

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

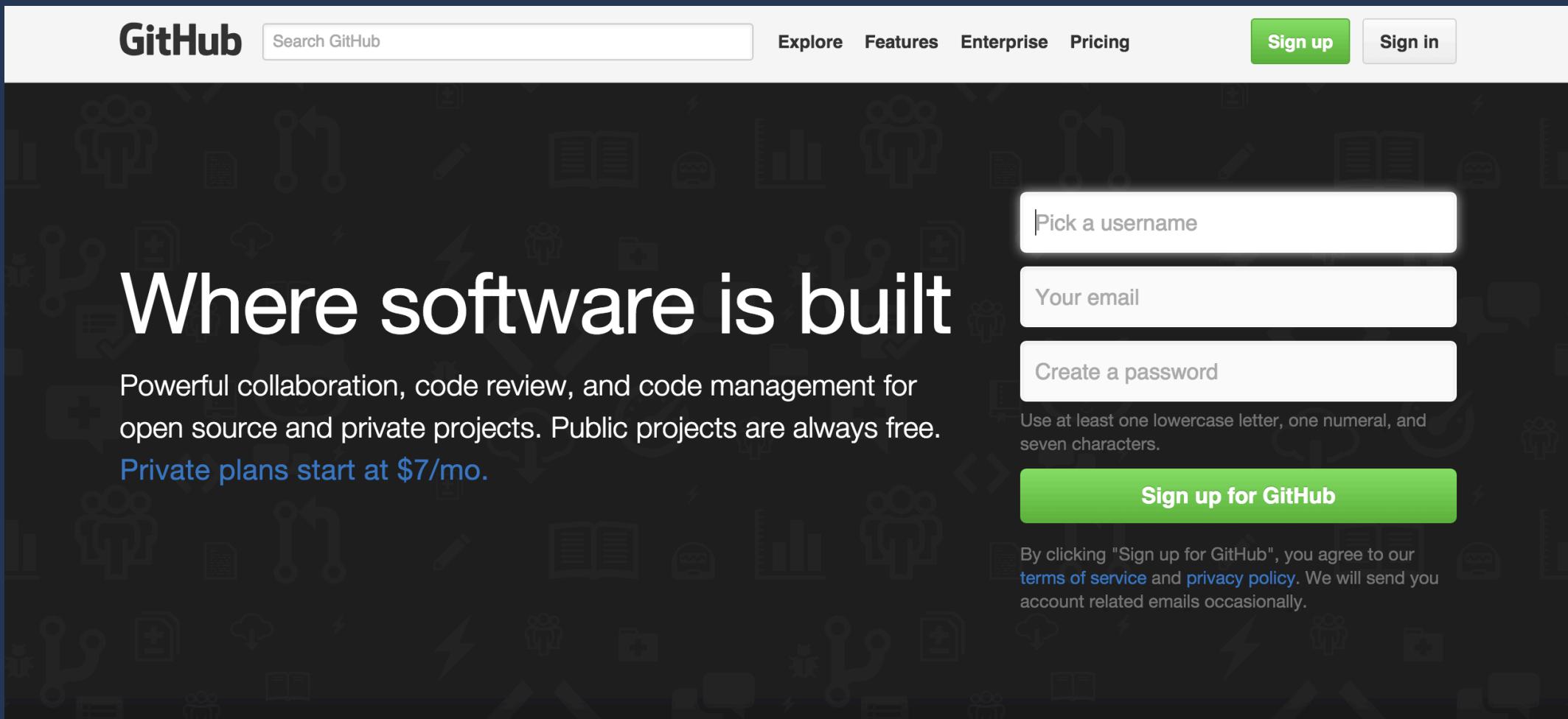
Merge

- 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

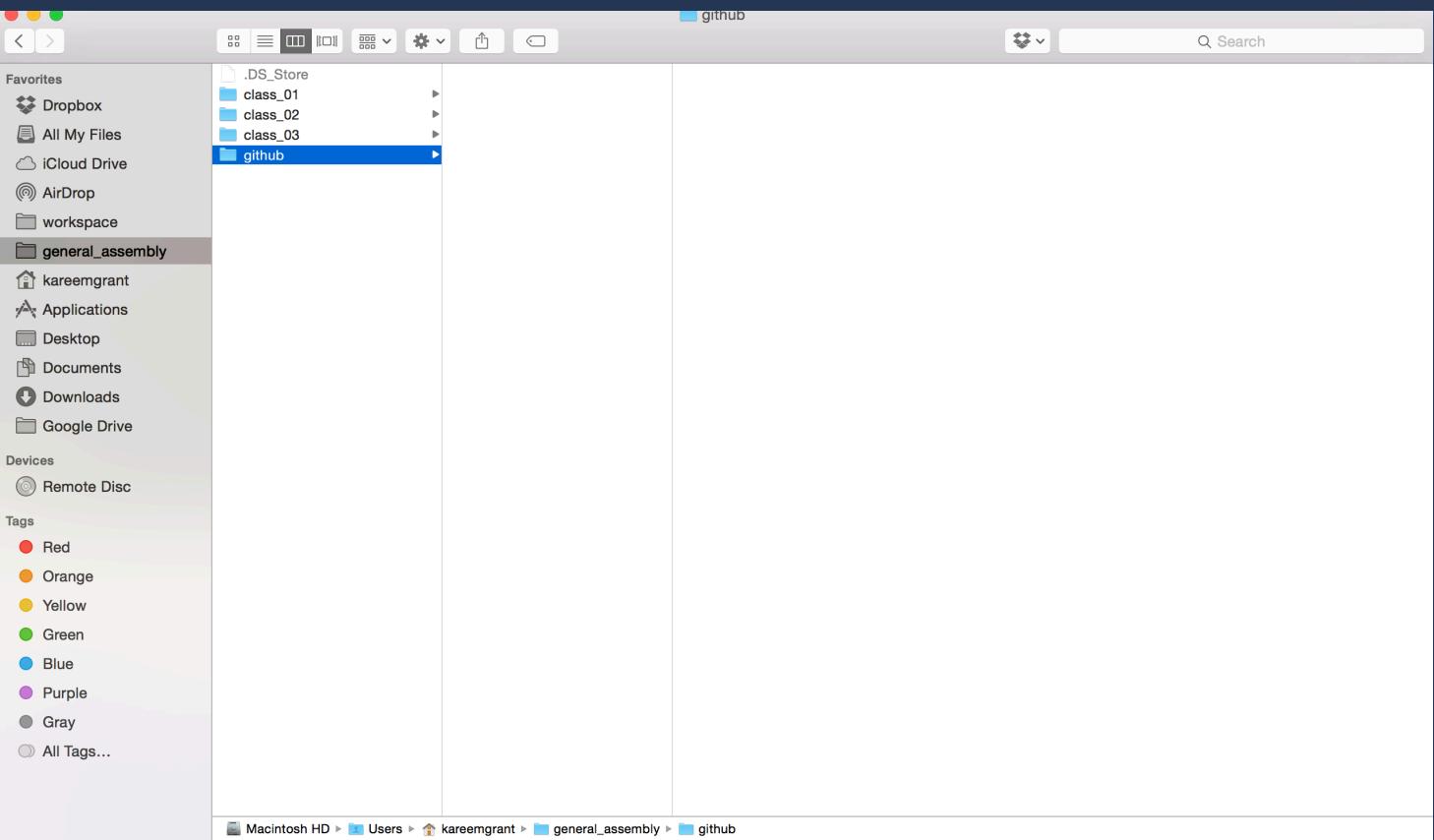
**(The following steps only need to
be completed One Time)**

