



Introduction to Git and GitHub

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What is Git / GitHub?

Git: Distributed version control software

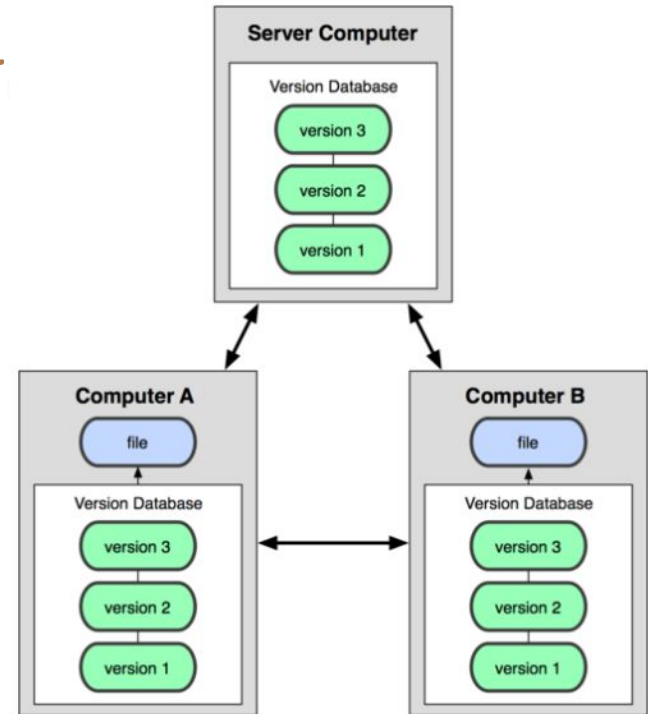
- Facilitates collaboration / version control
- Projects are called “repositories”
- Can handle large repos with multiple users

GitHub: a popular online host for Git repositories

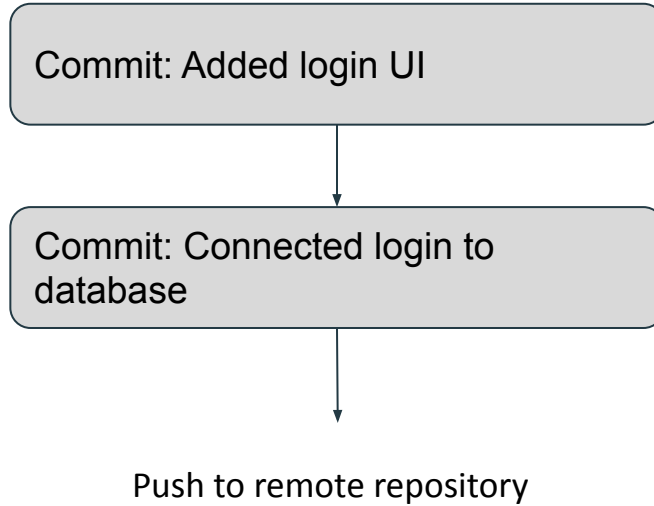


Distributed Version Control

- Remote server stores the repository
- Local copies on each user's computer have all versions
- When a user makes changes, they can make a commit (new version)
- They can "push" commits to the server
- Another user can "pull" the changes from the server and update their local copy
- You can revert to previous versions



Example



*It's good to make commits before you push to remote, just in case something breaks. Think of it as "quicksaves" where you can restore to a previous state.

Staging Files for Commit

Perhaps you're working on a large project, and there are two files:

1. Main.c
2. Test.c

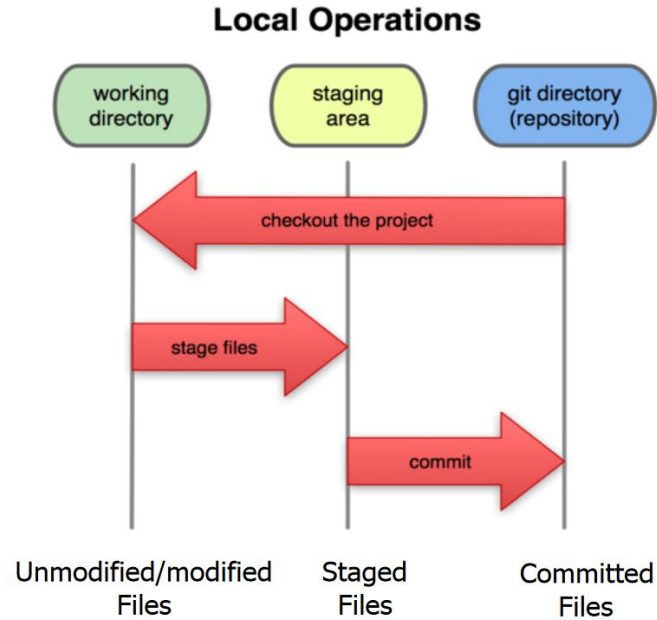
And you only want to push changes you made to Main. Every file must be staged for commit to be added to it!

