

# Git / Github Tutorial

# What is Git?

- Version control for Programmers
- Like Microsoft Word "Track Changes" feature with superpowers
- Makes it easy for programmers to collaborate and work on the same codebase
- SVN (subversion) and CVS are other version control programs (Git is the most popular)

# What is Github?

- Web-based Git repository hosting service
- Built on top of git
- Morphed into a "social network" for developers

# Vocabulary

- Repository
- Branch
- Fork
- Commit
- Push
- Pull Request

# Repository

- Most basic element of GitHub
- A repository contains all of the project files
- Stores each file's revision history
- Repositories can have multiple collaborators and can be either public or private.

# Branch

- Parallel version of a repository
- It is contained within the repository, but does not affect the primary or master branch allowing you to work freely without disrupting the "live" version.
- When you've made the changes you want to make, you can merge your branch back into the master branch to publish your changes

# Fork

- A fork is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project
- Most commonly, forks are used to either propose changes to someone else's project or to use someone else's project as a starting point for your own idea

# Commit

- A "revision", is an individual change to a file (or set of files)
- Git's version of "saving"
- Commits usually contain a commit message which is a brief description of what changes were made

# Push

- Refers to sending your committed changes to a remote repository such as GitHub.com
- For instance, if you change something locally, you'd want to then push those changes so that others may access them

# Pull Request

- Pull requests are proposed changes to a repository submitted by a user and accepted or rejected by a repository's collaborators.
- Pull requests each have their own discussion forum. See Using Pull Requests.
- Used to perform "Code Reviews" of other developers' work

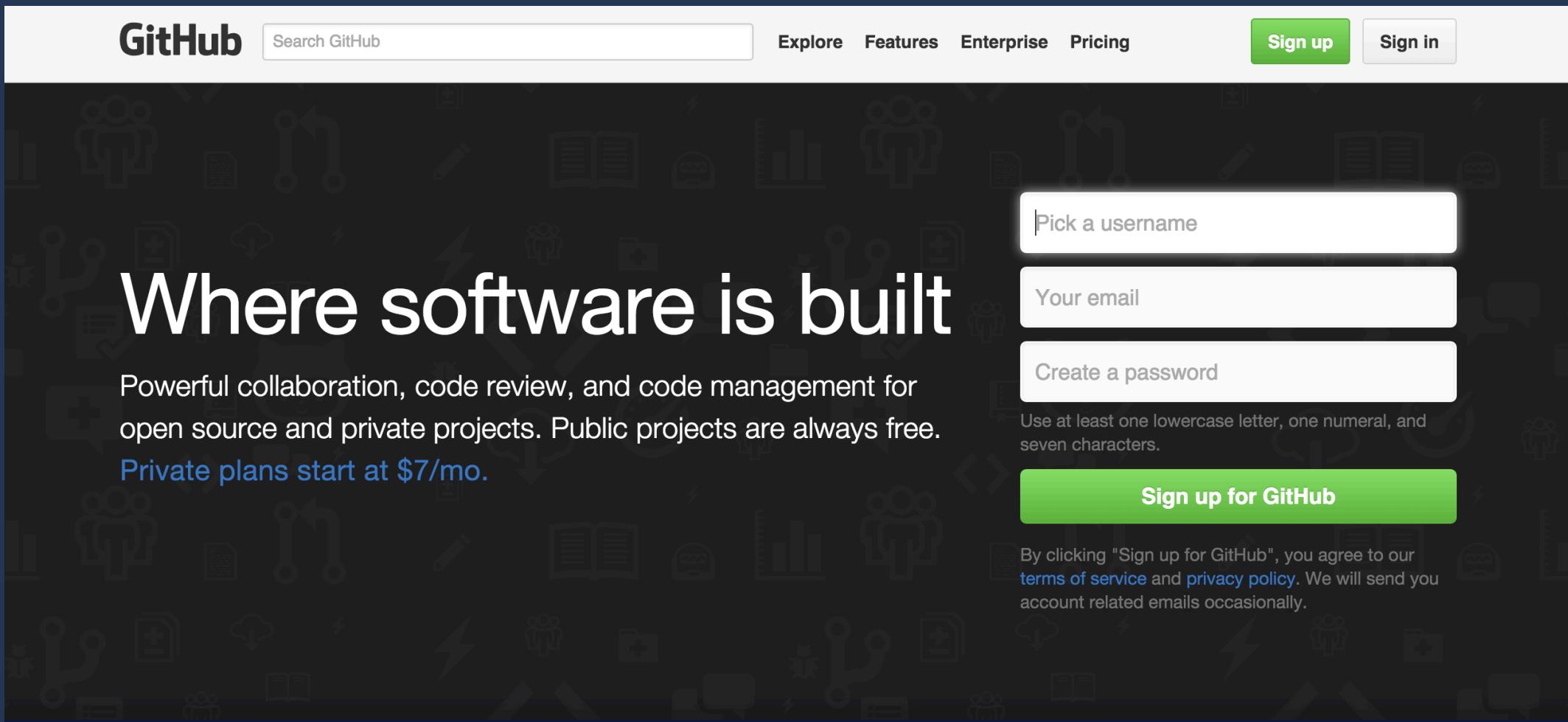
# Merge

- Merging takes the changes from one branch (in the same repository or from a fork), and applies them into another
- This often happens as a Pull Request (which can be thought of as a request to merge)