Step 1: Create a Github Account*



*one-time step

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

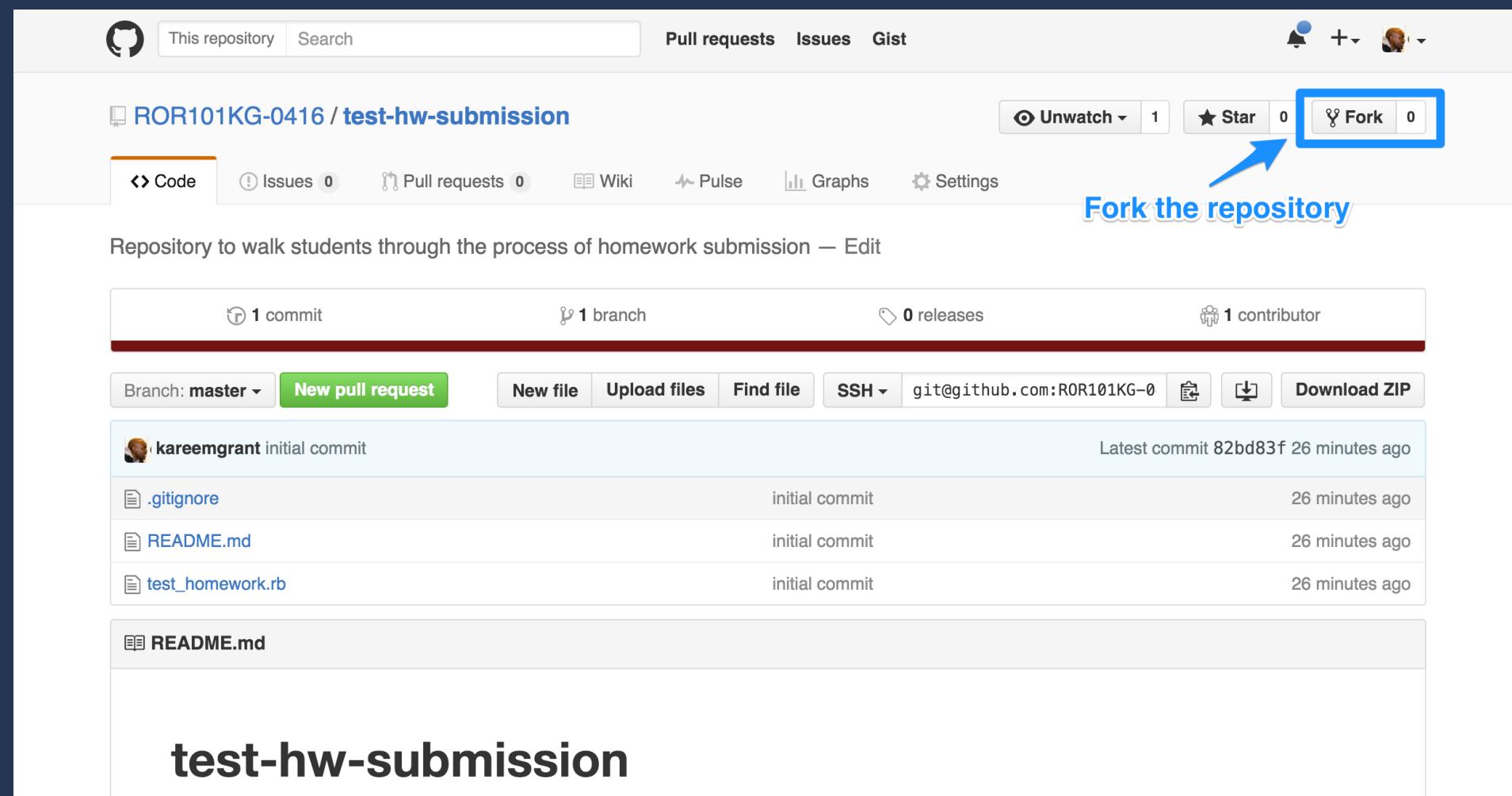


*one-time step

Starting an Assignment

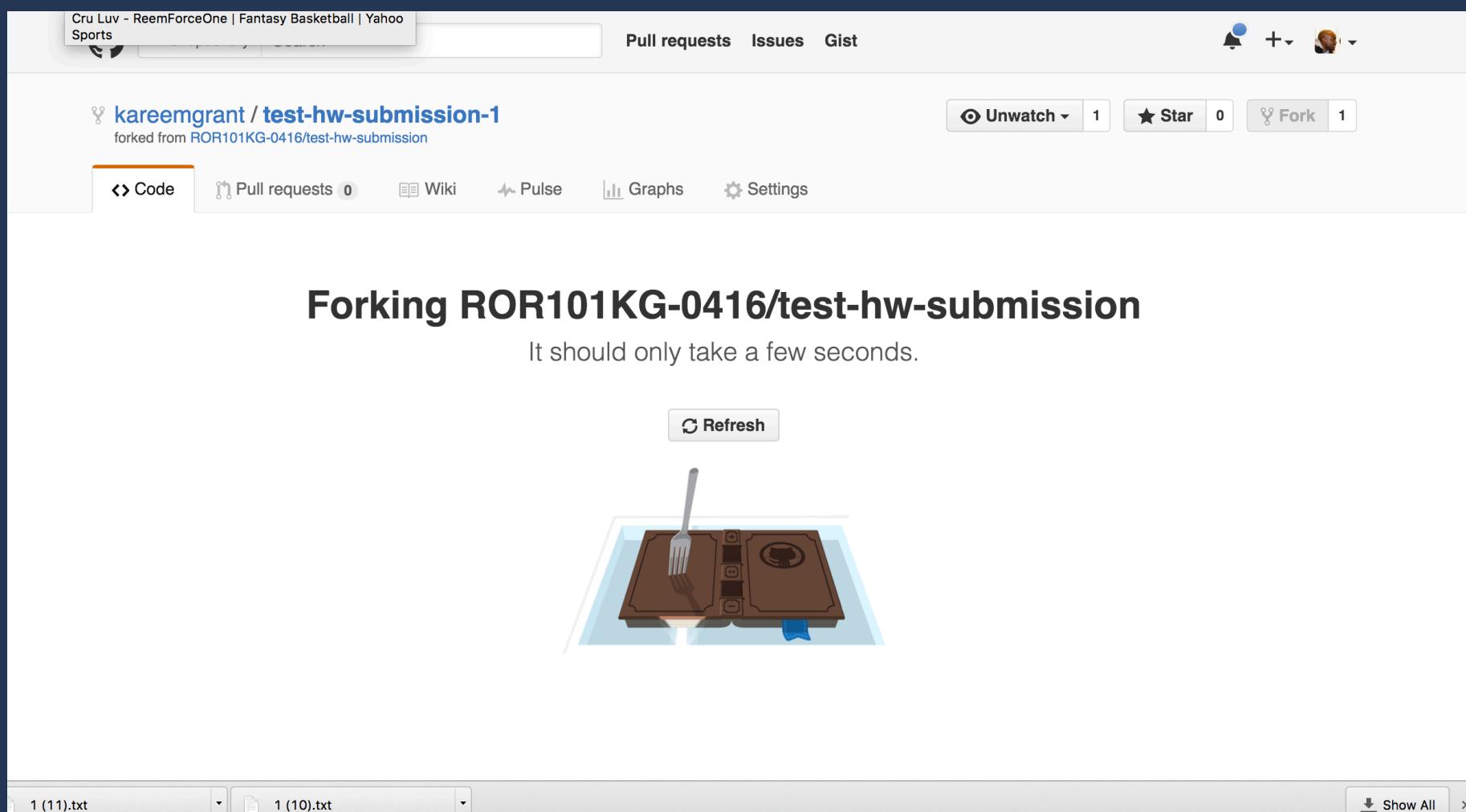
