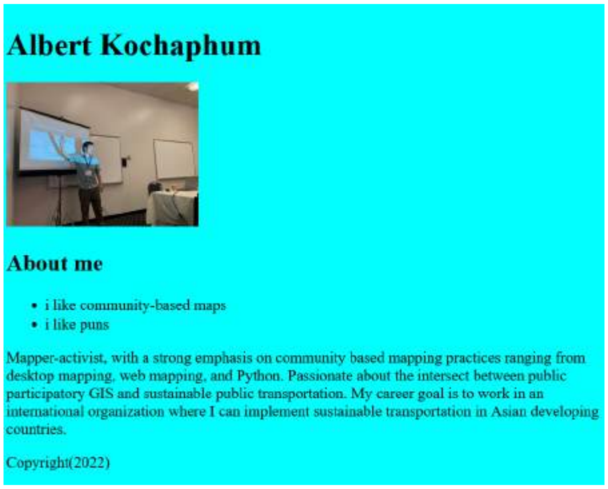
GITting Used to Web Development and JavaScript



Albert Kochaphum

About me

- i like community-based maps
- i like puns

Mapper-activist, with a strong emphasis on community based mapping practices ranging from desktop mapping, web mapping, and Python. Passionate about the intersect between public participatory GIS and sustainable public transportation. My career goal is to work in an international organization where I can implement sustainable transportation in Asian developing countries.

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Objectives

Goals

- Create a basic webpage
- Publish your page onto GitHub pages

Reminder

The pre-lab must completed before attempting this lab.

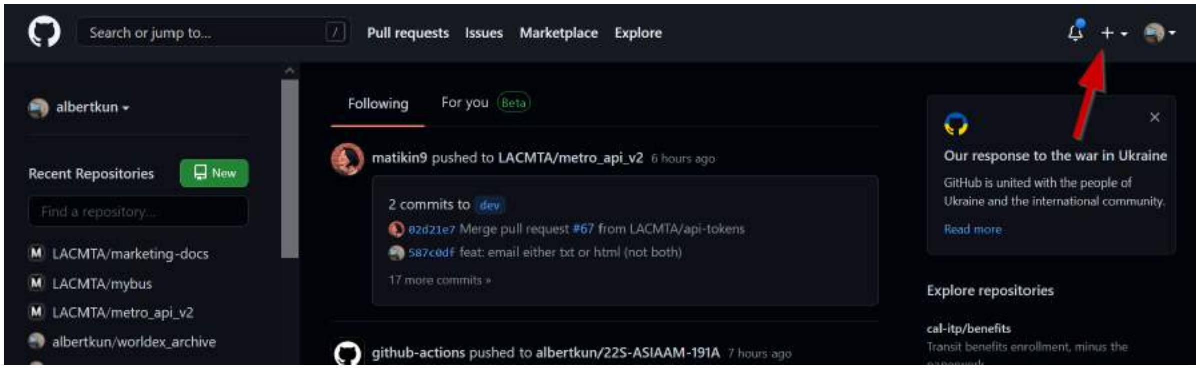
This lab will walk you through the process of creating a static web page in HTML with some additional style elements using CSS. Then you will be tasked to add a map using the Leaflet JS library and host it using GitHub pages.

> Note: I highly recommend checking out the Leaflet documentation. Looking at any documentation before choosing any software is important, because badly documented libraries can make tools difficult to use.

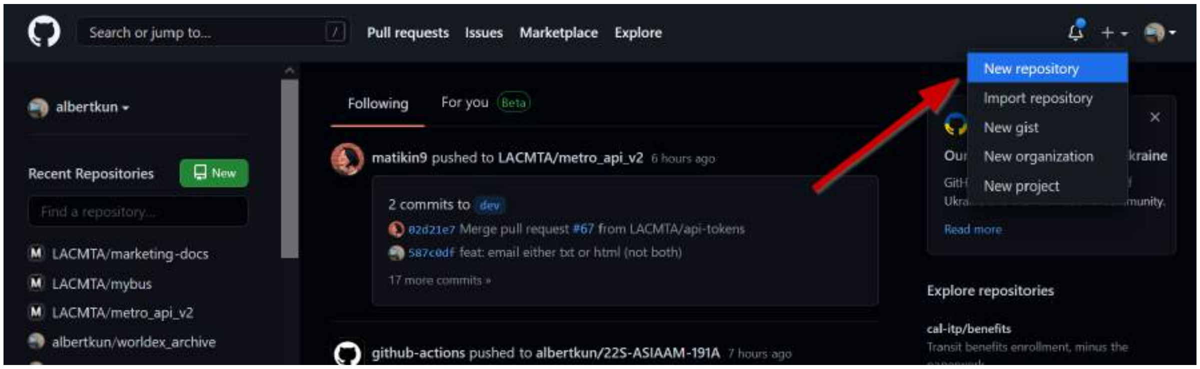
Let’s get VS Coding!

Go to https://www.github.com and make sure you are logged in.

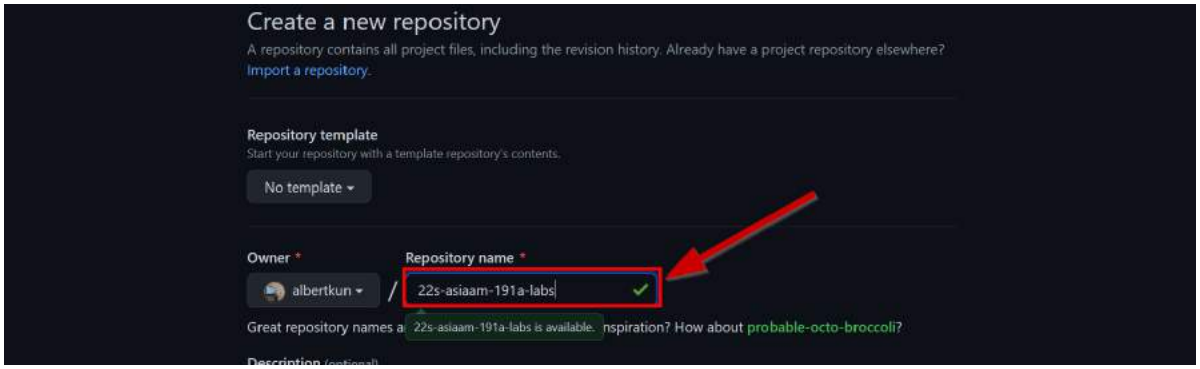
Create a new repository by clicking on the + button next to your profile picture:


Search or jump to...
Pull requests
Issues
Marketplace
Explore
albertkun
Recent Repositories
New
Find a repository...
LACMTA/marketing-docs
LACMTA/mybus
LACMTA/metro_api_v2
albertkun/worldex_archive
Following
For you
Beta
matikin9 pushed to LACMTA/metro_api_v2 6 hours ago
2 commits to dev
02d21e7 Merge pull request #67 from LACMTA/api-tokens
587c0df feat: email either txt or html (not both)
17 more commits »
github-actions pushed to albertkun/22S-ASIAAM-191A 7 hours ago
Our response to the war in Ukraine
GitHub is united with the people of Ukraine and the international community.
Read more
Explore repositories
cal-itp/benefits
Transit benefits enrollment, minus the

Click New repository:



Give it a name that indicates these will be the assignments for the class:



Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Repository template

Start your repository with a template repository's contents.

No template ▾

Owner * albertkun ▾ / Repository name * 22s-asiaam-191a-labs ✓

Great repository names a 22s-asiaam-191a-labs is available. nspiration? How about probable-octo-broccoli?