# **Initial Setup**

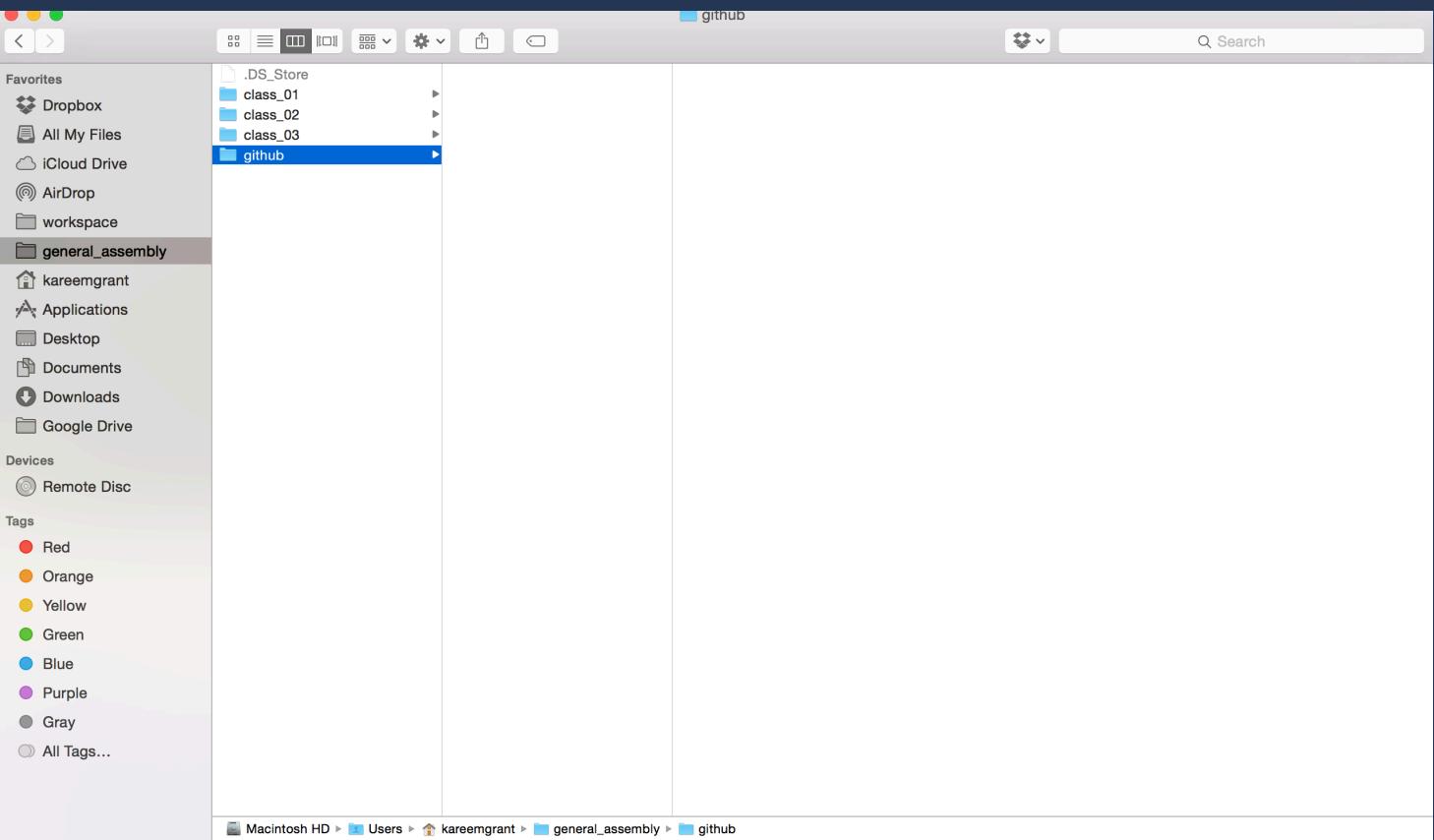
**(The following steps only need to  
be completed One Time)**

