

Software Studio

軟體設計與實驗

Git Basics

Hung-Kuo Chu

Department of Computer Science
National Tsing Hua University

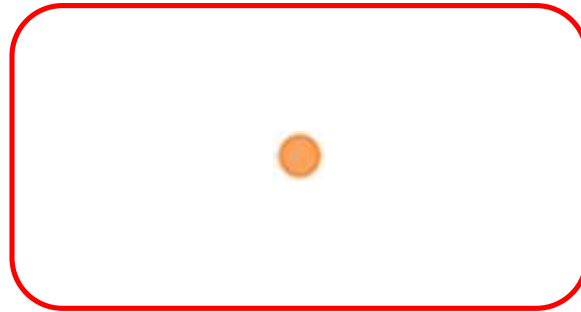


What are we going to do?



Todo

- Init remote repo

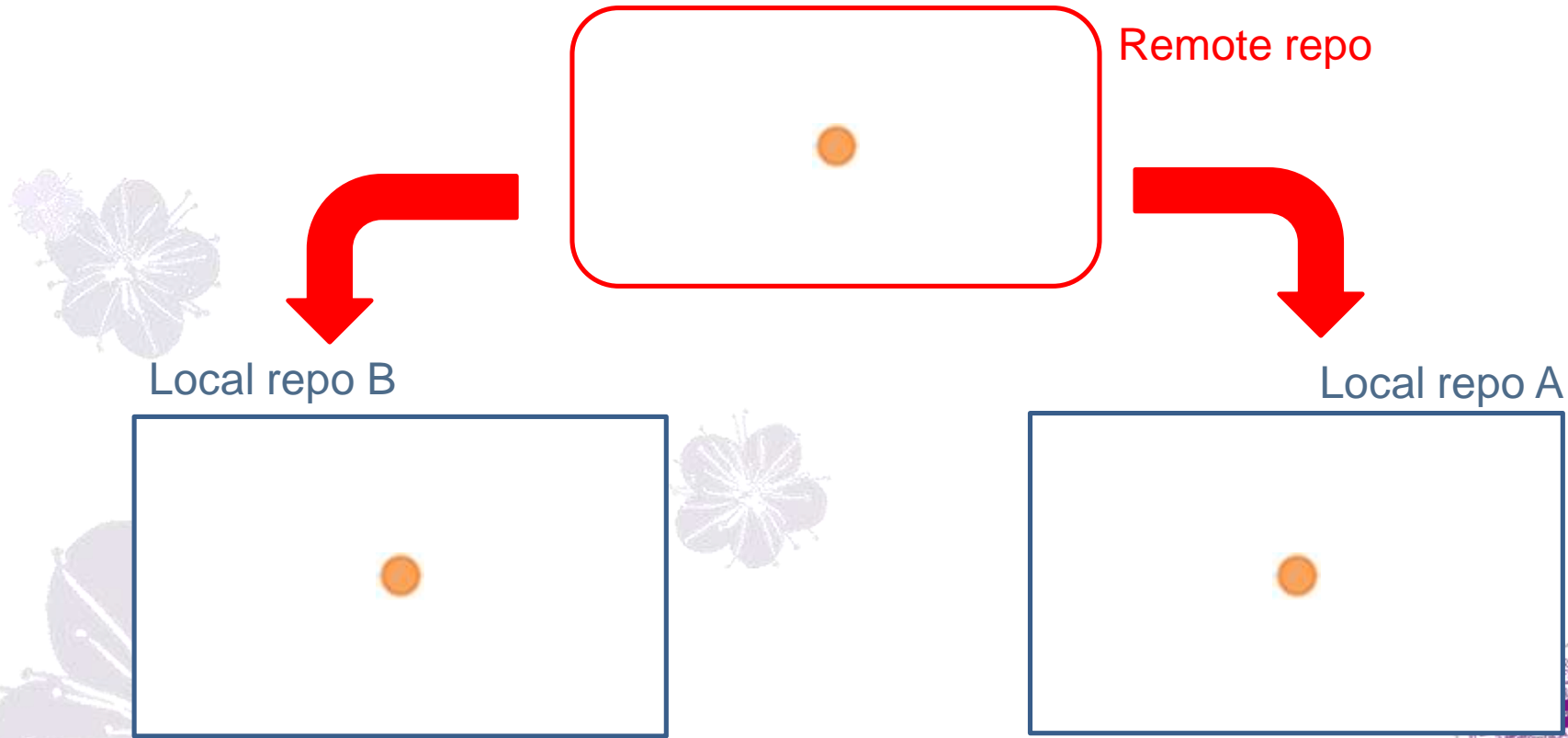


Remote repo



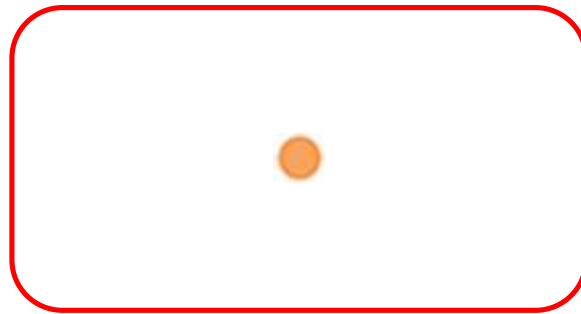
Todo

