



SkillsFuture Career Transition Program

Cloud Infrastructure Engineering - Version Control - GITHUB I & GITHUB II

Nanyang Technological University
Skills Union

2022/2023

Version Control

What is version control? At a basic level, version control is the **process of tracking and managing changes to files** over time, and version control software helps automate this process. But that is only the beginning of what it does and why it's important.

Version control is essential for development teams across all industries. It not only enables them to manage changes to code and files over time, but also allows them to work on the same project simultaneously. A good version control system allows for better collaboration and faster development, and it gives you a complete history of your digital assets.

A version control system (VCS) or version control software automates the process of version control. It **tracks changes to a file or set of files over time so that you do not have to manage file versions manually or with custom automation scripts**. A version control system keeps a complete history of your code and other files, allowing you to return to a previous version if needed.

Version Control

Version control lets developers safely work through **branching** and **merging**.

With branching, a developer duplicates part of the source code (called the repository). The developer can then safely make changes to that part of the code without affecting the rest of the project.

Then, once the developer gets his or her part of the code working properly, he or she can merge that code back into the main source code to make it official.

All of these changes are then tracked and can be reverted if need be.



Why Is Version Control Software Important?

- Gives Your Team a Single Source of Truth
- Maintains a Full File History & Improves Visibility
- Enables Concurrent Development
- Enables Better Team Collaboration
- Supports Automation Within Development

Why Is Version Control Software Important?

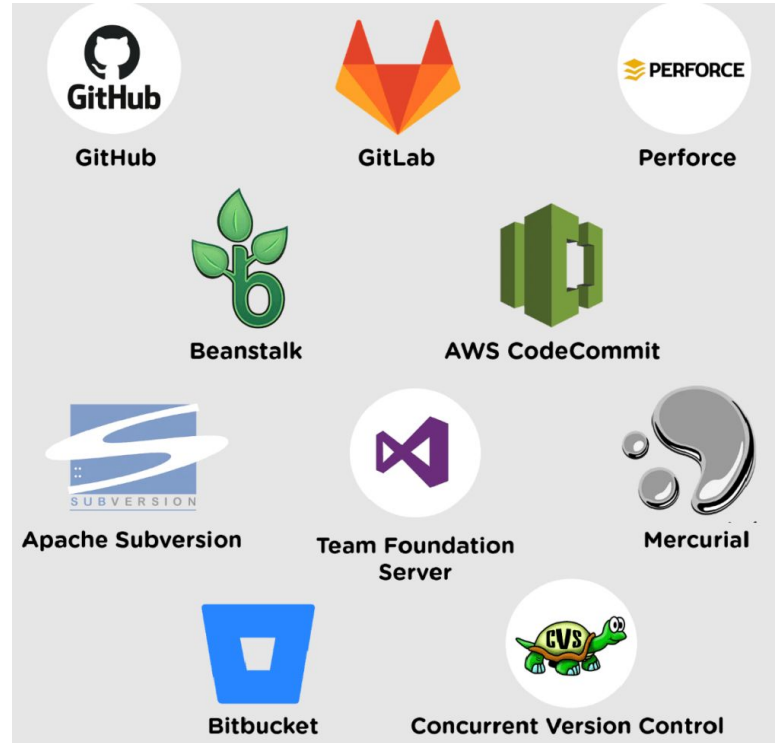
- Gives Your Team a Single Source of Truth
- Maintains a Full File History & Improves Visibility
- Enables Concurrent Development
- Enables Better Team Collaboration
- Supports Automation Within Development



What Is Version Control?



Version Control Systems Software Examples



Git VS GitHub

Git is a version control system that lets you manage and keep track of your source code history.

GitHub is a cloud-based hosting service that lets you manage Git repositories.



git add, git commit, git push

```
git config --global user.email "you@example.com"  
git config --global user.name "github_username"
```

git add .

Stage the all the file for commit to your local repository by the following command.