Step 3a: Fork Instructor Repository

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

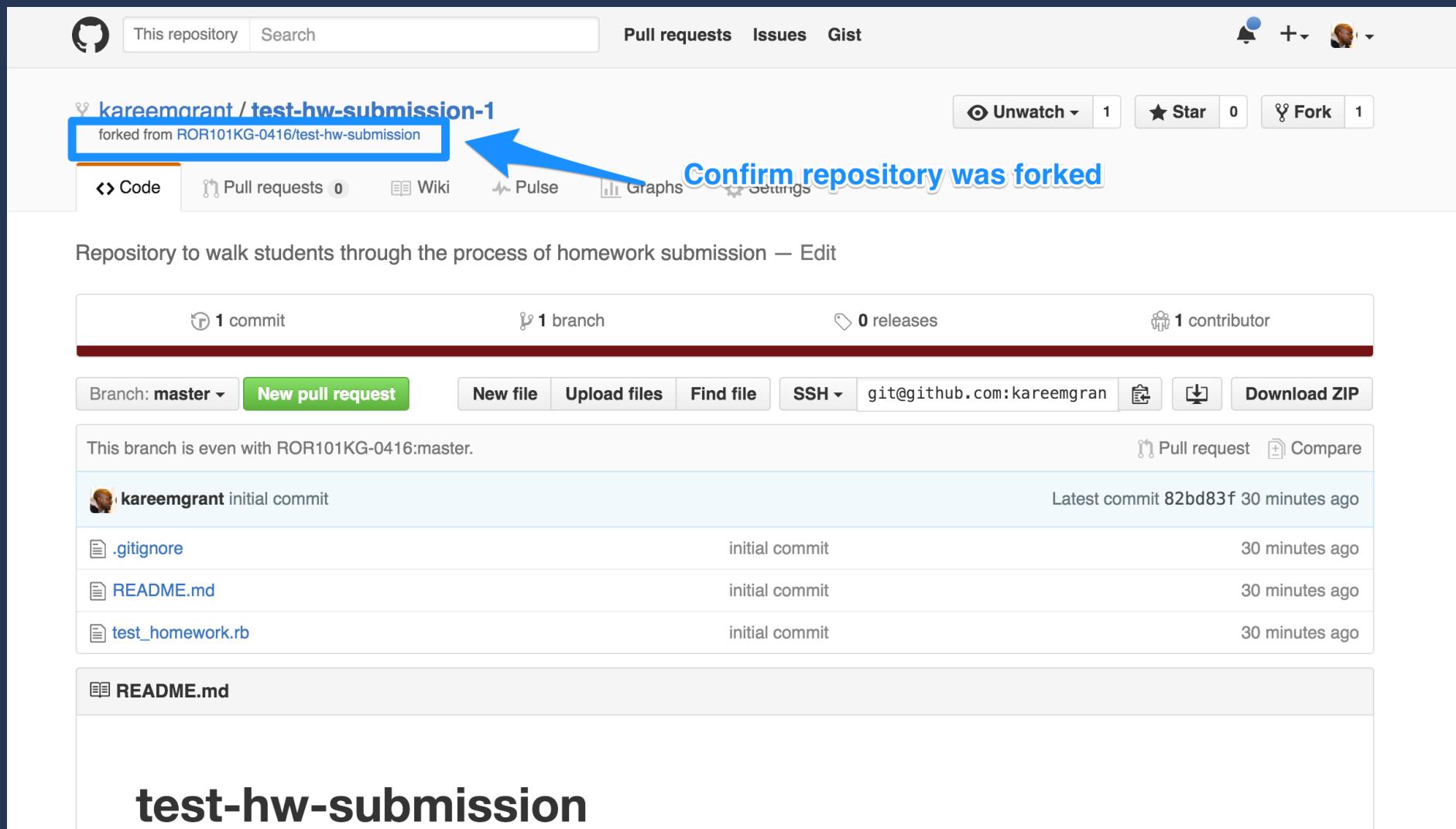


Step 3b: Fork Instructor Repository

- 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.