# Step 1: Create a Github Account\*



\*one-time step

# Step 2: Create a folder named github in your "class" folder\*

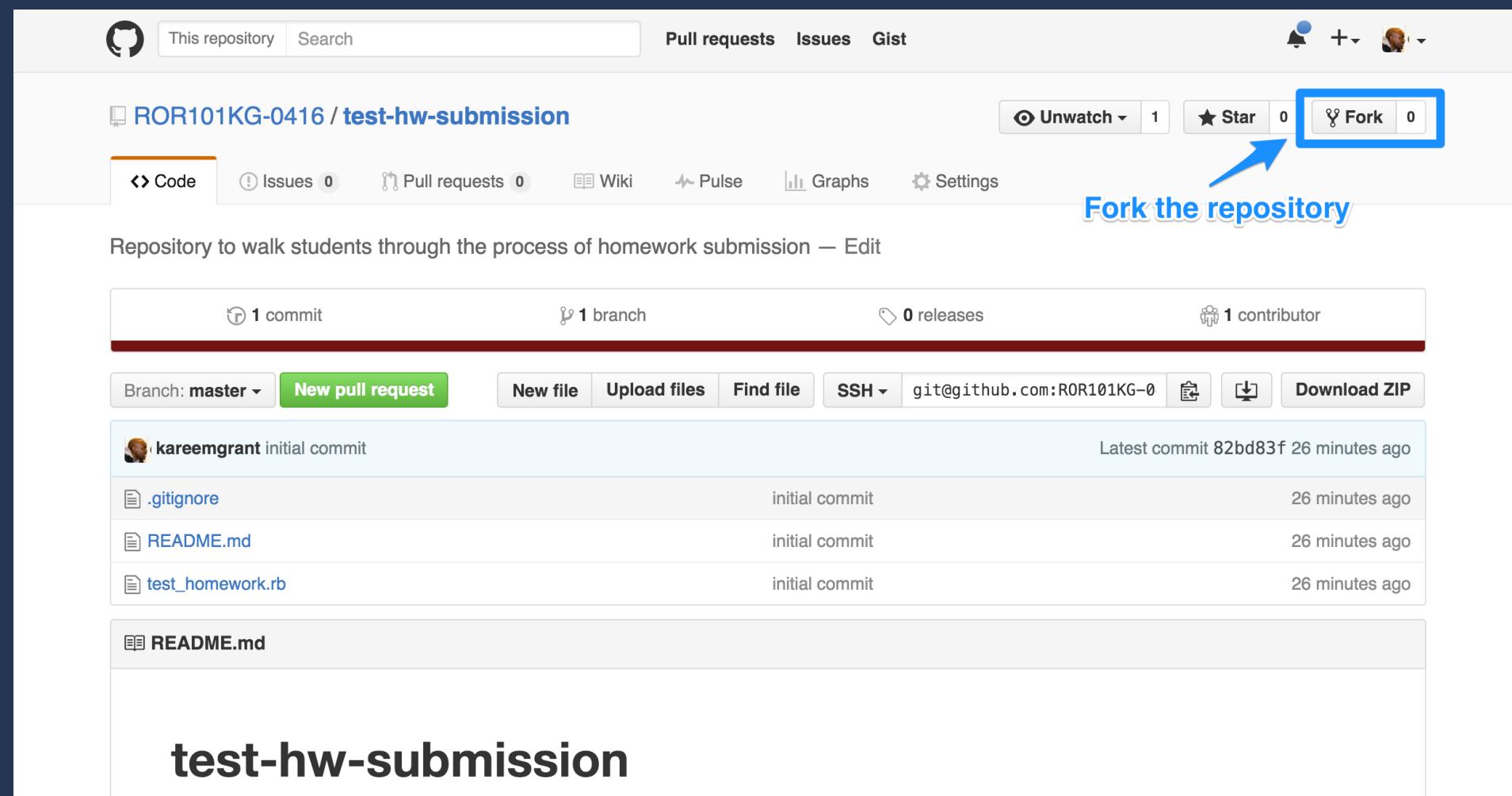


\*one-time step

# Starting an Assignment

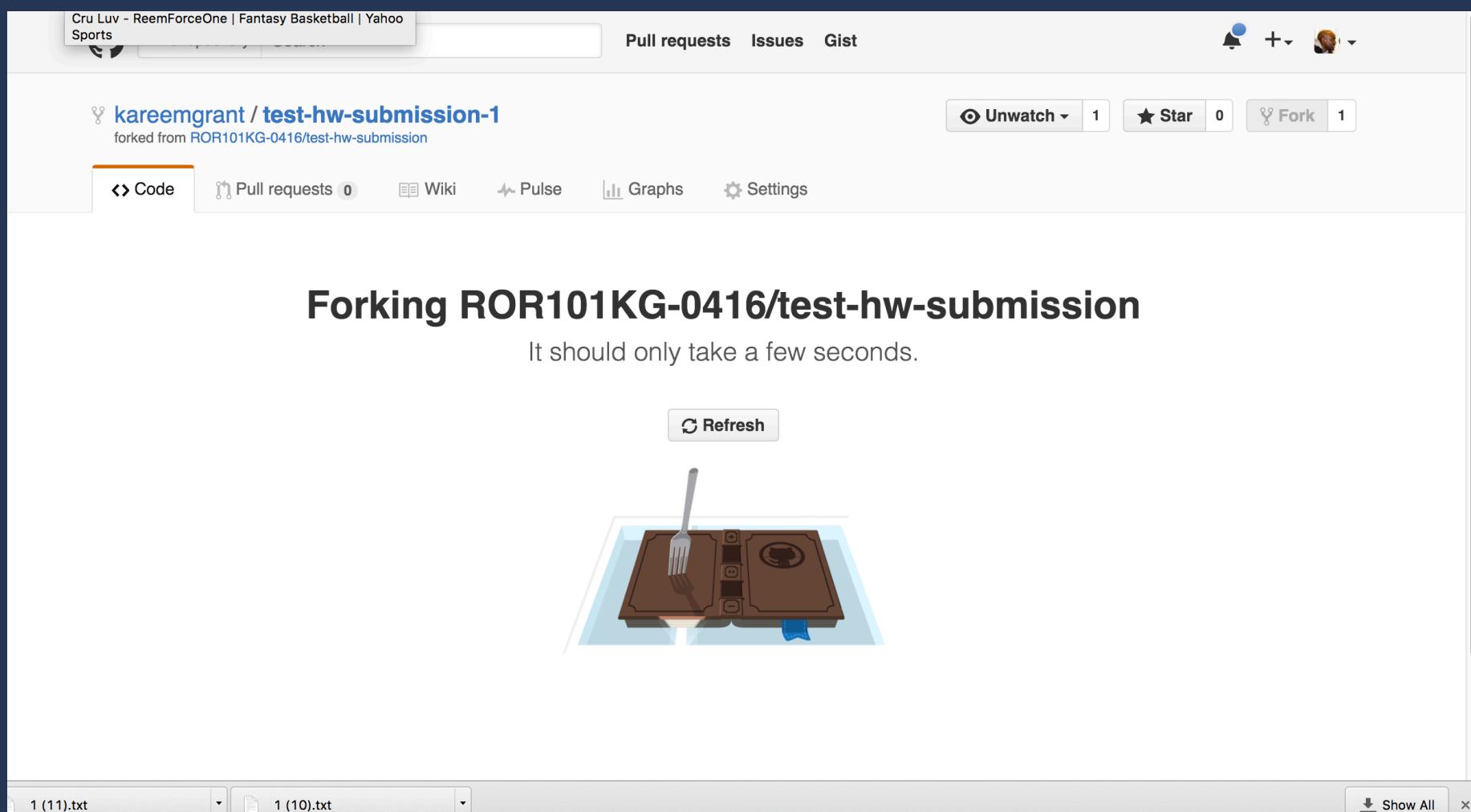
# Step 3a: Fork Instructor Repository

- The link for the Instructor repository will be provided to you

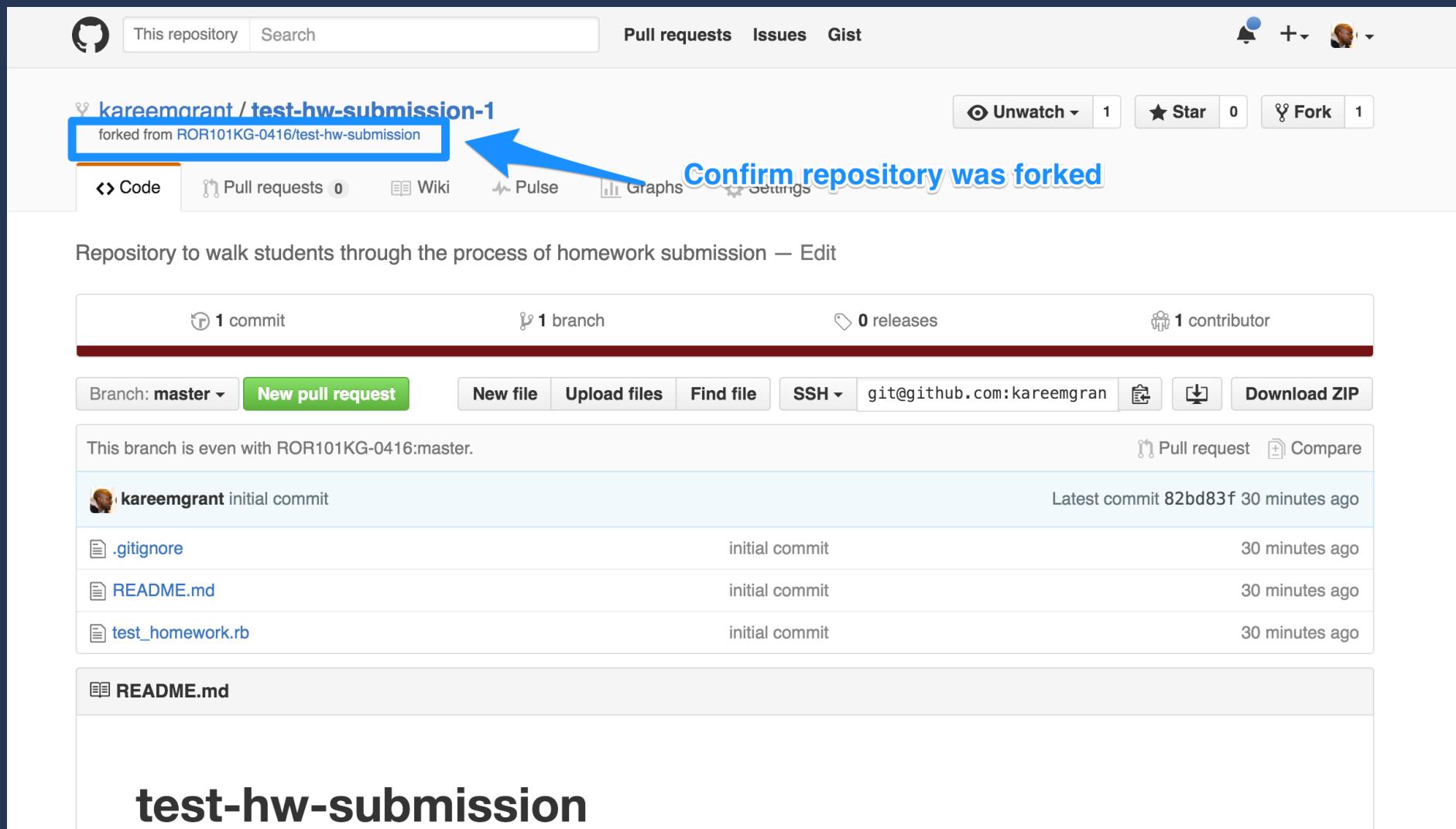


# Step 3b: Fork Instructor Repository

- Github will create a copy of the repo under your account



# Step 4: Confirm Repository was Successfully Forked



The screenshot shows a GitHub repository page for `kareemgrant / test-hw-submission-1`. A blue box highlights the repository name, and a blue arrow points from the text "Confirm repository was forked" to this box. The page displays basic repository statistics: 1 commit, 1 branch, 0 releases, and 1 contributor. The commit history shows an