LAB II LECTURE
Git Remote / GitHub

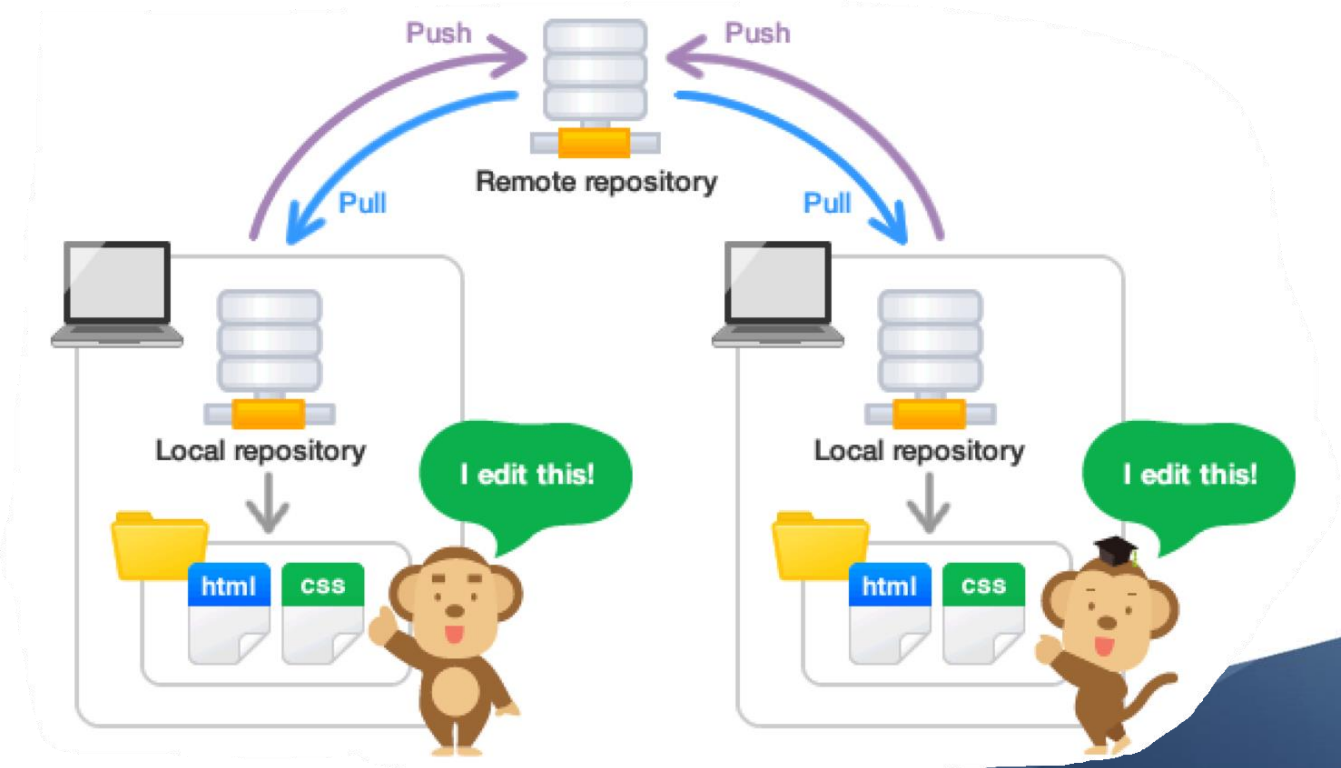
Seoul National University
Graphics & Media Lab

Today’s Contents

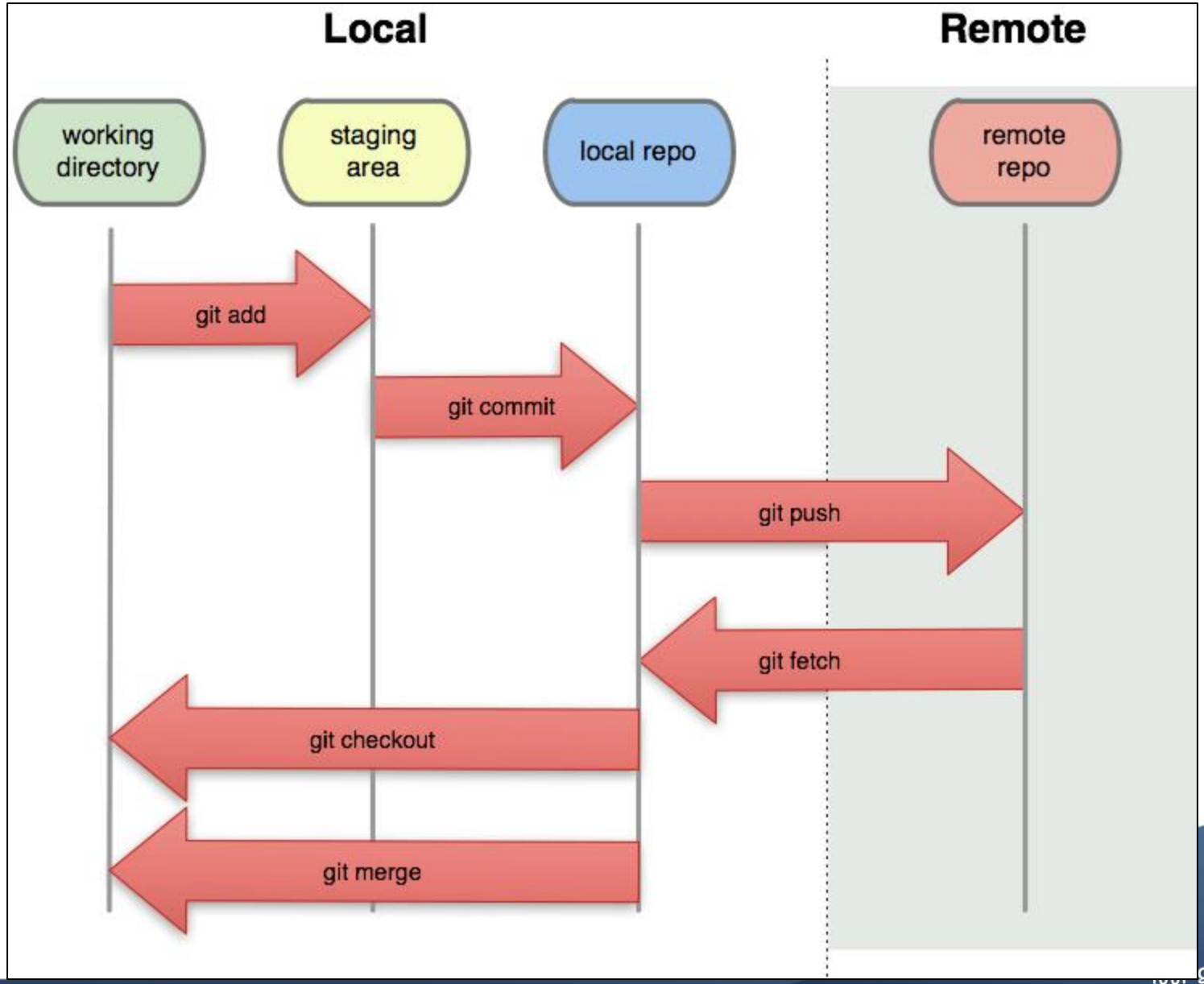
- Working with Remote
- Introduce to GitHub / Setup
- Contributing to a GitHub Project

Local vs Remote

- Local Repository
  - Reside on a local machine of an individual user
- Remote repository
  - Reside on a remote server
  - Shared among multiple team members