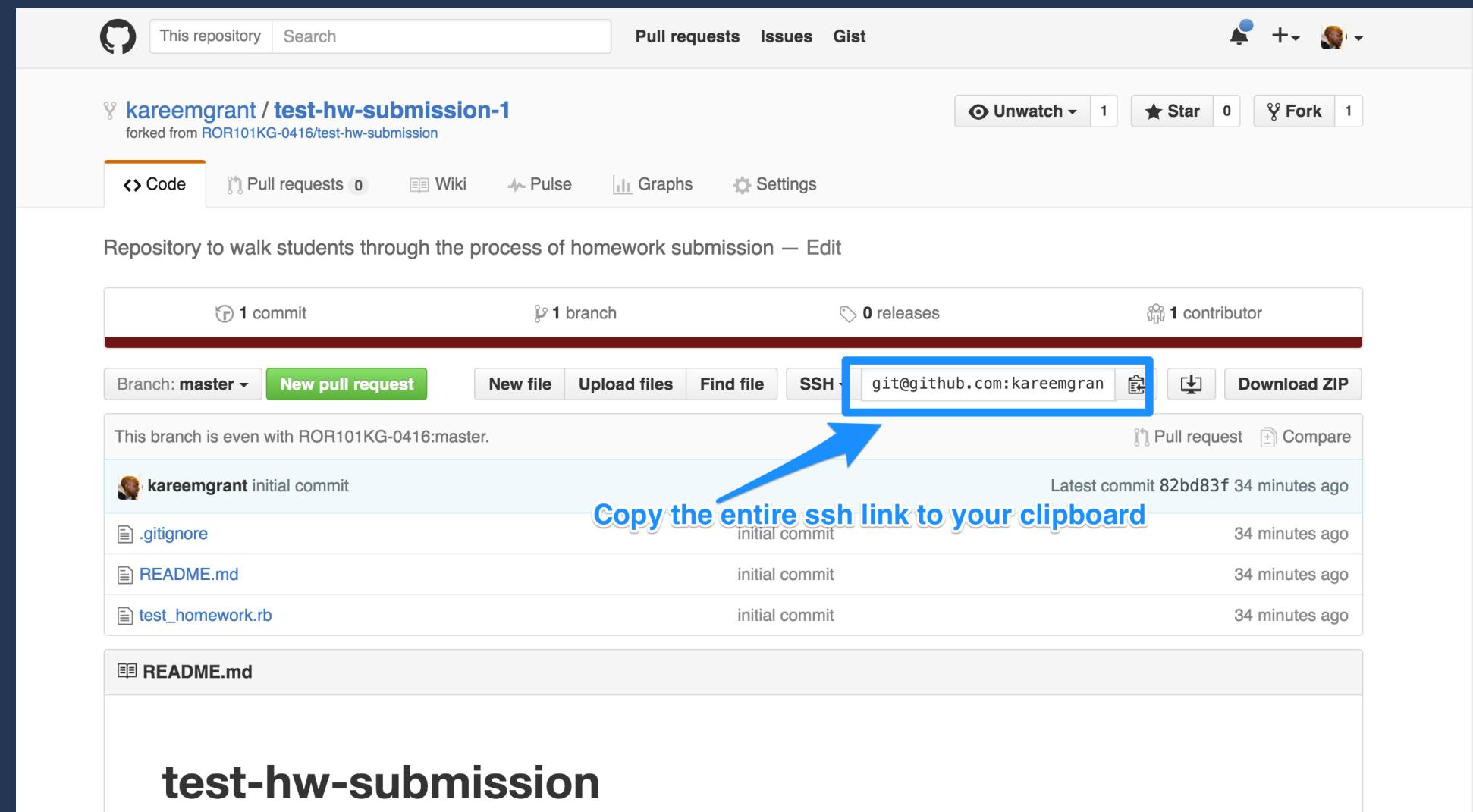
File	Commit	Time
<code>.gitignore</code>	initial commit	30 minutes ago
<code>README.md</code>	initial commit	30 minutes ago
<code>test_hw_submission.rb</code>	initial commit	30 minutes ago