initial commit by `kareemgrant` for files `.gitignore`, `README.md`, and `test_hw_submission.rb`, all made 30 minutes ago. The repository title is "Repository to walk students through the process of homework submission — Edit".

Confirm repository was forked

This branch is even with ROR101KG-0416:master.

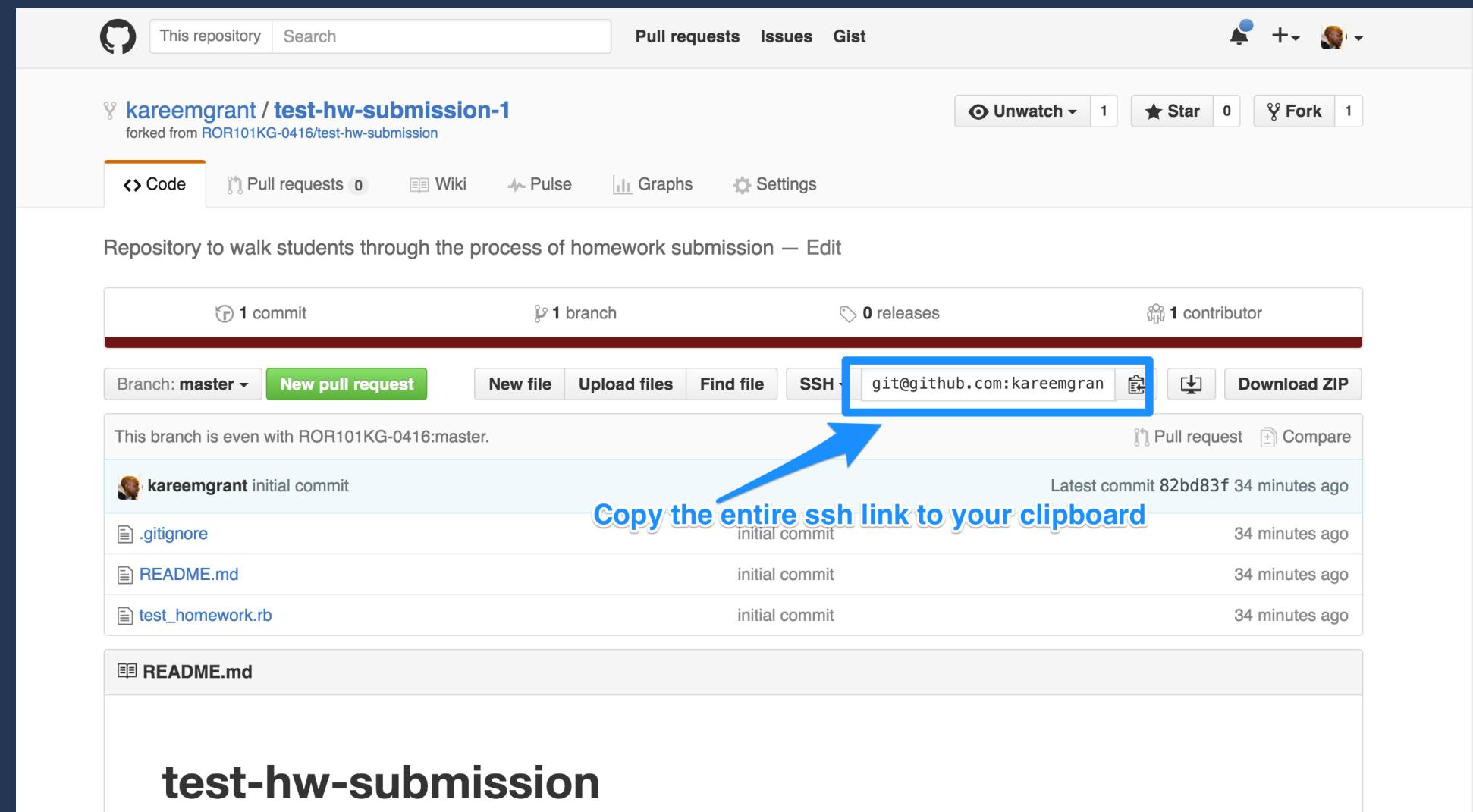
| File                               | Commit         | Time           |
|------------------------------------|----------------|----------------|
| <code>.gitignore</code>            | initial commit | 30 minutes ago |
| <code>README.md</code>             | initial commit | 30 minutes ago |
| <code>test_hw_submission.rb</code> | initial commit | 30 minutes ago |

**test-hw-submission**

## **Step 5a: In your terminal (command line) navigate to the 'github' folder created in step #2**

- you may need to use cd (change directory to the folder)