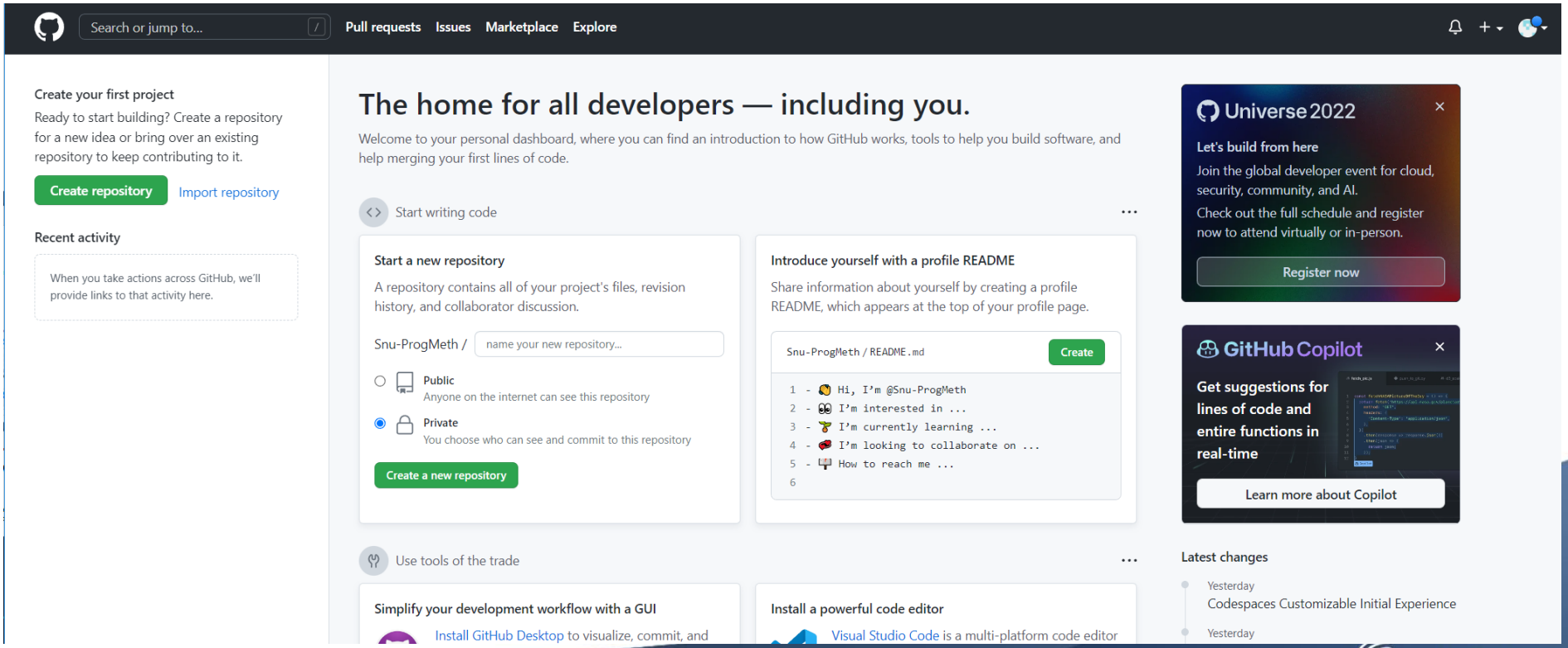


Working With Remotes



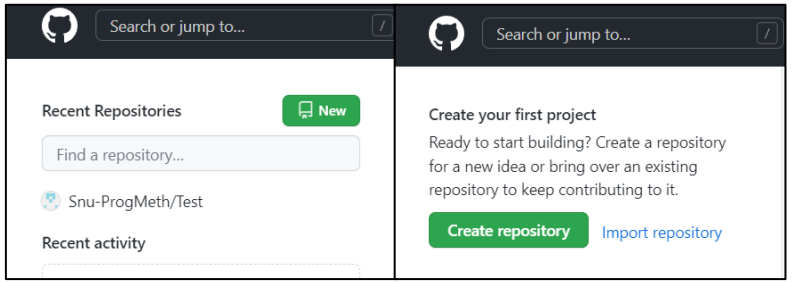
Creating Remote Repository (GitHub)

- https://github.com
- The single largest host for Git repositories
- A large percentage of all git repositories are hosted on GitHub, and many open-source projects use it for Git hosting, issue tracking, code review, and other things

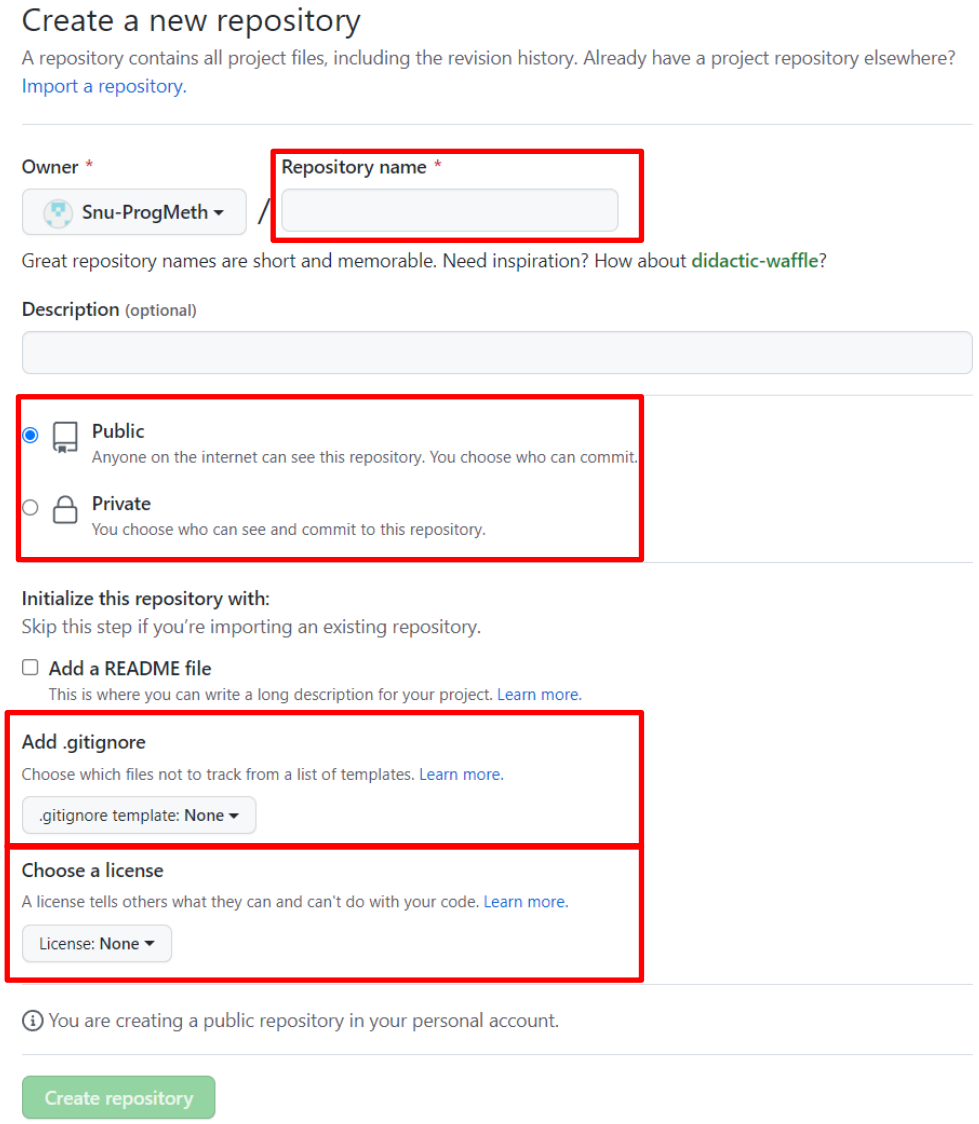


Create a Remote Repository on GitHub

- Click "New" / "Create repository" button



- Set your Repository
  - Repository Name
  - Public vs Private
  - Add .gitignore
    - Set according to your working environment
    - C++, visualstudio, python, etc…
  - Select license