Description (optional)

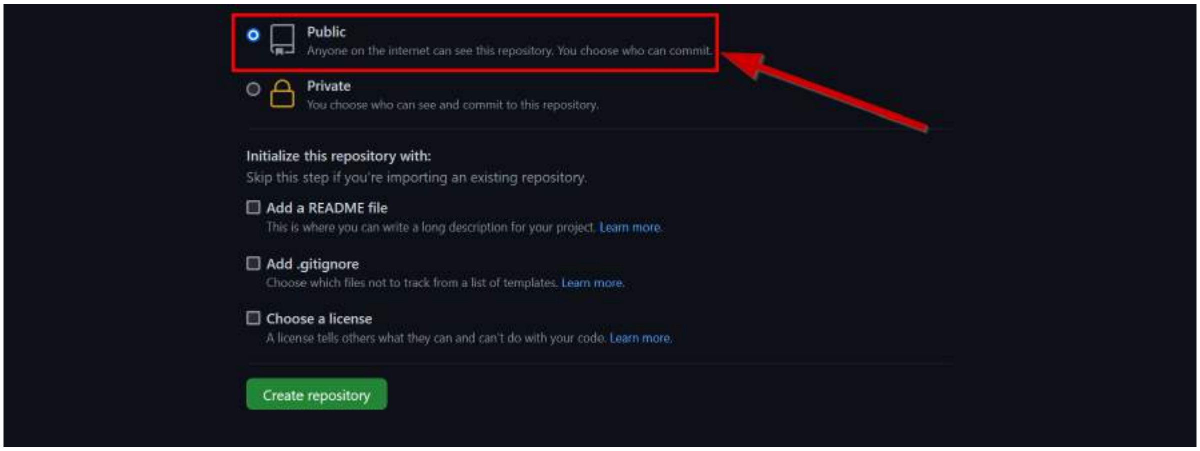
Info

Repository names should be self explanatory, and they are unique to your account, so don't worry about having the same name as someone else!

Here are some example repository names:

- `23s-asiaam-191a-labs`
- `23s-191a-assignments`
- `aa191-assignments`

Keep the repository Public, which is in the spirit of sharing, collaboration, and allows anyone to see and improve the code:



● 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.

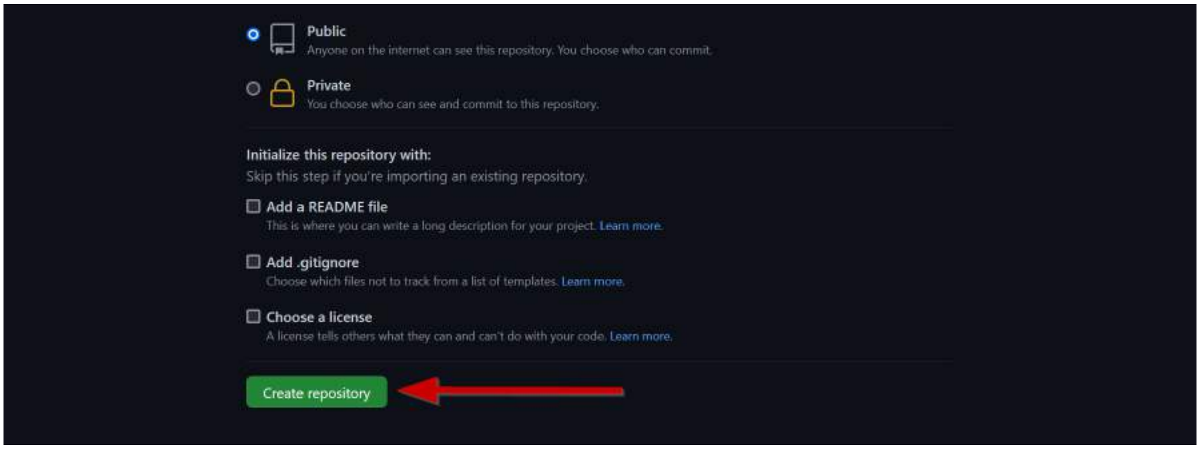
Initialize this repository with:
Skip this step if you're importing an existing repository.

□ 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.

Scroll down to Create Repository:



● 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.

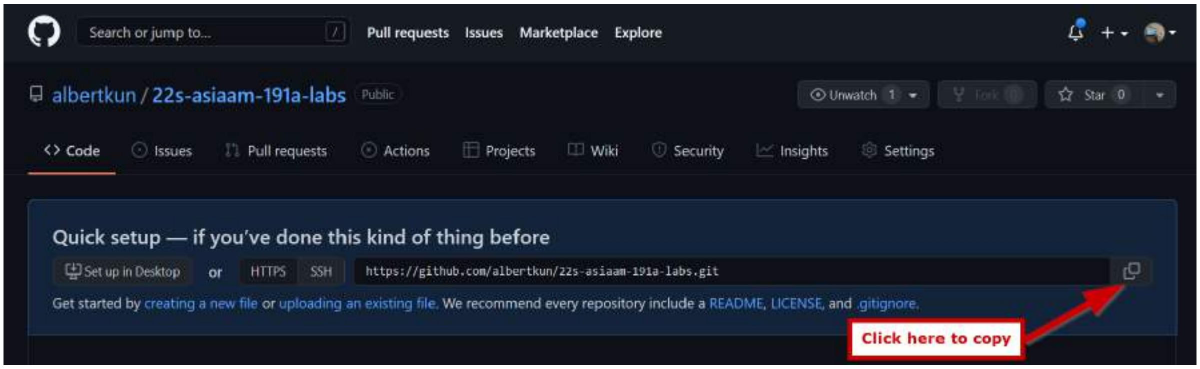
Initialize this repository with:
Skip this step if you're importing an existing repository.

□ 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.

Click the **Clipboard ⧉** button:



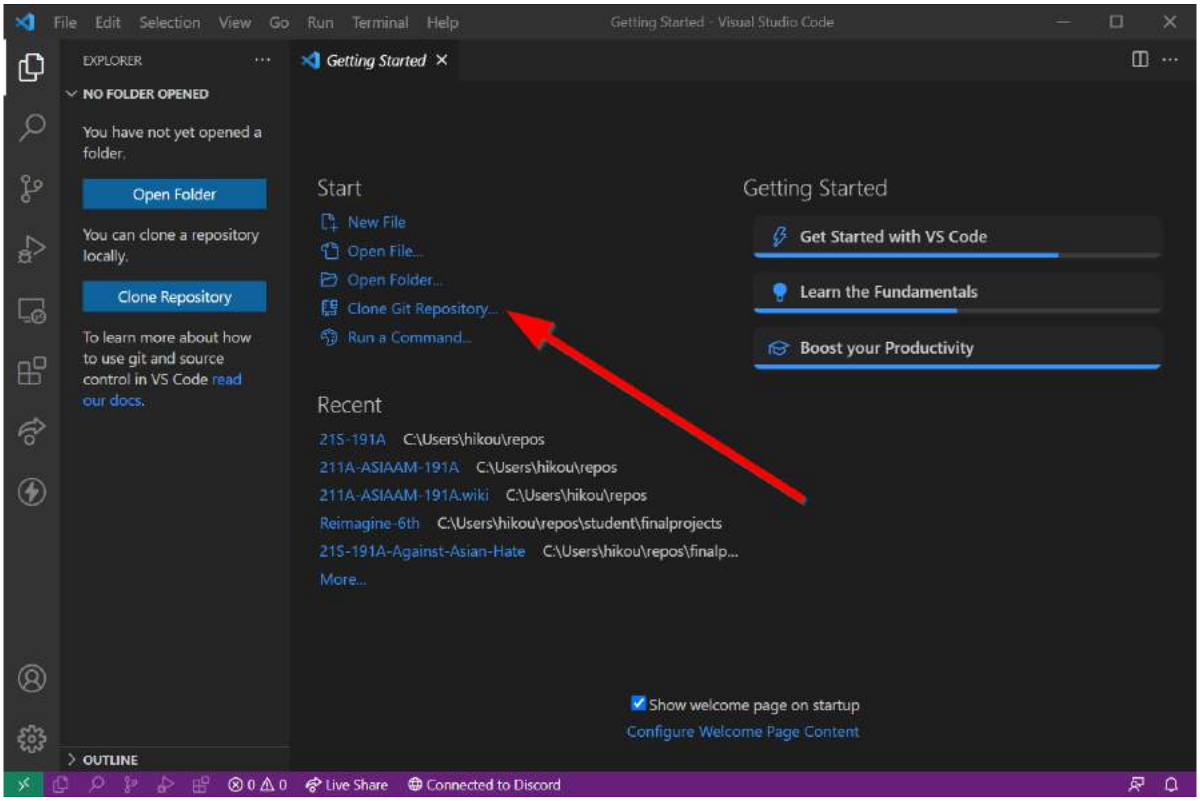
Quick setup — if you've done this kind of thing before