- Clone into 2 local repo A and B



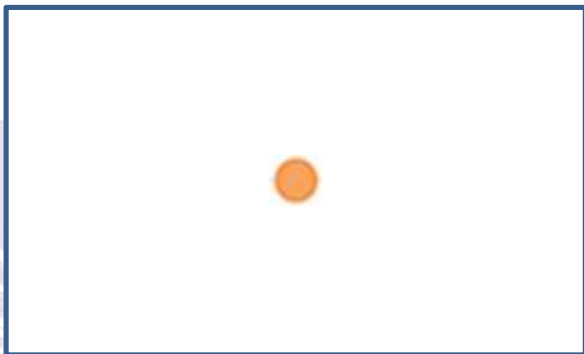
Todo

- Modify repo A

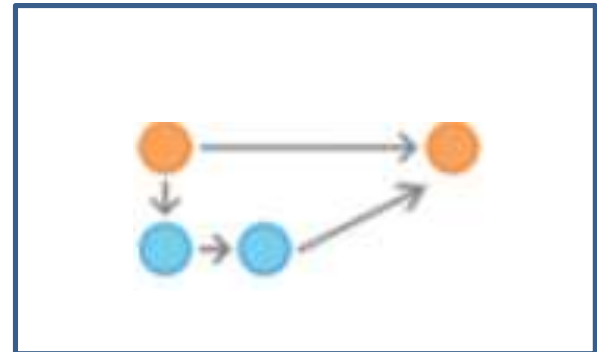


Remote repo

Local repo B

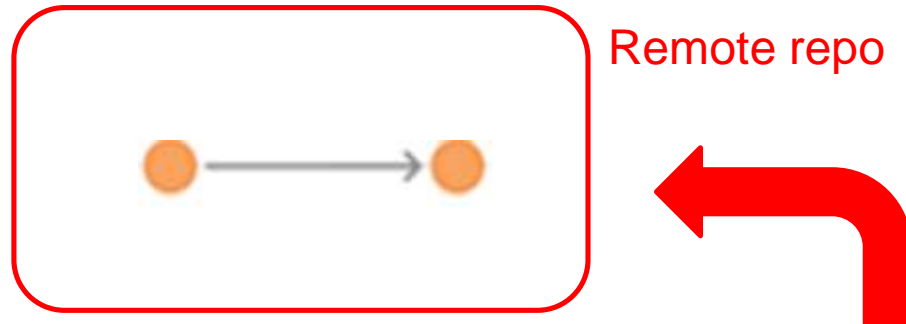


Local repo A

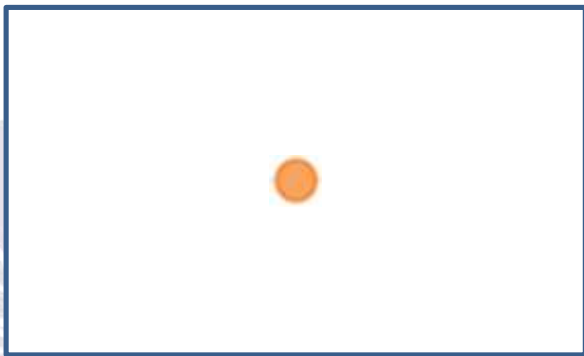


Todo

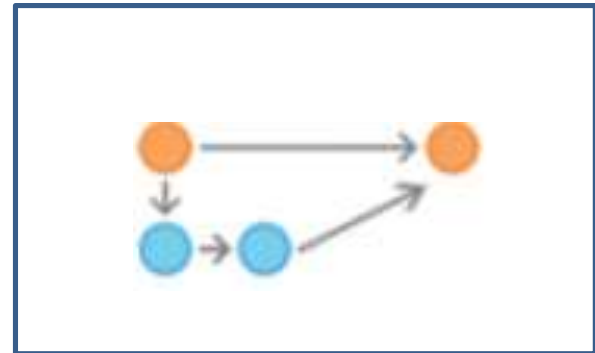
- Push repo A to remote repo.



