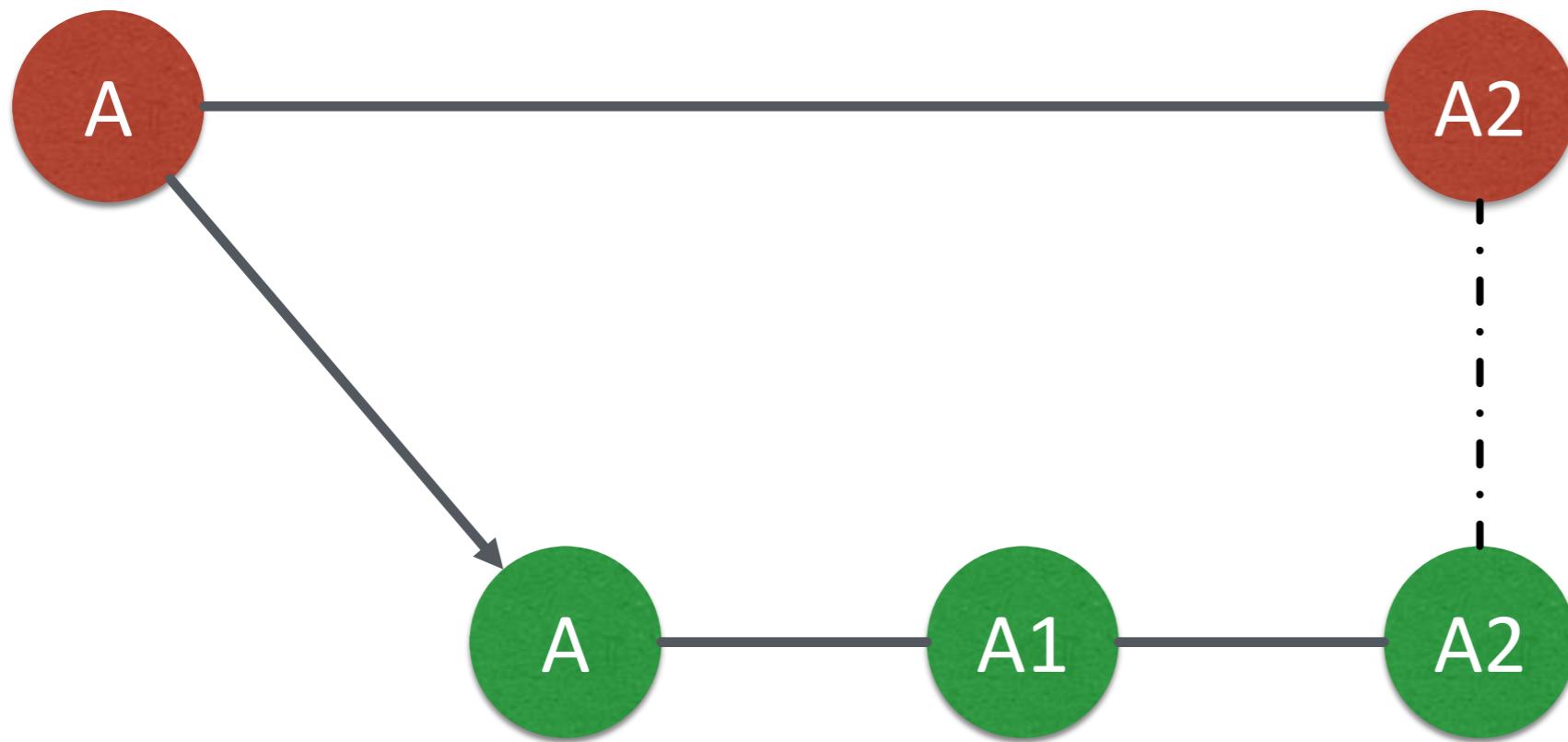


Author

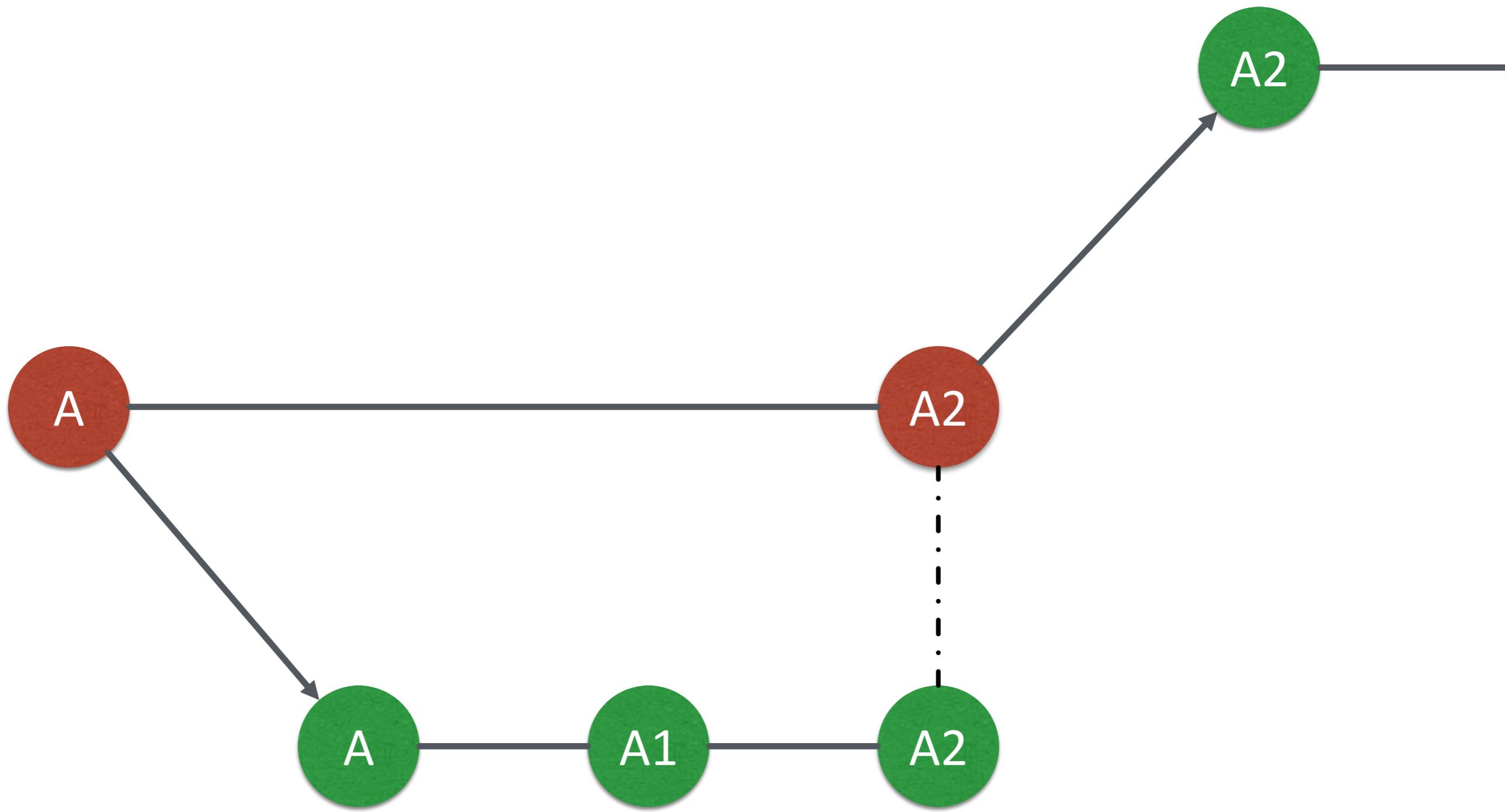


Editor

Author



Editor



# 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

# Outline

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



# Gitlab

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

# Gitlab



# Gitlab

Confirmation instructions 收件匣 × 印 回

 GitLab <gitlab@shwu10.cs.nthu.edu.tw> 下午 8:11 (2 分鐘前) ☆ ↶ ⋮  
✉ 寄給我 ↗

文 英文 ▾ > 中文 (繁體) ▾ 翻譯郵件 關閉下列語言的翻譯功能：英文 ×

---



Welcome, TA\_ACCOUNT!