`https://github.com/albertkun/22s-asiaam-191a-labs.git`

Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

Click here to copy

In **VS Code** click on: Clone Git Repository

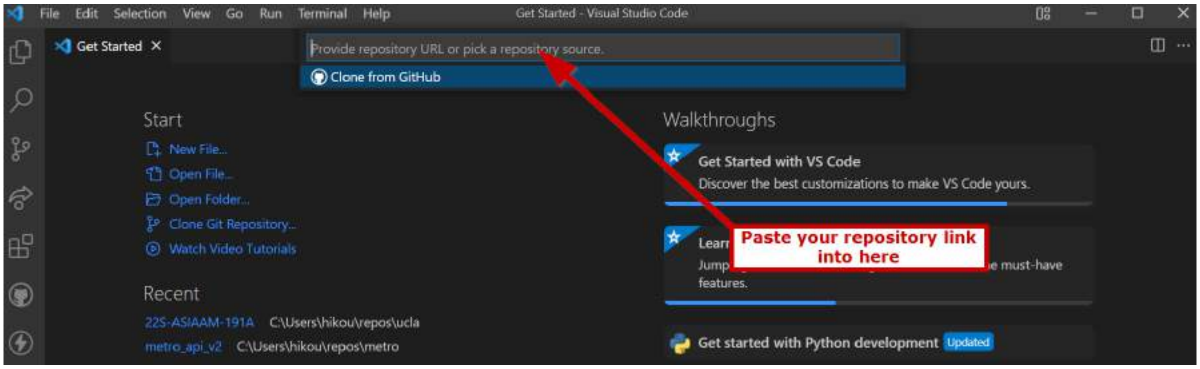


You have not yet opened a folder.

You can clone a repository locally.

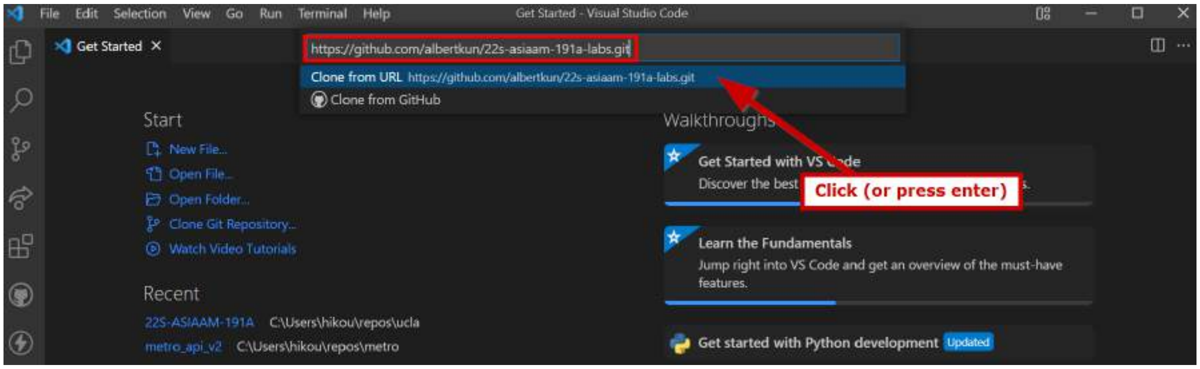
To learn more about how to use git and source control in VS Code read our docs.

Paste (**PC:** ^ Ctrl + V or **Mac:** ⌘ Cmd + V) your copied link in the panel above:


File Edit Selection View Go Run Terminal Help
Get Started - Visual Studio Code
Get Started
Provide repository URL or pick a repository source.
Clone from GitHub
Start
New File...
Open File...
Open Folder...
Clone Git Repository...
Watch Video Tutorials
Recent
22S-ASIAAM-191A C:\Users\hikou\repos\ucla
metro_api_v2 C:\Users\hikou\repos\metro
Walkthroughs
Get Started with VS Code
Discover the best customizations to make VS Code yours.
Learn
Jump ... must-have features.
Get started with Python development Updated

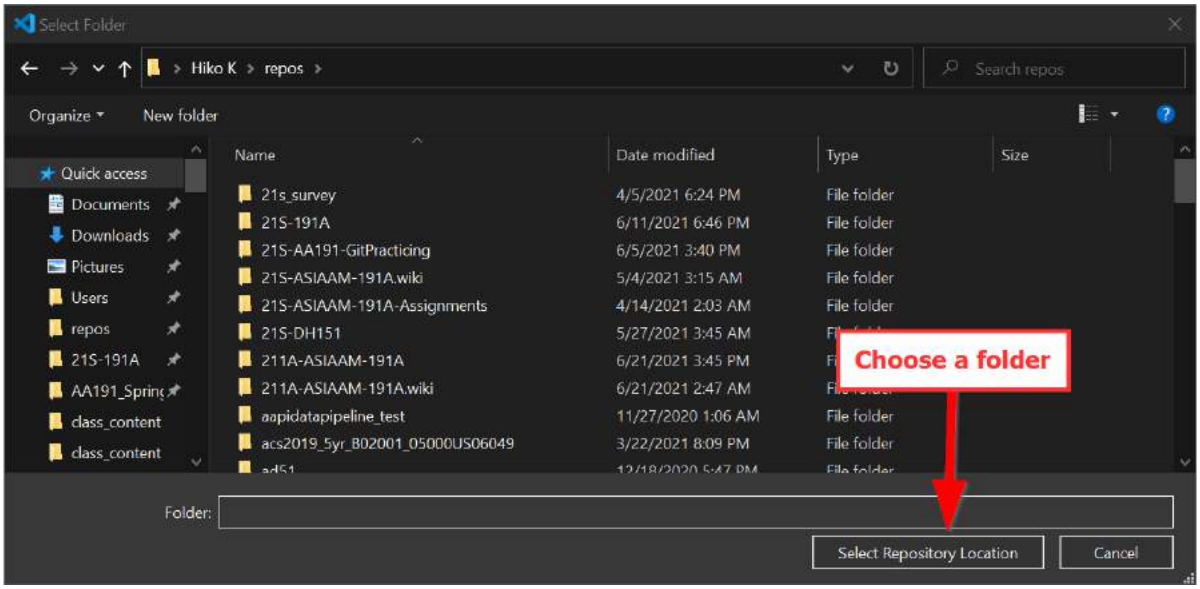
Paste your repository link into here

Click on Clone from URL or press Enter ⏎ :


File Edit Selection View Go Run Terminal Help
Get Started - Visual Studio Code
Get Started
https://github.com/albertkun/22s-asiaam-191a-labs.git
Clone from URL https://github.com/albertkun/22s-asiaam-191a-labs.git
Clone from GitHub
Start
New File...
Open File...
Open Folder...
Clone Git Repository...
Watch Video Tutorials
Recent
22S-ASIAAM-191A C:\Users\hikou\repos\ucla
metro_api_v2 C:\Users\hikou\repos\metro
Walkthroughs
Get Started with VS Code
Discover the best
Learn the Fundamentals
Jump right into VS Code and get an overview of the must-have features.
Get started with Python development Updated

Click (or press enter)

