CS3110 Level Up

Git Basics

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What is Git?

A version control system

i.e. allows users to collaboratively work on code

https://git-scm.com/

What we will do today

- Learn the basic workflow of Git
- Learn how to push your code to your teammates
- Learn how to get your teammates’ code changes
- Learn (one way) how to reverse mistakes
- Learn how to view the status of your git repository
- Learn how to view the history of your git logs

What we will do next week

- Learn how to fix merge conflicts (!!!)
- Learn how to make independent pieces of development (a.k.a branches)
- Learn all the many ways to reverse mistakes
- Learn how to make pull requests

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Some starting things

Vocabulary that you should know

Important Version Control Vocab

Github

- hosting service for Git
- a web-based way to interact with Git, collaborate, follow other coders, etc.

local

- code on your machine
- your version of the codebase

remote

- code not on your machine
- the production codebase in Github

repository

a project/set of files

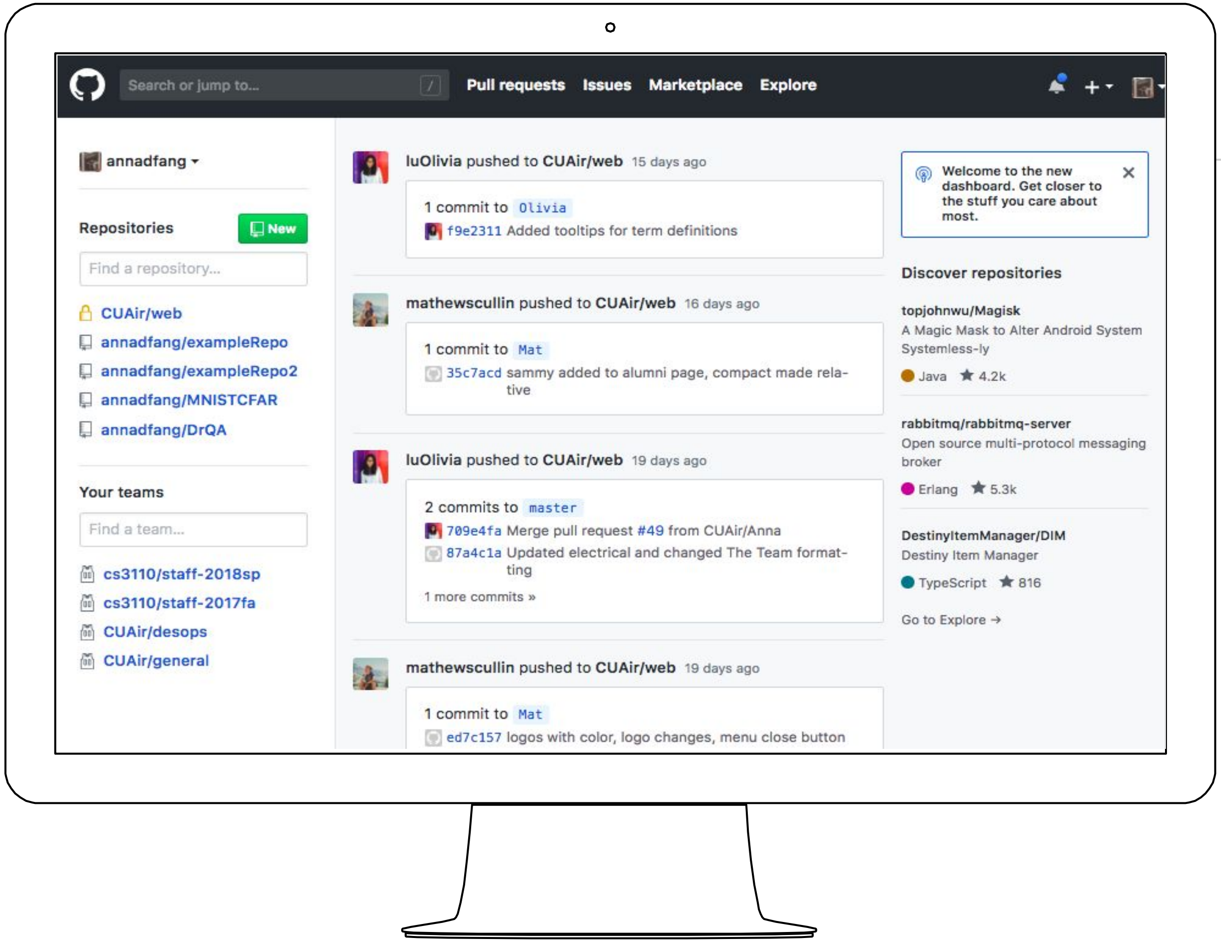
working directory

- the folder you're working out of
- ex: /home/Desktop/myRepo

staging area

- a place for files getting ready to be pushed out
- think of this like a loading dock

Github



annadfang

Repositories New

Find a repository...

- CUAir/web
- annadfang/exampleRepo
- annadfang/exampleRepo2