To get started, click the link below to confirm your account.

[Confirm your account](#)

 GitLab

You're receiving this email because of your account on [shwu10.cs.nthu.edu.tw](http://shwu10.cs.nthu.edu.tw). [Manage all notifications](#) · [Help](#)

# Gitlab



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

DataLab

Welcome to GitLab for DataLab.

Username : studendID  
Email: your email  
Password: studentID

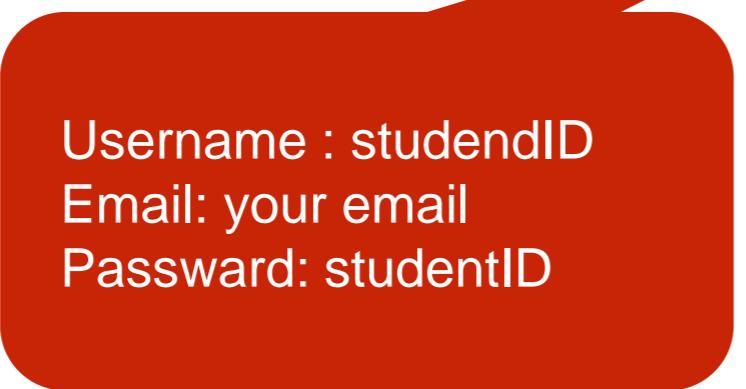
Sign in

Username or email

Password

Remember me      [Forgot your password?](#)

[Sign in](#)