# Step 5b: Back on Github.com copy the ssh link to your clipboard



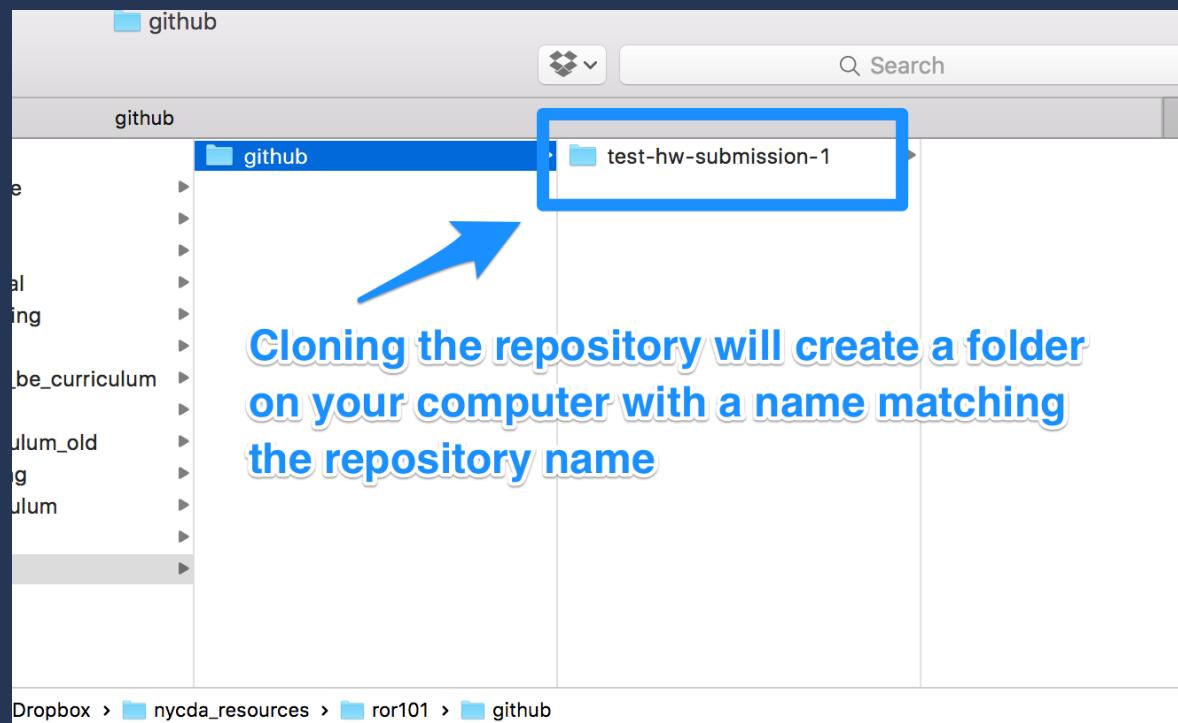
# Step 5c: Clone the repository down to your labtop from the command line

- Make sure you are within the top level of your **github folder** from step #2
- Form the command line, type **git clone** and then paste the url from step #5b

```
git clone [pasted url from step #5b]
```

# Step 6: Confirm the project folder was created in your github folder

- After clone down the repository, a folder with the same name of the repository will be **created for you**



**Step 7a: Open project folder with  
sublime and add code (as you  
normally would)**

# Step 7b: Periodically you should stage and commit your changes

- from the command line **withn your project folder** do the following:

// 1) stage your changes, **\*\*git add .\*\*** will stage all of your changed files

git add .

// 2) commit your changes

git add commit -m "[add message describing your changes here]"

## Step 7c: Confirm that Everything up to that point has been committed

- from the command line run **git status** to determine if all of your current changes have been committed

```
• test-hw-submission-1 [master] git status
On branch master
Your branch is up-to-date with 'origin/master'.
nothing to commit, working directory clean
```

# Step 8: Push your changes to Github.com

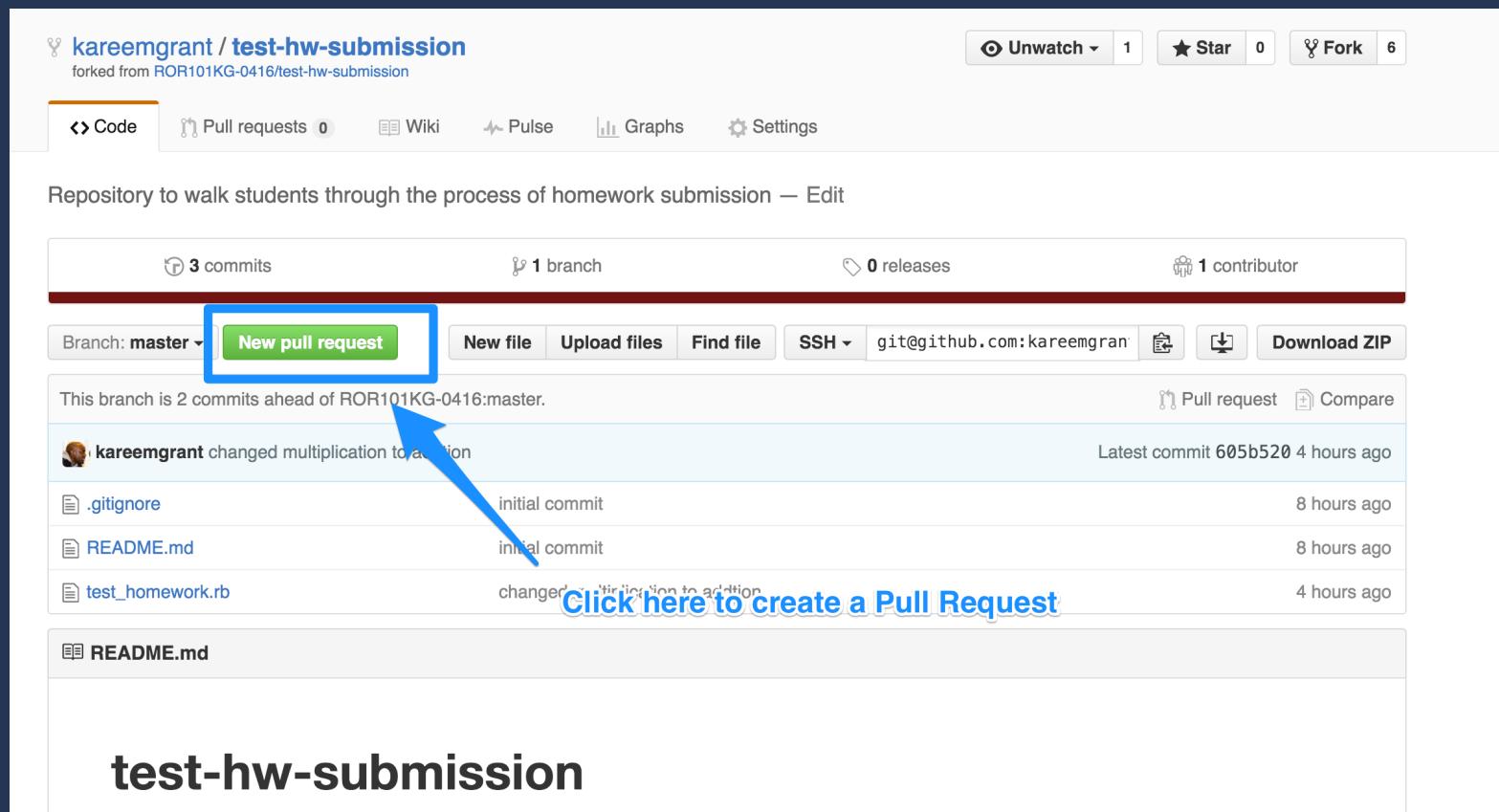
- from the command line run **git push origin master**

