

PORTLAND STATE UNIVERSITY

ECE 373 – Linux Device Drivers



Getting Started with Github & Github Classroom

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Introduction

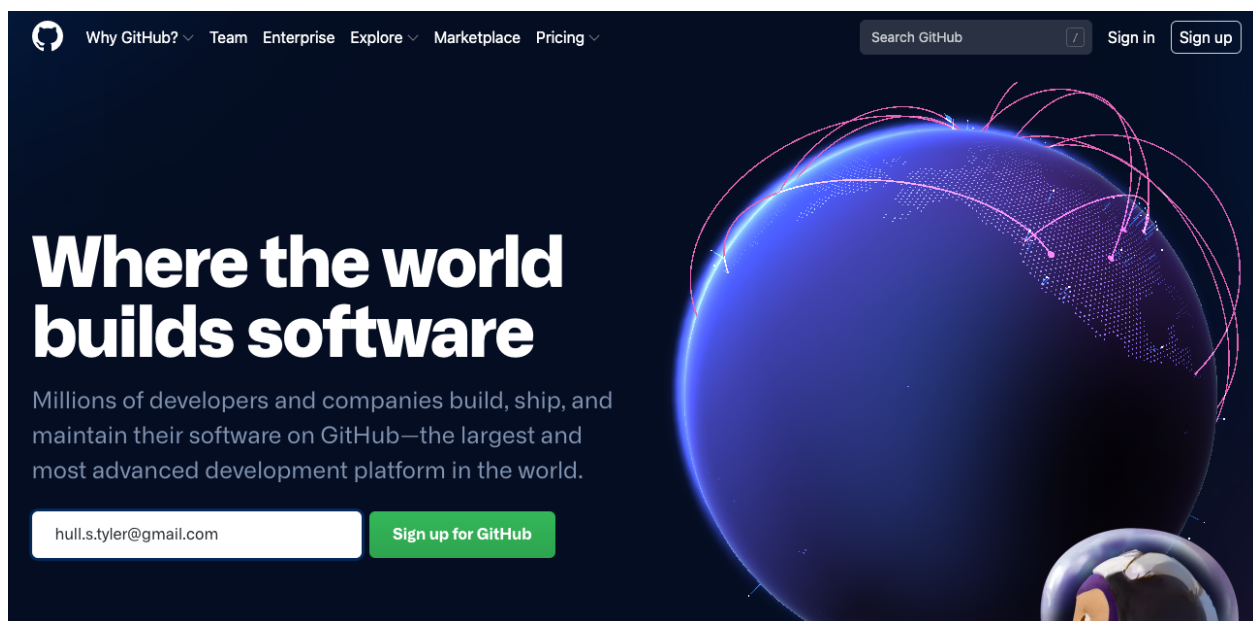
[Git](#) is software used for tracking the changes made to a set of files. Created by [Linus Torvalds](#) in 2005 for use in developing the linux kernel, Git is heavily used in the tech industry to coordinate work between programmers and allow for version control of a project. While Git is free and open source, there are many platforms that build on top of it and allow you to manage your git repositories. Gitlab Inc's Gitlab, Microsoft's Github, and Atlassian's Bitbucket are a few examples of tools you are likely to use out in the workforce.

In this class we will be using [Github Classroom](#) to make a repository for and track versions of our homework. This tutorial will show you how to sign up for Github, create your first repository, setup Github's text editor (Atom), then make your first commit in a practice assignment!

Signing up for Github

If you already have a Github account and a favorite text editor, feel free to skip ahead to the Github Classroom portion of the document.

1. Visit www.github.com. Type in your email address and click the sign up for Github button to get started.



- Next, select a username and password, solve the puzzle, and agree to the terms of service to create your account.

Join GitHub

Create your account

Username *

tyler-Hul



tyler-Hul is available.

hull.s.tyler@gmail.com

Password *

.....



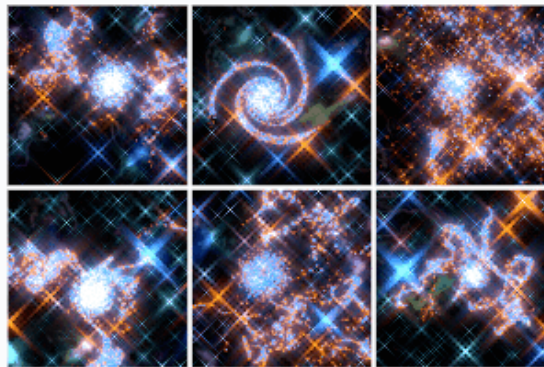
Make sure it's **at least 15 characters** OR at least 8 characters including a number and a lowercase letter. [Learn more](#).

Email preferences

☒ Send me occasional product updates, announcements, and offers.

Verify your account

Pick the spiral galaxy



Create account

3. Select your information and then go verify your email address by clicking on the link that we sent to the email address you entered on the signup page.

Welcome to GitHub

Woohoo! You've joined millions of developers who are doing their best work on GitHub. Tell us what you're interested in. We'll help you get there.

What kind of work do you do, mainly?

| | |
|---|---|
| Software Engineer I write code | Student I go to school |
| Product Manager I write specs | UX & Design I draw interfaces |
| Data & Analytics I write queries | Marketing & Sales I look at charts |
| Teacher I educate people | Other I do my own thing |



Please verify your email address

Before you can contribute on GitHub, we need you to verify your email address.

An email containing verification instructions was sent to hull.s.tyler@gmail.com.

[Resend verification email](#)[Change your email settings](#)



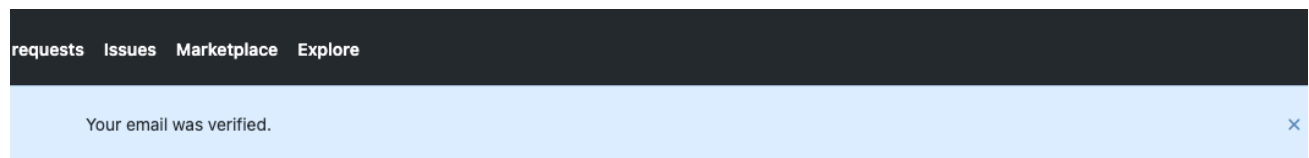
Almost done, @tyler-Hull!

To complete your GitHub sign up, we just need to verify your email address: hull.s.tyler@gmail.com.

Verify email address

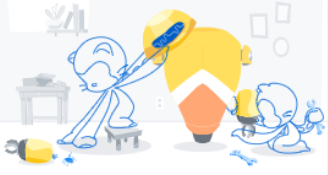
4. After clicking on the link in the email you were sent, you can login and create your first repository!

- Click on the create a repository button to make your first repo.
- Make sure you click on the checkbox to add a README file!




What do you want to do first?

Every developer needs to configure their environment, so let's get your GitHub experience optimized for you.




Start a new project
Start a new repository or bring over an existing repository to keep contributing to it.

Create a repository



Collaborate with your team
Improve the way your team works together and get access to more features with an organization.

Create an organization



Learn how to use GitHub
Get started with an "Introduction to GitHub" course in our Learning Lab.

Start Learning

[Skip this for now >](#)

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner *

tyler-Hull

Repository name *

testRepo

Great repository names are short, lowercase, and contain only alphanumeric characters and hyphens. Need inspiration? How about [automatic-carnival?](#)

Description (optional)

☒ Public

Anyone on the internet can see this repository. You choose who can commit.

☐ Private

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.

☒ Add a README file

This is where you can write a long description for your project. [Learn more](#).

☐ Add .gitignore

Choose which files not to track from a list of templates. [Learn more](#).

☐ Choose a license

A license tells others what they can and can't do with your code. [Learn more](#).

This will set `main` as the default branch. Change the default name in your [settings](#).