# Workflow

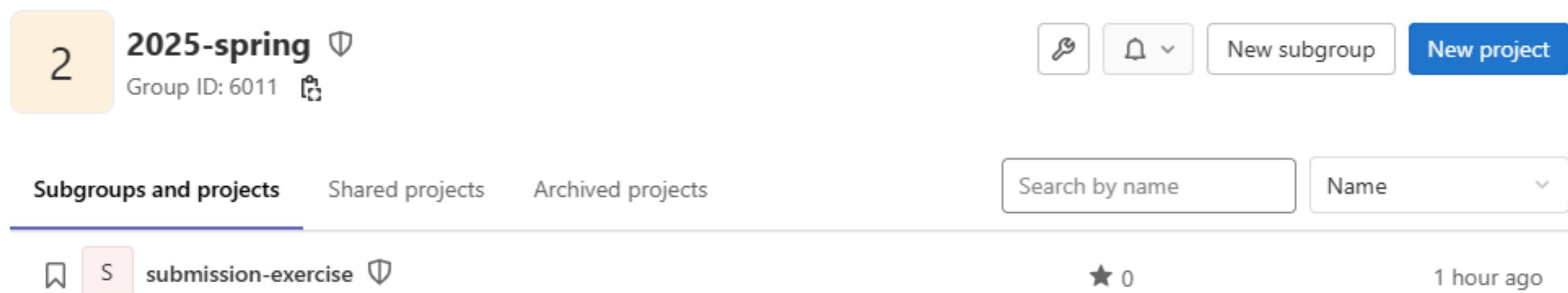
- For each lab, you should follow the workflow below
  1. Fork our template repository on Gitlab
  2. Clone the **forked** repository to your computer
  3. Finish your lab
  4. Commit in your computer
  5. Push to Gitlab
  6. Send merge request of **your branch** to our template repository

# Workflow

- For each lab, you should follow the workflow below
  1. Fork our template repository on Gitlab
  2. Clone the **forked** repository to your computer
  3. Finish your lab
  4. Commit in your computer
  5. Push to Gitlab
  6. Send merge request of **your branch** to our template repository

You can access course projects in [this group](#)

courses >  > 2025-spring



The screenshot shows a user interface for managing course projects. At the top, there's a breadcrumb navigation: "courses >  > 2025-spring". Below this, a header bar includes a yellow button with the number "2", the group name "2025-spring" with a shield icon, and a "Group ID: 6011" link. To the right are buttons for "New subgroup" (gray) and "New project" (blue). The main area has tabs for "Subgroups and projects" (selected), "Shared projects", and "Archived projects". On the right, there are search fields for "Search by name" and "Name" with a dropdown arrow. A single project card is visible, titled "submission-exercise" with a shield icon, marked with a bookmark icon and the letter "S". It shows 0 stars and was posted "1 hour ago".

S **submission-exercise** ⚡  
Project ID: 8735 🔍

2 Commits 1 Branch 0 Tags 41 KB Files 41 KB Storage

master submission-exercise / + History Find file Web IDE Clone

Update README.md  
Shao-Che Feng authored 1 hour ago  
19a597ef 🏷️

Upload File README Auto DevOps enabled Add LICENSE Add CHANGELOG Add CONTRIBUTING

Configure Integrations

Name	Last commit	Last update
README.md	Update README.md	1 hour ago

README.md

## Lab 1 - Practice Submission

This repository is built for practicing submissions for assignments and projects. You can follow the instructions below in order to know the whole workflow for submitting a lab or project.

### Try it!

1. Fork this project.
2. Clone the **forked** project from Gitlab to your local environment.
3. Add a new file and write something.
4. Commit your work.
5. Push the repository to the server.

1. Click to fork

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## Fork project

A fork is a copy of a project.

Forking a repository allows you to make changes without affecting the original project.

Project name

submission-exercise

Project URL

<https://shwu10.cs.nthu.edu.tw/>

Select a namespace

Project slug

submission-exercise

Want to house several dependent projects under one namespace? Learn more

Project description (optional)

2. Select your name

Visibility level [?](#)

Private

Project access must be granted explicitly to each user. If this project is part of a group, access will be granted to members of the group.

Internal

The project is visible to other users in your organization.

Public

The project can be accessed without any authentication.

[Fork project](#)

[Cancel](#)

3. Click Private

4. Click to fork

S submission-exercise

- Project information
- Repository
- Issues 0
- Merge requests 0
- Security & Compliance
- Deployments
- Monitor
- Infrastructure
- Packages & Registries
- Analytics
- Wiki
- Snippets
- Settings

6. Go to settings

Chen Yu-Hsuan > submission-exercise

## 5. Check if this repository is under your account

Project ID: 3798

Star 0 Fork 0

3 Commits 99 Branches 0 Tags 102 KB Files 113 KB Storage

Forked from [courses / software-studio / 2023-spring / submission-exercise](#)

master

submission-exercise /

+

History

Find file

Web IDE

Clone



finish lab 1

Chen Yu-Hsuan authored 1 year ago

1654ad5c



Upload File

README

Auto DevOps enabled

Add LICENSE

Add CHANGELOG

Add CONTRIBUTING

Configure Integrations

Name	Last commit	Last update
• README.md	finish lab 1	1 year ago

S submission-exercise

Project information

Repository

Issues 0Merge requests 0

Security &amp; Compliance

Deployments

Monitor

Infrastructure

Packages &amp; Registries

Analytics

Wiki

Snippets

Settings

**General**

Integrations

Webhooks

Access Tokens

Repository

Monitor

Packages &amp; Registries

Usage Quotas

Max file size is 200 KB.