Github Basically Tells You What to Do

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

Set up in Desktop or HTTPS SSH https://github.com/Snu-ProgMeth/GitRemoteExample.git

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

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

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

...or push an existing repository from the command line

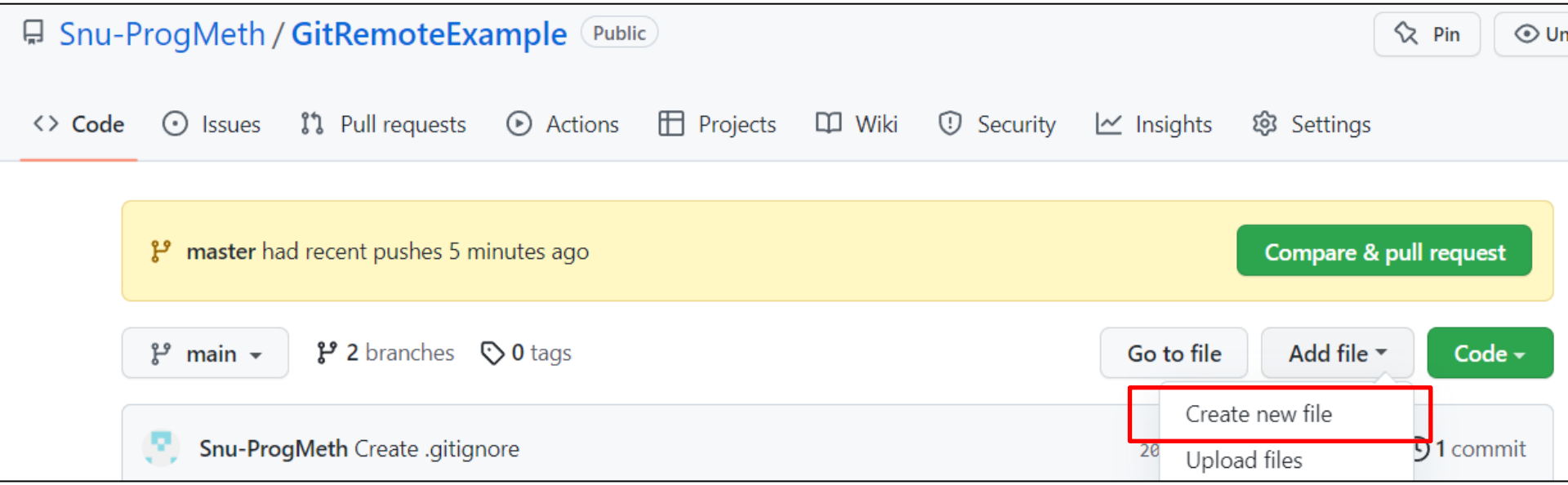
```
git remote add origin https://github.com/Snu-ProgMeth/GitRemoteExample.git
git branch -M main
git push -u origin main
```

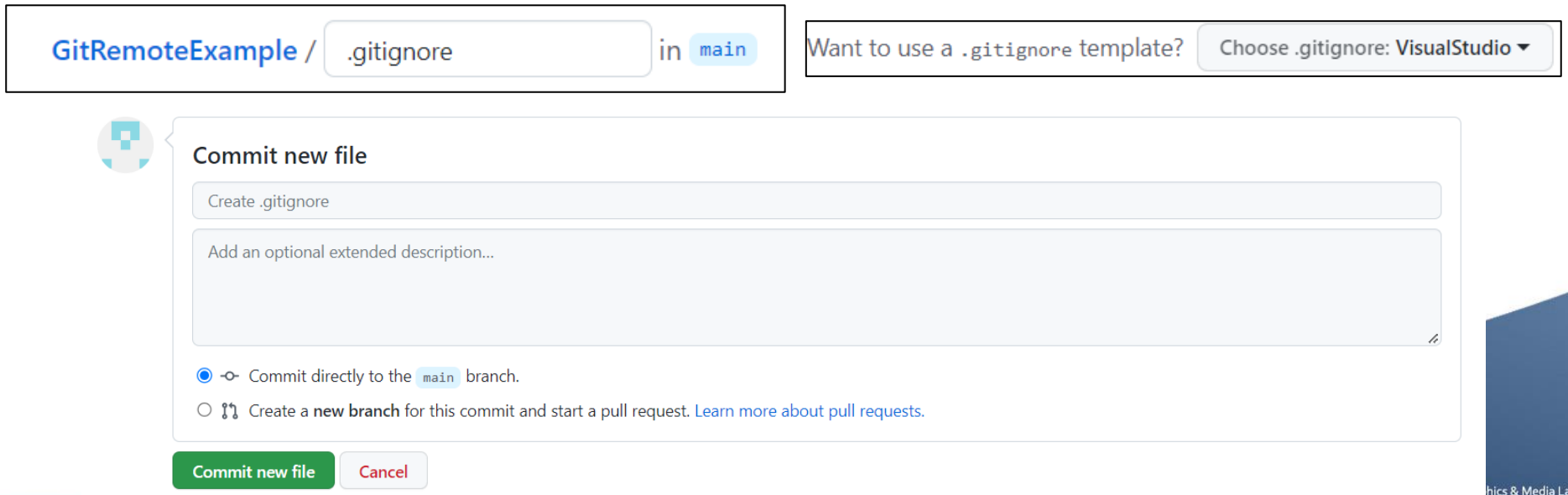
...or import code from another repository

You can initialize this repository with code from a Subversion, Mercurial, or TFS project.