Create repository

5. Now that we have a new repository, let's add a file to our repository that we can keep track of!
- Click the “creating a new file” link at the top of your new repository page, under Quick setup.

tyler-Hull / testRepo

<> Code

🔔 Issues

🔄 Pull requests

🎬 Actions

📁 Projects

📖 Wiki

🛡️ Security

📊 Insights

⚙️ Settings

Quick setup — if you've done this kind of thing before

📁 Set up in Desktop

 or

HTTPS

SSH

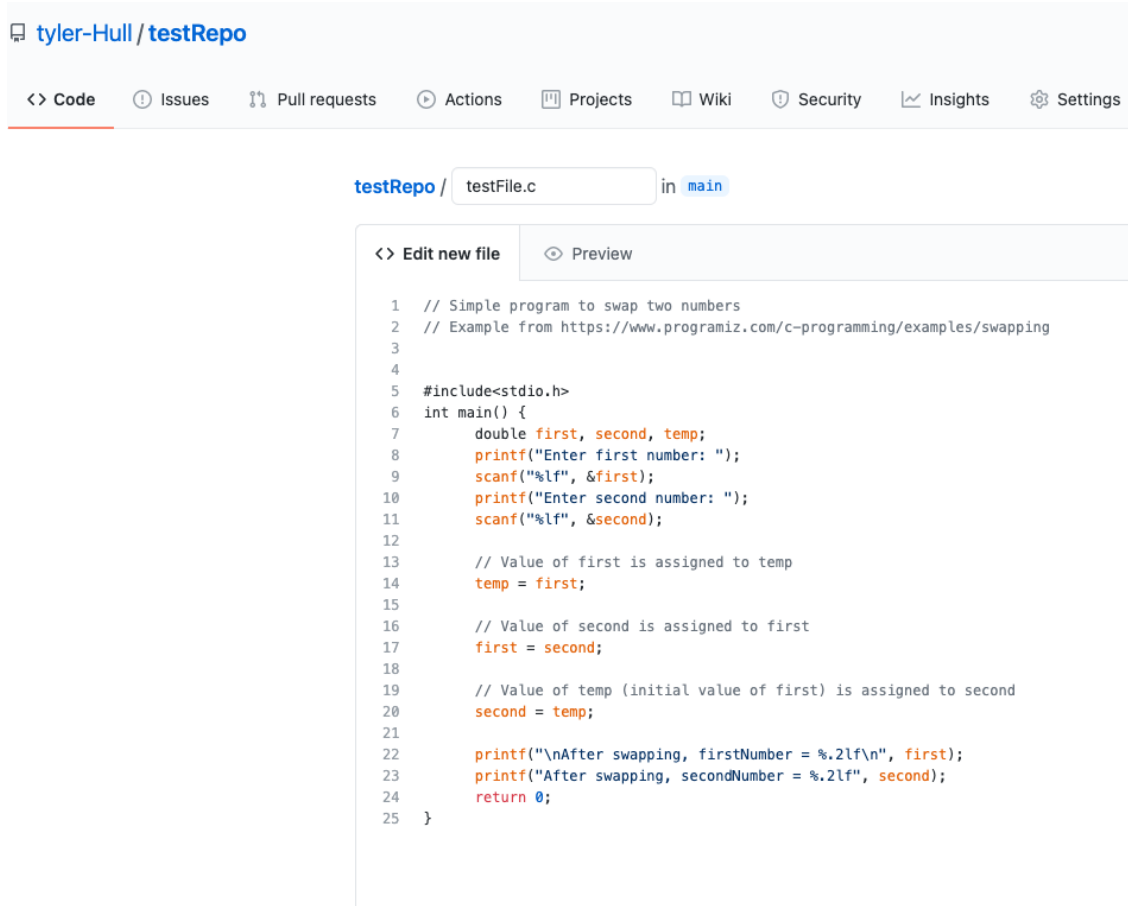
https://github.com/tyler-Hull/testRepo.git

Get started by [creating a new file](#) or [uploading an existing file](#). We recommend every repository include a [README](#), [LICENSE](#), and .

or create a new repository on the command line

6. Give your new file a name and type in some text. For this example, I've copied the simple number swap program from this website:

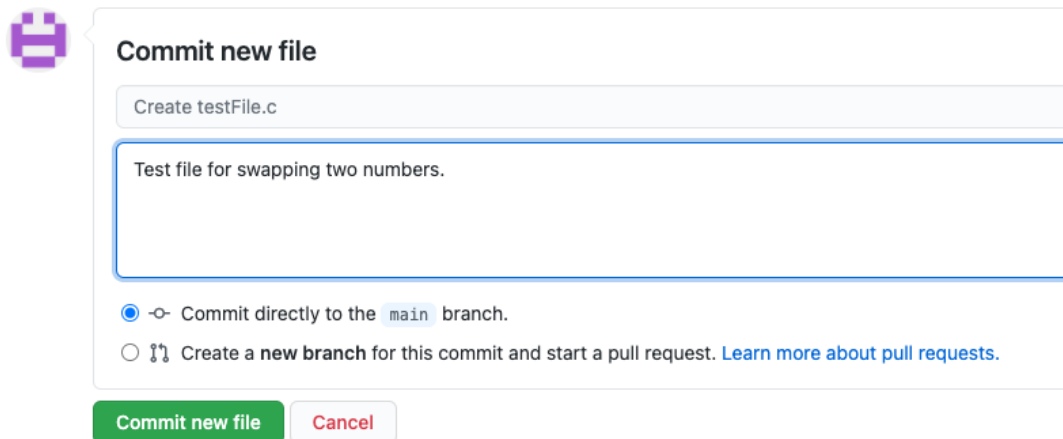
<https://www.programiz.com/c-programming/examples/swapping>



The screenshot shows the GitHub interface for a repository named 'testRepo' by user 'tyler-Hull'. The 'Code' tab is selected. A search bar shows 'testFile.c' in the 'main' branch. Below, the 'Edit new file' tab is active, displaying a C program for swapping two numbers. The code is as follows:

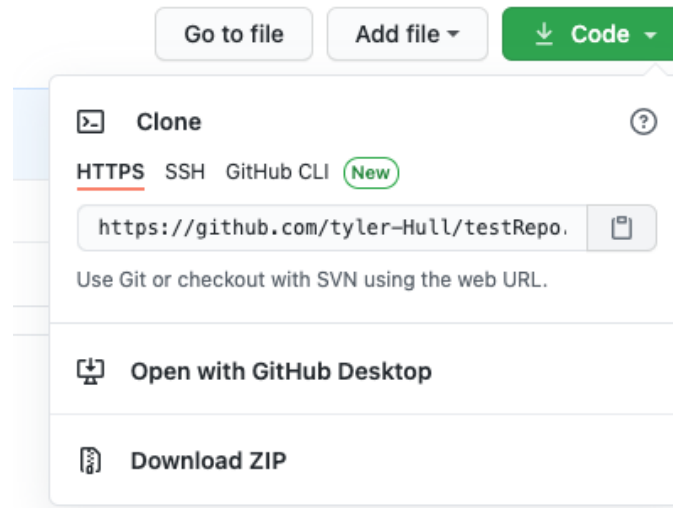
```
1 // Simple program to swap two numbers
2 // Example from https://www.programiz.com/c-programming/examples/swapping
3
4
5 #include<stdio.h>
6 int main() {
7     double first, second, temp;
8     printf("Enter first number: ");
9     scanf("%lf", &first);
10    printf("Enter second number: ");
11    scanf("%lf", &second);
12
13    // Value of first is assigned to temp
14    temp = first;
15
16    // Value of second is assigned to first
17    first = second;
18
19    // Value of temp (initial value of first) is assigned to second
20    second = temp;
21
22    printf("\nAfter swapping, firstNumber = %.2lf\n", first);
23    printf("After swapping, secondNumber = %.2lf", second);
24    return 0;
25 }
```

7. Scroll down, give your file a description and “commit” the new file to your repository.



The screenshot shows the 'Commit new file' dialog in GitHub. It includes a text input field for the file name, which contains 'Create testFile.c'. Below it is a larger text input field for the commit message, containing 'Test file for swapping two numbers.' At the bottom, there are two radio buttons: the first is selected and labeled 'Commit directly to the main branch.', and the second is labeled 'Create a new branch for this commit and start a pull request. Learn more about pull requests.' At the very bottom are two buttons: 'Commit new file' (green) and 'Cancel' (grey).