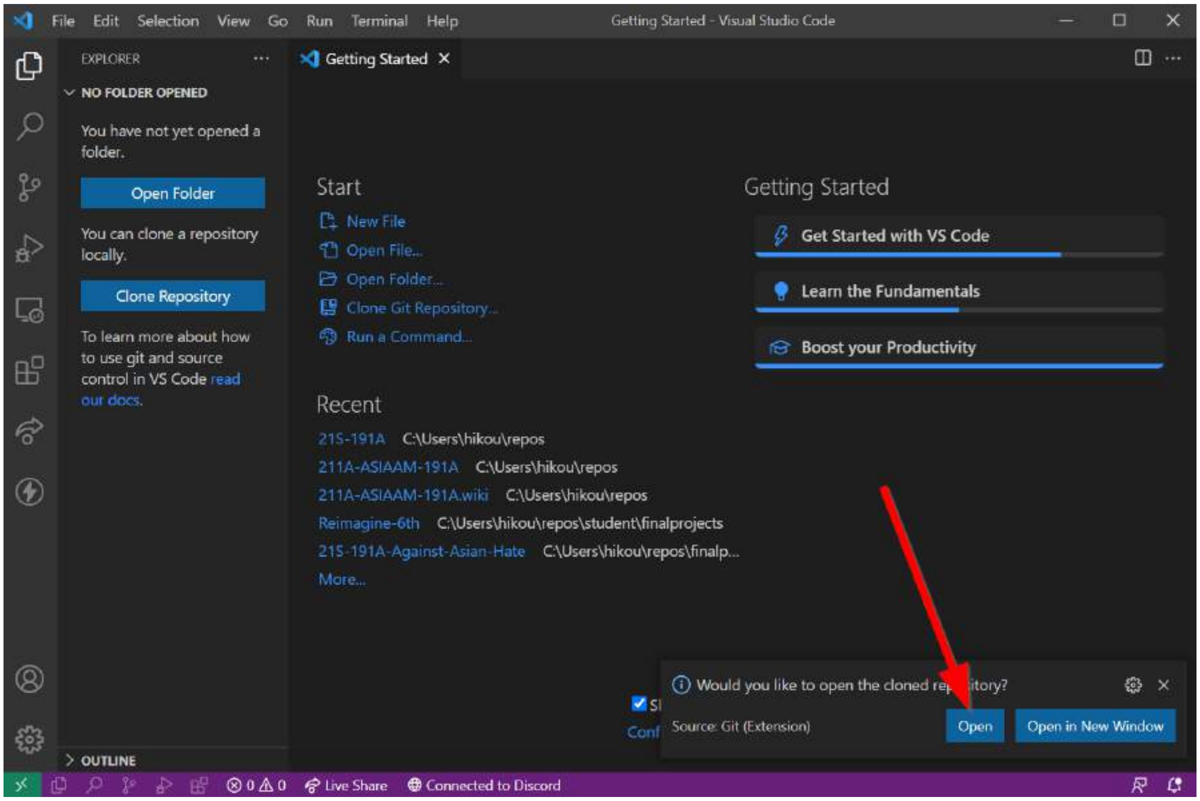
Choose a folder to save your files locally to:



Name	Date modified	Type	Size
21s_survey	4/5/2021 6:24 PM	File folder	
21S-191A	6/11/2021 6:46 PM	File folder	
21S-AA191-GitPracticing	6/5/2021 3:40 PM	File folder	
21S-ASIAAM-191A.wiki	5/4/2021 3:15 AM	File folder	
21S-ASIAAM-191A-Assignments	4/14/2021 2:03 AM	File folder	
21S-DH151	5/27/2021 3:45 AM	Fi	
211A-ASIAAM-191A	6/21/2021 3:45 PM	Fi	
211A-ASIAAM-191A.wiki	6/21/2021 2:47 AM	Fi	
aapidatapipeline_test	11/27/2020 1:06 AM	File folder	
acs2019_5yr_B02001_05000US06049	3/22/2021 8:09 PM	File folder	
ad51	12/18/2020 5:47 PM	File folder	

Choose a folder

Click on Open this new repository:



You have not yet opened a folder.

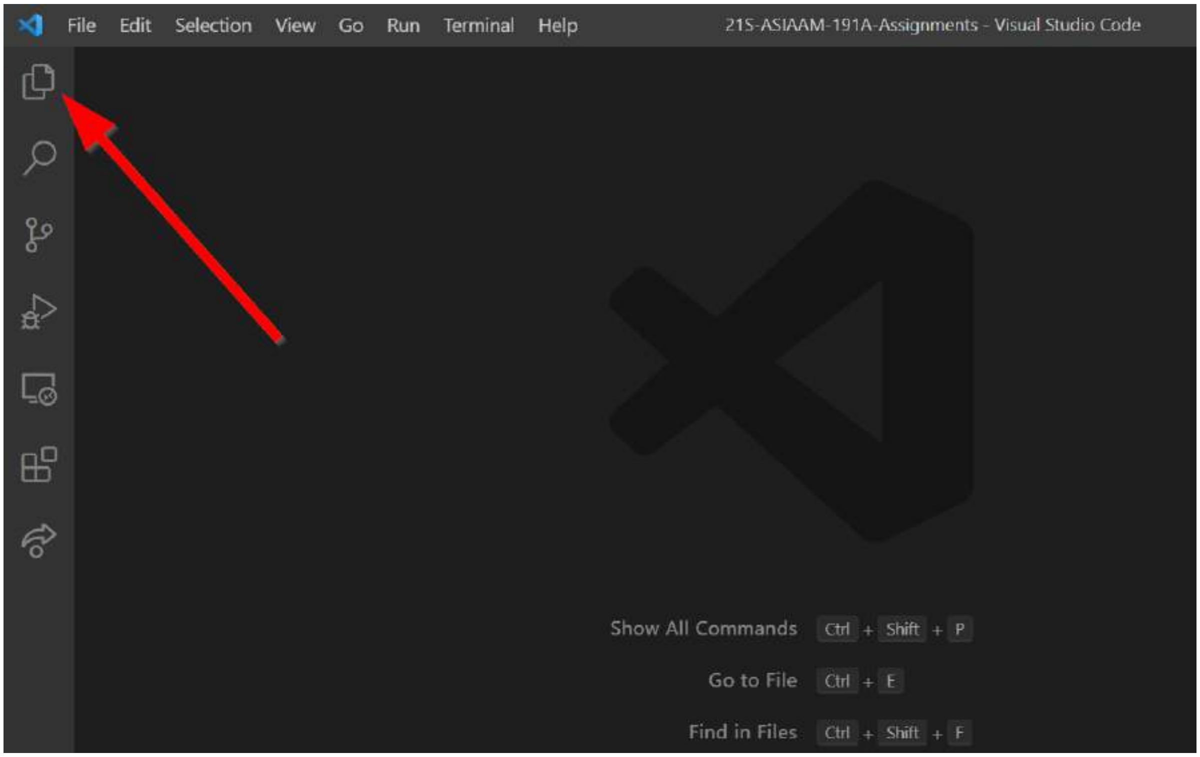
You can clone a repository locally.

To learn more about how to use git and source control in VS Code read our docs.

