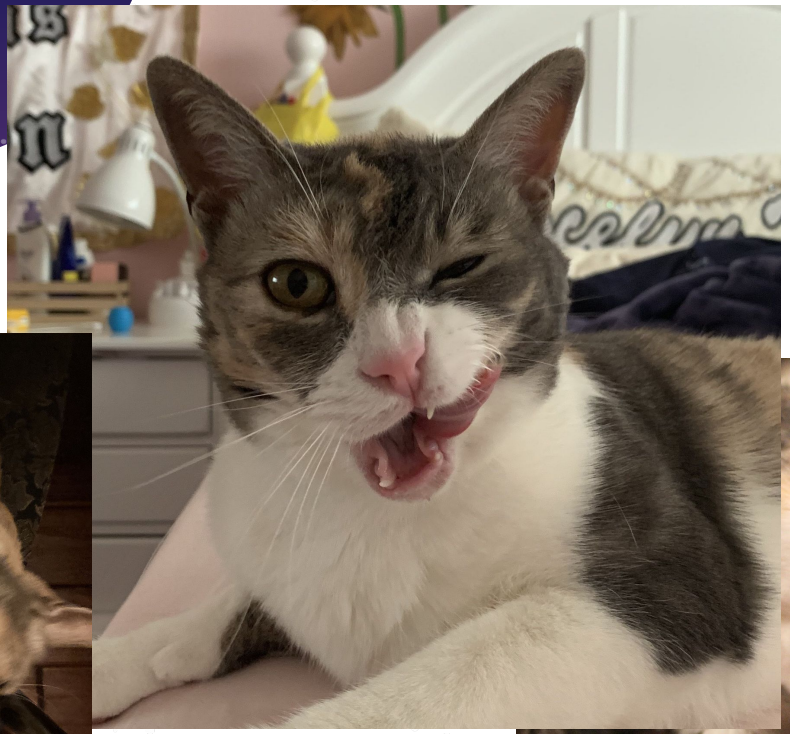
Git Part 2: Age of the Octocats

Jeremy + Emmanuel

DOGGO TAX

DOGGO(?) TAX



Announcements

exam next thursday (15 Oct)

labs must be completed (no extensions) by 16 Oct

extratation: web dev weekend

Review

Git: Version Control System

add, commit, branch, checkout

Professor was ejected.

Professor was not an impostor...


Git ready for...
undoing mistakes

unstaged changes

before add

- scenario
  - you're working on *trainerlab* and accidentally delete the *professor*
  - you haven't staged or committed since pulling the lab
  - you want tom back

- git checkout <file name>

staged changes

after add, before commit

- **scenario**
  - you're working on *sportslab* and accidentally delete a paragraph of *big-league.txt* and :wq
  - you've finished the other tasks and don't want to redo them
  - you've staged everything

- **save for later:** git stash
- **unstage:** git reset HEAD <file name>

- **nuke** changes: git reset **--hard** origin/<branch, commit hash/HEAD~n>
  - *n* is the num of commits you want to go back
- **remove** commits: git reset HEAD~n
- git revert <commit hash>
- **revert vs reset**
  - striking out vs erasing
  - revert = **new commit** undoing past changes
    - past changes still in log
  - reset removes evidence of old changes

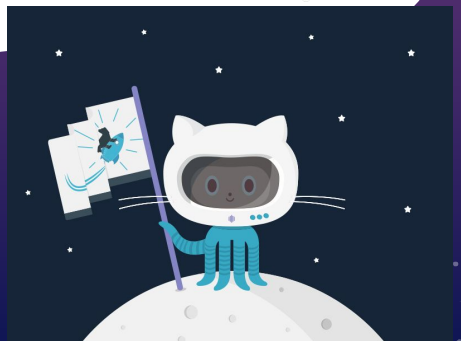
extra: git rebase

rewrite your commit history!

Remotes and GitHub

Didn't you say Git != GitHub???

- Yes
- But GitHub is also a useful tool
- Lets you host "remotes" in the cloud
  - What's a remote? Next slide lol
- Also has a ton of really useful development features
  - Issues, code review tools, an ice vault in the Arctic Circle to save your code in the event of an apocalypse, etc.
- Great way to host and share open source projects
- Other ways to host remotes:
  - bitbucket (competitor to github)
  - host your own on your own servers



Didn't you say Git != GitHub???