8. Now your file has been added to your repository! If you click on the green “Code” button, you can copy the link for this file to your clipboard. Then we can add it to our computer to keep track of our changes to the file.



Setting up Github's Atom text editor

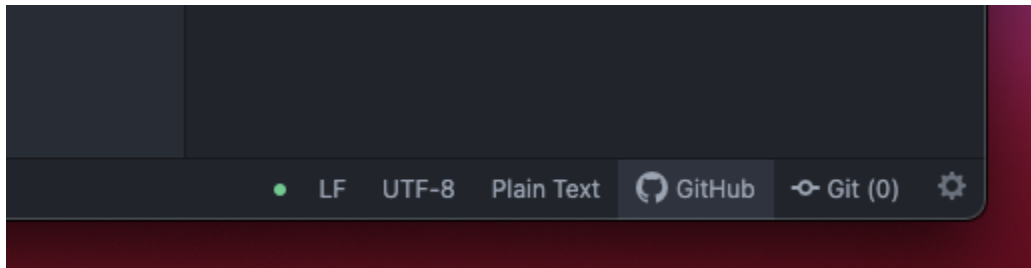
You can easily manage a Git repository from the command line and edit your files using Vim, Emacs, or nano. These tools often make it very fast to make changes and you should do your best to get familiar with them. However, there are also many text editors that have additional features for dealing with Git repositories.

Github's text editor (Atom) isn't the most fully featured editor out there, but it is free, and you may find it useful as a tool in your toolkit. Feel free to explore other tools or use the tool that is best for you in this class.

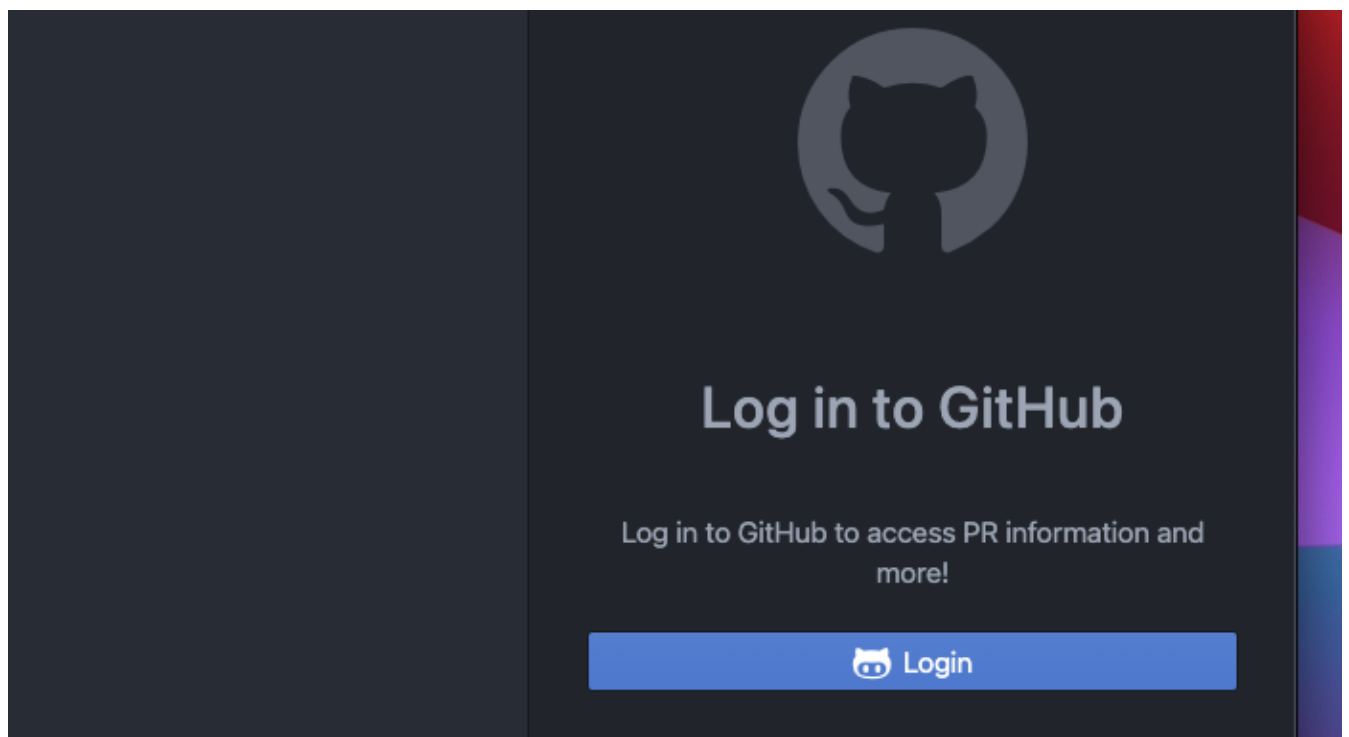
1. Visit www.atom.io to get started and download the atom editor for your operating system.



2. Open the installer for your operating system and install atom or add it to your applications. Then open the Atom editor and click on the Github button on the bottom right corner to open the Github tab.



3. Click the login button, and follow the instructions to authorize the Atom editor on your account. When a security token is generated, copy and paste it into the field and click the login button again.



Enter Token

1. Visit github.atom.io/login to generate an authentication token.
2. Enter the token below:

✕ Cancel

✓ Login



Authorize Atom GitHub package



Atom GitHub package by [atom](#)
wants to access your tyler-Hull account



Organizations and teams
Read-only access



Repositories
Public and private



Personal user data
Email addresses (read-only)



Cancel

Authorize atom

Authorizing will redirect to
<https://github.atom.io>



Not owned or
operated by GitHub

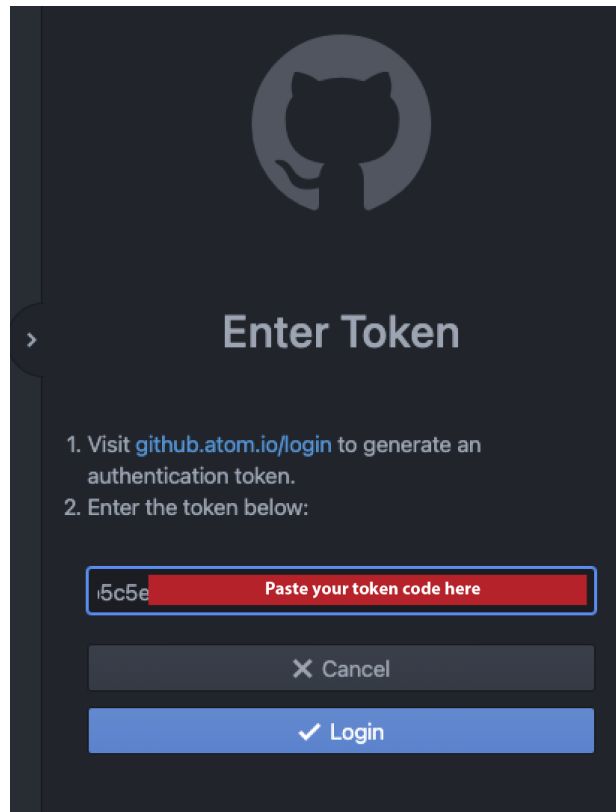


Created
5 years ago



More than 1K
GitHub users

[Learn more about OAuth](#)



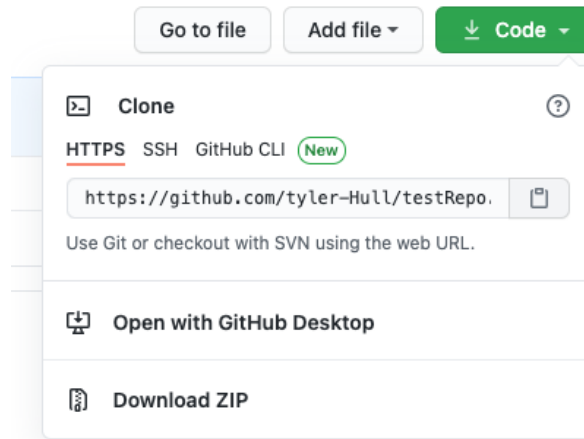
-
4. We could add our test repository right from atom, but let's add it from the command line instead. Open up a terminal on your system and let's make sure that Git is installed.