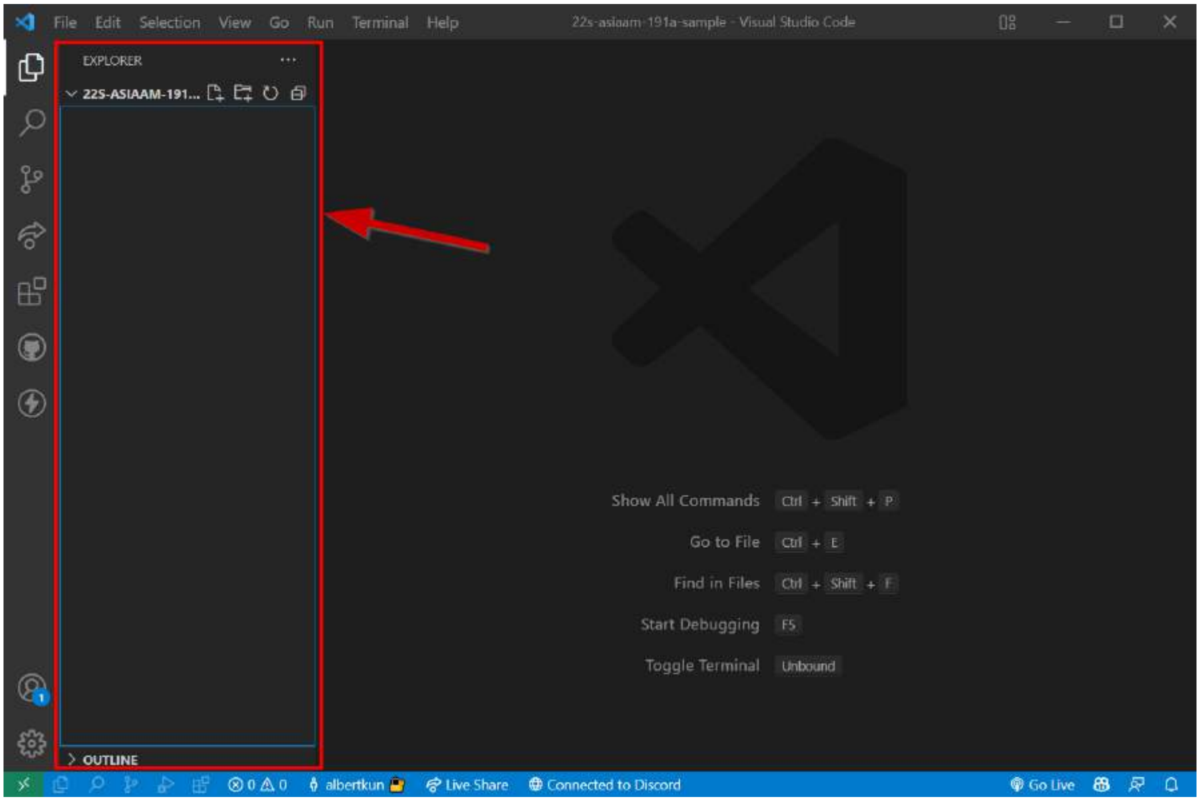
Would you like to open the cloned repository?

Source: Git (Extension)

Make sure 📄 **Explorer** is open in the Activity Bar by clicking on it:


File Edit Selection View Go Run Terminal Help
21S-ASIAAM-191A-Assignments - Visual Studio Code
Show All Commands Ctrl + Shift + P
Go to File Ctrl + E
Find in Files Ctrl + Shift + F

The open 🗐 **Explorer** should look like this with space to show the files:



Show All Commands Ctrl + Shift + P

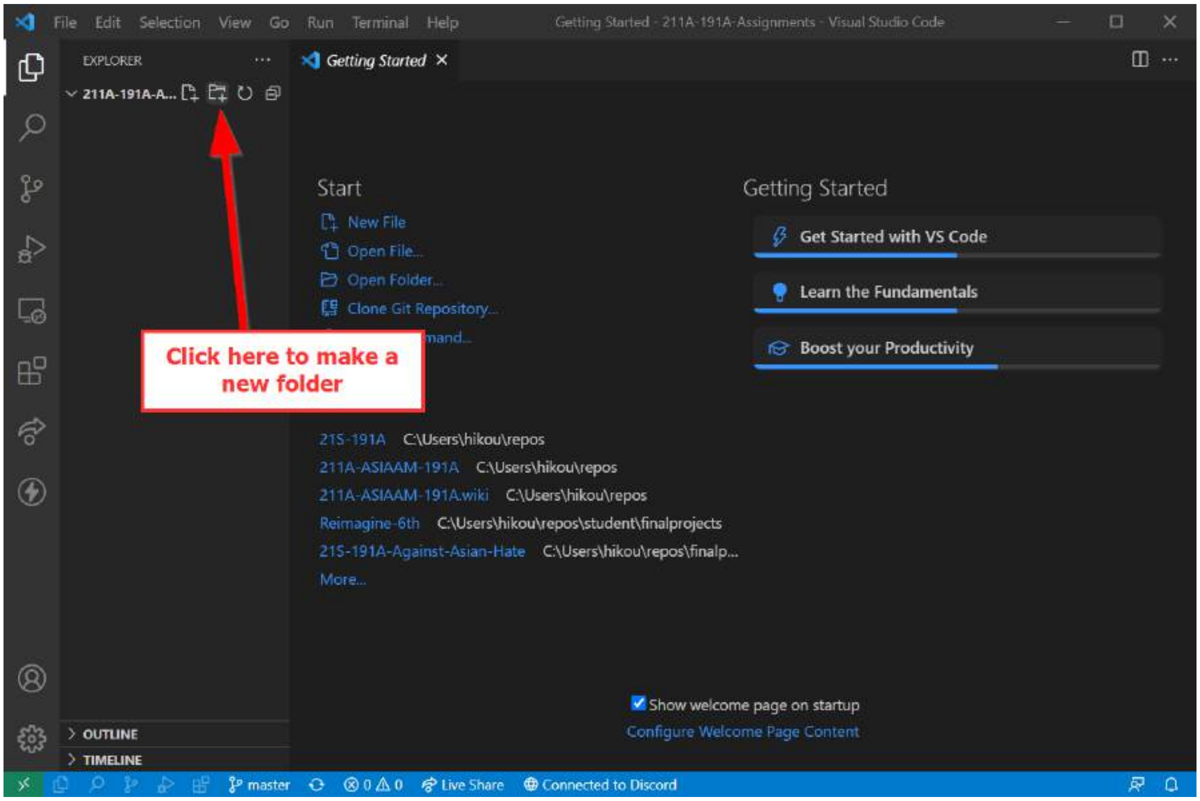
Go to File Ctrl + E

Find in Files Ctrl + Shift + F

Start Debugging F5

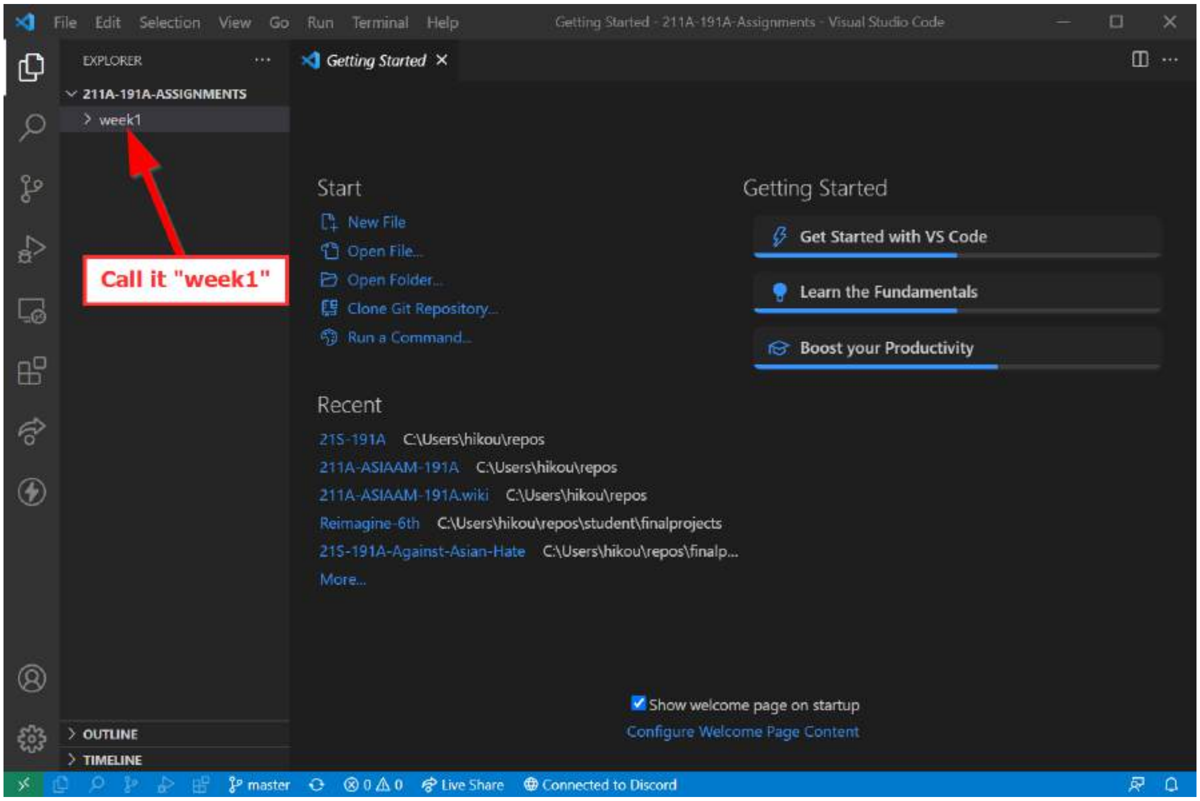
Toggle Terminal Unbound

Click the `Folder` icon to make a new folder:


File Edit Selection View Go Run Terminal Help
Getting Started - 211A-191A-Assignments - Visual Studio Code
EXPLORER
211A-191A-A...
Getting Started
Start
New File
Open File...
Open Folder...
Clone Git Repository...
Getting Started
Get Started with VS Code
Learn the Fundamentals
Boost your Productivity
215-191A C:\Users\hikou\repos
211A-ASIAAM-191A C:\Users\hikou\repos
211A-ASIAAM-191A.wiki C:\Users\hikou\repos
Reimagine-6th C:\Users\hikou\repos\student\finalprojects
215-191A-Against-Asian-Hate C:\Users\hikou\repos\finalp...
More...
☑ Show welcome page on startup
Configure Welcome Page Content
OUTLINE
TIMELINE
master
⊗ 0 ⚠ 0
Live Share
Connected to Discord

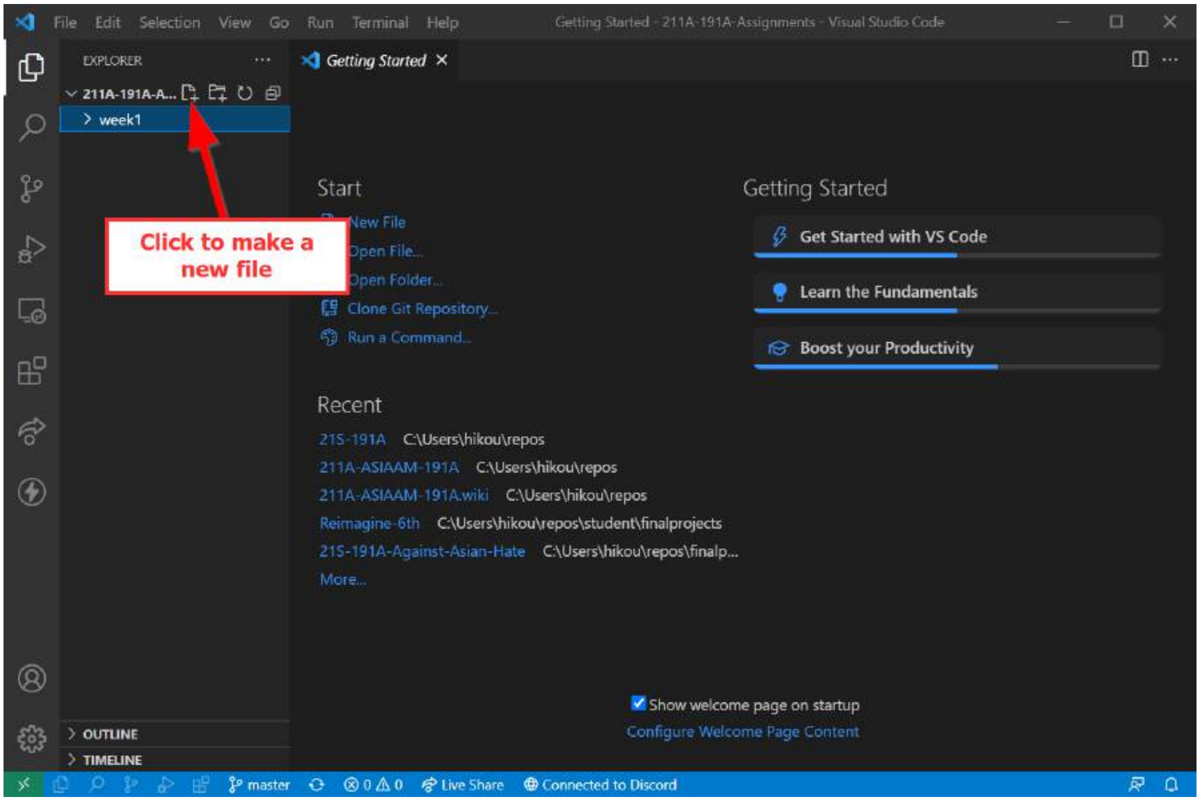
Click here to make a new folder

Title it `week1`:


File Edit Selection View Go Run Terminal Help
Getting Started - 211A-191A-Assignments - Visual Studio Code
EXPLORER
211A-191A-ASSIGNMENTS
week1
Getting Started
Start
New File
Open File...
Open Folder...
Clone Git Repository...
Run a Command...
Recent
215-191A C:\Users\hikou\repos
211A-ASIAAM-191A C:\Users\hikou\repos
211A-ASIAAM-191A.wiki C:\Users\hikou\repos
Reimagine-6th C:\Users\hikou\repos\student\finalprojects
215-191A-Against-Asian-Hate C:\Users\hikou\repos\finalp...
More...
Getting Started
Get Started with VS Code
Learn the Fundamentals
Boost your Productivity
☑ Show welcome page on startup
Configure Welcome Page Content
OUTLINE
TIMELINE
master
⊗ 0 ⚠ 0
Live Share
Connected to Discord

Call it "week1"

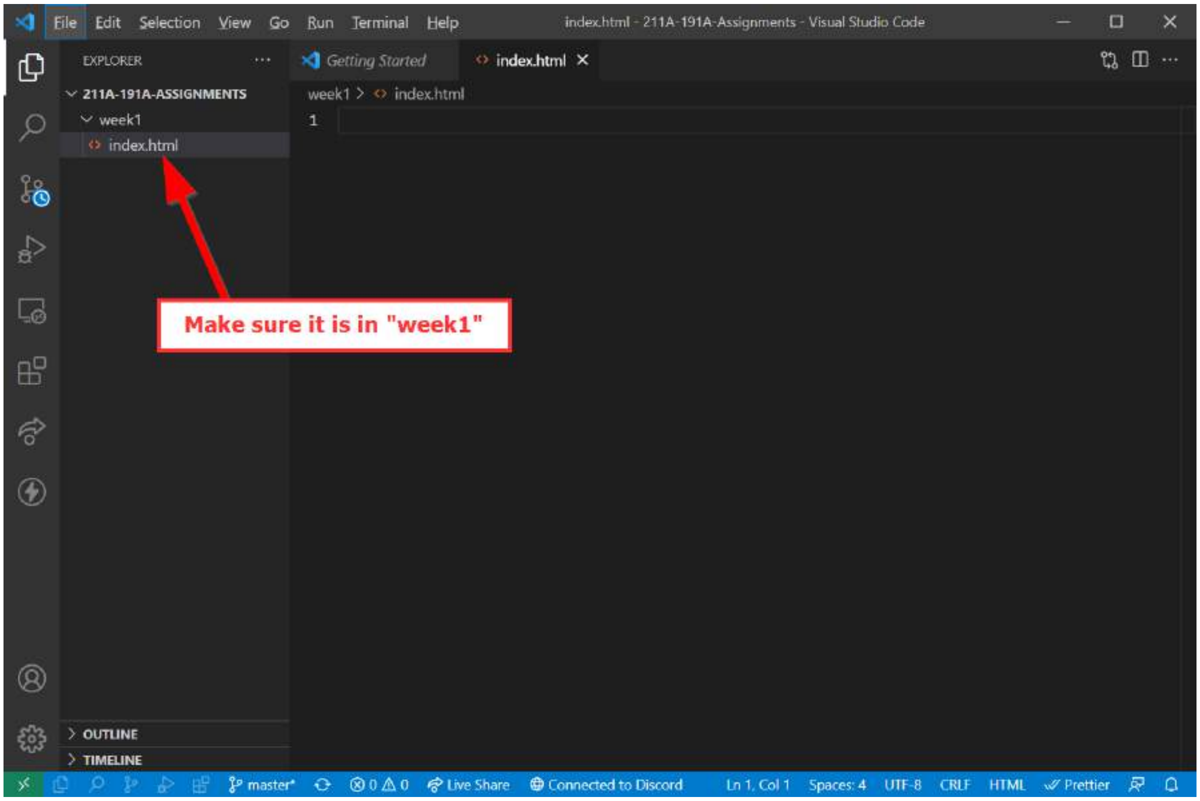
With the folder selected, click the `New file` icon and give it the title `index.html`:



Click to make a new file

File Edit Selection View Go Run Terminal Help
Getting Started - 211A-191A-Assignments - Visual Studio Code
EXPLORER
211A-191A-A...
week1
Getting Started
Start
New File
Open File...
Open Folder...
Clone Git Repository...
Run a Command...
Recent
21S-191A C:\Users\hikou\repos
211A-ASIAAM-191A C:\Users\hikou\repos
211A-ASIAAM-191A.wiki C:\Users\hikou\repos
Reimagine-6th C:\Users\hikou\repos\student\finalprojects
21S-191A-Against-Asian-Hate C:\Users\hikou\repos\finalp...
More...
Getting Started
Get Started with VS Code
Learn the Fundamentals
Boost your Productivity
☑ Show welcome page on startup
Configure Welcome Page Content
OUTLINE
TIMELINE
master
⊗ 0 ⚠ 0
Live Share
Connected to Discord

Make sure `index.html` is within `week1`:



Last update: 2023-04-05

HTML?! Oh what `tag`gony!

HTML is what makes up the house for websites to be able to talk to the server. Everything in HTML is surrounded by tags which look like this: `<tag> Look Ma'! I'm in a tag! </tag>`

Attributes in tags

If we can only use tags, the web would be a pretty boring place. So in order to make each tag unique, we can add attributes to them. To do so, you add an `attribute="some value"`

For example, we can name a tag something: `<tag name="Albert"></tag>`

Wow, that's my name tag! 🤦🏻‍♂️

Boilerplate vs. Template Code

In coding, boilerplate code is ready to use code that people can freely copy and use with no changes. Think of them as ready-to-eat microwave dinners.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8"/>
  <title></title>
</head>
<body>

</body>
</html>
```

Template code refers to sample code that can be copied and pasted, but requires modifications in order for it to work.

Here is our template code:

index.html

```
<!DOCTYPE html>①
<html>②
```

```
    <head> ③
        <title>Hello World with Leaflet</title> ④
        <meta charset="utf-8" />
        <link rel="shortcut icon" href="#">

        <!-- I'd add some style if here if I had any -->

    </head>

    <body> ⑤
        <header>
            Hello World!  ⑥
        </header>

        <div class="main">
        <!-- hint: majority of your lab assignment can go here     -->

        </div>


        <div id="footer">
Copyright(2023)
        </div>

    </body>
</html> ⑦
```

1. This tells a web browser what type of file this `document` is.
2. The `HTML` code begins here.
3. Content in the `head` tag is not displayed on the page.
4. The `title` is shown in the browser's title bar or in the page's tab.
5. Content in the `body` contains most of what needs to be displayed.
6. This content in `body` is what is actually being showed!
7. The `HTML` code ends here.

Lab Questions

What do you observe in the code?

1. How does this code differ from the boilerplate code?
2. Why should everything be enclosed in the `html` tag?
3. Do empty spaces matter in HTML?
4. What is a comment and how do you write one?
5. Is there a difference between the `class` and `id` attributes?

⚽ In-Class Exercise #1

Tasks

1. Let’s fix our code so that it actually looks presentable.
2. Look for the errors in the template code.
3. Save the file and name it `index.html` and open it in Firefox.

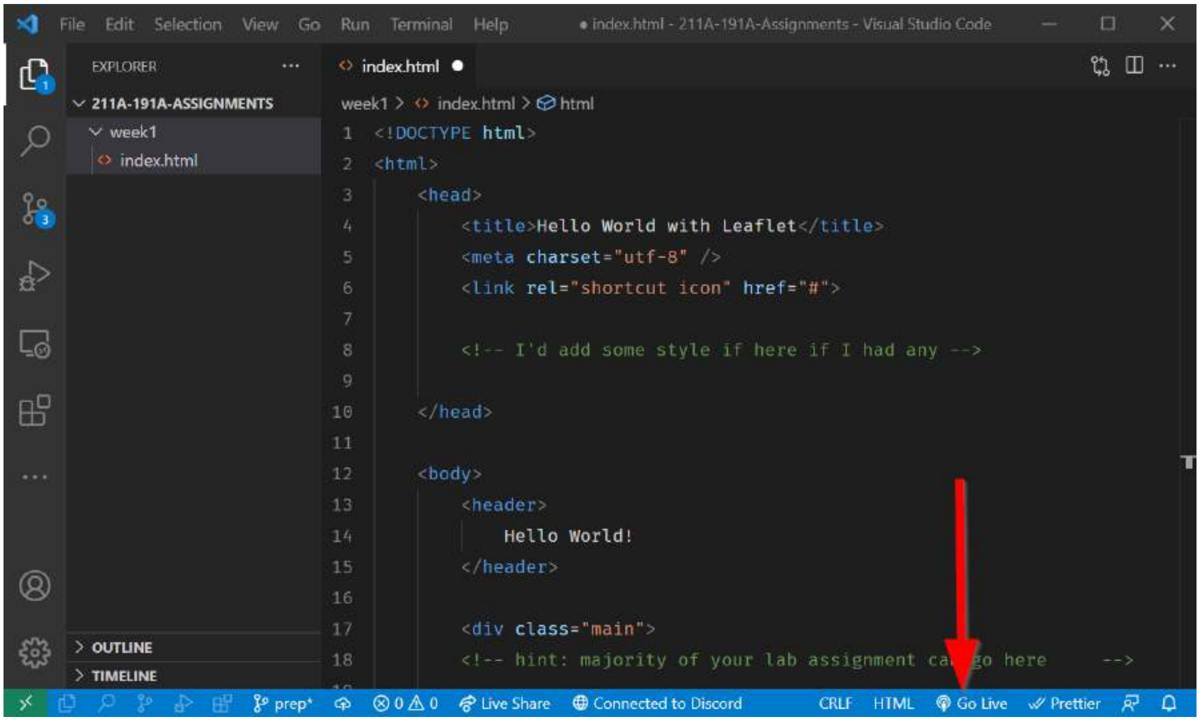
Extra: If you finish early, try to add your own spin to the HTML file!

Preview our file

Install the Live Server 📡 extension by clicking this link:

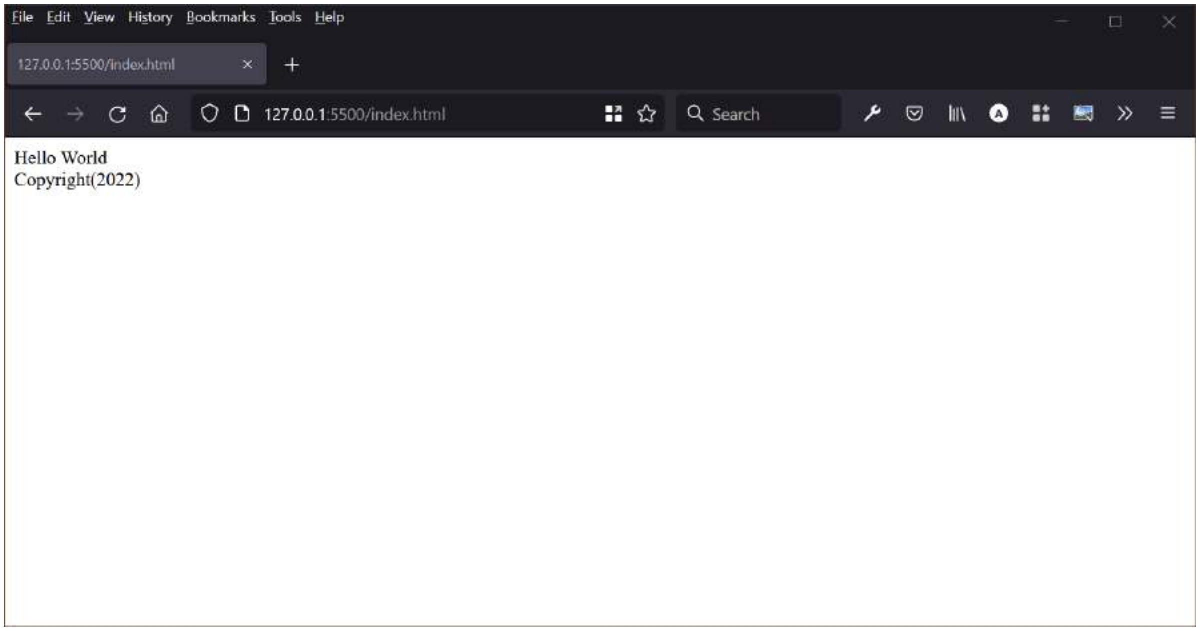
- https://marketplace.visualstudio.com/items?itemName=ritwickdey.LiveServer

After you install the extension, click on Go Live.


File Edit Selection View Go Run Terminal Help
● index.html - 211A-191A-Assignments - Visual Studio Code
EXPLORER
211A-191A-ASSIGNMENTS
week1
index.html
OUTLINE
TIMELINE
week1 > index.html > html
prep*
0 0
Live Share
Connected to Discord
CRLF
HTML
Go Live
Prettier