- Remotes are "copies" of your repository stored in the cloud
  - Specifically versions of the git graph that have the same initial commit
  - **DEFAULT REMOTE NAME IS ORIGIN**
- ✔️ Goal: use these copies to backup and store code, enable collaboration, deploy and manage code better
- ❌ Problem: maintaining consistency across these different versions

Lets Get Started With a GitHub Repository

- Step 0: make a GitHub account
  - While you're there, sign-up for the education program and git a tone of free stuff
- Make a repository using the gui (super easy)

Lets Get Started With a GitHub Repository

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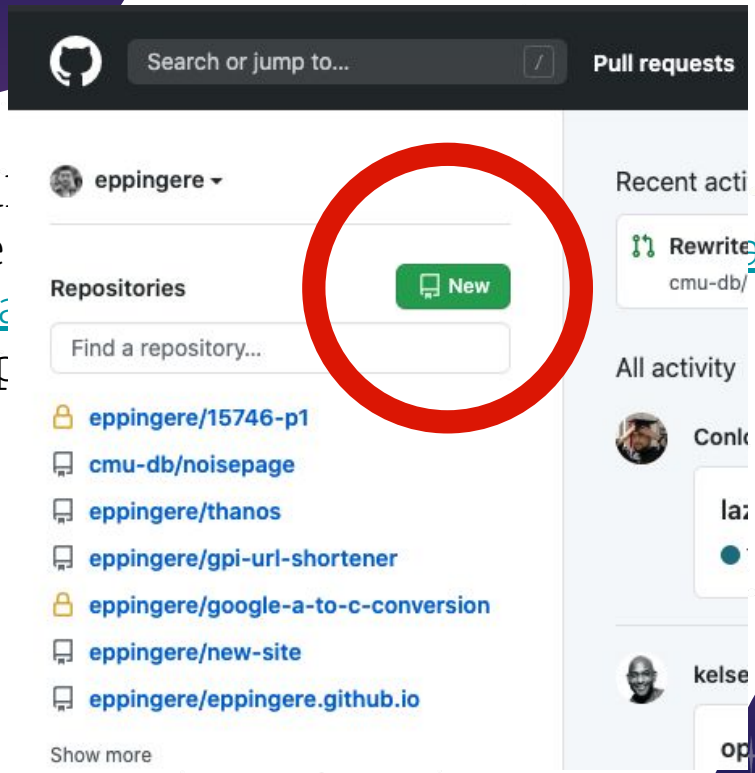

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Lets Get Started With a GitHub Repository

- Step 0: make a GitHub account
  - While you're there, sign-up for the education program and git a tone of free stuff
- Make a repository using the gui (super easy)
  - Things to know about making repos
    - Public vs Private
      - Public to show of and flex on them recruiters
      - Private to be sneky and follow academic integrity

JB Repository

- Step 0:
  - Wh
    pro
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  - Th
    - ■

Lets Get Started With a GitHub Repository

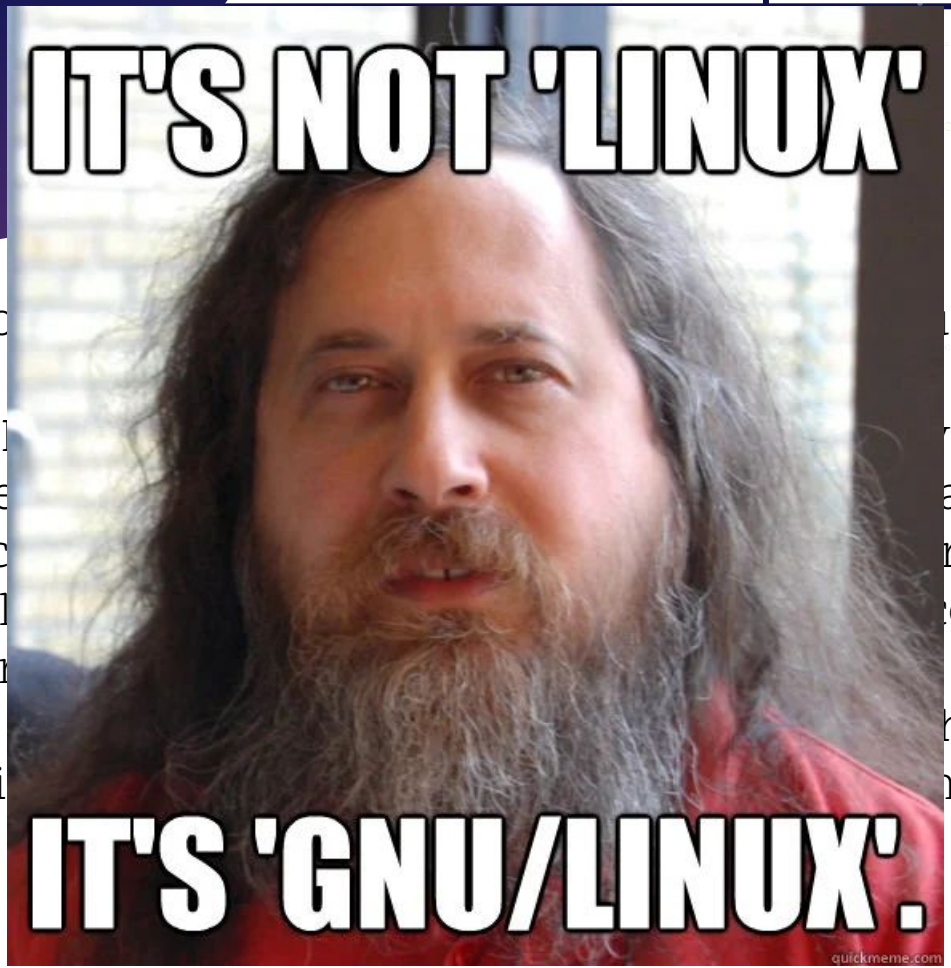
- More things to know about making your first repo
  - README.md
    - write-up about your code, instructions, things for collaborators to know
    - Written in markdown
  - .gitignore
    - Remember those? Github provides you with some starters