You can test to see if you have git installed by typing `git --version` into the terminal.

If you don't have Git installed, then follow the instructions at the link below to get it installed for your operating system.

A screenshot of a terminal window titled "tylerhull — -zsh — 80x24". The terminal shows the command `git --version` being executed, resulting in the output `git version 2.23.0`. The prompt `tylerhull@Tylers-MacBook-Pro-2 ~ %` is visible at the bottom.

Now let's go back to the repository we made, and copy the URL link to our repository by clicking on the "Code" button and copying the link to our clipboard.



Next, let's create a folder where we can store our github repositories. I've made a new folder on my Desktop called Github where I will keep my repository using the following commands. You can create this folder anywhere that works for you, then change to that directory using the terminal.

```
tylerhull@Tyler's-MacBook-Pro-2 ~ % git --version
git version 2.23.0
tylerhull@Tyler's-MacBook-Pro-2 ~ % cd Desktop
tylerhull@Tyler's-MacBook-Pro-2 Desktop % mkdir Github
tylerhull@Tyler's-MacBook-Pro-2 Desktop % cd Github
tylerhull@Tyler's-MacBook-Pro-2 Github %
```

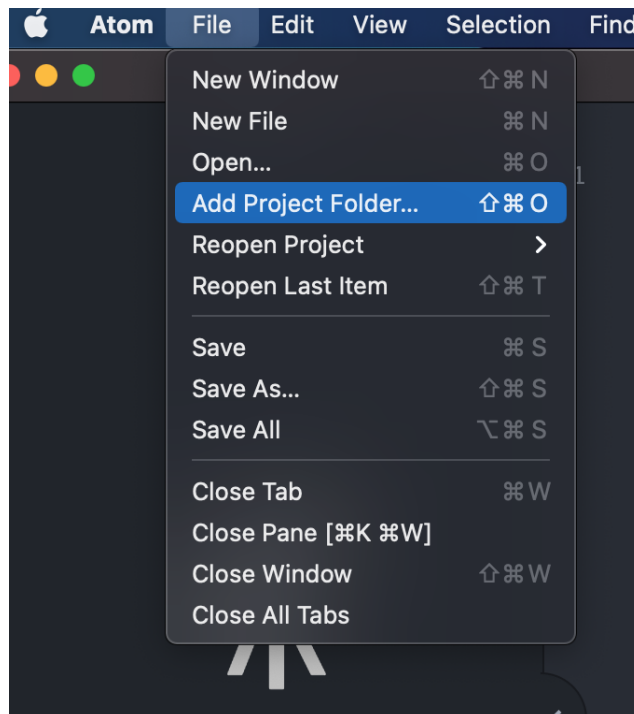
Once you have the link you can type `git clone <link to your repository>` into the terminal to copy the repository to your computer.

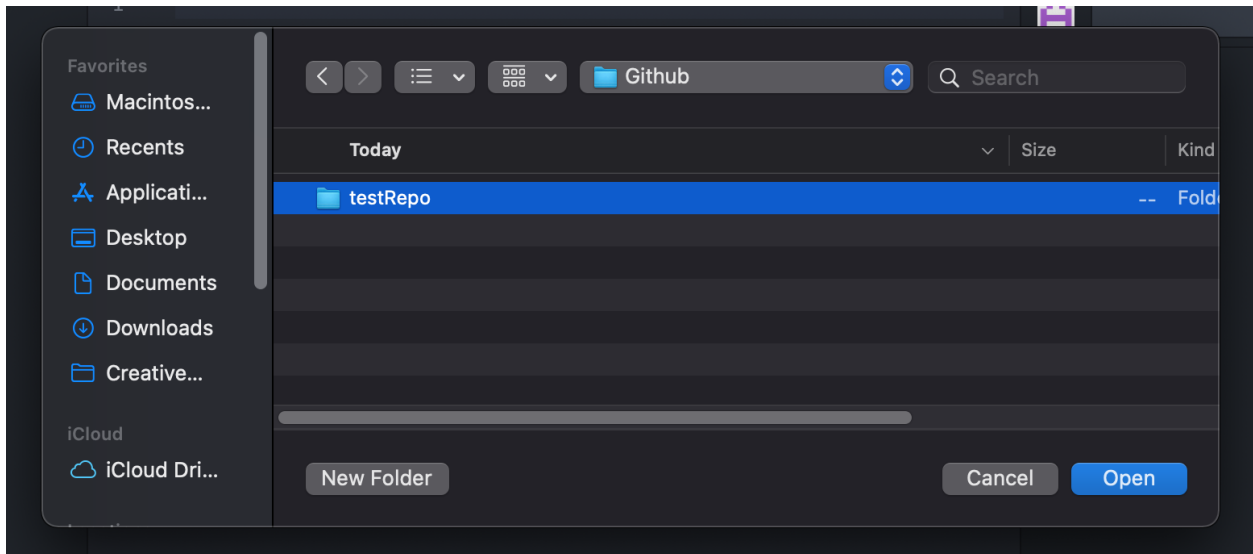
```
tylerhull@Tyler's-MacBook-Pro-2 ~ % git --version
git version 2.23.0
tylerhull@Tyler's-MacBook-Pro-2 ~ % cd Desktop
tylerhull@Tyler's-MacBook-Pro-2 Desktop % mkdir Github
tylerhull@Tyler's-MacBook-Pro-2 Desktop % cd Github
tylerhull@Tyler's-MacBook-Pro-2 Github % git clone https://github.com/tyler-Hull/testRepo.git
```

You should now see your test repository with the files we created earlier inside it saved on your computer!

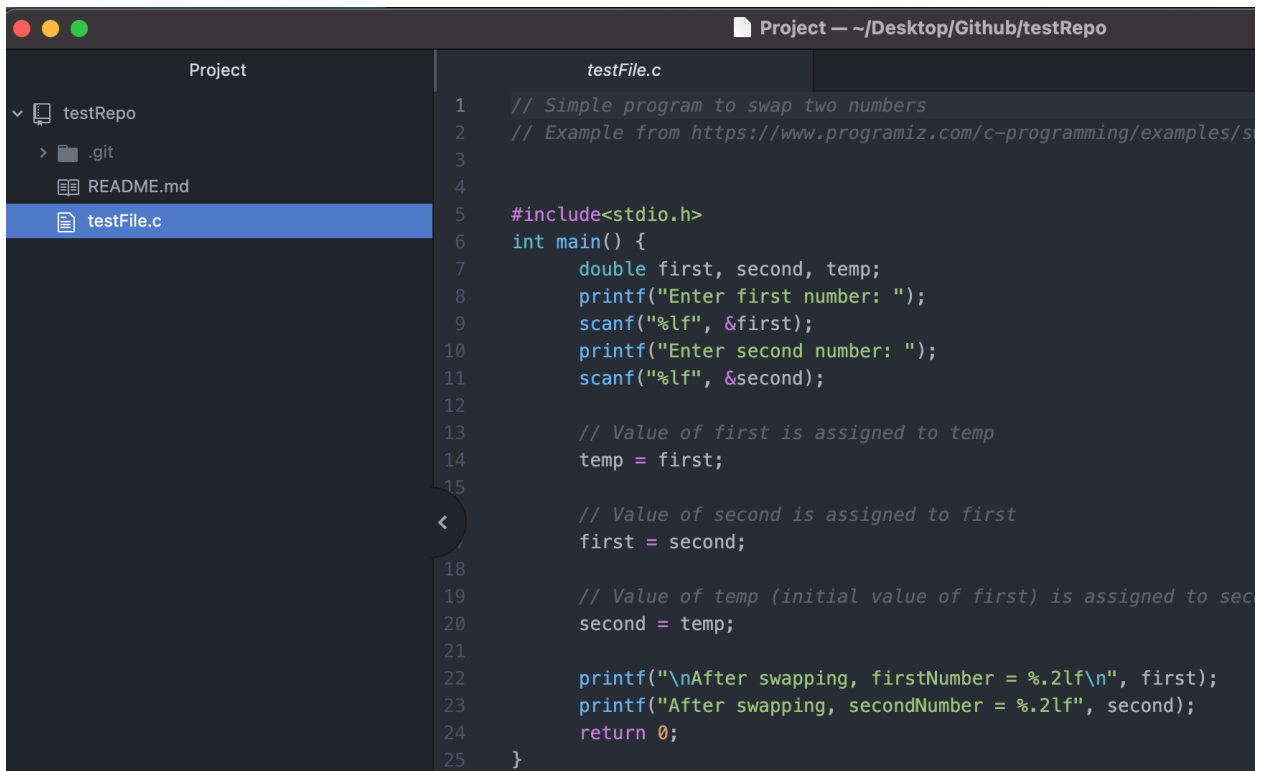
```
testRepo — -zsh — 80x24
tylerhull@Tylers-MacBook-Pro-2 ~ % git --version
git version 2.23.0
tylerhull@Tylers-MacBook-Pro-2 ~ % cd Desktop
tylerhull@Tylers-MacBook-Pro-2 Desktop % mkdir Github
tylerhull@Tylers-MacBook-Pro-2 Desktop % cd Github
tylerhull@Tylers-MacBook-Pro-2 Github % git clone https://github.com/tyler-Hull/
testRepo.git
Cloning into 'testRepo'...
remote: Enumerating objects: 6, done.
remote: Counting objects: 100% (6/6), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (6/6), done.
tylerhull@Tylers-MacBook-Pro-2 Github % ls
testRepo
tylerhull@Tylers-MacBook-Pro-2 Github % cd testRepo
tylerhull@Tylers-MacBook-Pro-2 testRepo % ls
README.md      testFile.c
tylerhull@Tylers-MacBook-Pro-2 testRepo %
```