Local repo B

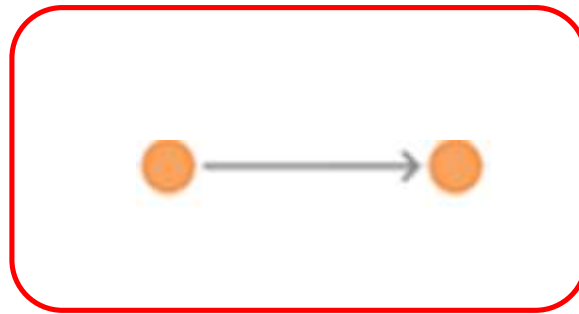


Local repo A



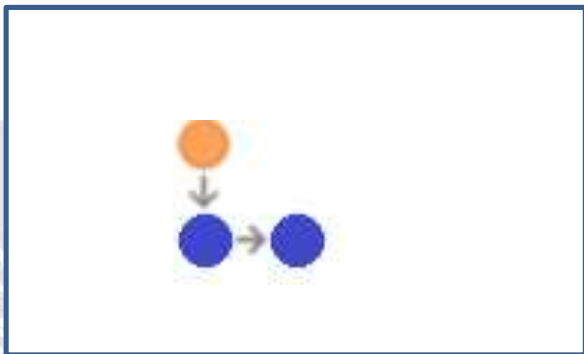
Todo

- Modify repo B

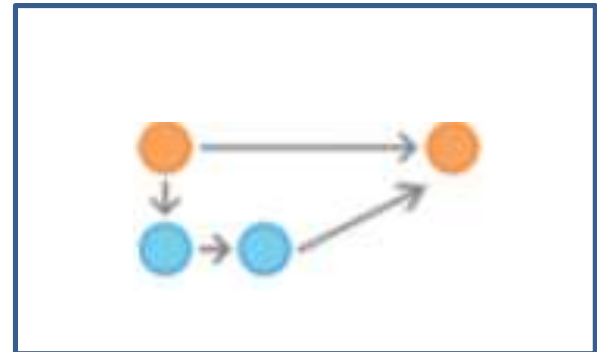


Remote repo

Local repo B

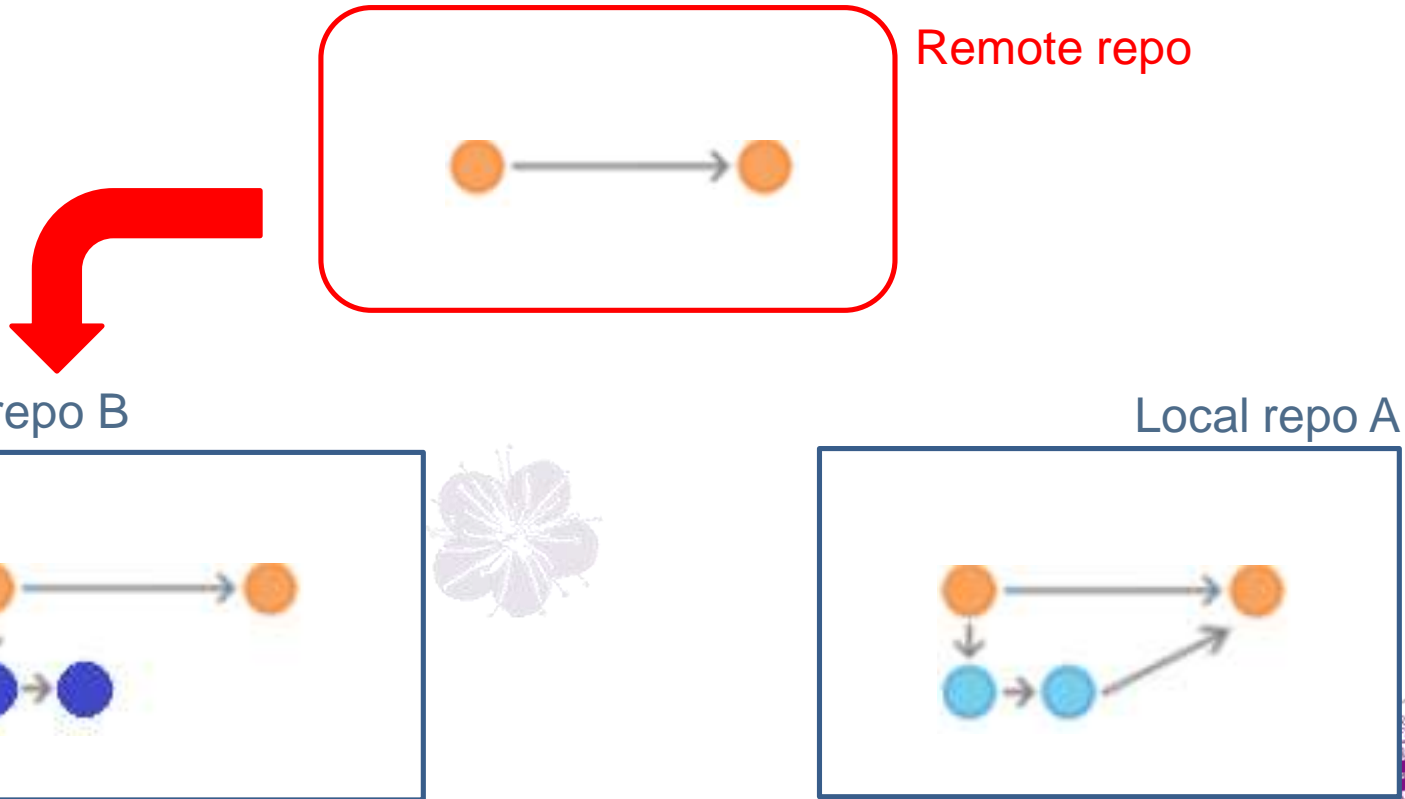


Local repo A



Todo

- Repo B pull from remote



Todo Layout



Todo Layout

- Init a remote repo.
 - Create a local folder. Initialize Git in the folder.
 - Add 'list.txt' to the local folder.
 - Add & Commit the file to the local repo.