Import code

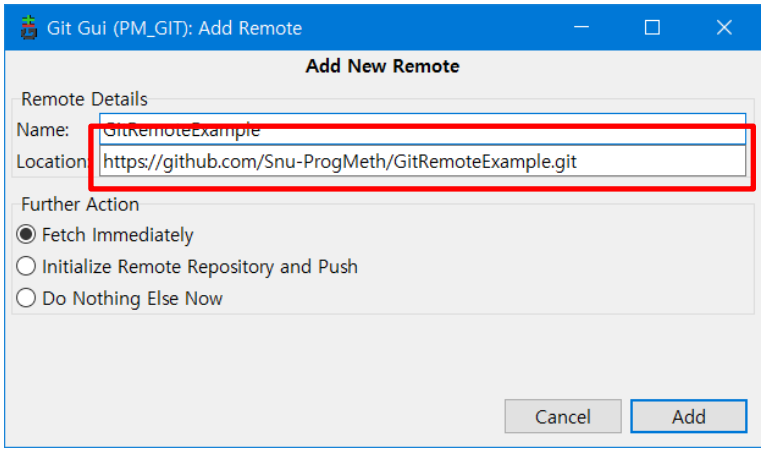
Create New File on Remote

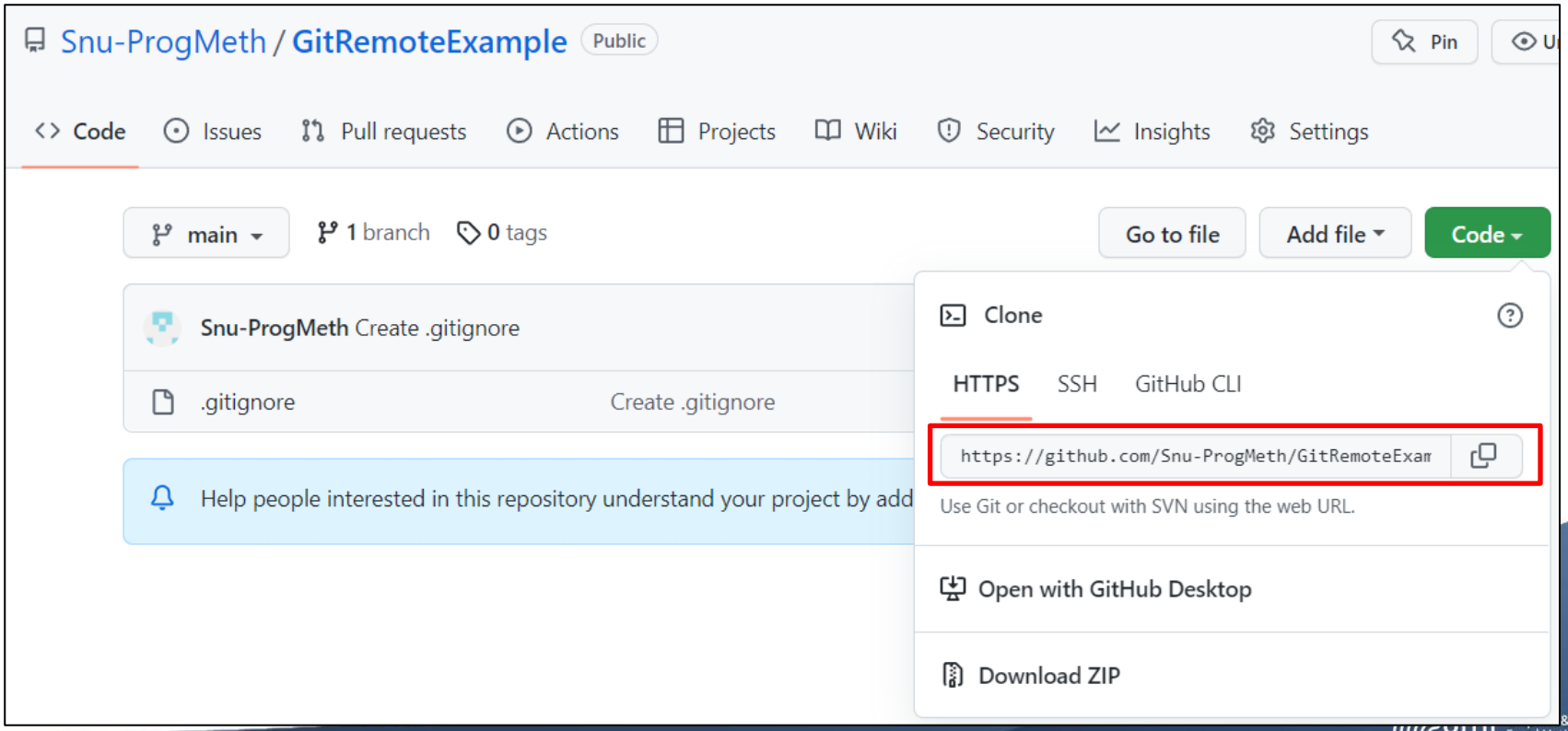




Add Existing Local Repository

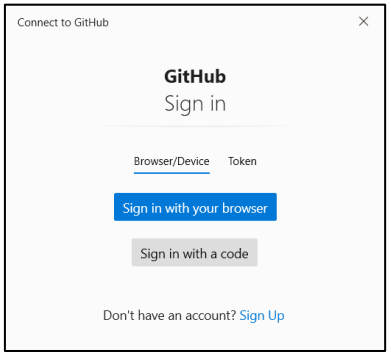
- Git GUI “Remote”>”Add”

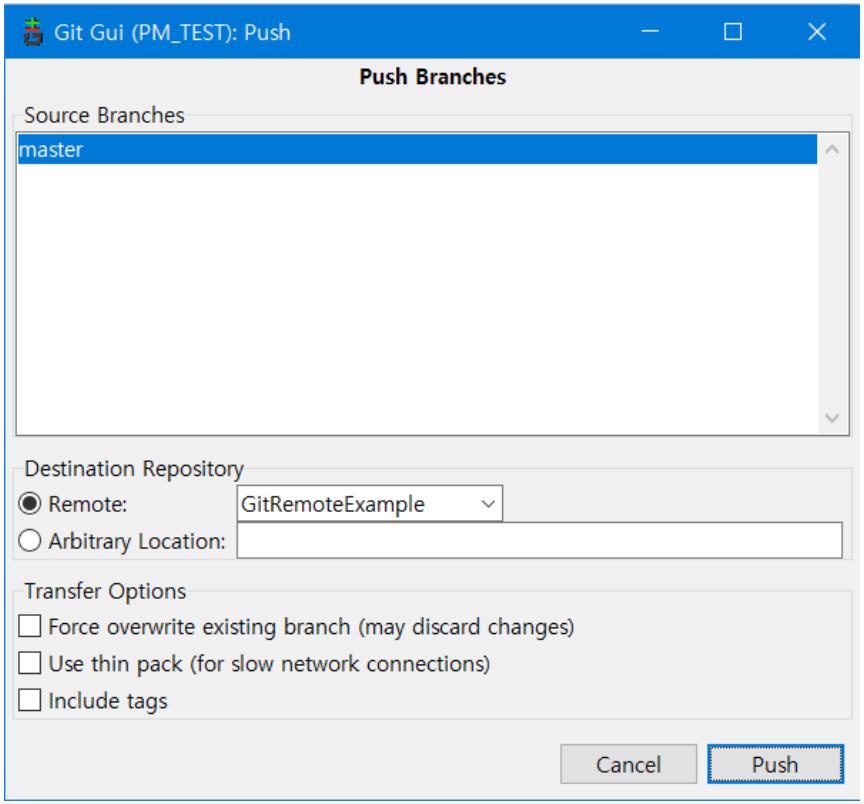


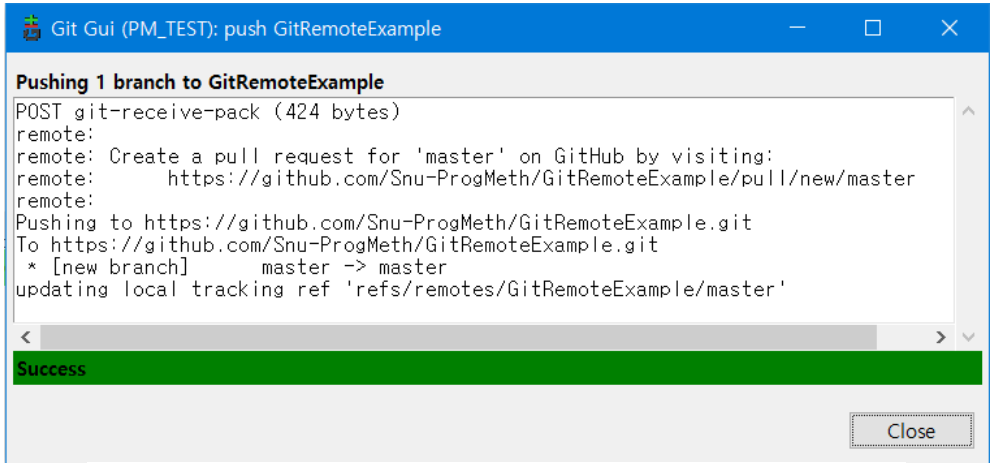


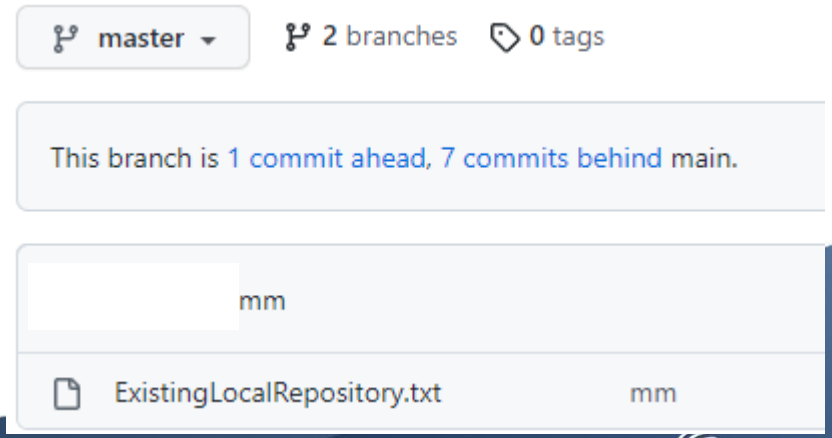
Pushing to Remote Repository

- Git GUI “Remote”->”Push”