- annadfang/MNISTCFAR
- annadfang/DrQA

Your teams

Find a team...

- cs3110/staff-2018sp
- cs3110/staff-2017fa
- CUAir/desops
- CUAir/general

luOlivia pushed to CUAir/web 15 days ago

1 commit to `Olivia`
`f9e2311` Added tooltips for term definitions

mathewscullin pushed to CUAir/web 16 days ago

1 commit to `Mat`
`35c7acd` sammy added to alumni page, compact made rela-tive

luOlivia pushed to CUAir/web 19 days ago

2 commits to `master`
`709e4fa` Merge pull request #49 from CUAir/Anna
`87a4c1a` Updated electrical and changed The Team format-ting
1 more commits »

mathewscullin pushed to CUAir/web 19 days ago

1 commit to `Mat`
`ed7c157` logos with color, logo changes, menu close button

Welcome to the new dashboard. Get closer to the stuff you care about most.

Discover repositories

topjohnwu/Magisk
A Magic Mask to Alter Android System Systemless-ly
● Java ★ 4.2k

rabbitmq/rabbitmq-server
Open source multi-protocol messaging broker
● Erlang ★ 5.3k

DestinyItemManager/DIM
Destiny Item Manager
● TypeScript ★ 816

Go to Explore →

Demo: Github, cloning

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Checking Git Status

git status
git log

git status

- shows state of the working directory and staging area
- we'll be using this as we go through demos today (and you should irl too)

git log

- shows your commit history

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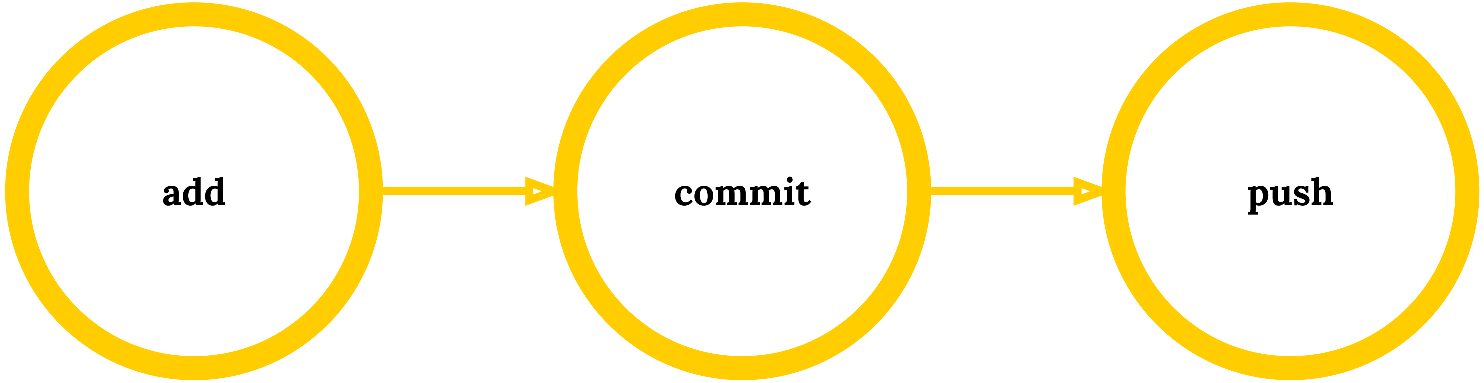
Pushing Your Code Changes