 - Link local repo to remote repo.
 - Push the content to remote repo.



Todo Layout

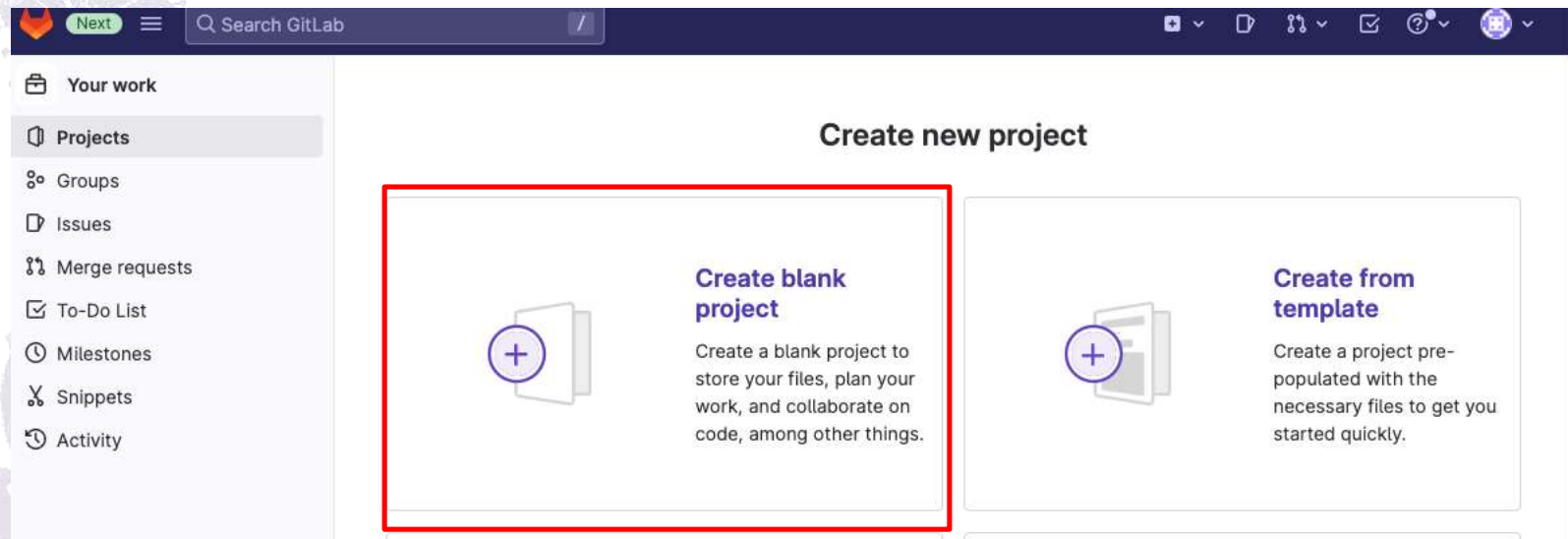
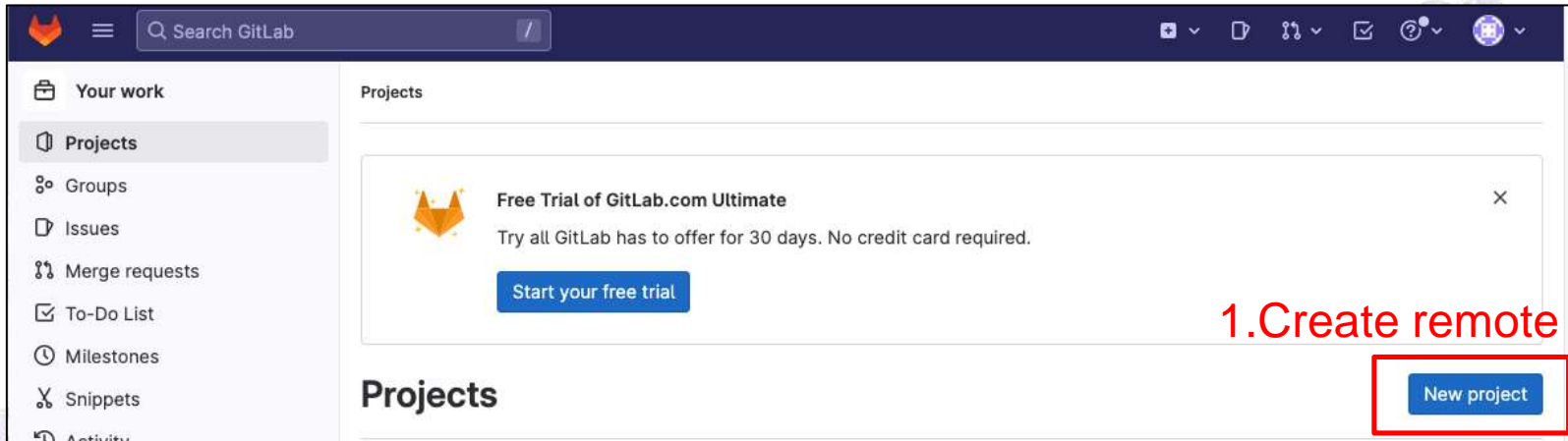
- Clone the remote repo to 2 local repos A and B.
 - Clone both local repos before moving on!
- A repo
 - Create a new branch 'featA'
 - Modify the files and commit.
 - Merge 'featA' back to 'master'
 - git push
- B repo
 - Create a new branch 'featB'
 - Modify the files and commit.
 - Checkout 'master'
 - git pull
 - Show git branch / git log to TAs