Pushing commits:

1. Add files that you want to be committed
2. Make a commit
3. Push your changes to the server

Careful: What happens to non-staged files if you switch versions?

Staging Files

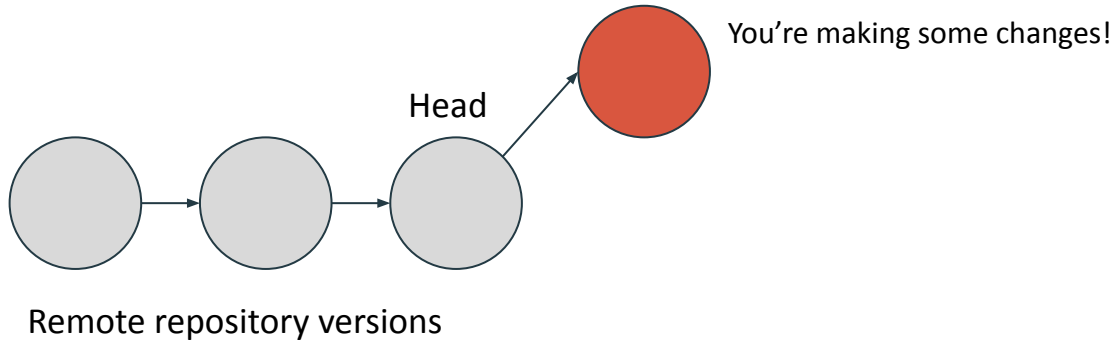


Hands on section!

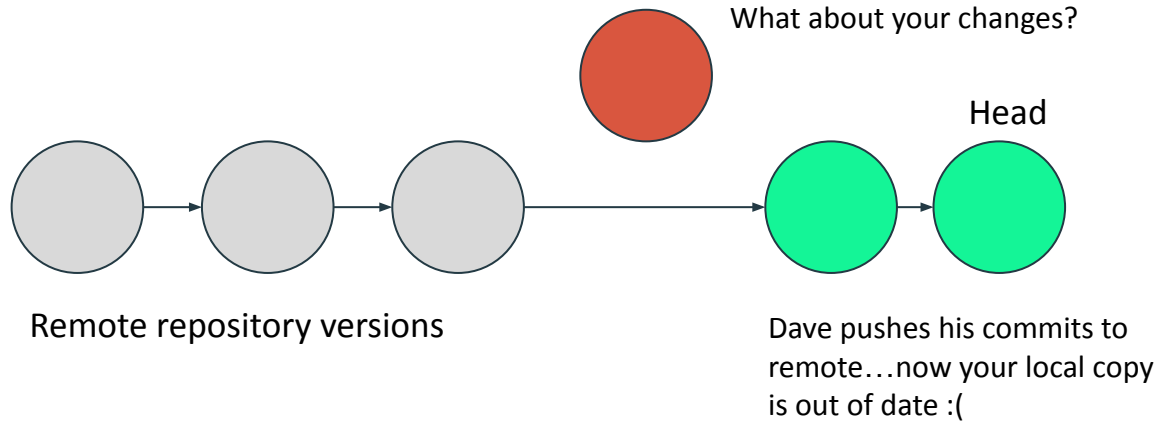
1. Register for GitHub
2. Download GitHub Desktop
 - a. <https://desktop.github.com/>
3. Be ready to make a GitHub project!