**Repeat Steps 7 through 8 - as many times as needed**

# Submitting Your Assignment

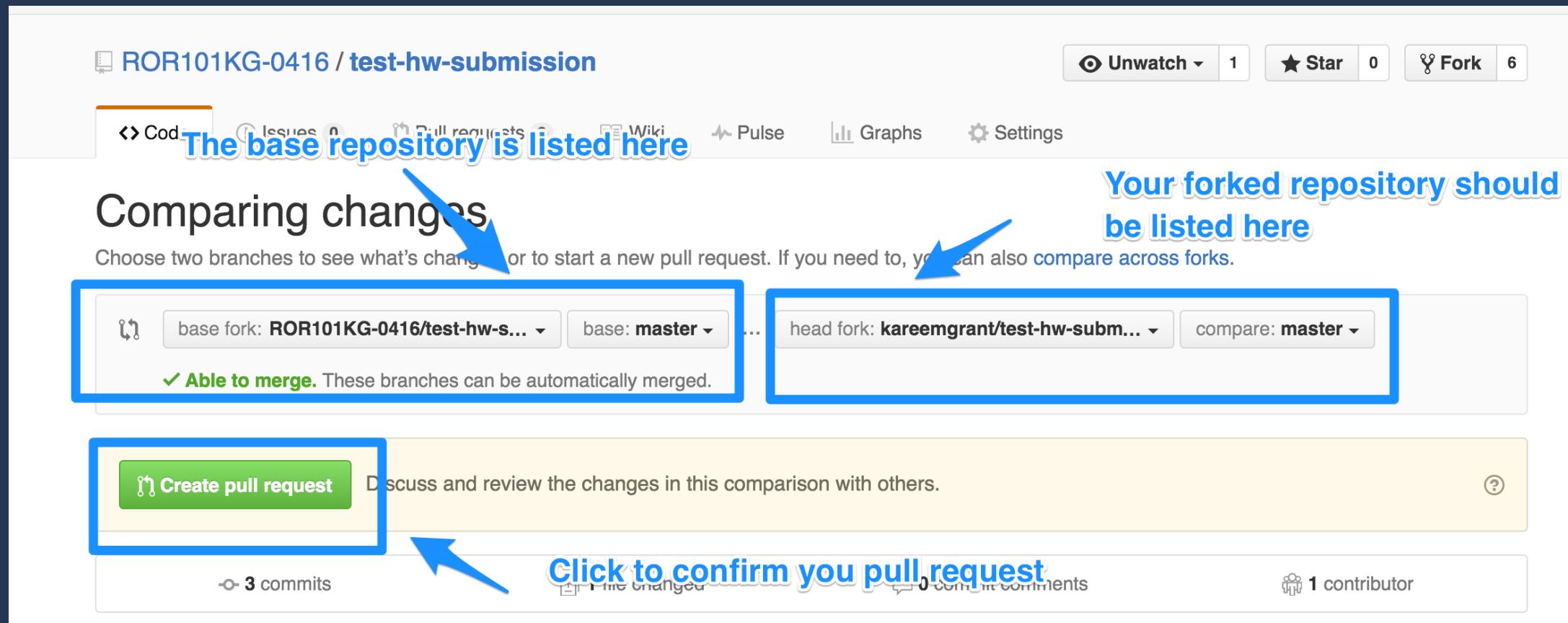
# Step 9a: Create a Pull Request in Github

- Navigate to your forked repo on Github.com and click **New pull request**



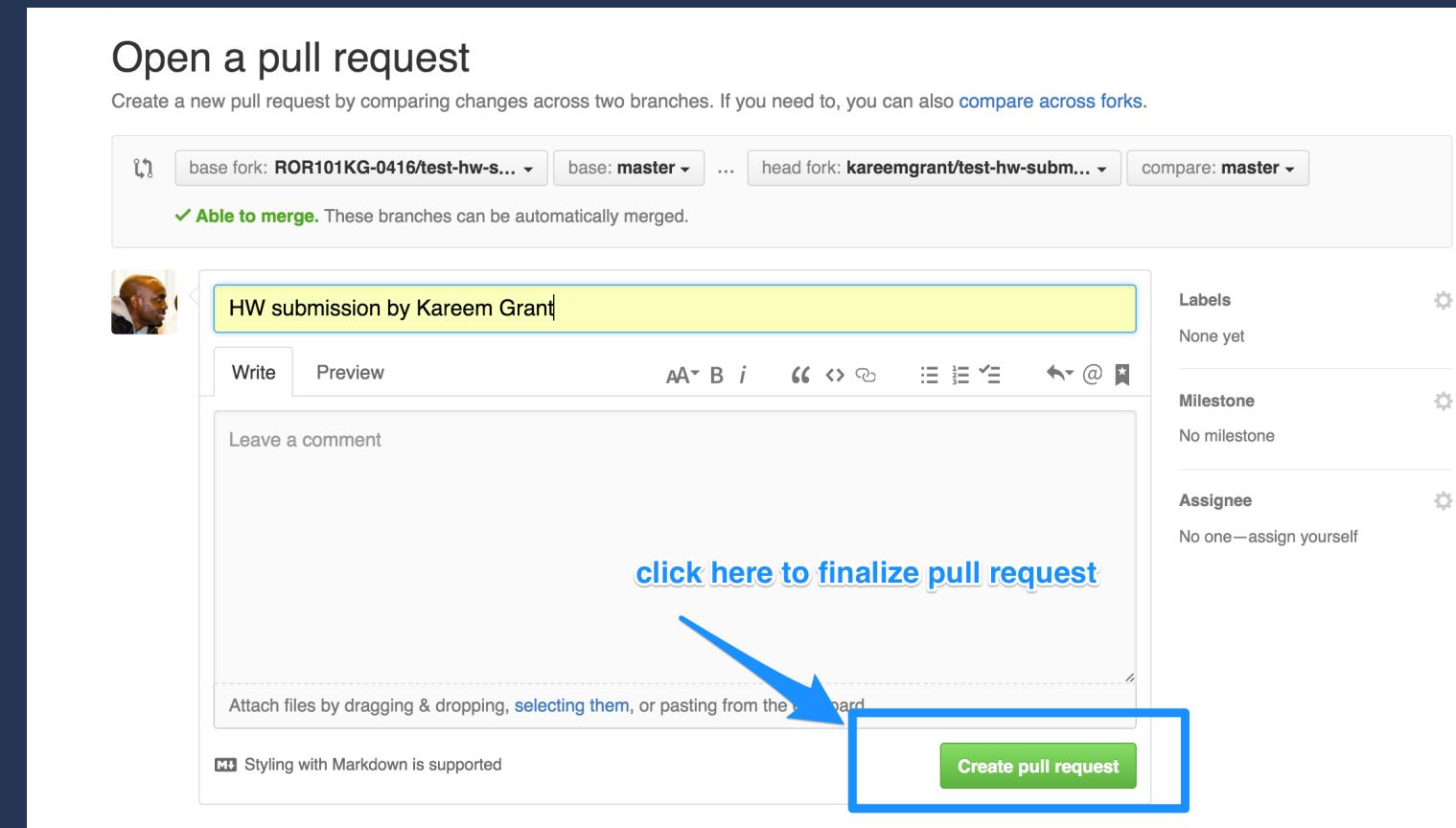
# Step 9b: Confirm details of the Pull Request in Github