Save changes

## Visibility, project features, permissions

Collapse

Choose visibility level, enable/disable project features and their permissions, disable email notifications, and show default award emoji.

### 7. Set project to private

#### Project visibility

Manage who can see the project in the public access directory. [Learn more](#).

Private

The project is accessible only by members of the project. Access must be granted explicitly to each user.

#### Issues

Flexible tool to collaboratively develop ideas and plan work in this project. [Learn more](#).



Only Project Members

#### Repository

View and edit files in this project.



Only Project Members

#### Merge requests

Submit changes to be merged upstream.



Only Project Members

#### Forks

Users can copy the repository to a new project.



Only Project Members

GitLab    Menu

Search GitLab

Only Project Members

Disable email notifications  
Override user notification preferences for all project members.

Show default award emojis  
Always show thumbs-up and thumbs-down award emoji buttons on issues, merge requests, and snippets.

Warn about high severity security vulnerabilities  
High severity security vulnerabilities are potential exploits.

**8. Scroll down and save changes**

Save changes

**Merge requests**

Choose your merge method, merge options, merge checks, and merge suggestions.

**Badges**

Customize this project's badges. [What are badges?](#)

**Service Desk**

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# Workflow

- For each lab, you should follow the workflow below
  1. Fork our template repository on Gitlab
  2. Clone the **forked** repository to your computer
  3. Finish your lab
  4. Commit in your computer
  5. Push to Gitlab
  6. Send merge request of **your branch** to our template repository

# S submission-exercise ⚙

Project ID: 6444 🔍

0 Commits 1 Branch 0 Tags 20 KB Files 20 KB Storage

master submission-exercise / + History Find file Web IDE Clone

 Initial commit  
Chen Yu-Hsuan authored 3 days ago

Upload File Auto DevOps enabled Add README Add LICENSE Add Configure Integrations

Name	Last commit
README.md	Initial commit

 README.md

## Lab 1 - Practice Submission

This repository is built for practicing submissions for assignments and projects. You can follow the instructions below in order to know the whole workflow for submitting a lab or project.

### Try it!

1. Fork this project.
2. Clone the **forked** project from Gitlab to your local environment.
3. Add a new file and write something.
4. Commit your work.
5. Push the repository to the server.
6. Send a merge request of **your branch** to the origin repository.

Clone with SSH  
git@shwu10.cs.nthu.edu.tw:...

