A FEW PREREQUISITES

- 1. Do you have a "sandbox" to play in?
 - Make a new folder on your laptop
- 2. Do you have **git** installed?
 - ☐ Check via command line: \$ git --version
 - □ https://git-scm.com/download
- 3. Do you have a **github** account?
 - https://github.com



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FIRST THINGS FIRST

\$ git --version

git version 2.14.3 (Apple Git-98)

Is git already installed?

https://git-scm.com/download

use all the default options

Windows: Launch Git Bash

Mac: Open Terminal

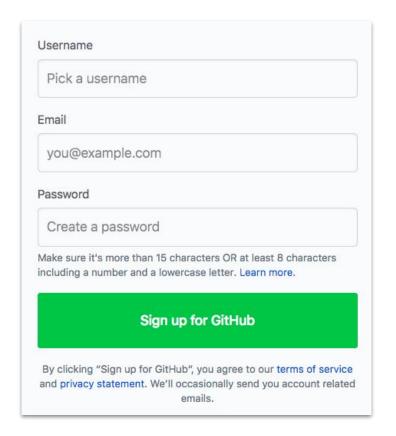
Download & Install

SECOND THINGS SECOND

https://github.com

Create a github account in order to share code with your teammates

https://education.github.com/pack

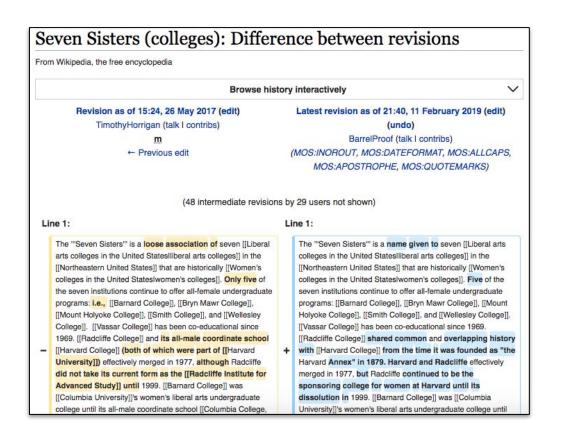


VERSION CONTROL?

Management of changes

Documents and collections of information

Ability to revert mistakes



WHAT IS GIT?



- Version control system
- Designed for team collaboration
- Free command line tool

WHAT IS GITHUB?



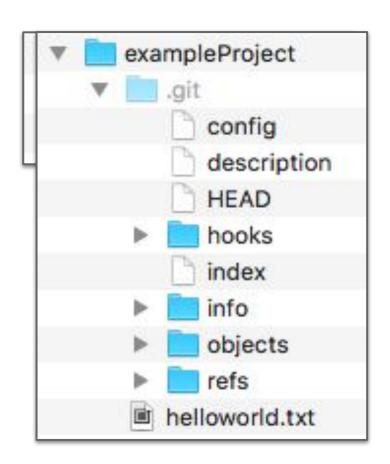
- Web-based hosting service
- Basic features available for free
- More for education/paid accounts

GETTING STARTED

| List all files in current folder | \$ ls -a |
|---------------------------------------|--|
| Change directory (move to a folder) | <pre>\$ cd <subfolder></subfolder></pre> |
| What's the status of the git project? | \$ git status |
| Initialize a new project | <pre>\$ git init <pre><pre><pre></pre></pre></pre></pre> |
| Download project and version history | <pre>\$ git clone <url></url></pre> |

WHAT JUST HAPPENED?!

- → Initialized a project
- → Created a file
- → Edited the file
- → Saved the file
- → *Staged* the file
- → "On branch master"?



WHAT'S NEXT?

Look through history of the project \$ git log

Take a snapshot of the current work

What's changed since last commit?

\$ git commit -m <msg>

\$ git diff (--staged)

QUICK DETOUR!