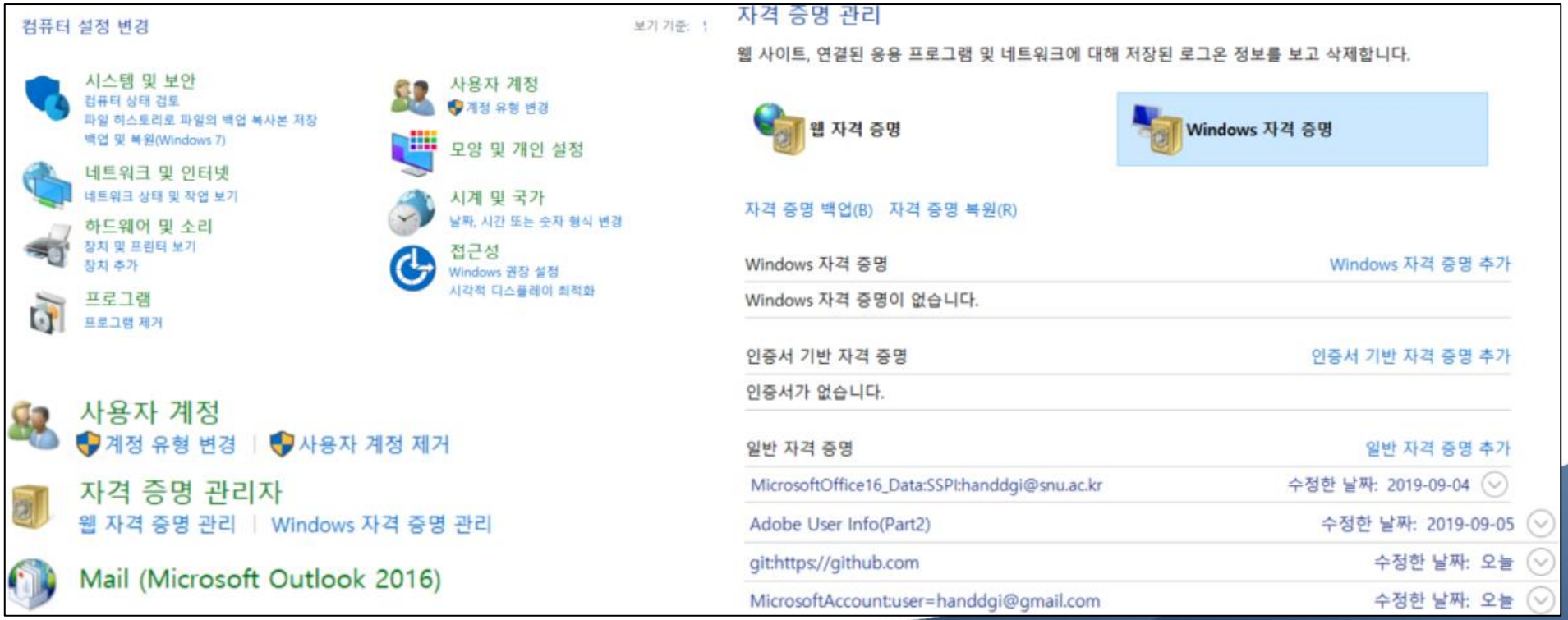




Logout Github

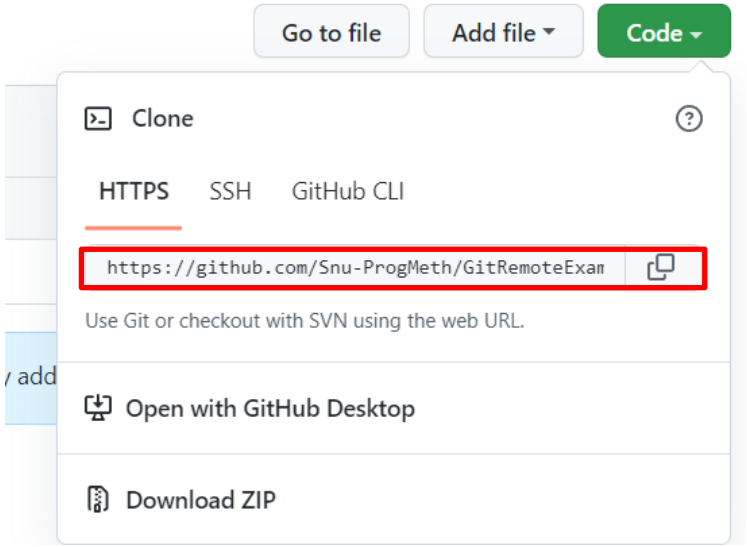
- When using git gui, GitHub login information save automatically within windows

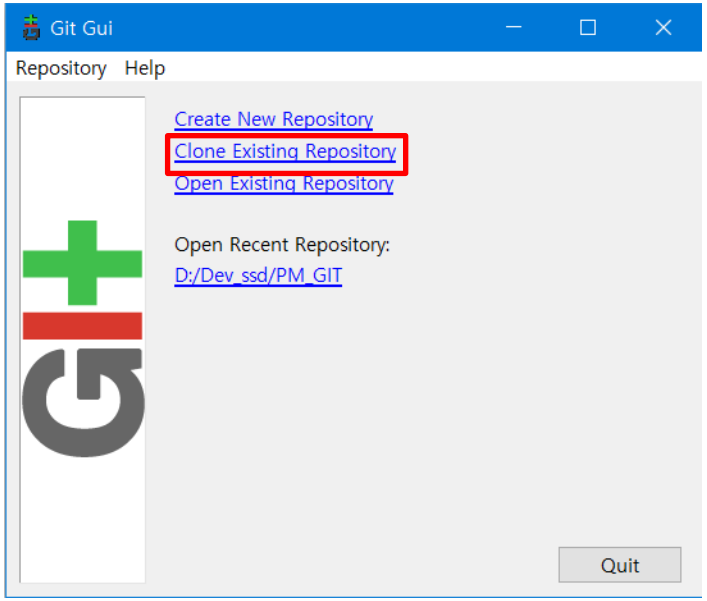
- 제어판>사용자 계정>자격 증명 관리자
  - Windows 자격증명>일반 자격증명