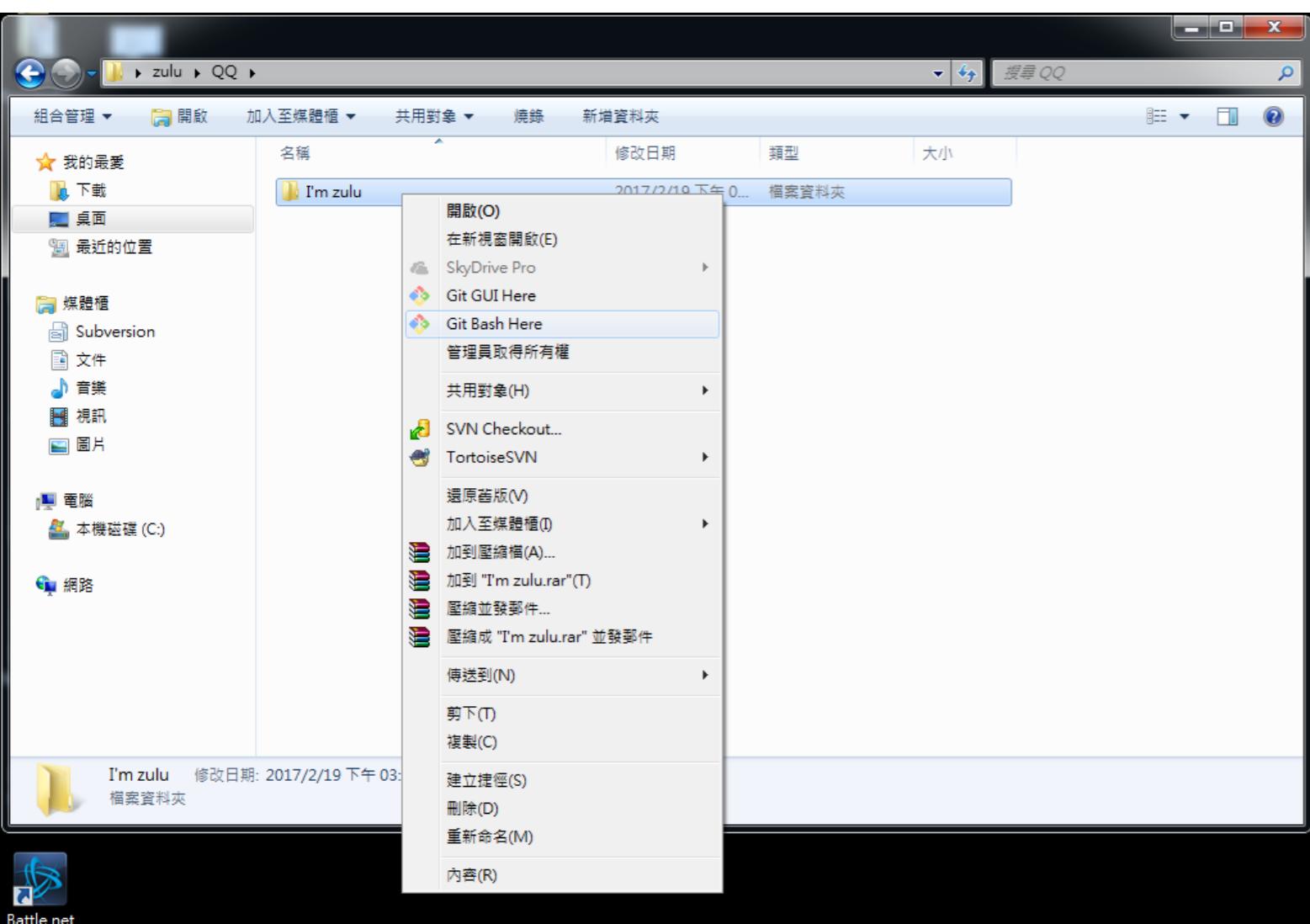
Clone with HTTPS  
<https://shwu10.cs.nthu.edu.tw/cour> 🔍

Visual Studio Code (SSH)  
Visual Studio Code (HTTPS)

1. Choose HTTPS

2. Copy the link

# If You use Windows



A screenshot of a terminal window titled 'MINGW64:/c/Users/EdwinYeh/QQ/I'm zulu'. The window shows the command EdwinYeh@NetDb\_EdwinYeh MINGW64 ~/QQ/I'm zulu \$'.

### 3. Create a folder to put your repos

```
~/SS-Projects ➔ git clone https://shwu10.cs.nthu.edu.tw/ss-student/submission-exercise.git  
Cloning into 'submission-exercise'...  
remote: Counting objects: 3, done.  
remote: Compressing objects: 100% (2/2), done.  
remote: Total 3 (delta 0), reused 3 (delta 0)  
Unpacking objects: 100% (3/3), done.  
~/SS-Projects ➔ ls  
submission-exercise  
~/SS-Projects ➔
```

### 4. Type "git clone {URL}"

### 5. The repo has been successfully cloned

# Workflow

- For each lab, you should follow the workflow below
  1. Fork our template repository on Gitlab
  2. Clone the **forked** repository to your computer
  3. Finish your lab
  4. Commit in your computer
  5. Push to Gitlab
  6. Send merge request of **your branch** to our template repository

```
~/SS-Projects/submission-exercise master vim lab1.js
~/SS-Projects/submission-exercise master git add -A
~/SS-Projects/submission-exercise master + git status
```

```
On branch master
Your branch is up-to-date with 'origin/master'.
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

    new file:   lab1.js
```

```
~/SS-Projects/submission-exercise master + git commit -m "Finish lab1"
[master c1acaf4] Finish lab1
 1 file changed, 1 insertion(+)
 create mode 100644 lab1.js
~/SS-Projects/submission-exercise master
```

1. -A means all files

2. Check if your file is added to git

3. Commit your changes

```
~/SS-Projects/submission-exercise ➜ master vim lab1.html
~/SS-Projects/submission-exercise ➜ master git add -A
~/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 with
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  
"{}"  
git config --global user.email "{}"

{} is the email you use on gitlab

# Workflow

- For each lab, you should follow the workflow below
  1. Fork our template repository on Gitlab
  2. Clone the **forked** repository to your computer
  3. Finish your lab
  4. Commit in your computer
  5. Push to Gitlab
  6. Send merge request of **your branch** to our template repository