Mac:

\$ git config --global core.editor "open -W -n"

Windows:

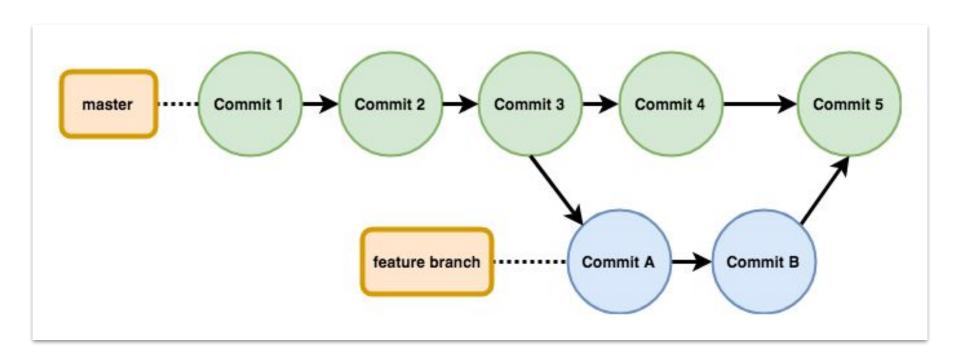
\$ git config --global core.editor notepad

Changing the default git editor will allow us to avoid editing text files with things like vi, vim, emacs.

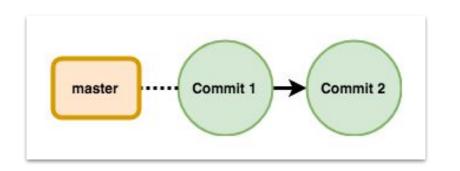
WHAT'S NEXT?

| Look through history of the project | \$ git log |
|--------------------------------------|--|
| Take a snapshot of the current work | <pre>\$ git commit -m <msg></msg></pre> |
| What's changed since last commit? | <pre>\$ git diff (staged)</pre> |
| Creates a new commit, records in log | <pre>\$ git revert <commit></commit></pre> |
| Undoes later commits, keeps changes | <pre>\$ git reset <commit></commit></pre> |

BRANCHES



WHAT'S NEXT?



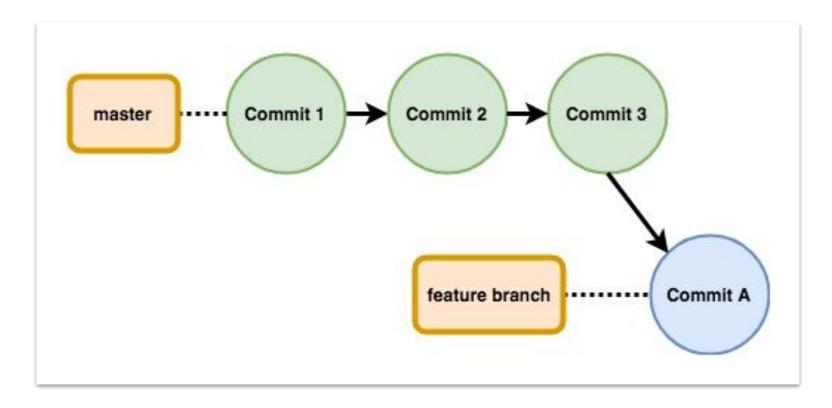
List out all the branches \$ git branch

Switch to the named branch

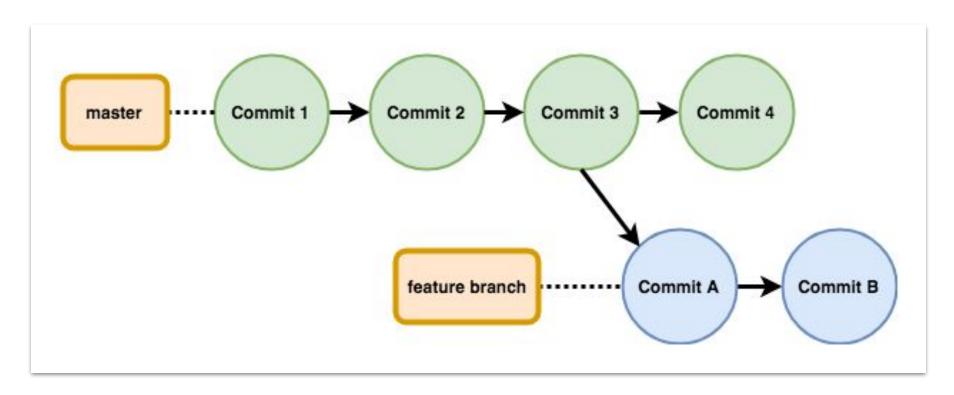
Merge into current branch \$ git merge <name>