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



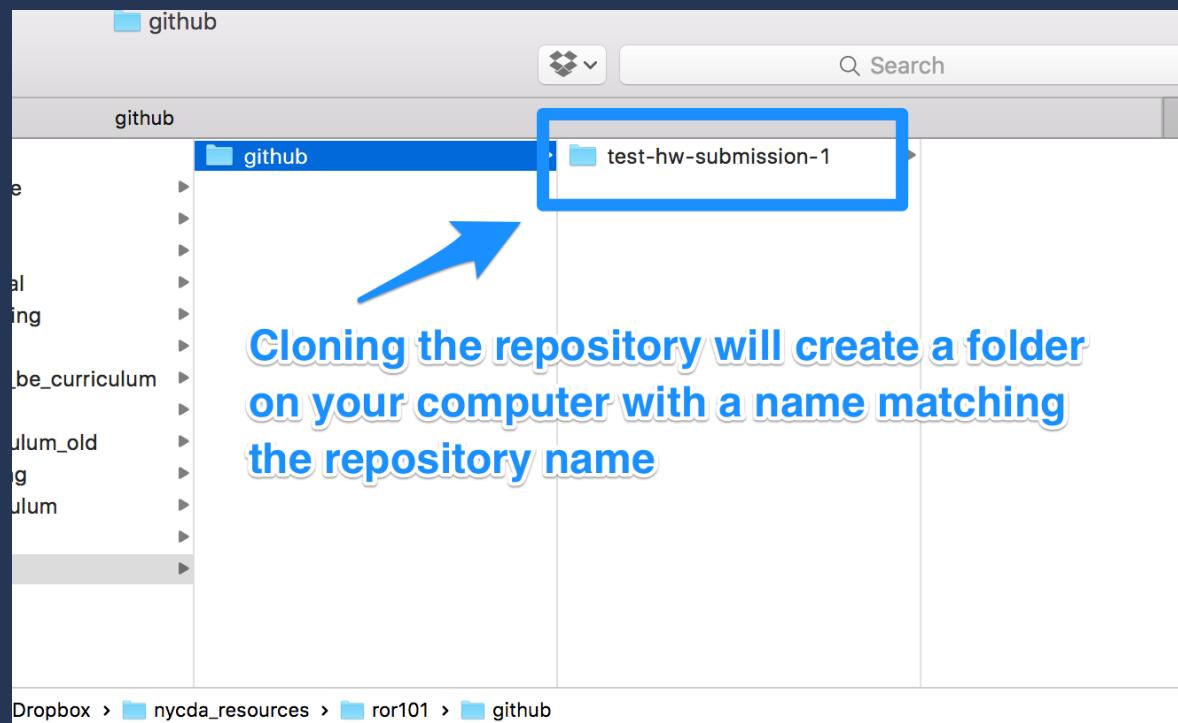
Step 5c: Clone the repository down to your labtop from the command line

- 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 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

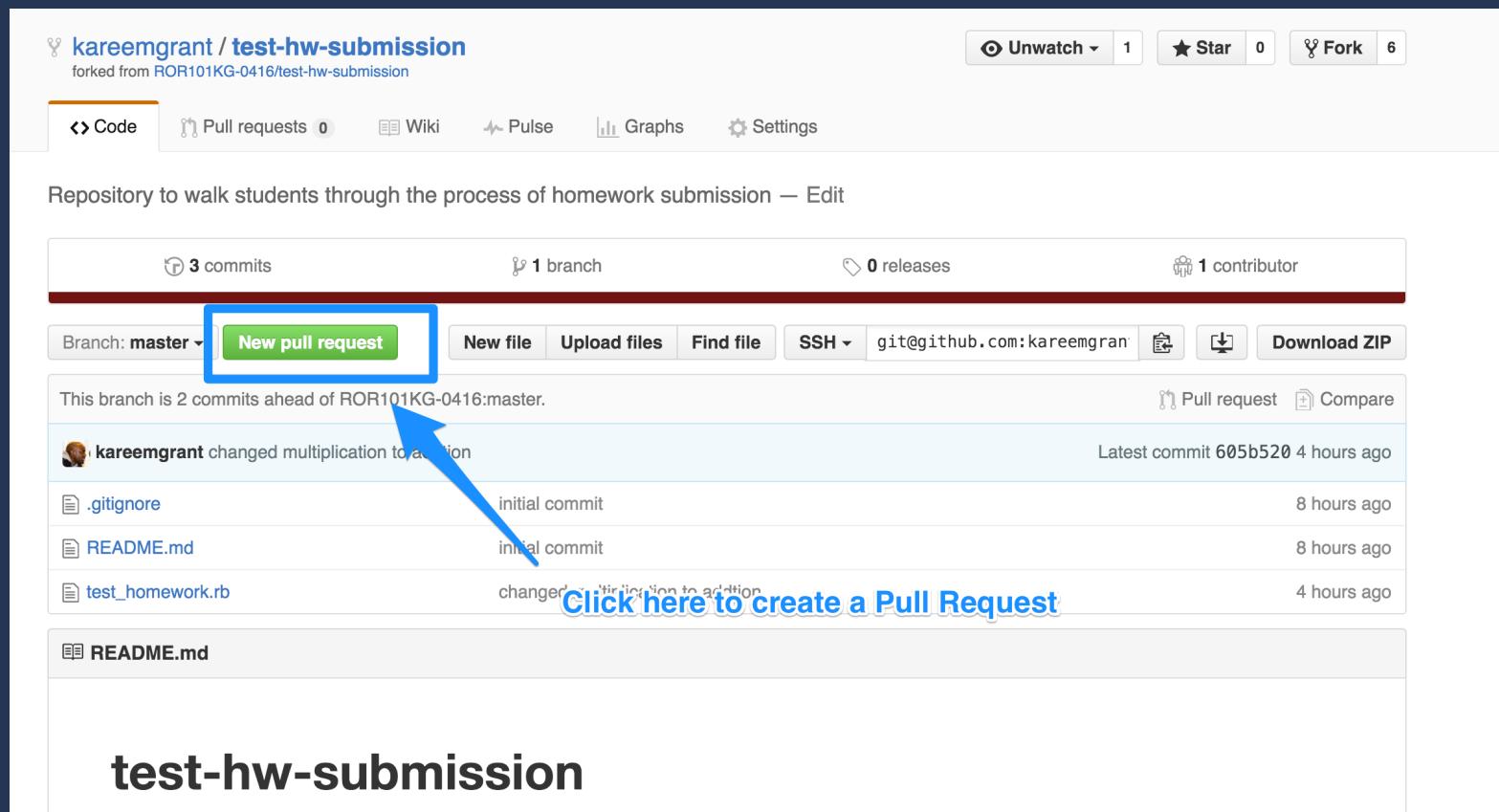
- from the command line run **git push origin master**