Step by Step



Todo – init remote repo



Todo – init remote repo

2. Setup project

New project > Create blank project

Project name
Lab01-Git-Basics

Must start with a lowercase or uppercase letter, digit, emoji, or underscore. Can also contain pluses, dashes, or spaces.

Project URL
https://gitlab.com/

Project slug
lab01-git-basics

Want to organize several dependent projects under the same namespace? [Create a group](#).

Project deployment target (optional)
Select the deployment target

Visibility Level

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

☐ Public
The project can be accessed without any authentication.

Project Configuration

☐ Initialize repository with a README
Allows you to immediately clone this project's repository. Skip this if you plan to push up existing repository.

☐ Enable Static Application Security Testing (SAST)
Analyze your source code for known security vulnerabilities. [Learn more](#).

Create project Cancel

Uncheck initialize repo
with README!

3. Create!

Lab01-Git-Basics
Project ID: 43642542

Invite your team
Add members to this project and start collaborating with your team.
[Invite members](#)

The repository for this project is empty
You can get started by cloning the repository or start adding files to it with one of the following options.

[Clone](#) [Upload File](#) [New file](#) [Add README](#) [Add LICENSE](#) [Add CHAN](#)

Clone with SSH
git@gitlab.com:software_stu_

Clone with HTTPS
https://gitlab.com/software_stu_

Open in your IDE
Visual Studio Code (SSH)
Visual Studio Code (HTTPS)
IntelliJ IDEA (SSH)
IntelliJ IDEA (HTTPS)

Configure Integrations
er using the instructions below.