-
5. Now let's open that repository in Atom. Open Atom, then click "File" and "Add Project Folder". Then navigate to where you have saved your repository and select the folder.

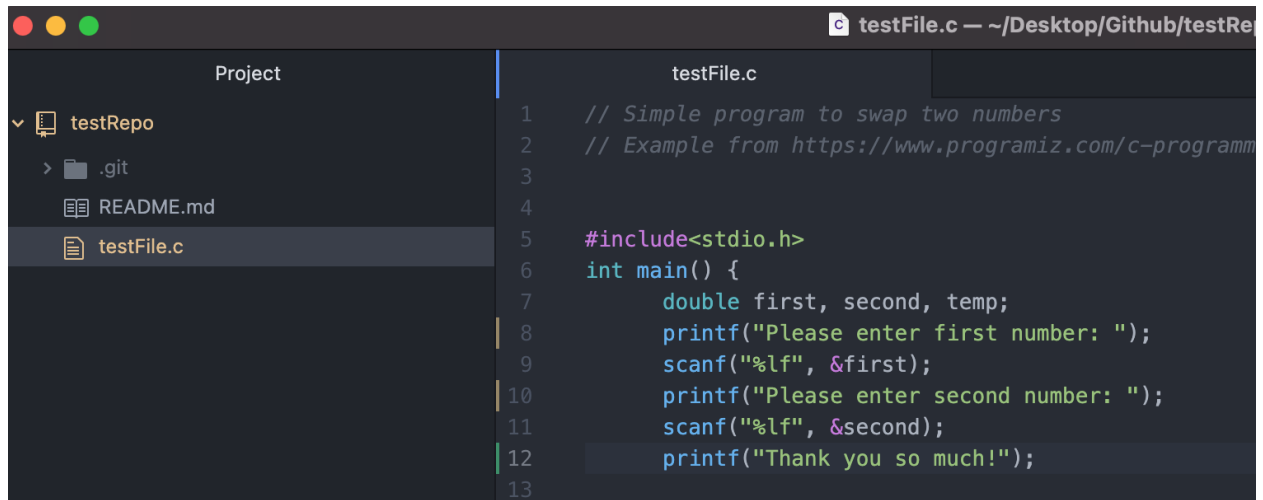




6. Now you can see your repo in the Project pane on the left, and you can open your test file! Let's make a change to the file and make our first commit.



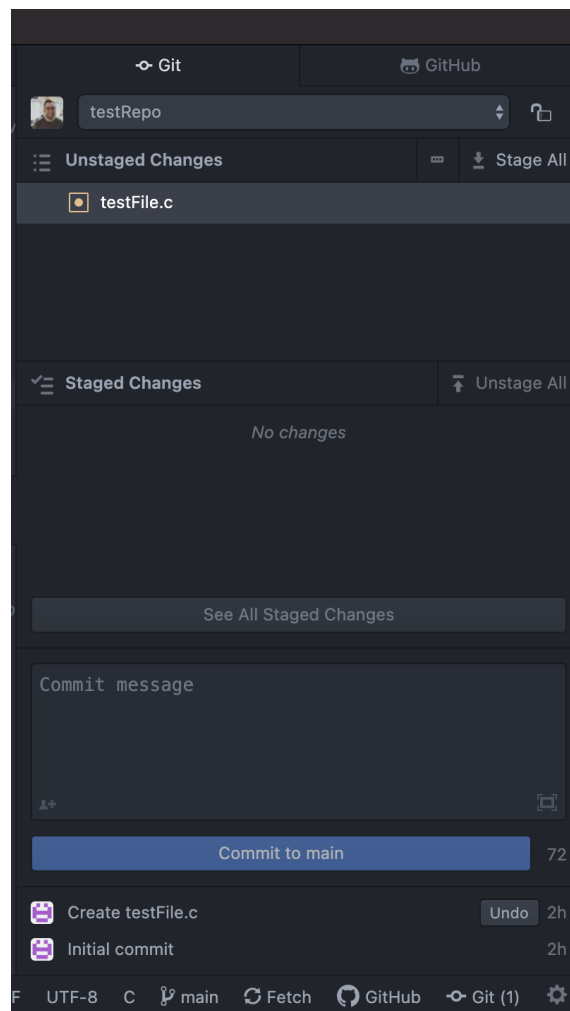
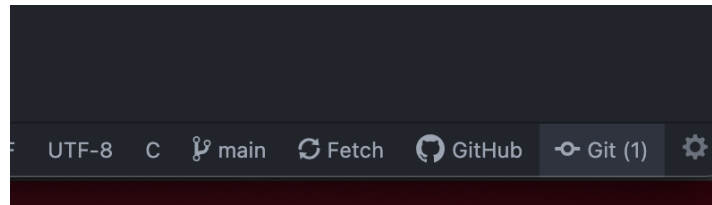
I've edited my file to make the user interface more polite, and saved the file. Now my file is highlighted in orange in the project panel.



