What is GitHub?

GitHub is a version control system that is built on Git. It allows one to store code and make changes to an online repository. This allows one to easily change and update code as well as collaborate with others by sharing a common repository. We will be using GitHub Classroom to distribute all of the stencil code for assignments using a link on the course website, but let's learn a little more about GitHub and Git.

Why GitHub?

- Store your code and files on an online repository so you won't lose your code.
- If you commit (save) and push your code often:
    - If your computer crashes or you make a mistake, you can revert to an earlier version of your code and keep working
    - You can create a record of changes and always check out a previous version
- Allows for easy collaboration. People can work on the same repository and update/change code on seperate machines.
- You can sign up for an account here and get the GitHub Student Pack with your Brown Email for more tools and features

Some Essential Commands of Git

Git is the basis of GitHub and is a version control system you can use right from the command line, you can learn more about it on their website!

- Download the latest version of Git here
- Check out the installation guide here.
- There is also a great cheat sheet of git commands that GitHub provides here.

Below are some common git commands to get you started!

git clone [URL-or-path-to-repo]	retrieve an entire repository from a hosted location via URL to your local machine
git add [file]	Add the given file to the repository. Use this when you create a new file and want to include it in a commit. Alternatively, include [-a] to add all files from your local repo

git commit -m “[some message]”	Commit your code to finalize and save changes to your current branch and repo on your local machine. Include [-a] to automatically add changed files that git is already tracking and [-m “[some message]”] to include a message about the commit (otherwise you will be kicked to an editor in which to type out your message).
git push	Push whatever commits you have made locally to the repository you cloned from to save your changes to the online repo. (You might have to pull first to sync with the remote repository)
git pull	Pull any changes from the remote repository you cloned from.

Github Desktop

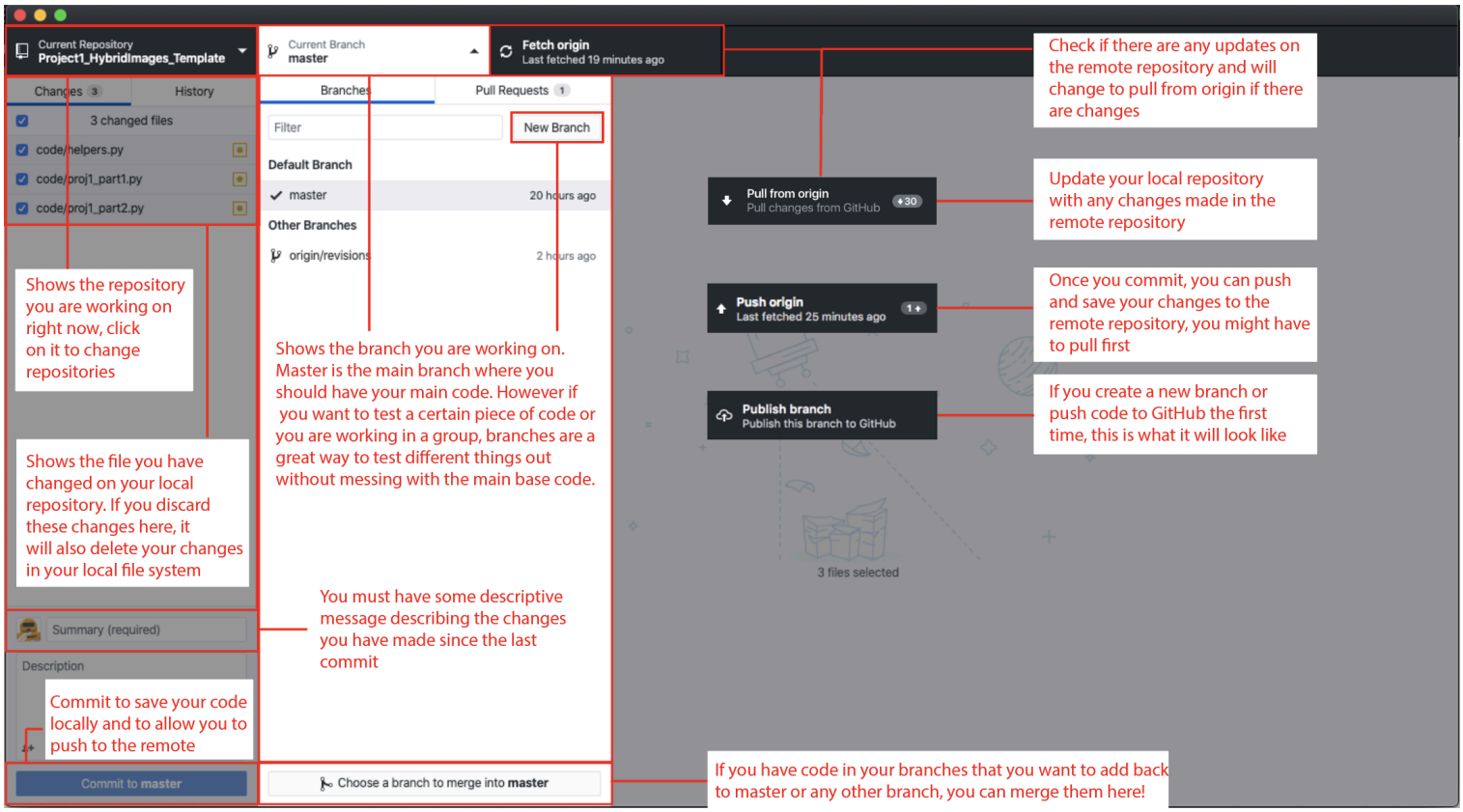
If you prefer GUIs we recommend using GitHub Desktop, this gives you a great visual way of interacting with GitHub.