\$ git checkout (-b) <name>

BRANCHES

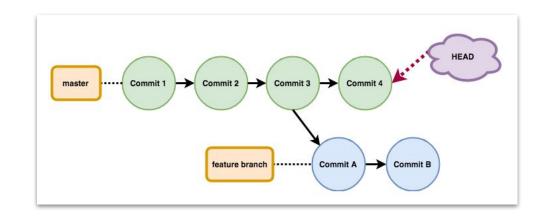


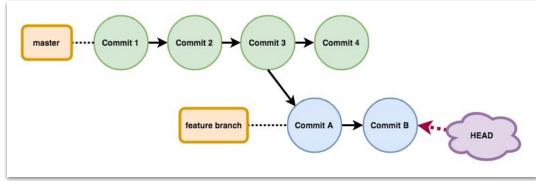
BRANCHES



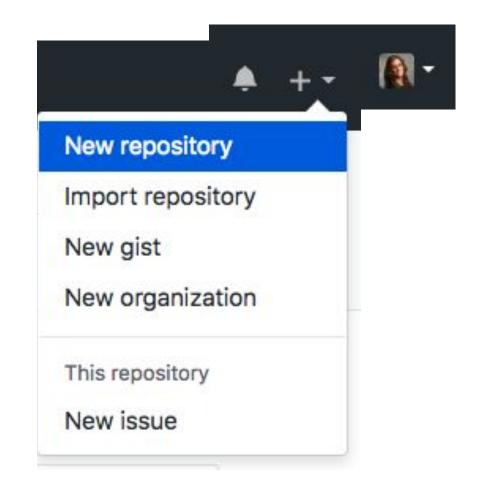
TERMINOLOGY: HEAD

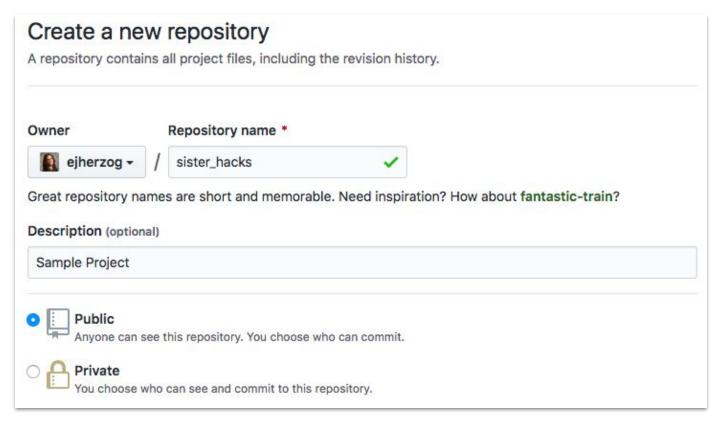
- Symbolic reference
- Last known state of working directory
- Parent of your next commit