```
~/SS-Projects/submission-exercise ➜ master ➔ git push -u origin master  
Counting objects: 6, done.  
Delta compression using up to 4 threads.  
Compressing objects: 100% (4/4), done.  
Writing objects: 100% (6/6), 497 bytes | 0 bytes/s, done.  
Total 6 (delta 1), reused 0 (delta 0)  
To https://shwu10.cs.nthu.edu.tw/ss-student/submission-exercise.git  
  b1e0571..8a603d9  master -> master  
Branch master set up to track remote branch master from origin.  
~/SS-Projects/submission-exercise ➜ master ➔
```

Type "git push -u origin master"

# Workflow

- For each lab, you should follow the workflow below
  1. Fork our template repository on Gitlab
  2. Clone the **forked** repository to your computer
  3. Finish your lab
  4. Commit in your computer
  5. Push to Gitlab
  6. Send merge request of **your branch** to our template repository

Chen Yu-Hsuan > submission-exercise

**submission-exercise** Project ID: 3798

KB Files 113 KB Storage

Forked from [courses / software-studio / 2023-spring / submission-exercise](#)

master submission-exercise /

History Find file Web IDE Clone

**finish lab 1**  
Chen Yu-Hsuan authored 1 year ago 1654ad5c

Upload File README Auto DevOps enabled Add LICENSE Add CHANGELOG Add CONTRIBUTING

Configure Integrations

Name	Last commit	Last update
README.md	finish lab 1	1 year ago

**1. Click Merge Requests**



S submission-exercise

Project

Repository

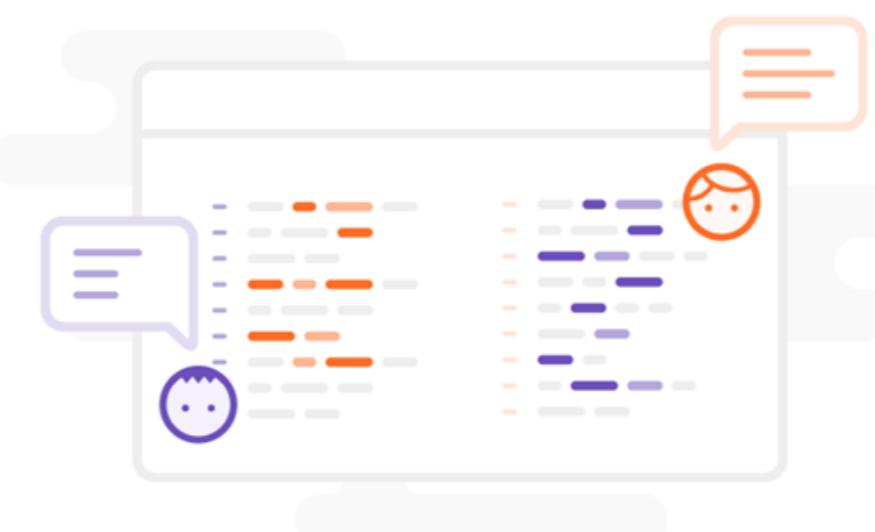
Issues 0

Merge Requests 0

Wiki

Snippets

Settings



Merge requests are a place to propose changes you've made to a project and discuss those changes with others

Interested parties can even contribute by pushing commits if they want to.

New merge request

New merge request

2. New merge request

<< Collapse sidebar

[https://shwu10.cs.nthu.edu.tw/103060010/submission-exercise/merge\\_requests/new](https://shwu10.cs.nthu.edu.tw/103060010/submission-exercise/merge_requests/new)

The screenshot shows the 'New merge request' interface in GitLab. On the left, the sidebar lists various project management features like Project information, Repository, Issues, Merge requests, and Security & Compliance. The current project is 'submission-exercise-2'. The main area shows a 'New merge request' form. The 'Source branch' dropdown is set to 'yhch/submission-exercise-2' and 'master'. Below it, a commit card for 'Initial commit' by 'Chen Yu-Hsuan' is visible, with an orange arrow pointing from the text '3. Choose the branch you pushed in your repo' to this commit card. The 'Target branch' dropdown is set to 'courses/software-studio/2025-ss/subm...' and 'master'. A modal window titled 'Select target branch' is open, showing the ID '00000000' and the message 'No matching results'. A large red callout box contains the text '3. Choose the branch you pushed in your repo'.

3. Choose the branch you pushed in your repo

Source branch

Target branch

Initial commit  
Chen Yu-Hsuan authored 3 days ago

Compare branches and continue

Select target branch

No matching results

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

GitLab Menu

Search GitLab

Chen Yu-Hsuan > submission-exercise-2 > Merge requests > New

New merge request

Source branch

yhch/submission-exercise-2 master

Initial commit Chen Yu-Hsuan authored 3 days ago 21779350

Compare branches and continue

Target branch

courses/software-studio/2025-ss/subm... master

Select target branch

00000000 No matching results

4. Choose the branch named after your ID

Ensure that the source of the selected branch is the class folder (courses/software-studio/2025-spring/submission-exercise) and your student ID (not master or someone else's student ID).

GitLab    Menu

Search GitLab

Chen Yu-Hsuan > submission-exercise-2 > Merge requests > New

New merge request

Source branch

Target branch

Initial commit  
Chen Yu-Hsuan authored 3 days ago

Compare branches and continue

Select target branch

00000000

No matching results

**5. Compare branches**

Project information

Repository

Issues 0

Merge requests 0

Security & Compliance

Deployments

Monitor

Infrastructure

Packages & Registries

Analytics

Wiki

Snippets

Settings

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/2025-spring/submission-exercise: {your student ID}.

The screenshot shows the 'New merge request' form in GitLab. The 'From' dropdown is set to 'yhch/submission-exercise-2:master'. A red box highlights the 'Into' dropdown, which is set to 'Courses/software-studio/2025-spring/submission-exercise: {ID}' with the user 'ches' selected. A red callout bubble with the text '6. Set title to "{ID} Submission"' points to the 'Title' field, which contains '00000000 Submission'. The 'Description' section is empty. The top navigation bar includes a search bar and various GitLab icons.