Download GitHub Desktop
Step by step Guide

Figure 1: General display of the features provided by GitHub Desktop

GitHub Classroom

We are using GitHub classroom in this course. All assignments and stencil code will be available through a link. Once you click on the link this is what you should see:



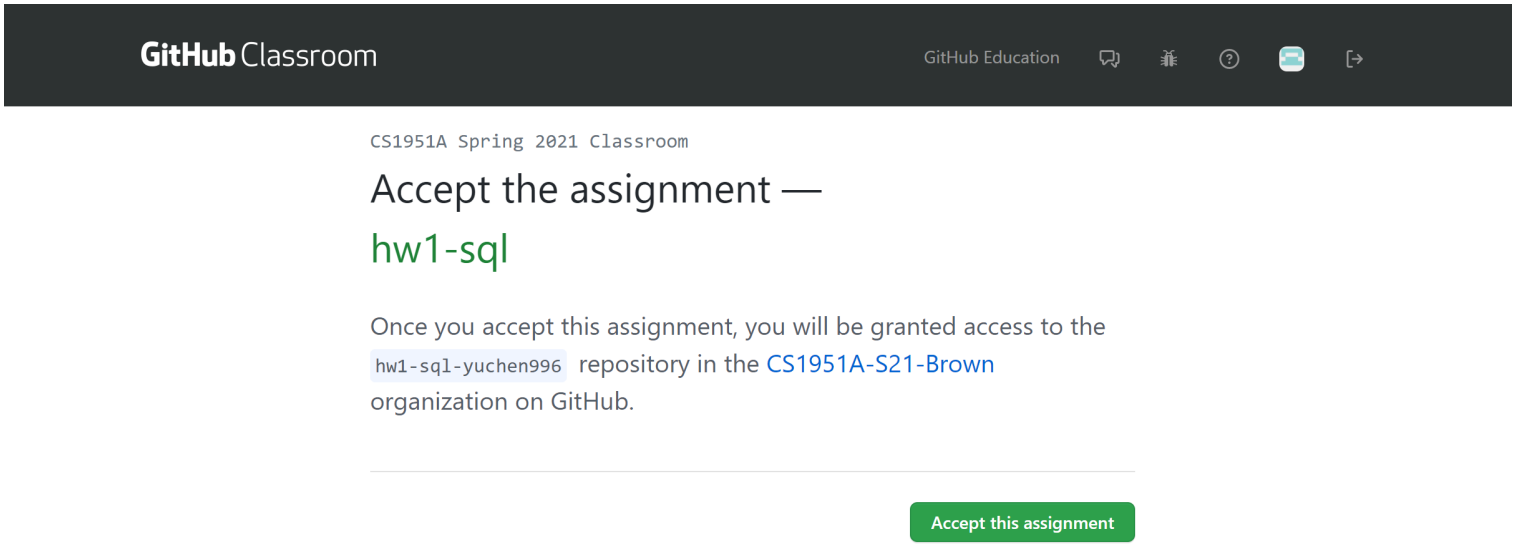


Figure 2: This is what you should see after clicking on the assignment link

After Accepting the button, GitHub will create a repository unique to you and after everything loads, you should see this page:

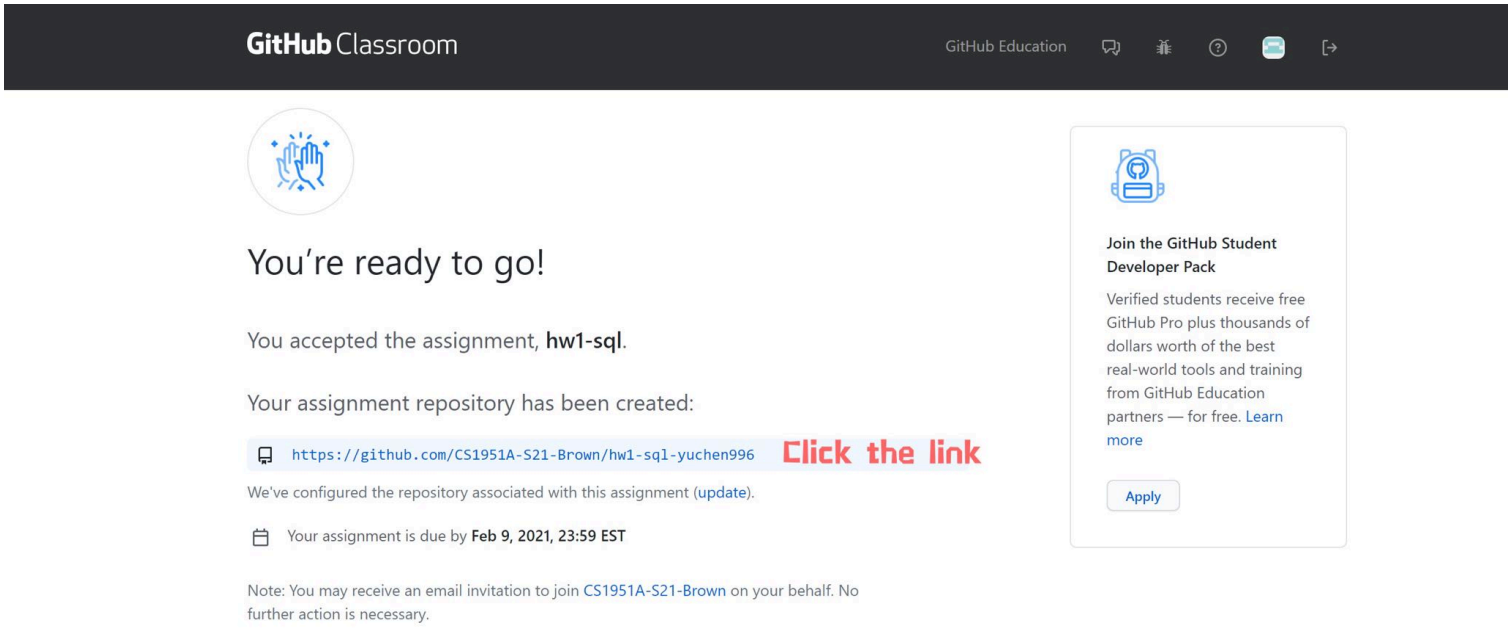


Figure 3: After accepting the assignment, a new GitHub repository will be created!

After clicking on the link, it will navigate you directly to your own private repository with the stencil code already in the repository.