Stashing

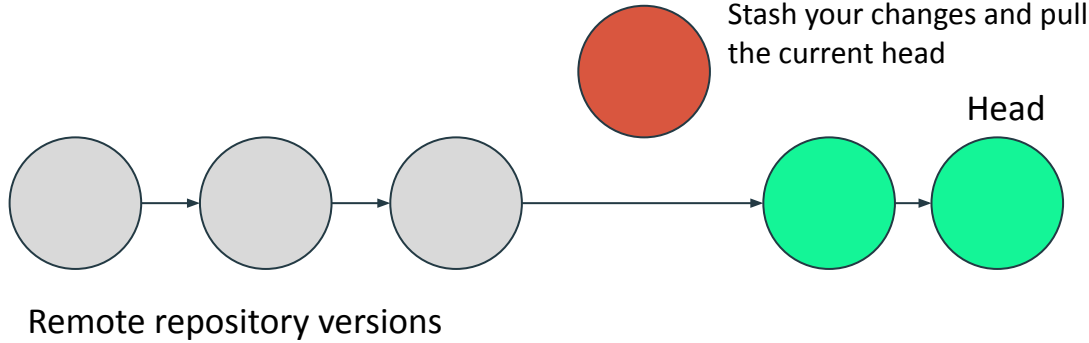
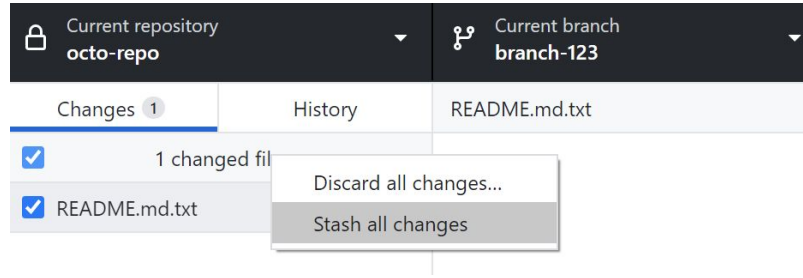
What happens if someone pushes their commits while you're working on your stuff (but not yet ready for commit)?



Stashing

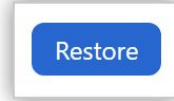


Stashing



Stashing

Stashed changes



Restore will move your stashed files to the Changes list.

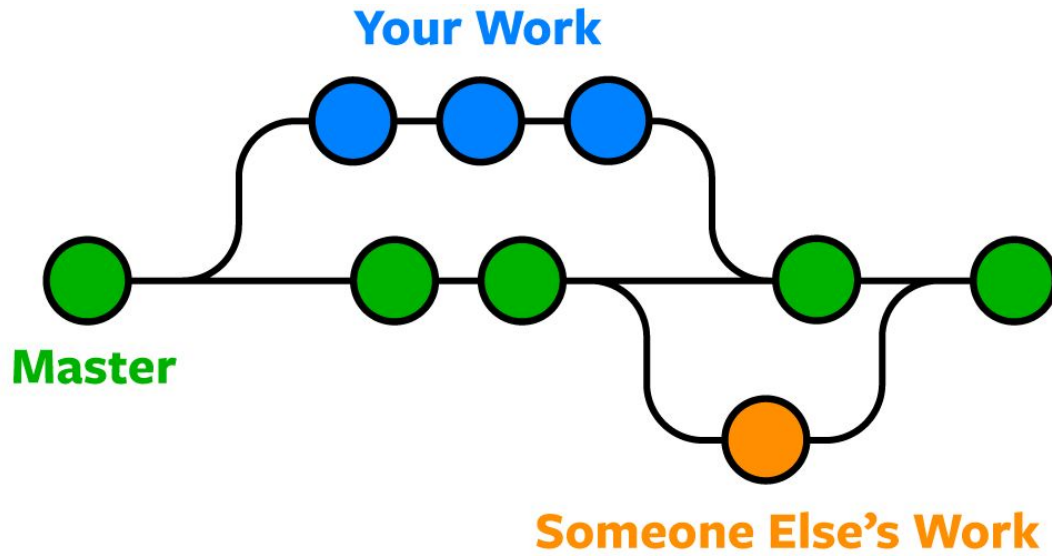


Remote repository versions

Head

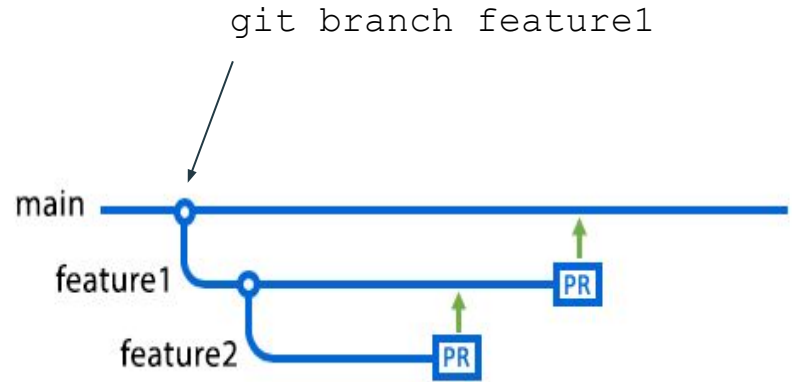
Un-stash your changes and they should be added on to the current version

Branches



What is a branch?