7"
847ange1881212@gmail.com"

studio_2023/lab01-git-basics.git

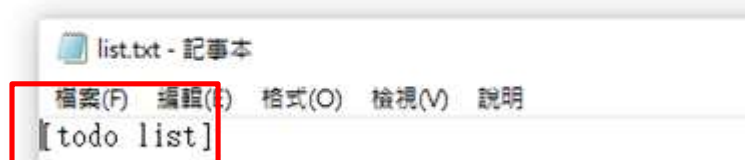
4. Copy URL



Todo – init remote repo

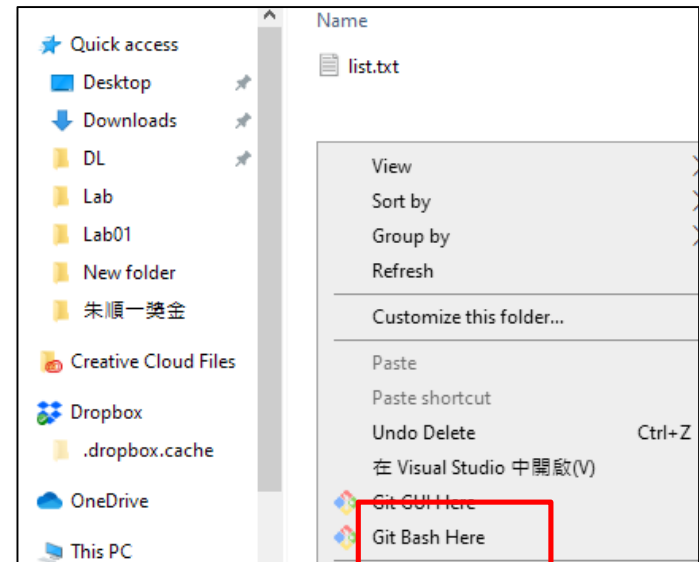
5. Create a local folder

6. Create “list.txt” in that local folder



檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
[todo list]

7. Add content to “list.txt”



8. Git Bash Here



Todo – init remote repo

9. `git init`

Init local repo in the folder

10. `git remote add origin <URL>`

Link the local folder to the remote repo(URL)

11. `git add *`

Select the changes to be added to the git system. `add *` add all changes.

12. `git config --global user.email <Your Email>`

`git config --global user.name <Your Name>`

Tell git who you are!

13. `git commit -m "initial commit"`

Commit to form a “node” on current branch. With `-m`, we specify the commit message in “ ”.

14. `git push -u origin master`

Push local changes to remote repo (enter email and password)



Todo – init remote repo

The screenshot shows the GitHub interface for a repository named 'Lab01-Git Basics'. At the top, there are statistics: 1 Commit, 1 Branch, 0 Tags, and 133 KB Files. A red box highlights these statistics. Below this is an 'Auto DevOps' section with a button to 'Enable in settings'. The repository is currently on the 'master' branch. Below the branch selector, there is an 'Initial commit' by 'Sienna' 9 minutes ago. A table at the bottom shows the file 'list.txt' added in the 'Initial commit' 9 minutes ago. A red box highlights this table entry. A red text overlay says 'View the branches and the commits' and another says 'The file is added to the remote repo!'.

Lab01-Git Basics

Project ID: 17273855

1 Commit 1 Branch 0 Tags 133 KB Files

Auto DevOps

It will automatically build, test, and deploy your application based on a predefined CI/CD configuration.

Learn more in the [Auto DevOps documentation](#)