GitLab Menu

Chen Yu-Hsuan > submission-exercise-2 > Merge requests > New

New merge request

From yhch/submission-exercise-2:master into Courses/software-studio/2025-spring/submission-exercise: {ID} ches

This merge request is from Review the target project b

Title 00000000 Submission

Start the title with Draft: to prevent a merge request draft from merging before it's ready.

Add description templates to help your contributors to communicate effectively!

Description

Write Preview

Describe the goal of the changes and what reviewers should be aware of.

Markdown and quick actions are supported

Attach a file

Description

Write Preview

Describe the goal of the changes and what reviewers should be aware of.

Markdown and quick actions are supported

Attach a file

Assignee Unassigned [Assign to me](#)

Reviewer Unassigned

Milestone Milestone

Labels Labels

Merge options  Squash commits when merge request is accepted. [?](#)

Contribution  Allow commits from members who can merge to the target branch. [About this feature](#)  
Not available for private projects

Create merge request

7. If everything is OK,  
submit your merge request

# Notice - Don't do this



# Notice - Don't do this

A screenshot of a Google search results page. The search bar at the top contains the query "gitlab". Below the search bar, there are tabs for "全部", "圖片", "影片", "新聞", "書籍", and "更多". On the right side of the header, there are "設定" and "工具" buttons. The search results section starts with a summary: "約有 8,300,000 項結果 (搜尋時間 : 0.45 秒)". The first result is a link to the official GitLab website: "GitLab" (https://gitlab.com/). The second result is "GitLab.com | GitLab" (https://about.gitlab.com/gitlab-com/). The third result is "GitLab介紹— Practical guide for git users 0.1 文档" (git-tutorial.readthedocs.io/zh/latest/gitlab.html). The fourth result is "GitHub - gitlabhq/gitlabhq: GitLab CE | Please open new issues in our ..." (https://github.com/gitlabhq/gitlabhq). The fifth result is "Gitlab - 維基百科，自由的百科全書 - Wikipedia" (https://zh.wikipedia.org/zh-tw/Gitlab).

## 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](#)    [Register](#)

Username or email

Password

Remember me    [Forgot your password?](#)

[Sign in](#)

Didn't receive a confirmation email? [Request a new one.](#)

Sign in with

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!!!!

# Outline

- General Rule
- Introduction to Git
- Version control
- Branch and merge
- How to Submit Your Code to Gitlab
- Tools & References

# Tools

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



axosoft

GitKraken

Repositories > GitKraken > master

Viewing 112/151 Show All

**LOCAL** (7/11)

- fancier-refbar-changes
- fancy-responsive-refbar-it... 42 ↗ 99+
- graph-color-test
- hopscotch 24 ↗ 99+
- init-repo-gitignore-typeahead
- invite-system 6 ↗ 99+
- jars-view-file-history
- master 5 ↗
- remote-panel-redesign 15 ↗ 13+
- settings-theme-styling
- view-file-history 24 ↗ 99+

**REMOTE** (6/41)

- Jeff-Schinella (0/1)
- Jordan-Wallet (0/7)
- Justin-GK (0/1)
- Ken-Price (0/2)
- Kyle-Smith (2/8)
- Max-Korp (0/2)
- Sjepan-Rajko (0/8)
- ayresa (0/3)
- cbargen (0/5)
- origin (4/4)

**TAGS** (99/99)

Fix un/stageall and stashing  
Keep rename detection stage/unstage all  
Bump to version 0.1.40  
Merge pull request #597 from johnhaley81/fix-dispat...  
Merge pull request #594 from Mr-Wallet/nicer-ref-nam...  
Fix `waitFor` bug in dispatcher  
Merge pull request #596 from johndavidsparrow/gh-p...  
Revised custom variable script and switch  
Merge pull request #595 from johndavidsparrow/gh-p...  
Resolved edge case where RefNodes could overlap  
/universe removal of in-app invite wording  
Bump to version 0.1.39  
Merge pull request #591 from Mr-Wallet/fix-graph-ref...  
Merge pull request #590 from srajko/div-be-gone  
Merge pull request #588 from Mr-Wallet/friendlier-app...  
Merge pull request #568 from Mr-Wallet/nicer-ref-nam...  
Merge pull request #589 from johndavidsparrow/gh-p...  
Merge pull request #592 from implausible/FixNSFW  
JS tidy up in form-validation.js  
Javascript update for /universe  
/universe page  
added maxwait to updateworkdir debounce  
Update NSFW for memory leak  
Fix NSFW segfault  
Fix flickering GraphRefColumn every time ... 6 days ago  
Preventing page reload on default pull click  
Eliminate console spam when conflicts exist in a statel...  
Upgrading to react-bootstrap v0.24.5

**Commit:** cca151e6b9e32c3f9209c25131706740050  
**Parent:** 8efe30a11761983173f844900fa5ec5c6be2  
**Author:** John Haley <johnh@axosoft.com>  
**Author Date:** September 30th 2015, 2:54 pm

**Bump to version 0.1.40**

0 added 0 deleted 2 modified

**npm-shrinkwrap.json**