git add
git commit
git push

The Git Process



Pushing your changes

git add . **or**

git add <filename>

- add file(s) and changes to the staging area
- files that you change are *not* automatically staged

git commit –m “message”

- collect the files in the staging area
- record changes to the repo **like a snapshot**

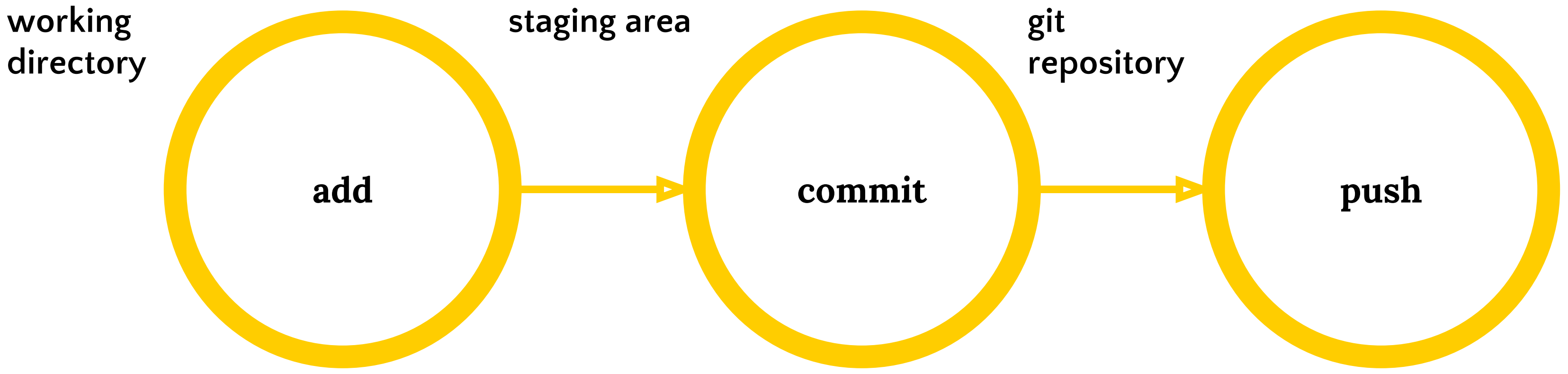
Pushing your changes

git push

- upload local repository content to remote repository
- **i.e. I've made changes and I want my partners to see them now!**

Demo: Pushing Files

The Git Process



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Pulling Other People’s Code

git pull

git pull

- fetch and pull files from a remote repository
- updates files in local repository
- can get some conflicts from this – why?
  - *We'll learn how to fix these next week!*

Demo: Pulling Files

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Fixing Mistakes

git reset
git revert
git checkout

Resetting

git reset <filename>

- unstage file(s)
- i.e. I've done "git add" on file(s) that I don't actually want to stage!

git reset HEAD~1

- remove the most recent commit
- git reset HEAD~`num` removes `num` commits before

Reverting

git revert <commit ID>

- undo the commit from commit ID as if it didn’t happen, but keep a record of it
- **This creates a commit!**
- **i.e. I messed up, but don’t want to just delete the commit. Instead, I want the log to show that I undid a commit.**