Enable in settings

master lab01-git-basics / +

History Find file Web IDE Clone

Initial commit

Sienna authored 9 minutes ago

ce792425

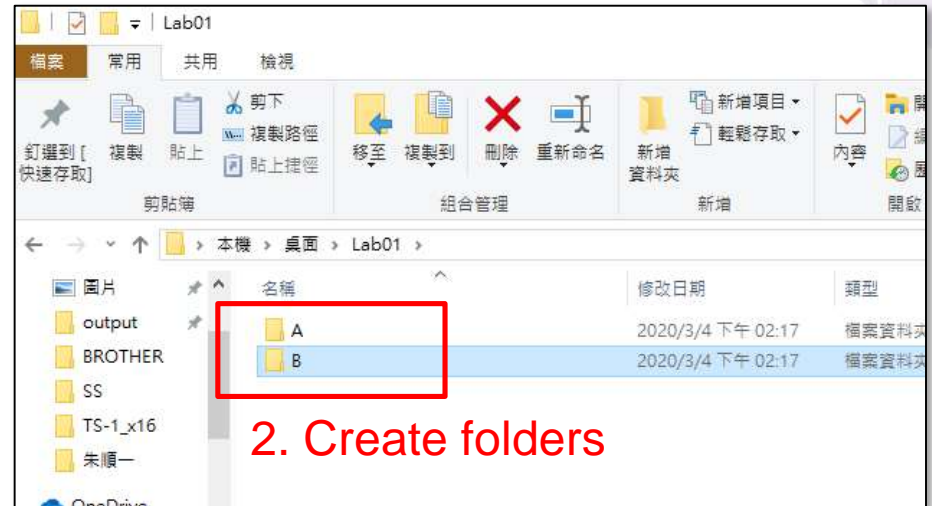
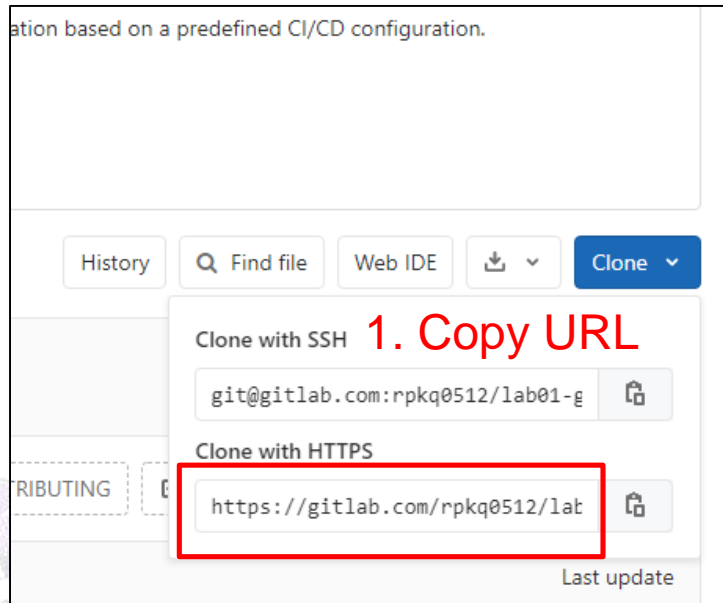
Add README Add LICENSE Add CHANGELOG Add CONTRIBUTING Add Kubernetes cluster Set up CI/CD

Name	Last commit	Last update
list.txt	Initial commit	9 minutes ago

View the branches and the commits

The file is added to the remote repo!

Todo – clone to local repo

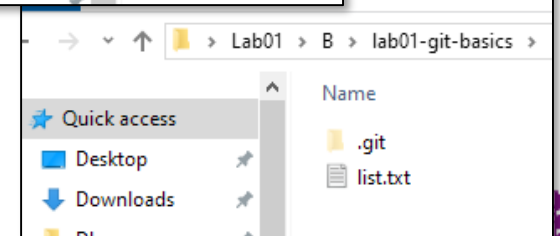
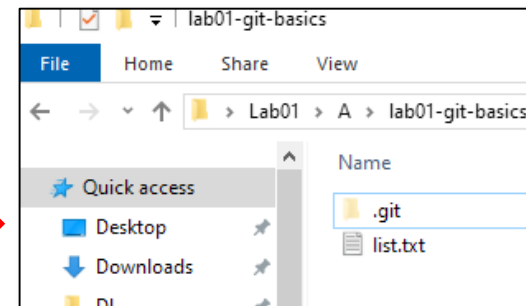


```
USER@DESKTOP-O52MD07 MINGW64 /d/Desktop/Lab01/A/lab01-git-basics (master)
$
```

3. git clone <URL>

Clone into both A and B folders

Clone both of them before moving on!!



Todo – A repo

- Go to the folder **inside** folder A.
 - You cannot do git operations in folder A!

```
USER@DESKTOP-052MD07 MINGW64 /d/Desktop/Lab01/A/lab01-git-basics (master)  
$
```

1. **git checkout -b featA**

Create a new branch named “featA”.

Use git checkout to switch to other branches.

git checkout -b <branch name> to create a new branch and switch to it.

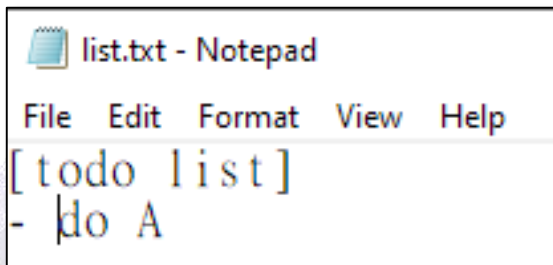
2. **git branch**

View all local branches. The branch with * is the current branch.



Todo – A repo

```
USER@DESKTOP-052MD07 MINGW64 /d/Desktop/Lab01/A/lab01-git-basics (master)
$
```



list.txt - Notepad

File Edit Format View Help

[todo list]

- |do A

3. Add **do A** to the list.

4. **git add ***

git commit -m "featA commit"

5. **git log**

View all old versions on the current branch.