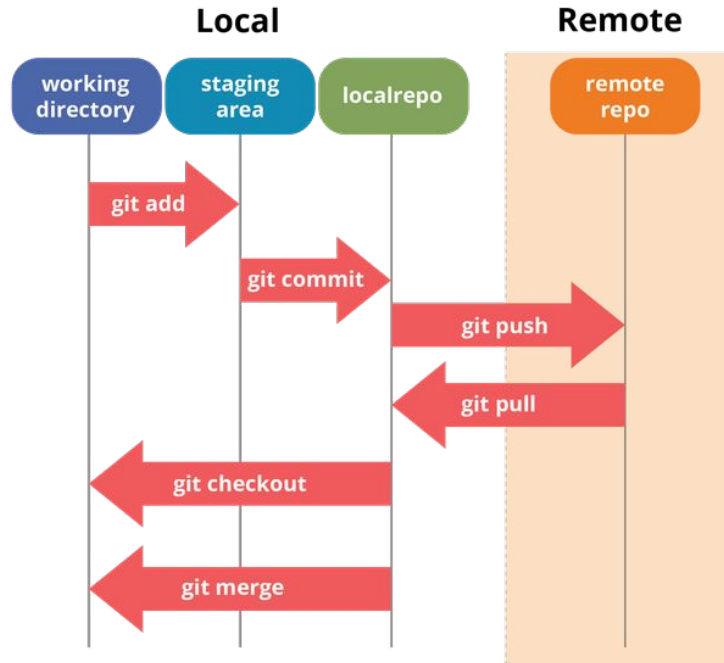
git commit -m "Create changes on README file"

Commit the file that you've staged in your local repository.

git push origin main

Push the changes in your local repository to GitHub.

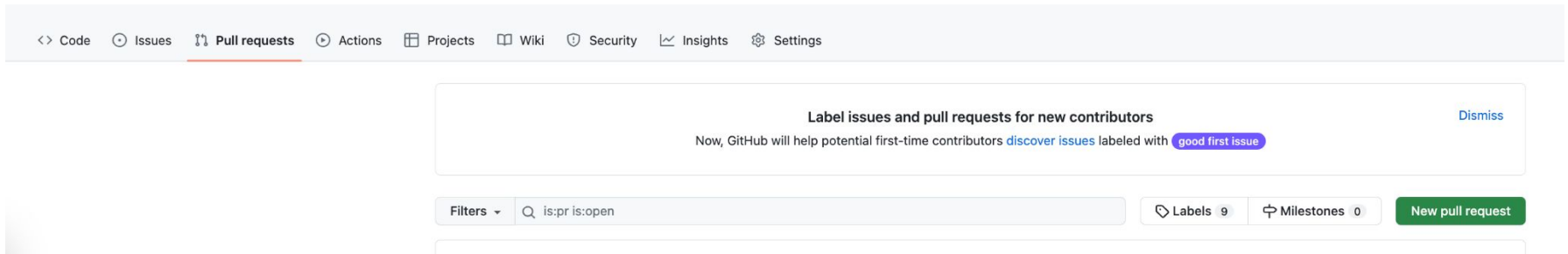
git add, git commit, git push



Pull Request

A pull request is an event in Git where a contributor asks a other member of a Git repository to review code they want to merge into a project.

Pull requests let you tell others about changes you've pushed to a branch in a repository on GitHub. Once a pull request is opened, you can discuss and review the potential changes with collaborators and add follow-up commits before your changes are merged into the base branch.

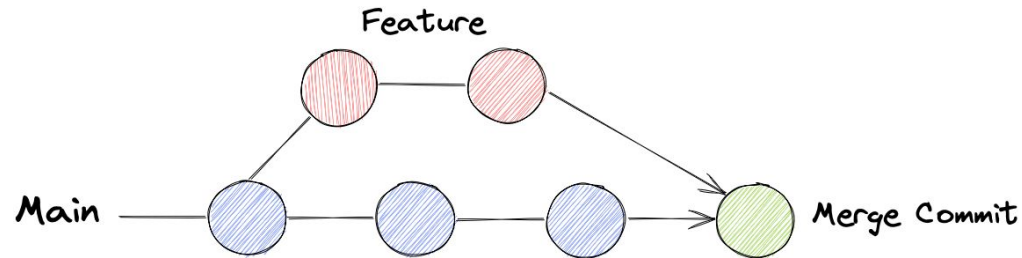


If there is no changes made on the new branch
(main branch and new branch is the same),
can pull request be opened?

git merge

The "merge" command is used to integrate changes from another branch.

While Git can perform most integrations automatically, some changes will result in conflicts that have to be solved by the user.



<https://education.github.com/git-cheat-sheet-education.pdf>