- Confirm details of the pull request

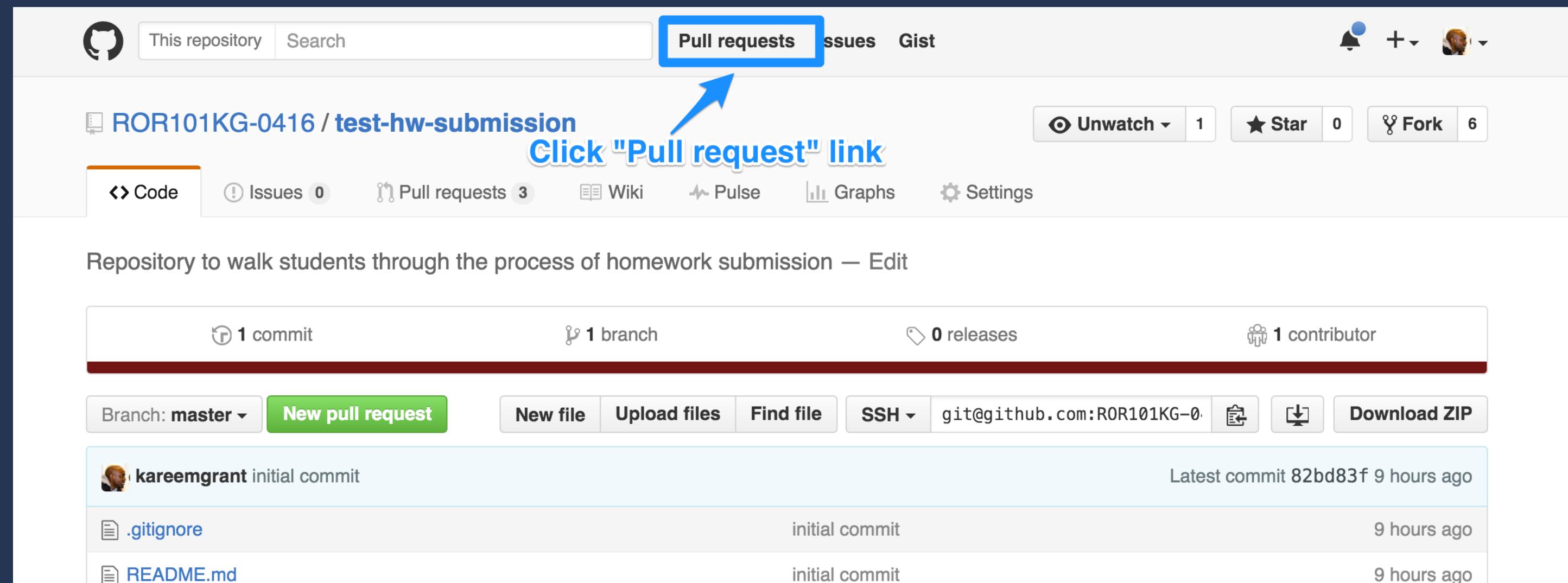


# Step 9c: Name your pull request "HW Submission by [Your Name]"

- Name and finalize the pull request



# Step 10a: Confirm Creation of Pull Request on Github



The screenshot shows a GitHub repository page for "ROR101KG-0416 / test-hw-submission". The "Pull requests" tab is highlighted with a blue box and an arrow points to it with the text "Click \"Pull request\" link". The repository description is "Repository to walk students through the process of homework submission — Edit". Key statistics shown are 1 commit, 1 branch, 0 releases, and 1 contributor. A green button labeled "New pull request" is visible. The commit history lists three files: ".gitignore", "README.md", and "initial commit" by user "kareemgrant". The latest commit was made 9 hours ago.

This repository

Search

Pull requests

Issues

Gist

ROR101KG-0416 / test-hw-submission

Click "Pull request" link

Unwatch 1

Star 0

Fork 6

Code

Issues 0

Pull requests 3

Wiki

Pulse

Graphs

Settings

1 commit

1 branch

0 releases

1 contributor

Branch: master

New pull request

New file

Upload files

Find file

SSH

git@github.com:ROR101KG-0

.gitignore

README.md

kareemgrant initial commit

Latest commit 82bd83f 9 hours ago

initial commit

9 hours ago

initial commit

9 hours ago

# Step 10b: Confirm Creation of Pull Request on Github (cont'd)

A screenshot of a GitHub interface showing a list of pull requests. The top navigation bar includes a search bar, 'Pull requests', 'Issues', 'Gist', and user profile icons. Below the navigation, there are three tabs: 'Created' (highlighted in blue), 'Assigned', and 'Mentioned'. A search bar contains the query 'is:open is:pr author:kareemgrant'. The main list shows 6 open pull requests. One specific pull request is highlighted with a blue box and a blue arrow pointing to its title: 'HW submission by Kareem Grant'. The pull request details show it was opened by 'kareemgrant' 44 minutes ago. The GitHub logo is visible in the top left corner.