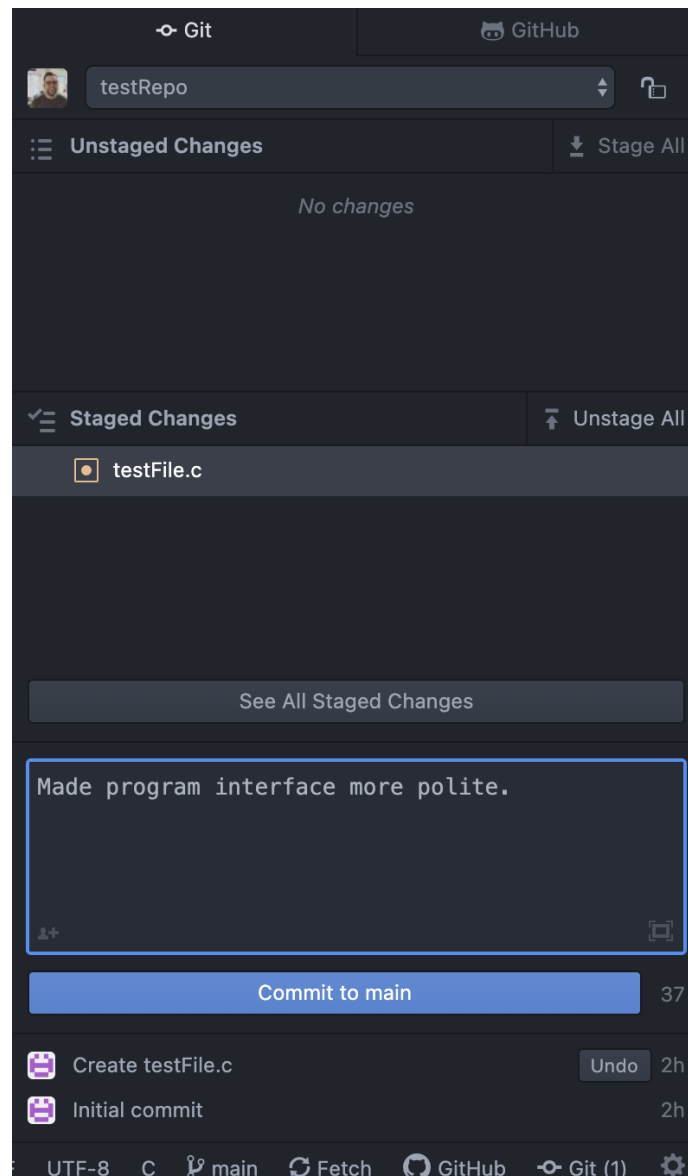
The screenshot shows the Atom editor interface. On the left, the 'Project' sidebar displays a file tree for 'testRepo' containing '.git', 'README.md', and 'testFile.c'. The 'testFile.c' file is selected and open in the main editor. The code is a C program for swapping two numbers using a temporary variable. It includes `<stdio.h>` and has a `main` function that prompts the user for two numbers, reads them with `scanf`, and prints a thank you message.

```
1 // Simple program to swap two numbers
2 // Example from https://www.programiz.com/c-programming
3
4
5 #include<stdio.h>
6 int main() {
7     double first, second, temp;
8     printf("Please enter first number: ");
9     scanf("%lf", &first);
10    printf("Please enter second number: ");
11    scanf("%lf", &second);
12    printf("Thank you so much!");
13 }
```

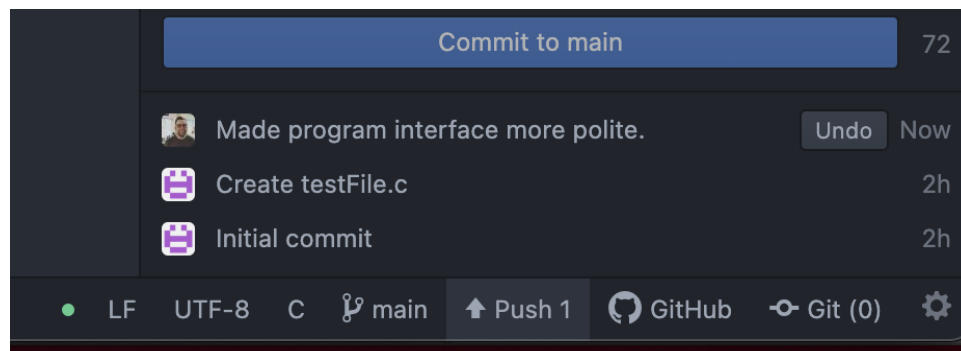
Now click on the “Git” tab in the bottom right corner of the Atom window. We can commit this change directly from Atom.



First click the “Stage All” button to put your change in the “Staged Changes” area. Then type in a short commit message about what was changed and you can commit the change to the repository.



Now “Push” your changes to the main branch of the repository!

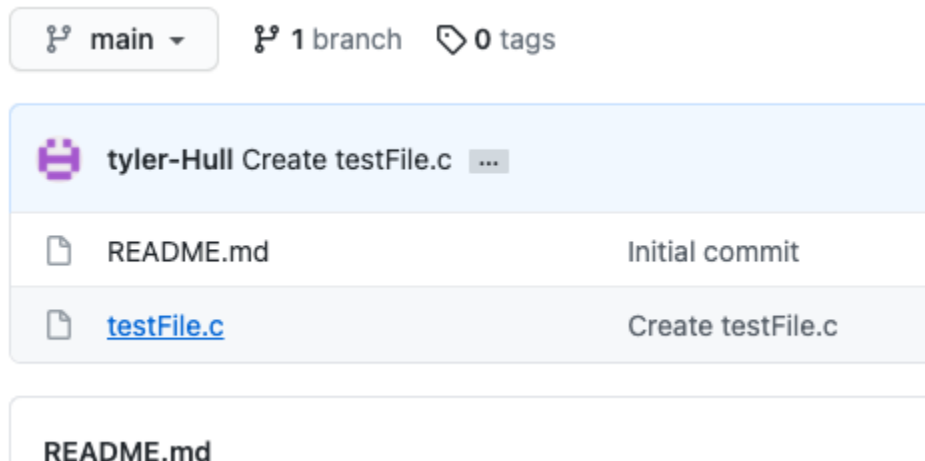


7. We can also commit our changes using the command line. We can use the following git commands to do the same thing from the command line.

git add <name of file or . to add (stage) all changed files>
git commit -m "<commit message you want to include>"
git push

```
tylerhull@Tylers-MacBook-Pro-2 testRepo % git add testFile.c
tylerhull@Tylers-MacBook-Pro-2 testRepo % git commit -m "Made program interface more polite"
[main e71c187] Made program interface more polite
 1 file changed, 1 deletion(-)
tylerhull@Tylers-MacBook-Pro-2 testRepo % git push
Username for 'https://github.com': tyler-hull
Password for 'https://tyler-hull@github.com':
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 4 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 658 bytes | 658.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/tyler-Hull/testRepo.git
   af85848..e71c187  main -> main
tylerhull@Tylers-MacBook-Pro-2 testRepo %
```

8. Now if we open our test repo on Github, we can see that the file includes our changes!



main ▾

testRepo / testFile.c



tyler-Hull Made program interface more polite

2 contributors



25 lines (20 sloc) | 733 Bytes

```
1 // Simple program to swap two numbers
2 // Example from https://www.programiz.com/c-programming/examples/swapping
3
4 #include<stdio.h>
5 int main() {
6     double first, second, temp;
7     printf("Please enter first number: ");
8     scanf("%lf", &first);
9     printf("Please enter second number: ");
10    scanf("%lf", &second);
11    printf("Thank you so much!");
--
```

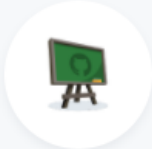
First Github Classroom Assignment

Now that you know how to clone a repository and edit files in Atom, let's take a look at how to access an assignment in Github Classroom. Then we'll edit a file and make our first commit for a github classroom assignment!

1. When a new assignment is ready, you can find the instructions as well as the link for the Github classroom assignment on D2L. For this tutorial, the link for the assignment is below.

<https://classroom.github.com/a/j2AvYf1C>

Click on the link, then sign in to your account to continue to Github Classroom.



Sign in to **GitHub**
to continue to **GitHub Classroom**

Username or email address


Password [Forgot password?](#)


Sign in


New to GitHub? [Create an account.](#)

Next, authorize Github Classroom on your Github account to get access to the assignment.


GitHub Classroom by **GitHub** would like permission to


 Verify your GitHub identity (tyler-Hull)

 Know which resources you can access

 Act on your behalf

Resources on your account

 **Email addresses** (read)
View your email addresses

 **Plan** (read)
View your subscription plan on GitHub

GitHub Classroom has not been installed on any accounts you have access to.
[Learn more about GitHub Classroom](#)

Cancel

Authorize GitHub Classroom

Authorizing will redirect to
<https://classroom.github.com>

Now you need to accept the assignment. Click on the green “Accept this assignment” button to continue.

GitHub ClassroomGitHub Education

PSUECE373-spring21

Accept the assignment —
GithubClassroomTutorial

Once you accept this assignment, you will be granted access to the `githubclassroomtutorial-tyler-Hull` repository in the [PSUECE373](#) organization on GitHub.