Repeat Steps 7 through 8 - as many times as needed

Submitting Your Assignment

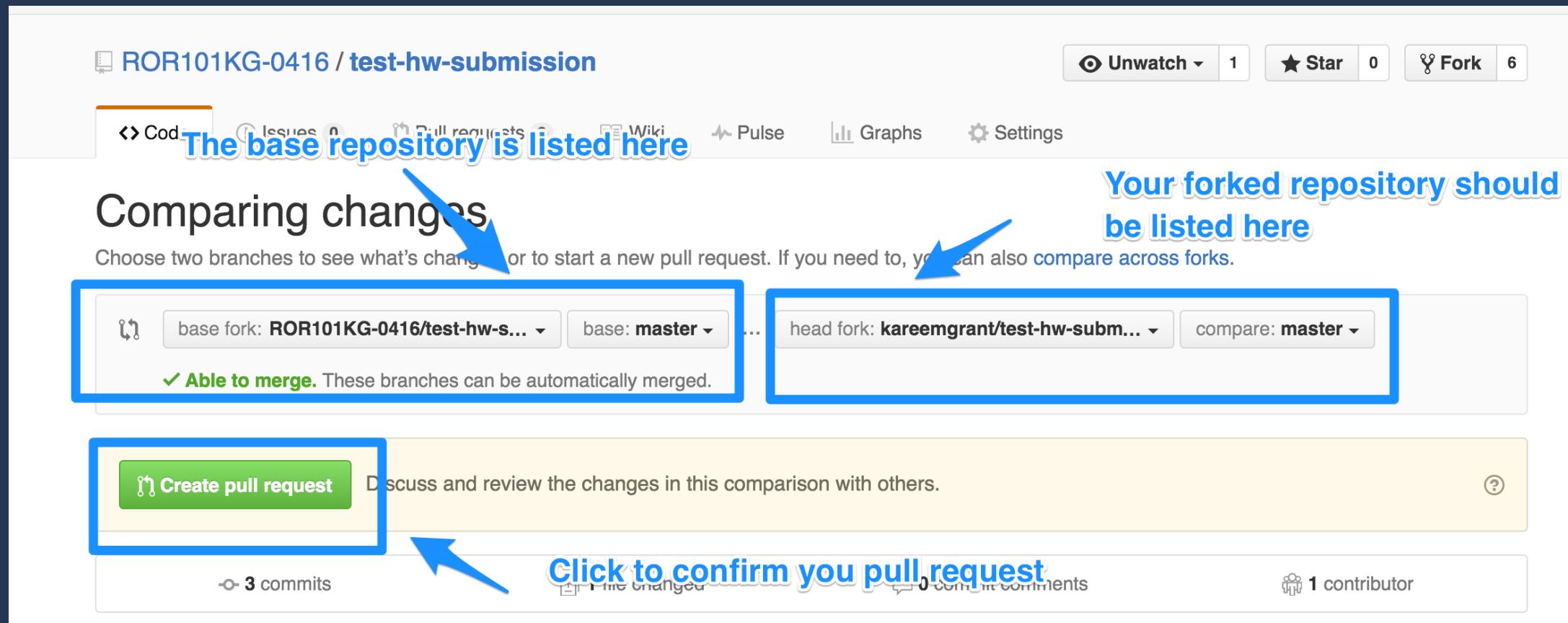
Step 9a: Create a Pull Request in Github