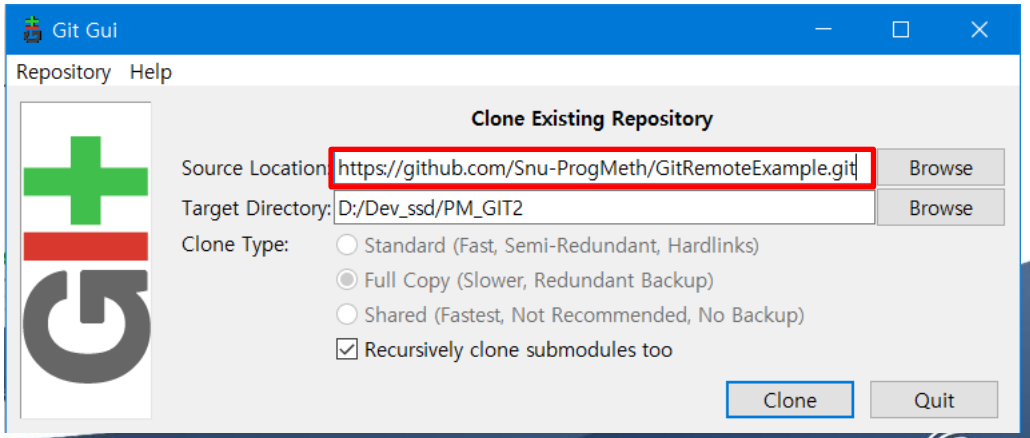
Clone Remote Repository

- Create local copy on your computer from existing remote repository



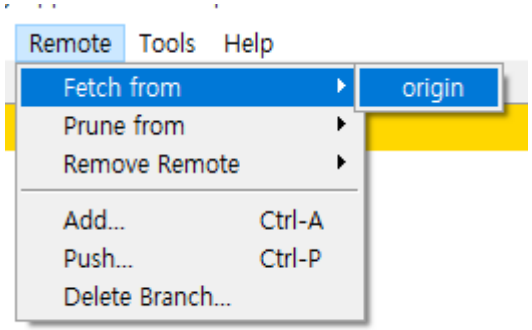


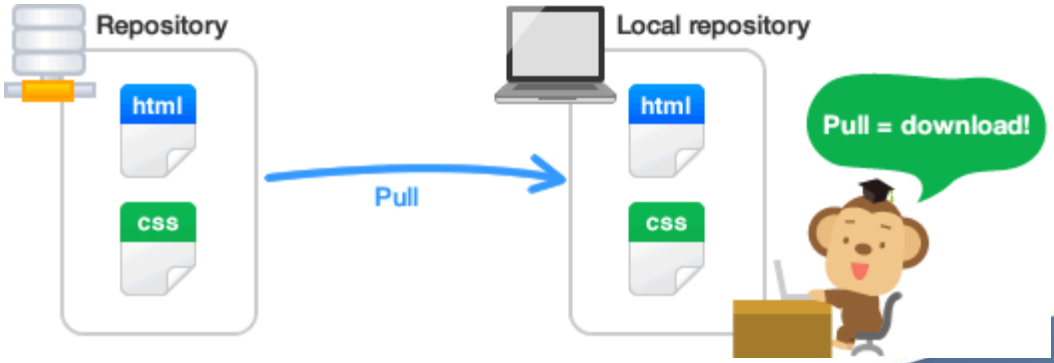
- Target directory should not exist at the time of cloning



Working with Remotes Pull

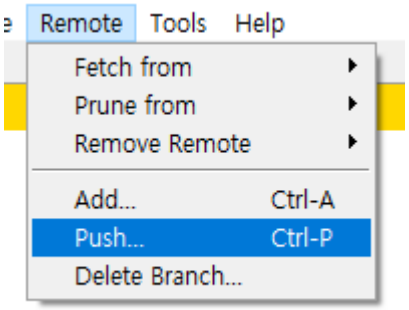
- If your local repository has been set with or cloned from remote, keep up to date with the remote using following operations
- Fetch
  - Download the latest contents from remote
  - Fetched changes should be merged using merge menu
  - On CLI, pull command
    - Fetch + merge

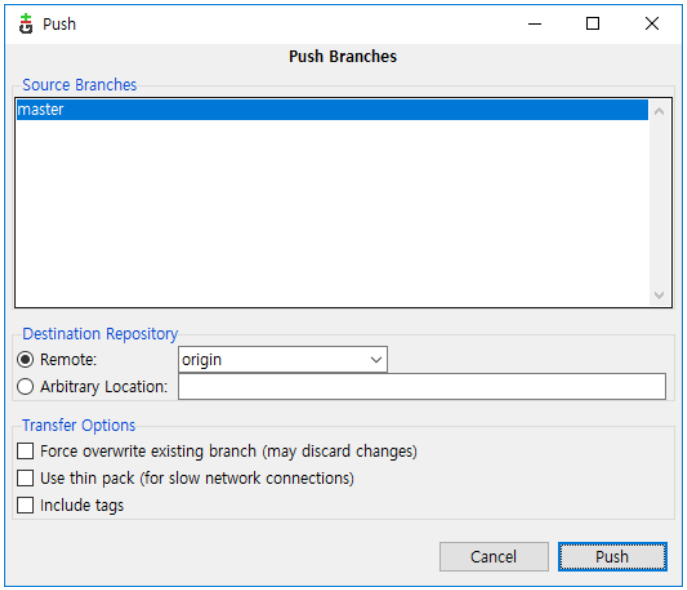


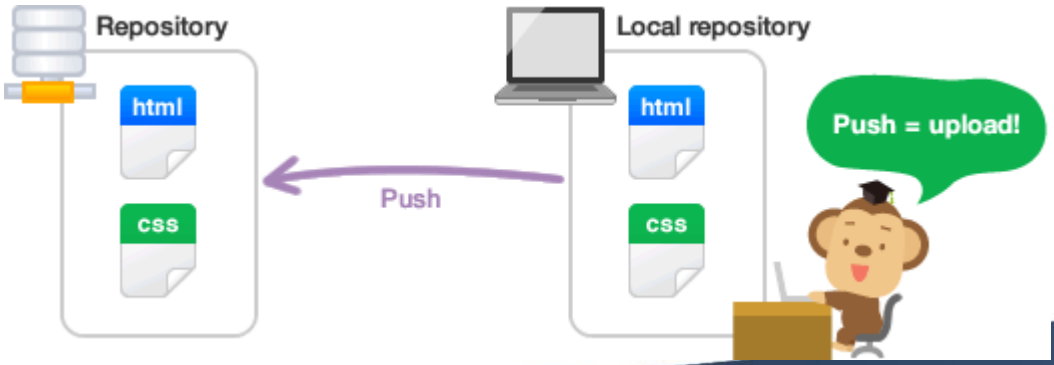


Working with Remotes Push

- Push command
  - Update remote repository with local one
  - Only users have access to the remote can push their modifications into the remote