GitHub Licenses Explained

- If your code is public, what rights people have who use your code
- Common Licenses:
  - MIT License: very open and gives rights to everyone while protecting you from being sued if your code breaks something
  - Apache License (2.0): also very open, explicitly protects your code's intellectual property, gives you the right to any code someone contributes to your project in any form
  - GPL: notoriously restrictive license, copyrights the code in it and explicitly restricts how you are allowed to use the code

ses Explained

- If your co … se your code
- Common …
  - MIT … one while prote… aks something
  - Apac… rotects your code's intell… ode someone contr…
  - GPL: … he code in it and expli… e code



OK what now?

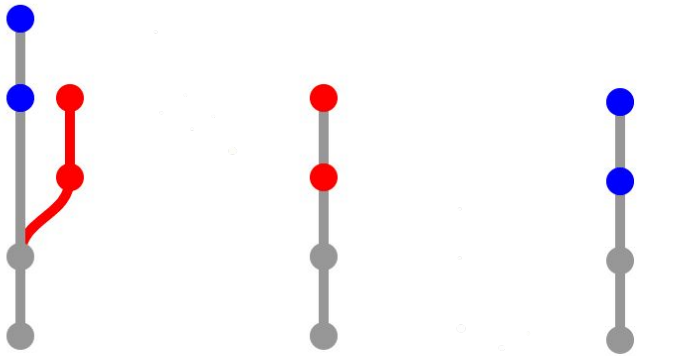
- You now have a remote of your repo
- You want to have a local version of your repo
- Simply “clone the repository”
  - Click the “clone” button on your repo’s GitHub page
  - Copy link and run:
    - `$ git clone <clone url here>`

OK enough riff raff let's do this!!

- Two main actions to think about:
  - “push” changes from your local repository to the remote repository
  - “pull” or “fetch” changes from the remote to your local repository

Wait what???

- Remotes are just different versions of the git tree
- We want to move commits from remotes to our local repo and visa versa



my local repo

main remote

my remote (aka fork)

Pushing Example

- I have some commits locally that I want to make sure are saved on GitHub
  - run command:
    - `$ git push <remote name> <remote branch>`
  - Sometimes your local branch isn't on the remote:
    - `$ git push --set-upstream <remote name> <branch name>`
  - But you usually want to push your current branch to the remote's version of this branch
    - You can just run:
      - `$ git push`

HBD TOM AND VERONICA!!!

HBI !!!

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Pulling Example

- I have some commits in the remote that I want locally
  - `$ git pull <remote name> <local branch>`
- But usually you can just run for default remote and current branch:
  - `$ git pull`

It's time for spaghetti

- Git forks are duplicate remotes of another remote
- Why do we want forks?
  - You don’t have write access to the og remote
  - You want one just for you to use and the main one is for your group
    - Everyone has their remotes and no one gets in each other's way

Lets Be Good Internet Citizens

- You now know everything to contribute to open source projects
- There are a ton of great projects on github
  - linux, android, the go programming language, noise page, vscode, the GPI website, and so many more
- Simply fork the project, clone, do your thing
- Submit a pull request to the main project

Pull requests on the DL

- You want to add your changes to the og remote
- How?
- Submit a pull request (PR)
- Push your changes, go to og remote's page, click "submit a pull request"
- The person who runs the repository can give you feedback and hopefully get your code merged into a really cool project
- Hactoberfest