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



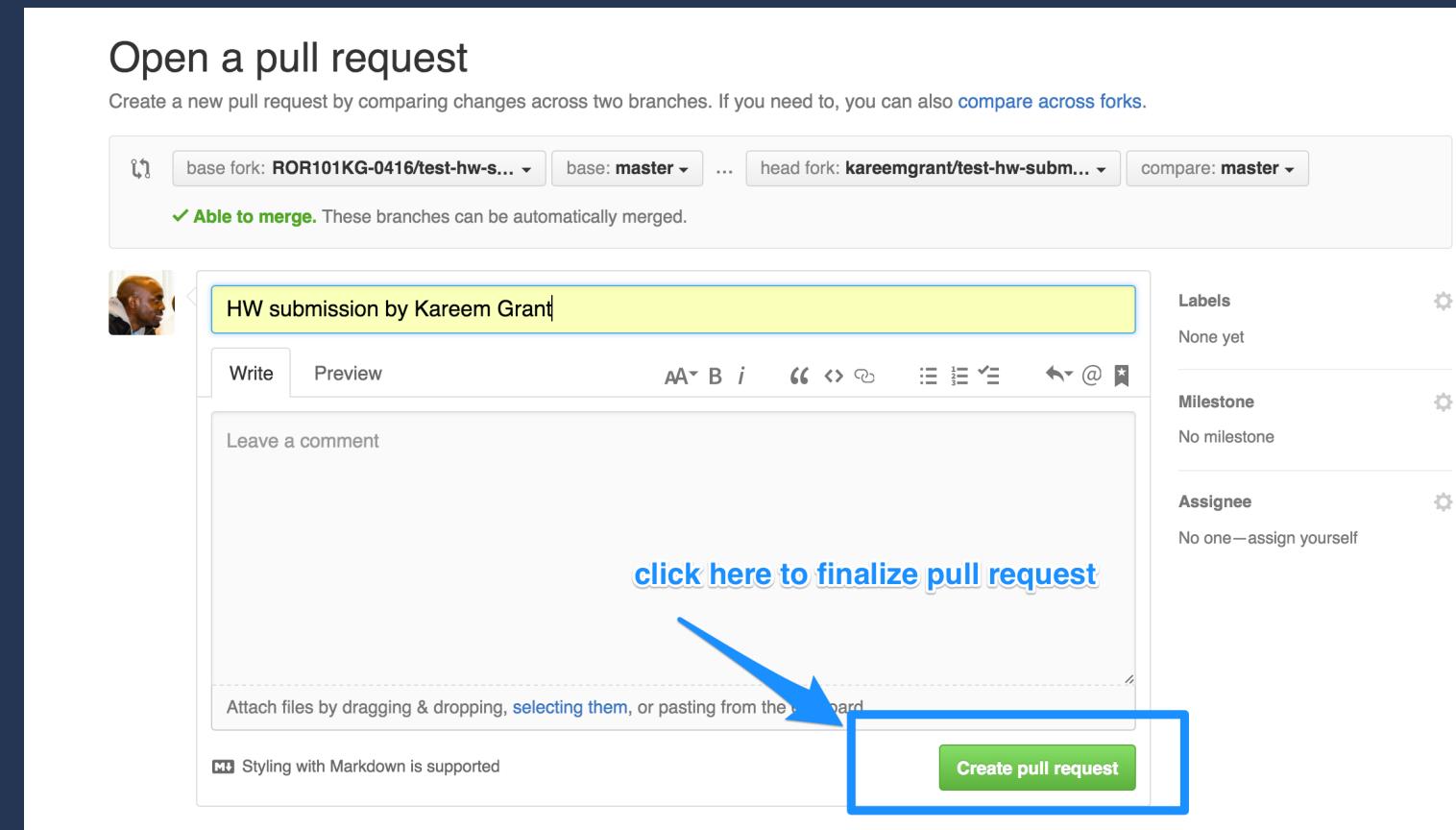
Step 9b: Confirm details of the Pull Request in Github

- Confirm details of the pull request

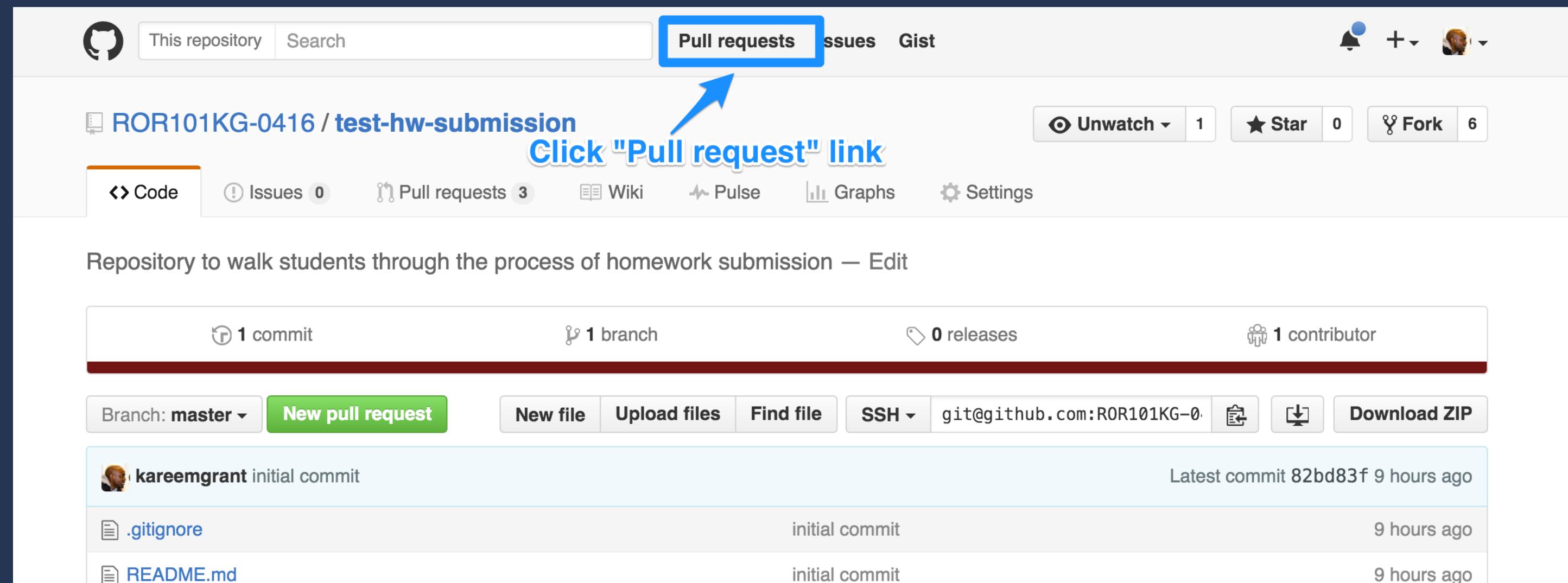


Step 9c: Name your pull request "HW Submission by [Your Name]"