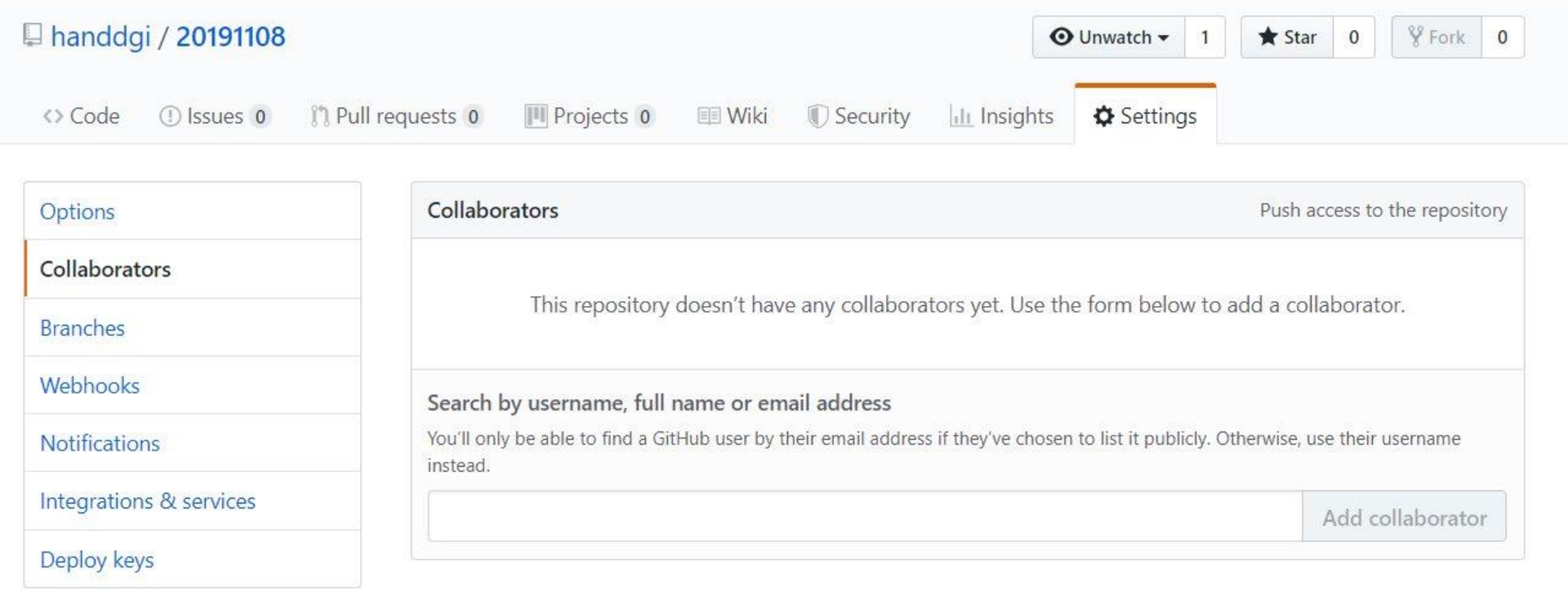




Collaborate with Github

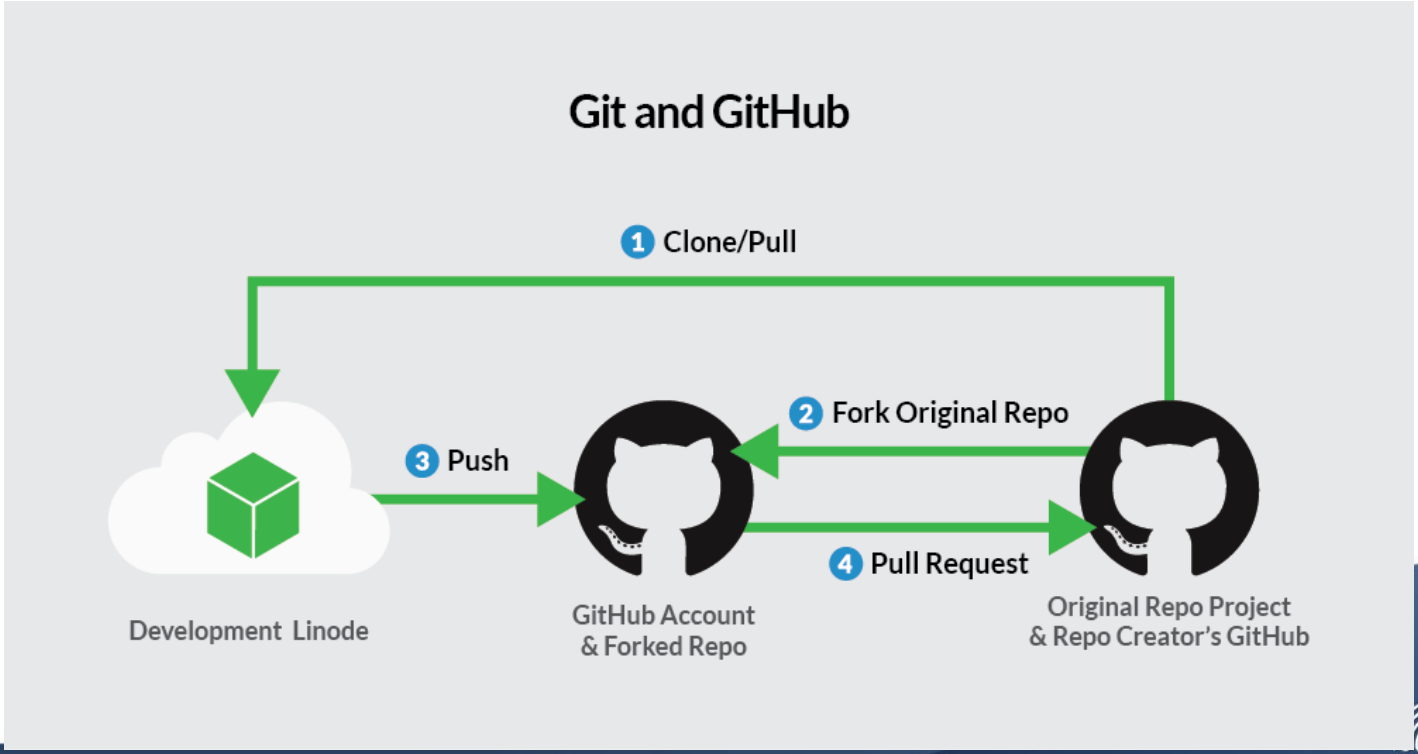
- Setting menu
  - Collaborators

  - Collaborators should sign up for GitHub



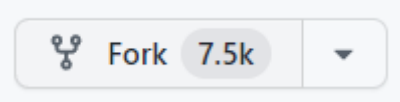
Contributing to a GitHub Project

- Unless you are working as one of the core developers in a project (able to push to the repo directly), participating in a GitHub project starts from forking (copying) the repo to your account
- Create a topic branch in the forked repo, and make changes
- If modifications done, a pull request could be issued to merge your branch into the original project

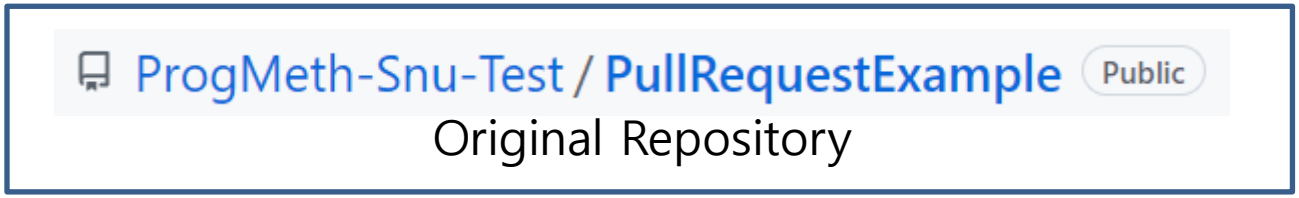


Forking a project

- Forking a project
  - Clicking ‘Fork’ button on GitHub page will fork the project into your account