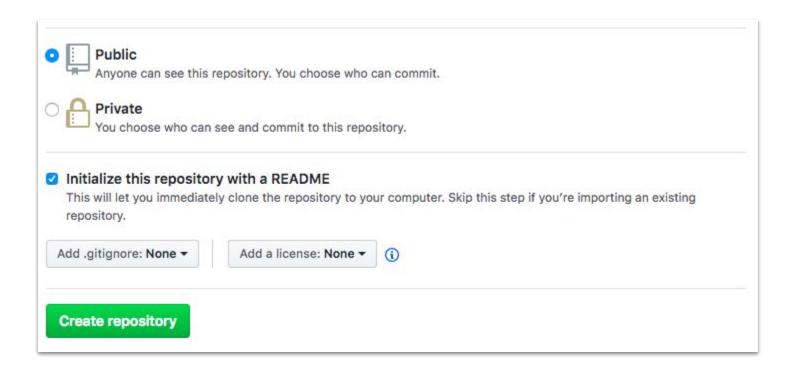


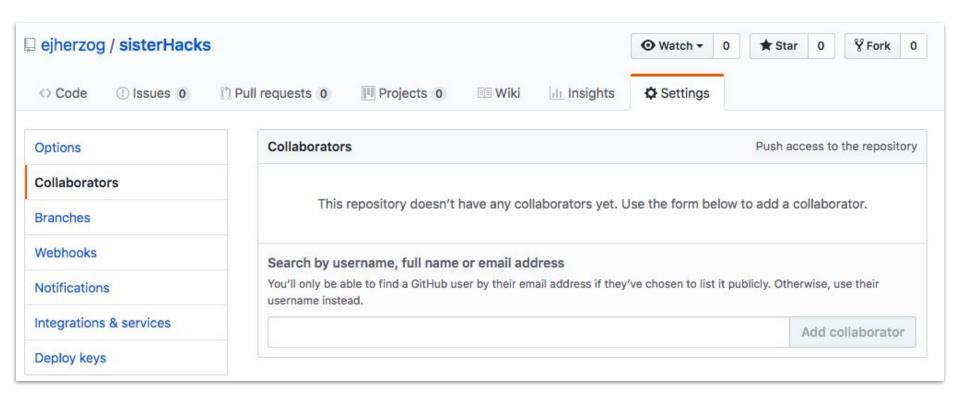


- Go to github.com
- Choose 1 team
 member (ONLY 1)
 who will create a
 new repository
- Use the + in the upper right corner









- Go to github.com/<username>/<repositoryName>
- Click green 'Clone or Download' button
- Copy URL to clipboard
- \$ git clone <URL>
- \$ cd <repositoryName>

DO SOME BRANCH WORK

- \$ git pull
- \$ git status
- \$ git checkout -b <yourname>
- Create at least one new file (.txt, .csv, .md, .py)
- \$ git add .
- \$ git commit -m "<meaningful message>"

WHERE ARE YOUR CHANGES?

- \$ git status
- Look at the github page for your repo: no branches??
- \$ git pull
- \$ git push
- \$ git push --set-upstream origin <branch>
- Look back at the github page for your repo

PUSHING AND PULLING

Get remote updates to local machine

git fetch + incorporate those changes

Upload all local branches to Github

\$ git fetch

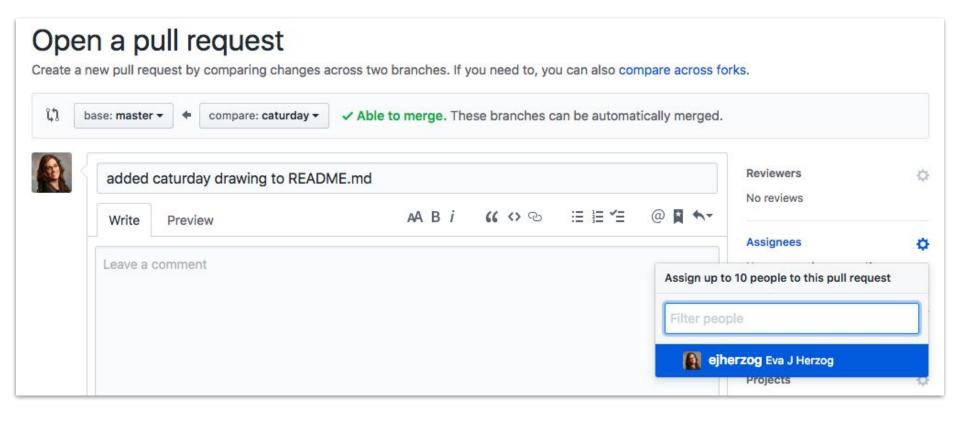
\$ git pull

\$ git push

\$ git push --set-upstream origin <branch name>

Push a local branch to the remote repo for the first time

MERGE YOUR CHANGES



LAST WORDS OF WISDOM

- ❖ About to push changes? Pull first.
- ❖ Trying out an idea? Create a new branch.
- ❖ Avoid erasing history. Leave the evidence.
- "Take chances, make mistakes, & get messy!"

-Ms. Frizzle

SOURCES

- 1. Git Logos: Jason Long [CC BY 3.0 (https://creativecommons.org/licenses/by/3.0)]
- 2. Seven Sisters Page History: https://en.wikipedia.org/wiki/Seven_Sisters_(colleges)
- 3. Github Logo: GitHub [MIT (http://opensource.org/licenses/mit-license.php)]
- 4. Branch diagrams: Eva Herzog using draw.io