- 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 border and a blue arrow pointing to it from above. This pull request is titled 'HW submission by Kareem Grant' and is associated with the repository 'ROR101KG-0416/test-hw-submission'. It was opened 44 minutes ago by 'kareemgrant'. The pull request has 0 comments.

Click on Pull Request link

HW submission by Kareem Grant

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

The screenshot shows a GitHub repository page for 'ROR101KG-0416 / test-hw-submission'. A blue box highlights the repository name in the top navigation bar. An arrow points from the text 'Your pull request lives on the instructor repo that you forked' to the 'Wiki' tab in the navigation bar. The main content area displays a pull request by 'kareemgrant' with the title 'HW submission by Kareem Grant #4'. The pull request is open, showing 3 commits from 'kareemgrant' on 'kareemgrant:master' into 'ROR101KG-0416:master'. The commits are: 'completing hw' (commit 0796be6), 'changed multiplication to addition' (commit 605b520), and 'Another change' (commit 99dc340). The right sidebar contains sections for Labels (None yet), Milestone (No milestone), Assignee (No one—assign yourself), and Notifications (Unsubscribe).

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

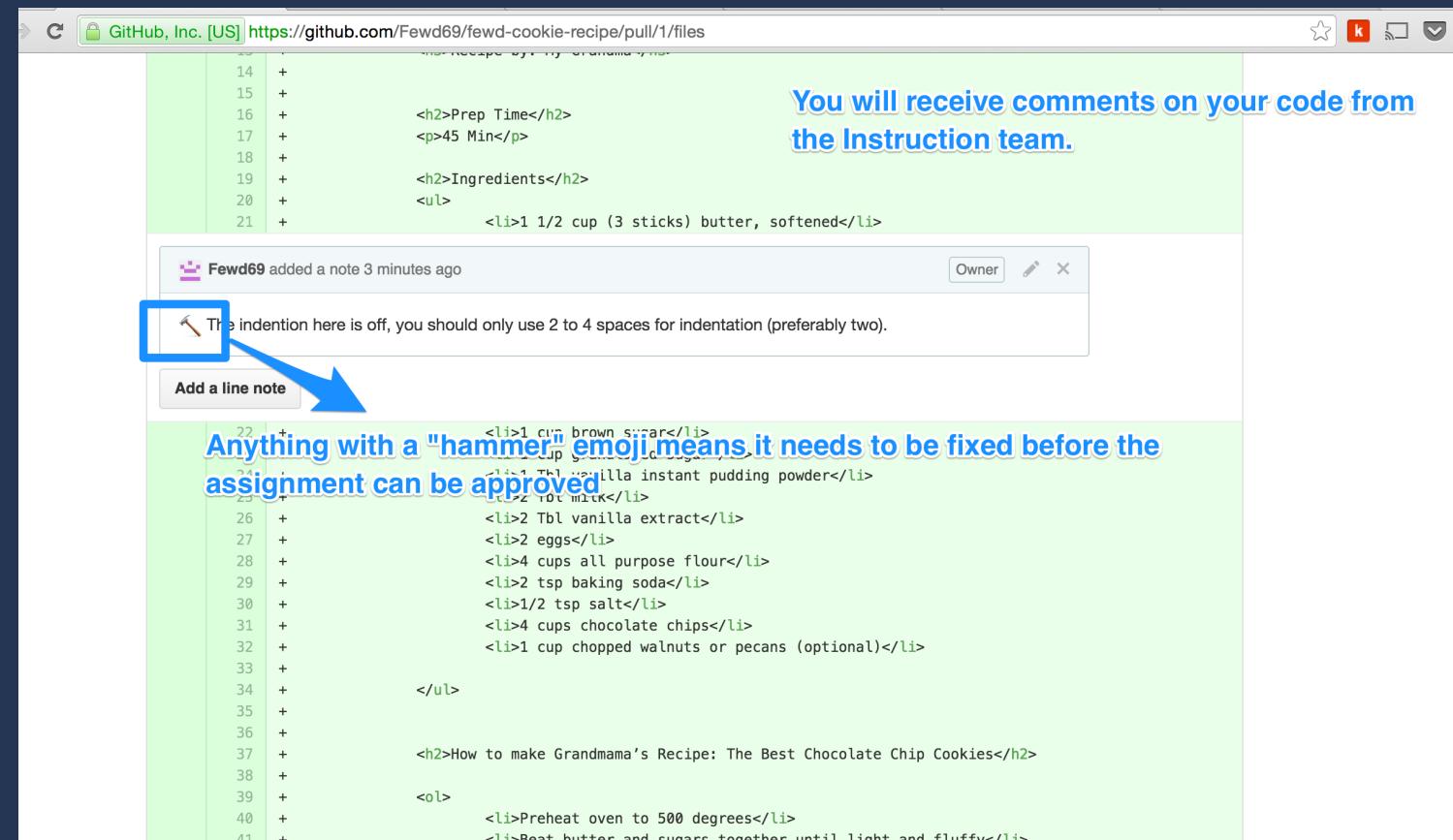
Notifications Unsubscribe

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: "`1 1/2 cup (3 sticks) butter, softened`". 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