Accept this assignment

Your repository is now being created by Github, but you might see a message telling you that it's being configured. Try refreshing the webpage if you see a message like shown below.

GitHub ClassroomGitHub Education

You accepted the assignment, **GithubClassroomTutorial** . We're configuring your repository now. This may take a few minutes to complete.
Refresh this page to see updates.

2. When your repository is ready to go, the webpage will display it's URL link for you. Click this link to be taken to the repository that is setup just for you. Each student will have a different repository that is created for them.



You're ready to go!

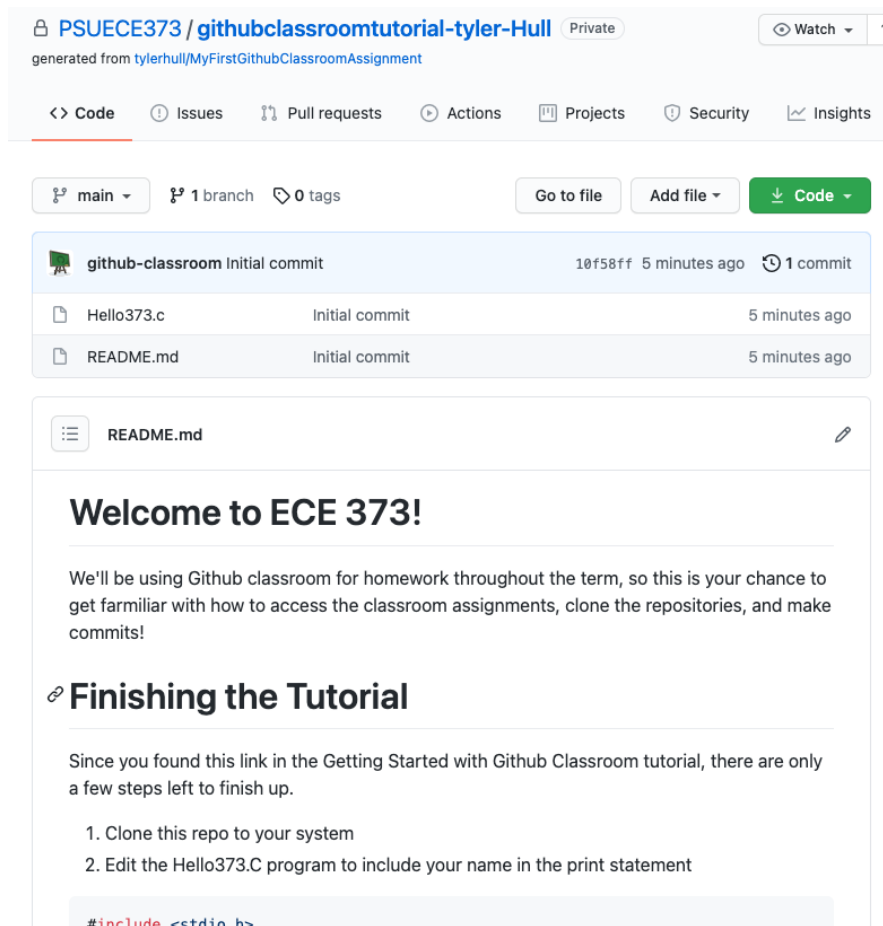
You accepted the assignment, **GithubClassroomTutorial**.

Your assignment repository has been created:

 <https://github.com/PSUECE373/githubclassroomtutorial-tyler-Hull>

We've configured the repository associated with this assignment ([update](#)).

3. When you click the link, you will be taken to your repository. Some instructions have been added to the README file to tell us what we need to do next.



PSUECE373 / **githubclassroomtutorial-tyler-Hull** Private Watch 1
generated from [tylerhull/MyFirstGithubClassroomAssignment](#)

<> Code Issues Pull requests Actions Projects Security Insights

main 1 branch 0 tags Go to file Add file Code

github-classroom Initial commit 10f58ff 5 minutes ago 1 commit

| | | |
|------------|----------------|---------------|
| Hello373.c | Initial commit | 5 minutes ago |
| README.md | Initial commit | 5 minutes ago |

README.md

Welcome to ECE 373!

We'll be using Github classroom for homework throughout the term, so this is your chance to get familiar with how to access the classroom assignments, clone the repositories, and make commits!

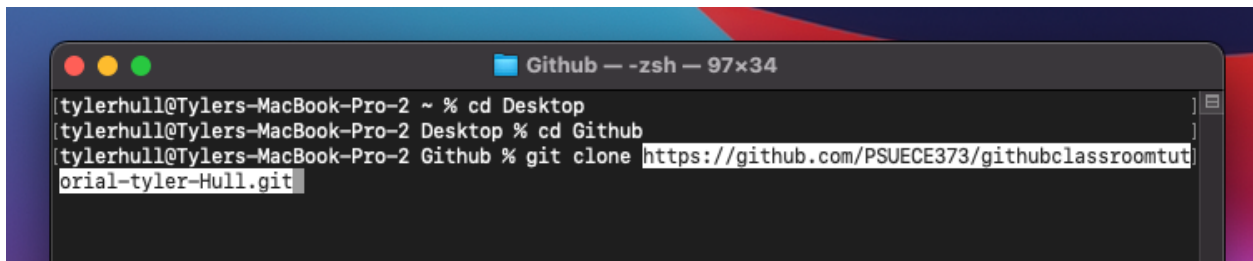
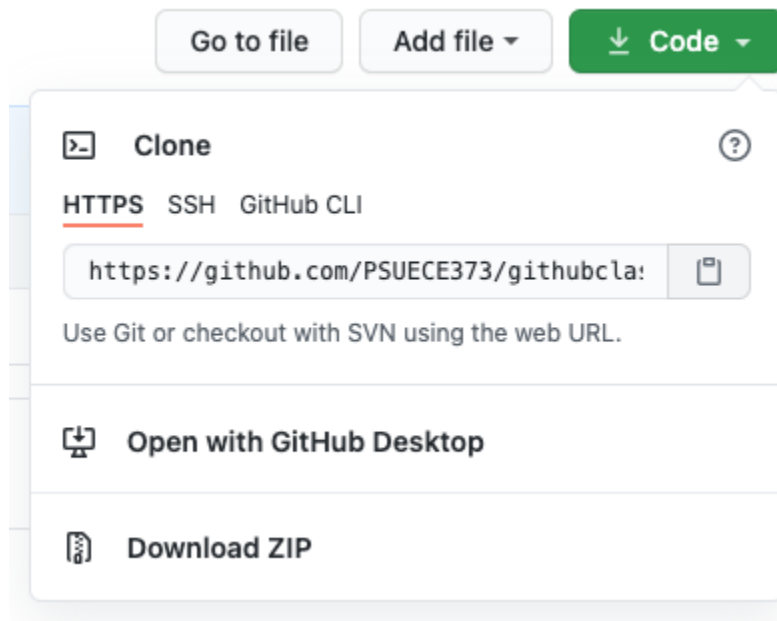
Finishing the Tutorial

Since you found this link in the Getting Started with Github Classroom tutorial, there are only a few steps left to finish up.