Click on Pull Request link

HW submission by Kareem Grant

# Step 10c: Confirm Creation of Pull Request on Github (cont'd)

This repository Search

Pull requests Issues Gist

ROR101KG-0416 / test-hw-submission

Unwatch 1 Star 0 Fork 6

Code Issues 0 Pull requests 3 Wiki Graph Settings

Your pull request lives on the instructor repo that you forked

## HW submission by Kareem Grant #4

Open kareemgrant wants to merge 3 commits into ROR101KG-0416:master from kareemgrant:master

Conversation 0 Commits 3 Files changed 1

+2 -0

kareemgrant commented an hour ago ROR101KG-0416 member +

No description provided.

kareemgrant added some commits 5 hours ago

- completing hw 0796be6
- changed multiplication to addition 605b520
- Another change 99dc340

Add more commits by pushing to the master branch on kareemgrant/test-hw-submission.

This branch has no conflicts with the base branch

Labels None yet

Milestone No milestone

Assignee No one—assign yourself

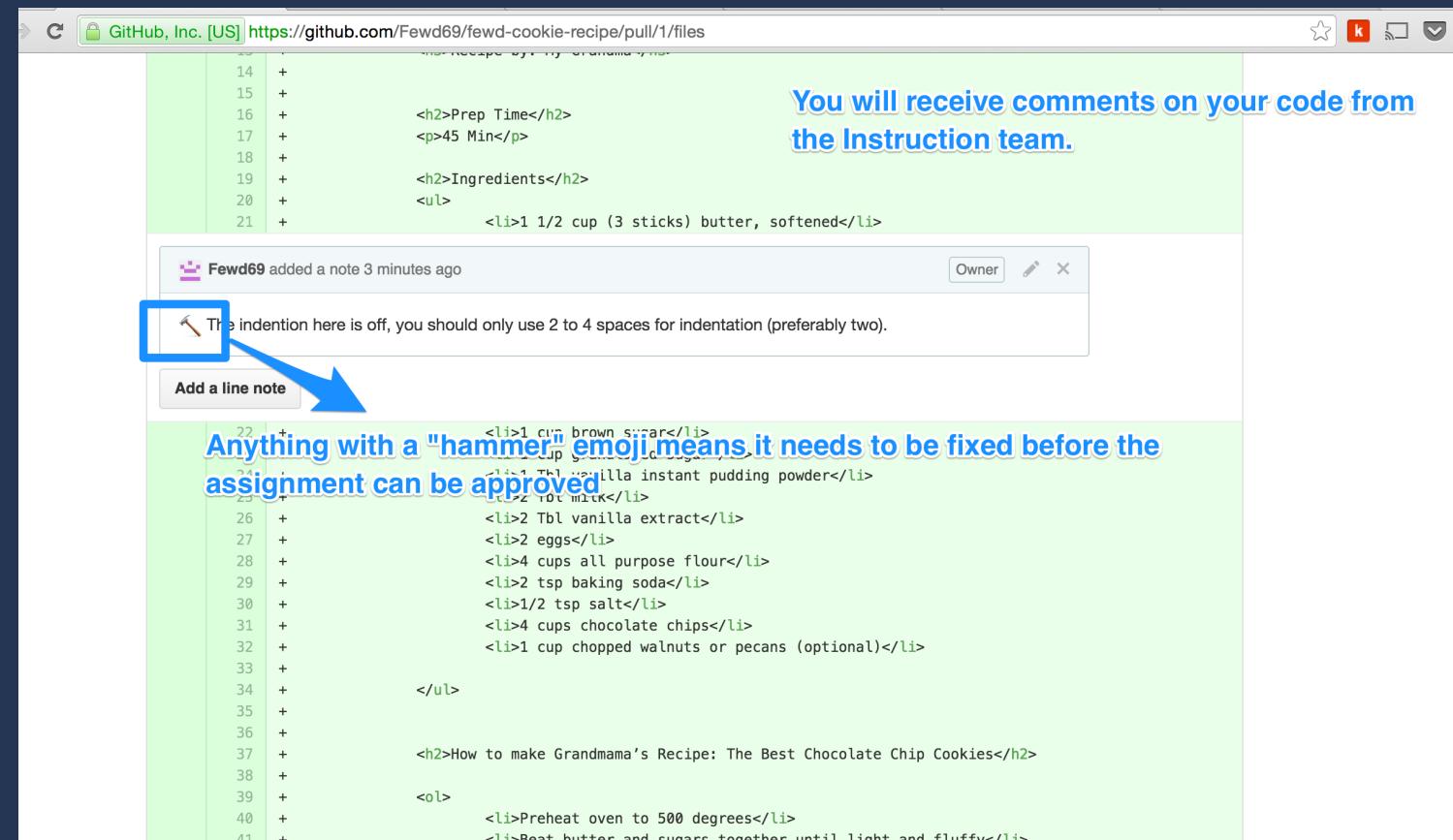
Notifications

You're receiving notifications because you authored the thread.

# **Receive Feedback from Instructor**

# Step 11a: Instructor will leave feedback and let you know what needs to be fixed

- Hammer emojis indicate something that needs to be fixed



# Step 11b: Students can add comments of their own to get clarification

The screenshot shows a GitHub pull request page for a file named "cookie-recipe.py". The code is a Python script for a cookie recipe. A specific line of code, line 21, is highlighted in green: "`<li>1 1/2 cup (3 sticks) butter, softened</li>`". Below this line, there are two comments from other users:

- A comment from "Fewd69" stating: "The indentation here is off, you should only use 2 to 4 spaces for indentation (preferably two)."
- A comment from "kareemgrant" asking: "Is there a setting in Sublime that I can use to help with my indentation?"

A blue box highlights the comment from "kareemgrant", and a blue arrow points from the text "Students can add comments of their own to discuss code issues or ask for clarification" to this highlighted comment.

**Students can add comments of their own to discuss code issues or ask for clarification**

# **Step 12: Student Fixes Any Outstanding Issues (Hammer emojis)**

**Repeat Steps 7 through 8**

- 1) Make your changes in sublime
- 2) Commit your changes
- 3) Push your changes

**Do Not create a new Pull Request** Your existing Pull Request will automatically be updated

# Step 13: Instructor Reviews Changes

- Instructor will receive an email notification letting them know your Pull Request was updated
- Instructor will also confirm that "hammers" were addressed

# Step 14: Instructor Approves Your Assignment

- Student will receive a "Thumbs Up" emoji indicating that the assignment was approved