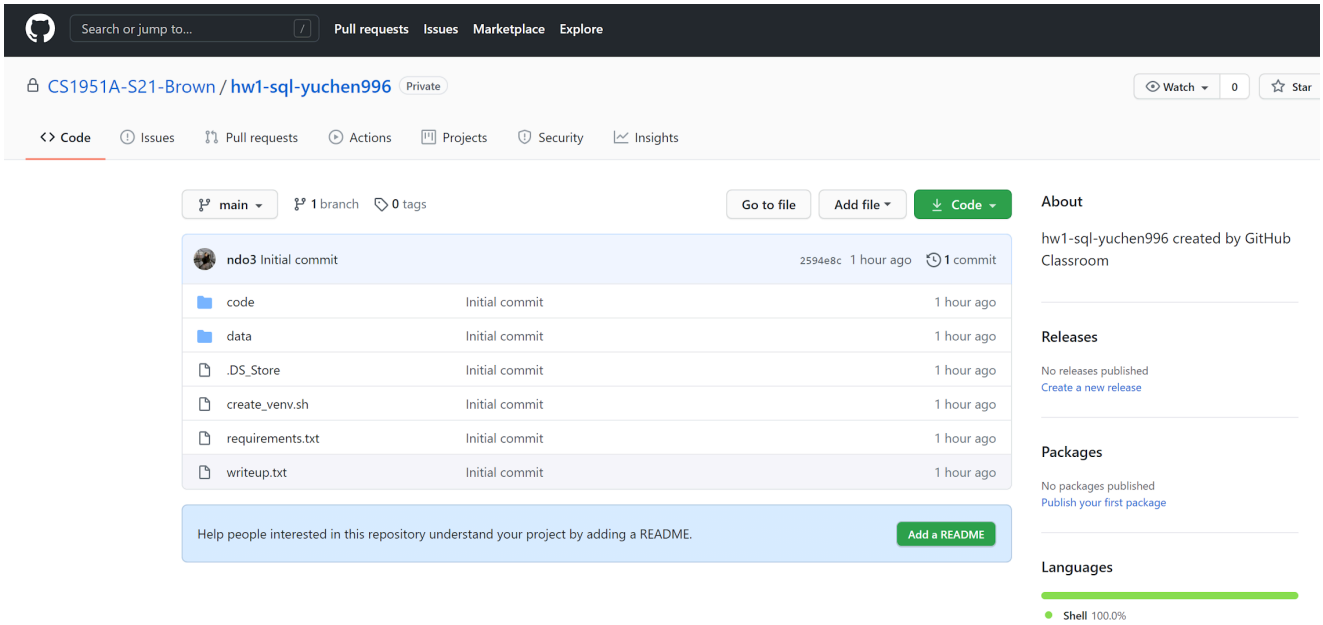


Figure 4: This is your own private GitHub repository containing the files for the assignment

Now you have your own repository! You are welcome to look at the files by clicking on them in the browser, but in order to change the files and actually work on the assignment, you might want to actually download the file and simply update them using Git. Click on the Clone or Download button and you will see:

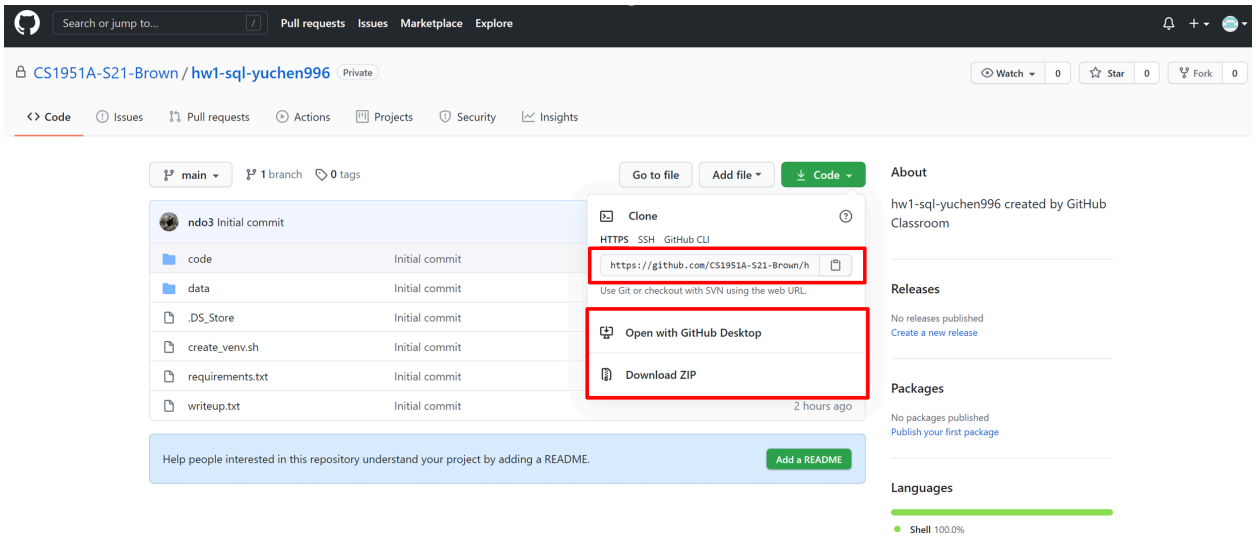


Figure 5: download options

Here you see three options to download the files.

- The first option is copying the URL and using the Git command `git clone <GIT URL>` in the folder where you want to clone your homework assignment to.
- The other option is “Download ZIP” and that will download the files as a zipped folder. This will download the files _without version control_ and will prevent you from doing the traditional git commands that would allow you to save your work in your repository and to ask for asynchronous help from TAs on Piazza.
- The option we will focus on is the “Open in Desktop” one. If you have downloaded GitHub Desktop and you click on this option, you should see:

After specifying the file path you want the repository to be and click clone, everything should download to that folder! Then you can start to work on it!

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