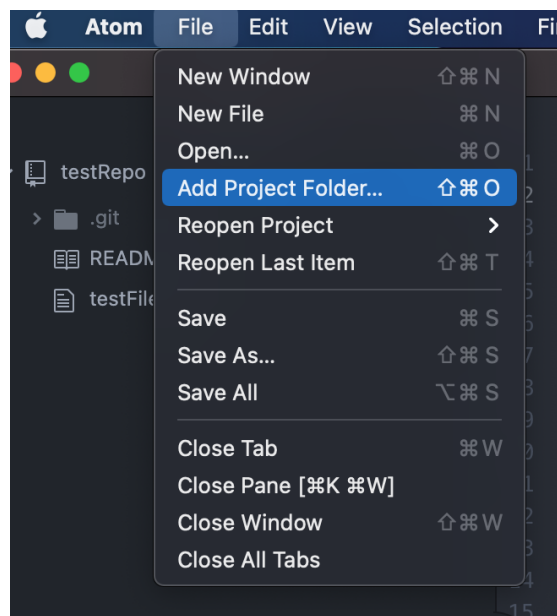
1. Clone this repo to your system
2. Edit the Hello373.C program to include your name in the print statement

```
#include <stdio.h>
```

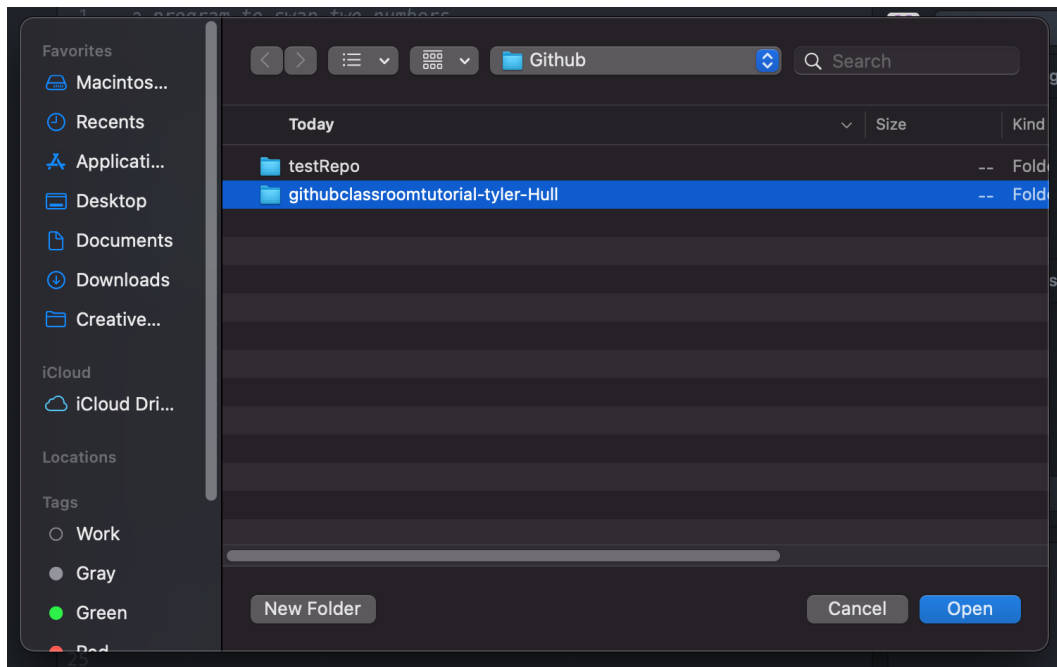
4. First, let's clone the repository. Click on the green "Code" button and copy the URL. Then clone the repository to the folder where you cloned your test repository.



5. Now add the repository folder to Atom, and make changes to the file following the instructions in the README.



Choose your repository and add it to the Atom editor's project pane.



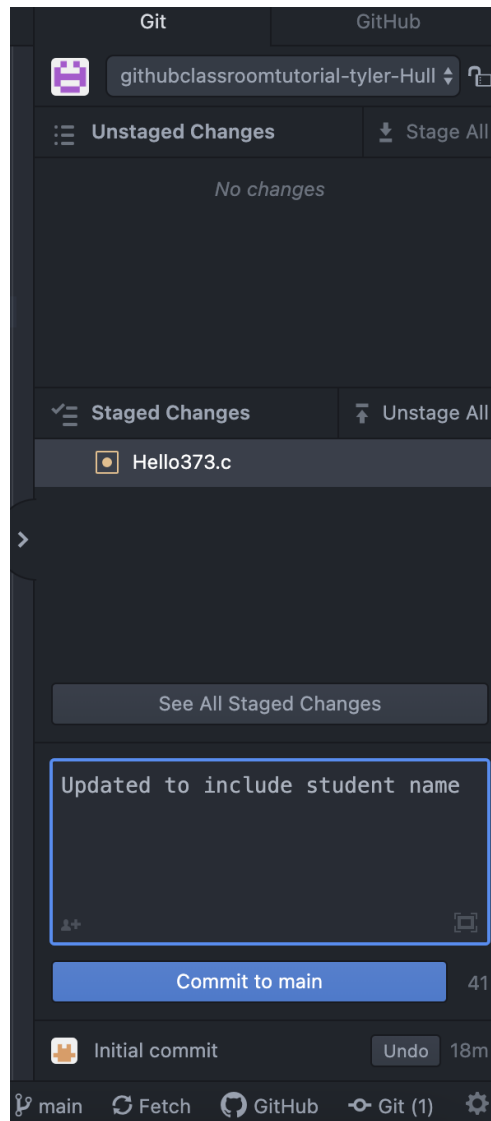
Following the instructions, open the *Hello373.c* file and edit the file to include your name in the print statement.

```
Git — ~/Desktop/Github/testRepo

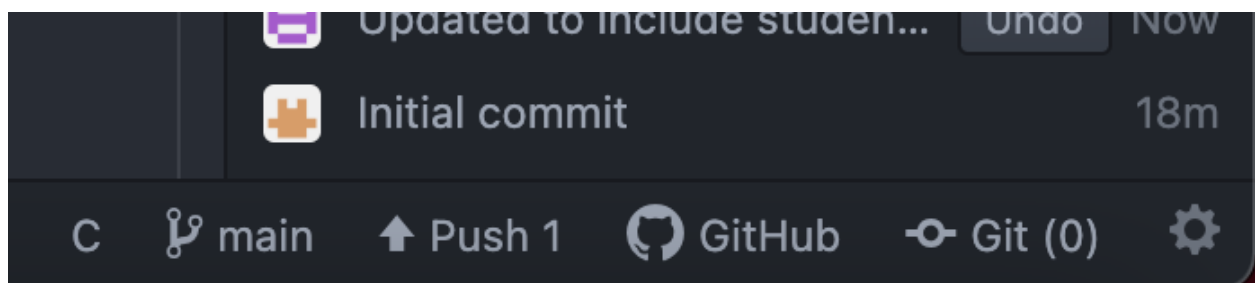
testFile.c | Hello373.c | M+

1 // Replace my name with yours!
2 // Commit the file to your repo!!
3 // Then double check to make sure the changes are there!!!
4
5
6 #include <stdio.h>
7 int main() {
8     // printf() displays the string inside quotation
9     printf("Tyler says, Hello 373!!!");
10    return 0;
11 }
12
```



Save your changes and then stage and commit your changes either using Atom or the command line.





Push your changes to the main branch of the repository.



You should now see your commit message next to the file in the repository on Github. Click on the file name to open the file and make sure your changes are updated.


 main ▾



 1 branch


 0 tags


Go to file

Add file ▾


 Code ▾

 **tyler-Hull** Updated to include student name bbefff8 18 seconds ago  4 commits






 Hello373.c Updated to include student name 18 seconds ago


 README.md Initial commit 24 minutes ago


Now our changes to the file are made!



 **PSUECE373 / githubclassroomtutorial-tyler-Hull** Private

generated from [tylerhull/MyFirstGithubClassroomAssignment](#)

 Code  Issues  Pull requests  Actions  Projects

 main ▾ **githubclassroomtutorial-tyler-Hull** / Hello373.c

 **tyler-Hull** Updated to include student name

 2 contributors 

10 lines (9 sloc) | 257 Bytes

```
1 // Replace my name with yours!
2 // Commit the file to your repo!!
3 // Then double check to make sure the changes are there!!!
4
5 #include <stdio.h>
6 int main() {
7     // printf() displays the string inside quotation
8     printf("Tyler says, Hello 373!!!");
9     return 0;
10 }
```

Nice work!!! Now you've gotten some practice cloning repositories, making commits and pushing changes, and you completed your first assignment in Github Classroom!

More Information

For more information on how to use Github, check out the guide and Github's Youtube tutorial series!

<https://guides.github.com/activities/hello-world/>

<https://www.youtube.com/channel/UCP7RrmoueENV9TZts3HXXtw>