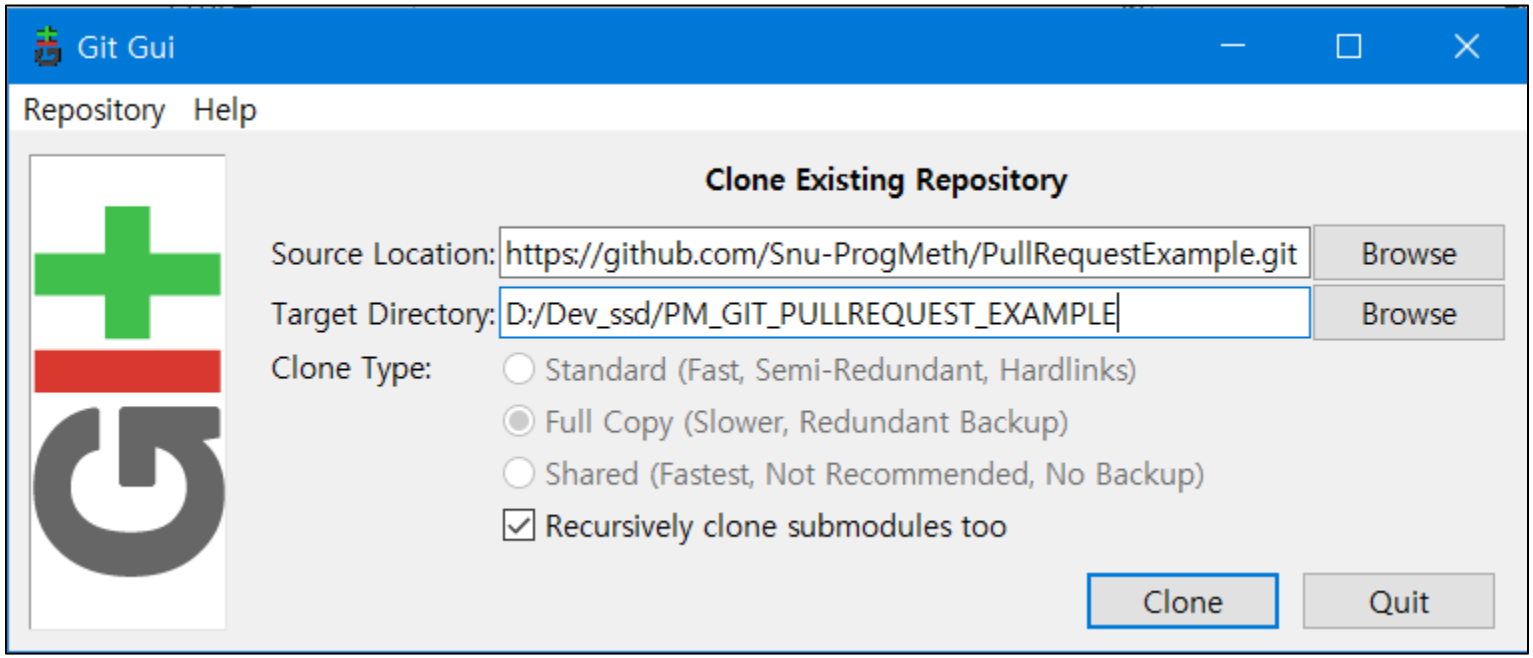


- Forked project is indicated with a fork icon



Contributing to a GitHub Project

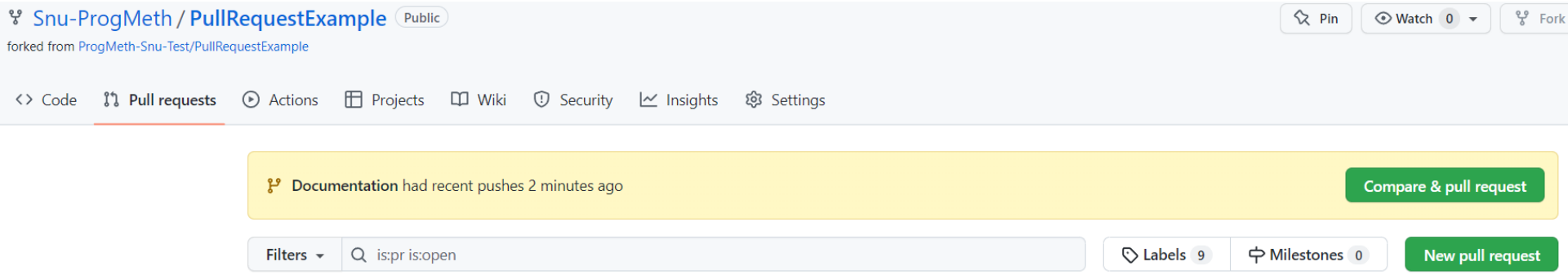
- Clone the forked project



Contributing to a GitHub Project

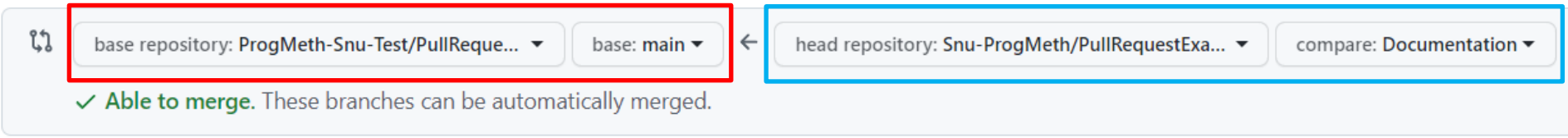
- Make changes and push
  - First create a topic branch which you will work in
  - Modify the code as you want, then commit and push to 'forked' repo

- Create a pull request
  - Go to the forked project in GitHub
  - Either
    - Click 'Compare & pull request'
    - Click 'Pull requests' > 'New pull request'

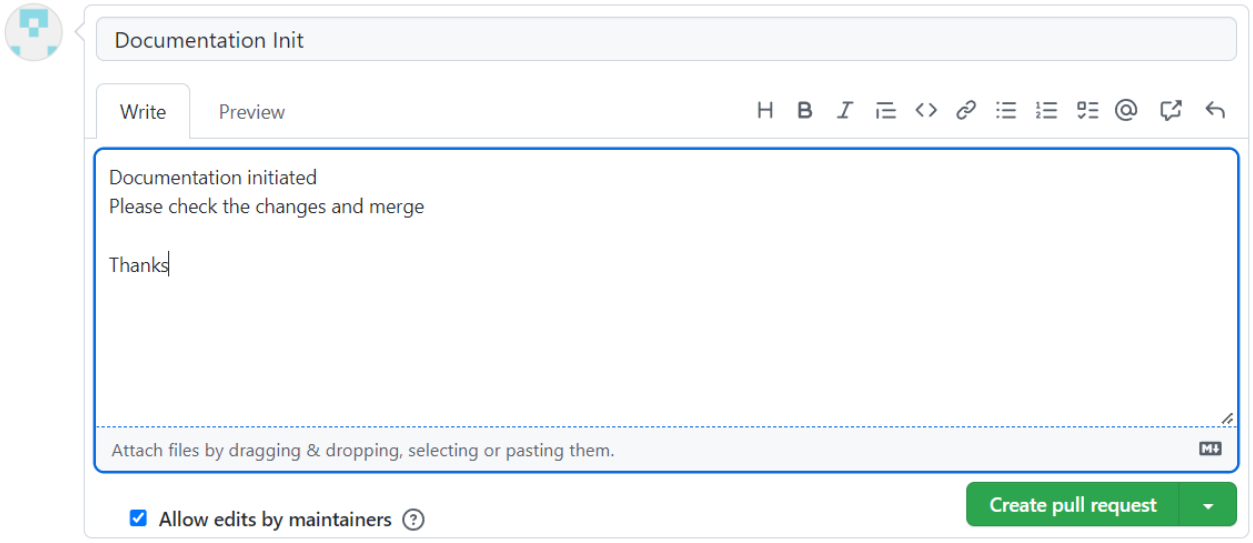


Contributing to a Github Project

- Create a pull request
  - Make sure that your topic branch is merging into original's branch



- Add message and click 'Create pull request'
  - Make sure that your topic branch is merging into original's branch



Contributing to a Github Project

Documentation Init #1

Open **Snu-ProgMeth** wants to merge 1 commit into `ProgMeth-Snu-Test:main` from `Snu-ProgMeth:Documentation`

Conversation 0 | Commits 1 | Checks 0 | Files changed 1

Snu-ProgMeth commented 2 minutes ago — First-time contributor

Documentation initiated
Please check the changes and merge

Thanks

Continuous integration has not been set up
GitHub Actions and several other apps can be used to automatically catch bugs and enforce style.

This branch has no conflicts with the base branch
Merging can be performed automatically.

Merge pull request ▾ You can also open this in GitHub Desktop or view command line instructions.

Mission

- Fork repo, https://github.com/Snu-ProgMeth/22Fall_PM_L2_GIT_REMOTE.git

- Clone your forked repo into your local workspace
- Create a cpp file with a name like this
  - 'Lab2-YOUR_STUDENT_NUMBER'
  - E.g. 'Lab2-2022-12345'

- Commit and push to the forked repo
- Create a pull request into the original repo submission branch

--allow-unrelated-histories

- Force merge unrelated branches (for instance by adding remote)