- A branch allows you to develop features, fix bugs, or safely experiment with new ideas in a contained area of your repository.
- When you first create a project, you already have a default branch named “main”.



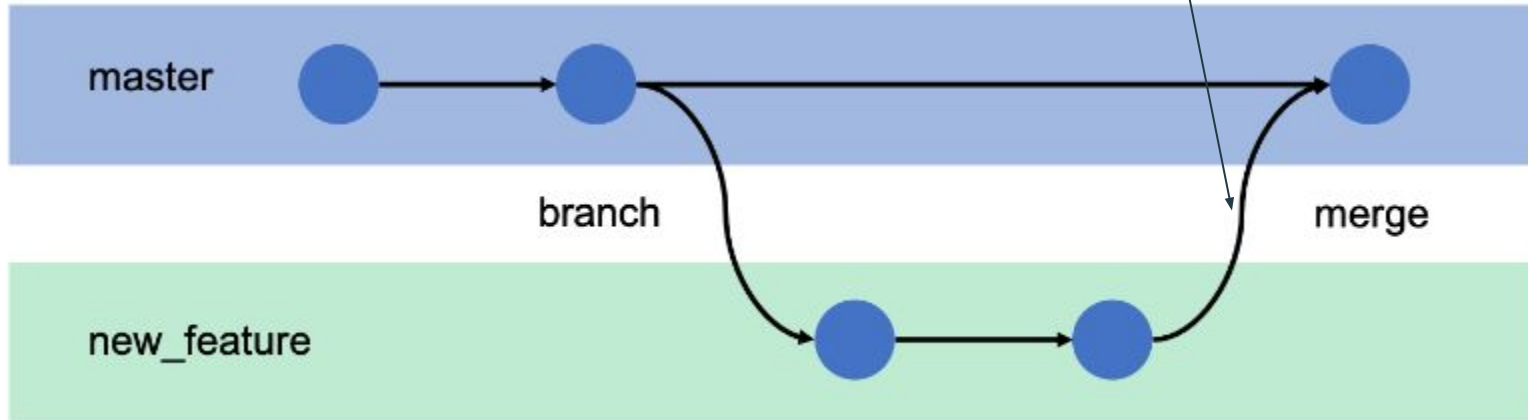
Working with branches

- Changing from the main repository
- Committing
- Pushing to Github
- Deleting and Restoring

What happens when you're done

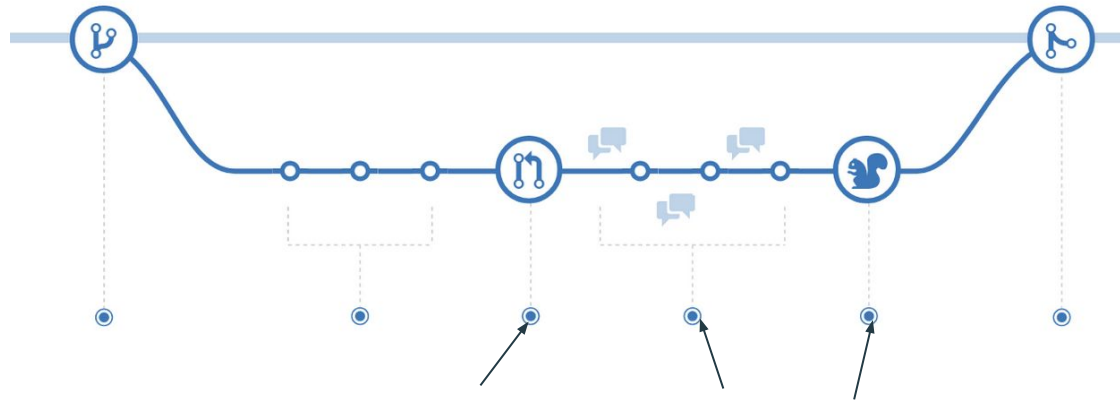
`git checkout master`

`git merge new_feature`



Pull request

- Create a pull request on Github to ask for feedback before merging to master



Creating the pull request

Commits addressing feedback