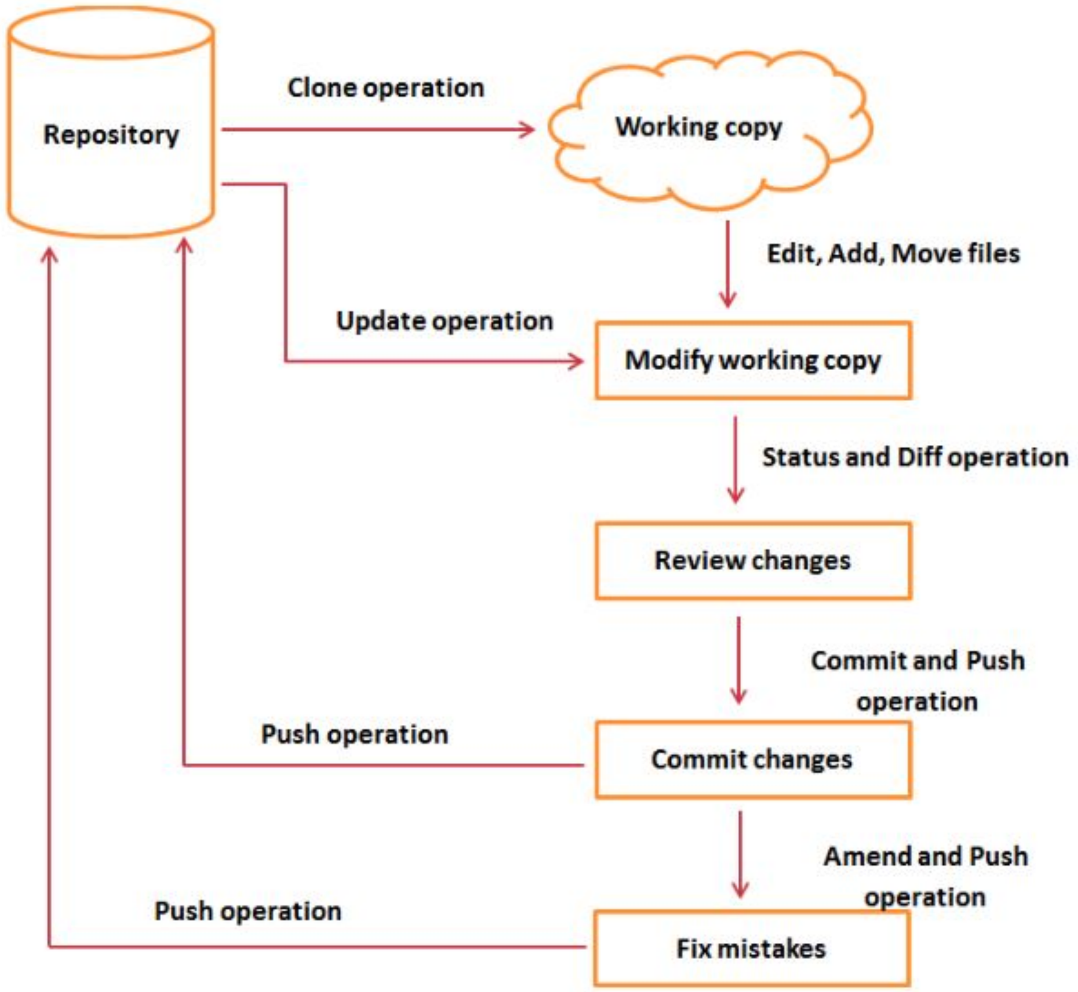
Checkout

git checkout <filename>

- change a file to the version on the remote repo
- **i.e. I want the version of the file on the remote repo. Undo my changes to the file and switch it back!**

Demo: Resetting vs. Reverting

The Git Process



Demo: Conflicts

Again, next week:

- Learn how to fix merge conflicts (!!!)
- Learn how to make independent pieces of development (a.k.a branches)
- Learn all the many ways to reverse mistakes
- Learn how to make pull requests

Thanks!

Any *questions* ?

You can email me at

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