6. **git checkout master**

Switch to branch "master".

7. **git merge featA**

Merge the specified branch to current branch.

8. **git push**

Push the changes on master to remote repo.



Todo – A repo

- Open the remote file. Now “do A” is added to the list!

Sienna > Lab01-Git Basics > Repository

master

lab01-git-basics / **list.txt**



featA commit

Sienna authored 10 minutes ago

 **list.txt** 18 Bytes 

```
1 [todo list]
2 - do A
```



Todo – B repo

1. Now it's your turn!
2. Go to the folder inside B folder.
3. Create a new branch “featB” and switch to it.
4. Add “do B” to list item.
5. Add and commit the changes with message “featB commit”.



Todo – B repo(Cont'd)

6. Switch to “master”

7. git pull

git pull

Update changes from remote repo.



Results

- master branch

MINGW64:/c:/Users/YiTing/Desktop/lab1/B/lab1

```
YiTing@DESKTOP-HFF4GSV MINGW64 ~/Desktop/lab1/B/lab1 (master)
$ git log
commit 42265de53920800bdf7e27c42a8d27be77c9da0d (HEAD -> master, origin/master, origin/HEAD)
Author: YiTing Pan <paul196325@gmail.com>
Date: Tue Mar 10 00:31:33 2020 +0800

    featA commit

commit c9ba86falfc4c5d49e60df15ca8400d6b1fe50be
Author: YiTing Pan <paul196325@gmail.com>
Date: Tue Mar 10 00:28:32 2020 +0800

    initial commit

YiTing@DESKTOP-HFF4GSV MINGW64 ~/Desktop/lab1/B/lab1 (master)
$
```



Results

- featB branch

MINGW64:/c/Users/YiTing/Desktop/lab1/B/lab1

```
YiTing@DESKTOP-HFF4GSV MINGW64 ~/Desktop/lab1/B/lab1 (featB)
$ git log
commit d3363cb541dd969aeb163b1a81a23860fdafff3c (HEAD -> featB)
Author: YiTing Pan <paul196325@gmail.com>
Date: Tue Mar 10 00:35:21 2020 +0800

    featB commit

commit c9ba86falfc4c5d49e60df15ca8400d6b1fe50be
Author: YiTing Pan <paul196325@gmail.com>
Date: Tue Mar 10 00:28:32 2020 +0800

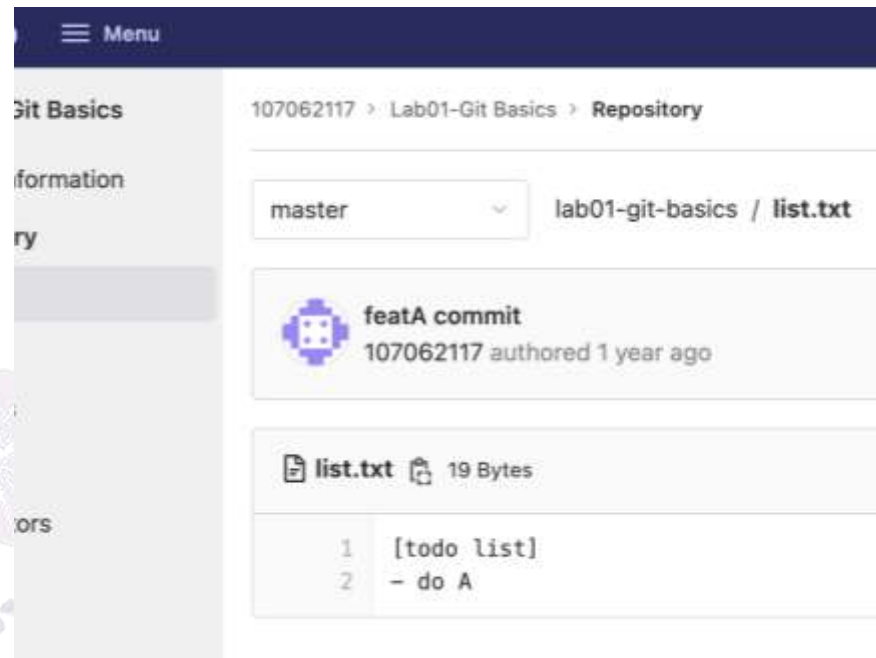
    initial commit

YiTing@DESKTOP-HFF4GSV MINGW64 ~/Desktop/lab1/B/lab1 (featB)
$
```



Results

- The list item of “master” should be “do_A”
- Show your branches and git log of “master” & “featB” to TAs!



thank
you!

Question