```
@@ -1,6 +1,6 @@
 1 | 1 | {
 2 | 2 |   "name": "gitkraken",
-3 | "version": "0.1.39",
+3 | "version": "0.1.40",
 4 | 4 |   "dependencies": {
 5 | 5 |     "atom-keymap": {
 6 | 6 |       "version": "5.1.11",

```

**package.json**

```
@@ -1,7 +1,7 @@
 1 | 1 | {
 2 | 2 |   "name": "gitkraken",
 3 | 3 |   "productName": "GitKraken",
-4 | "version": "0.1.39",
+4 | "version": "0.1.40",
 5 | 5 |   "description": "An intuitive git cli
 6 | 6 |   "main": "./src/appBootstrap/main.js"
 7 | 7 | }
```

Provide Feedback



VS Code

EXPLORE

WORKING FILES

- 03.jpg img

TBL-STYLES

- css
- img
- js

  - hoverIntent.js
  - jquery.dropdown.js
  - jquery.more.js
  - jquery.more.min.js
  - jquery.plugin.js
  - jquery.plugin.min.js
  - mapper.js
  - maputil.js
  - navigation.js**
  - smoothscroll.js
  - tabs.js

```
navigation.js js
1 var scriptbase = _spPageContextInfo.webServerRelativeUrl + "/_layouts/15/";
2
3 $(document).ready(function () {
4     $.getScript(scriptbase + "SP.Runtime.js", function () {
5         $.getScript(scriptbase + "SP.js", function () {
6             $.getScript(scriptbase + "SP.Taxonomy.js", function () {
7                 context = SP.ClientContext.get_current();
8                 //Call your code here.
9                 console.log("Navigation - ready to rock.");
10
11                 // Get default termstore
12
13                 session = SP.Taxonomy.TaxonomySession.getTaxonomySession(context);
14                 termStore = session.getDefaultSiteCollectionTermStore();
15                 context.load(session);
16                 context.load(termStore);
17                 context.executeQueryAsync(
18                     function () {
19                         console.log('Got default term store');
20                     },
21                     function(sender, args) {
22                         console.log('Could not get default term store. ' + args.get_message());
23                     }
24                 );
25
26
27             });
28         });
29     });
30 });
31
32 var topnavbar;
33
34 topnavbar += '<div class="tbl-site-navigation">';
35 topnavbar += '    <ul class="dropdown">';
36 topnavbar += '        <li class=""><a href="#">The Brand Code - a</a></li>';
37 topnavbar += '        <li class="dropdown1">';
38 topnavbar += '            <ul class="sub_menu" style="visibility: hidden;">';
39 topnavbar += '                <li class="large">';
40 topnavbar += '                    <div class="dropdownbox">';
41 topnavbar += '                        <div class="dropdownbox-title">Welcome to the Brand Code</div>';
42 topnavbar += '                        <ol>';
43 topnavbar += '                            <li><a href="">The importance of Brand Building</a></li>';
44 topnavbar += '                            <li><a href="">Introduction to the Brand Code</a></li>';
45 topnavbar += '                            <li><a href="">You and the Brand Code</a></li>';
46 topnavbar += '                        </ol>';
47 topnavbar += '                    </div>';

```

Ln 38, Col 72    UTF-8    CRLF    JavaScript



# ATOM

A hackable text editor  
for the 21st Century

The screenshot shows the Atom code editor interface. On the left is a sidebar with a tree view of project files: build, docs, dot-atom, exports, keymaps, menus, node\_modules, resources, script, spec, src (which is selected), and static. The main editor area displays the file atom.coffee with the following content:

```
18
19 # Essential: Atom global for dealing with packages, themes, menus, and the window system.
20 #
21 # An instance of this class is always available as the `atom` global.
22 module.exports =
23   class Atom extends Model
24     @version: 1 # Increment this when the serialization format changes
25
26     # Load or create the Atom environment in the given mode.
27     #
28     # Returns an Atom instance, fully initialized.
29     @loadOrCreate: (mode) ->
30       startTime = Date.now()
```

The status bar at the bottom of the editor shows the number "12" followed by a small red "2".

# 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.