```
<!DOCTYPE html>
<html>
    <head>
        <title>Hello World with Leaflet</title>
        <meta charset="utf-8" />
        <link rel="shortcut icon" href="#">

        <!-- I'd add some style if here if I had any -->

    </head>

    <body>
        <header>
            Hello World!
        </header>

        <div class="main">
        <!-- hint: majority of your lab assignment can go here     -->
```

Your default browser should automatically pop-up, if your default browser is not Firefox, you will need to copy and paste the link over to view it there.


File Edit View History Bookmarks Tools Help
127.0.0.1:5500/index.html
127.0.0.1:5500/index.html
Search

```
Hello World
Copyright(2022)
```

Not using the Live Server extension

If you cannot or do not want to use live server then you will need to right click on your `index.html` file and `reveal in file explorer`. Then, double click on the file. Be aware that checking your code in this is not as efficient because there is no auto-reloading feature.

Last update: 2023-04-05

Cool Stylin’ Sheets

Let’s add some Cascading Style Sheets (CSS) to visualize our page better.

Insert the following code in the `<head>` right before the closing tag (i.e. `</head>`):

index.html

```
<style>
    html { ①
        background-color: azure;②
    }
</style>
```

1. `html` is the `CSS` selector, basically saying, “get anything in the `html` tags!
2. `background-color` is the key, and then `azure` is the color we are setting it to.

What happened to the page?

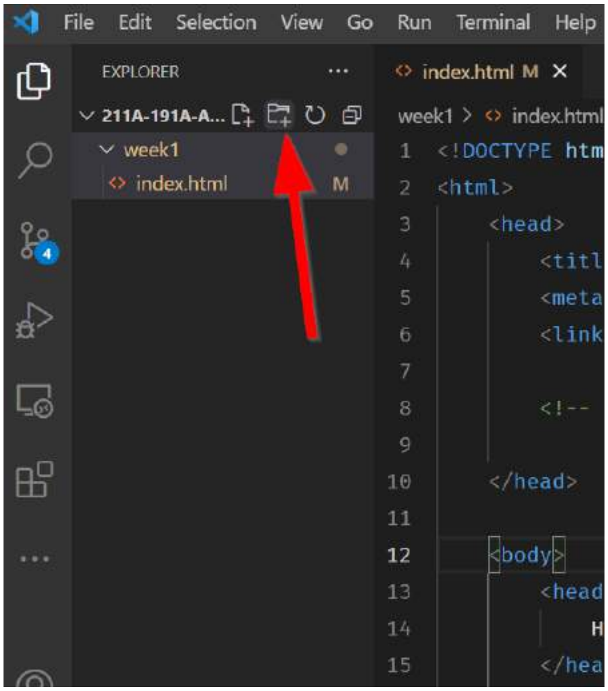
Answer

It became `Azure`!

That’s cool! But this way of using CSS, called inline CSS, can make your HTML file long and cumbersome. So the better practice is to have a separate file for CSS and bring that whole file in as a linked source.

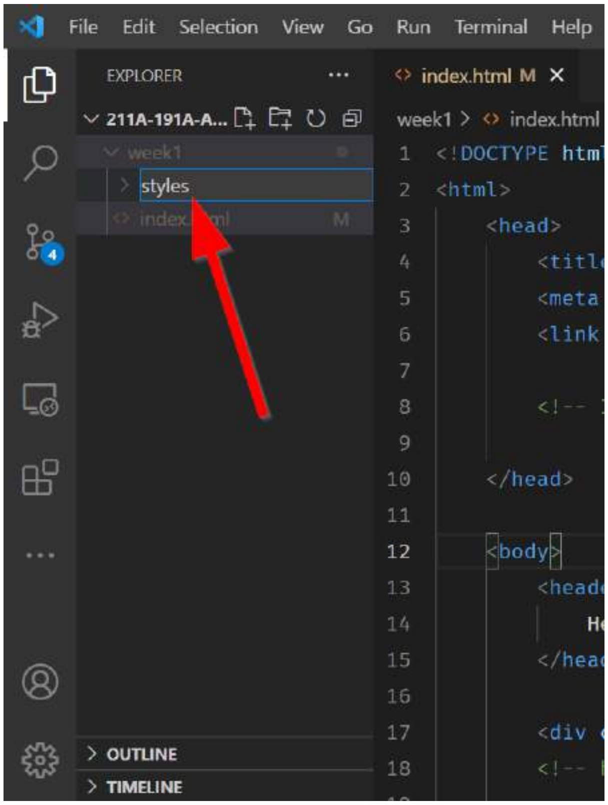
Adding linked CSS

Click the New Folder button:



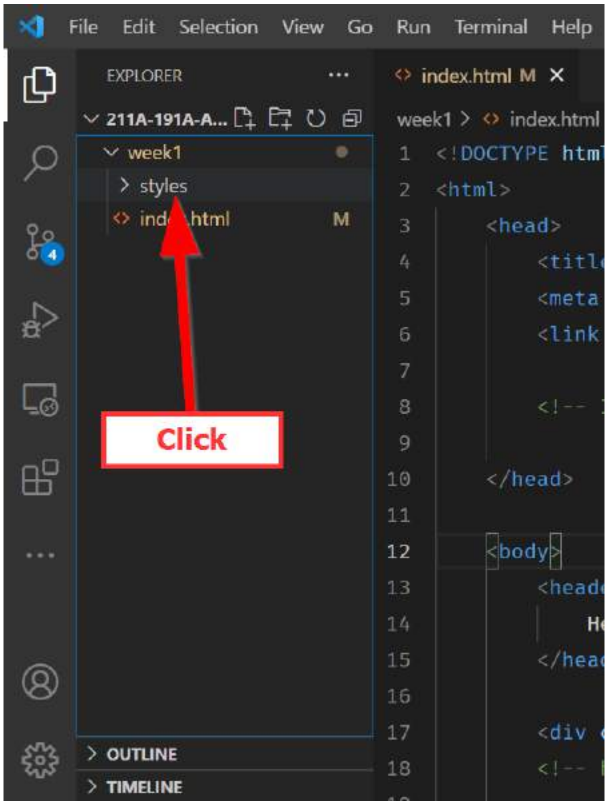
```
<!DOCTYPE htm
<html>
    <head>
        <titl
        <meta
        <link

        <!--

    </head>

    <body>
        <head
            H
        </hea
```

Type in styles to name the folder `styles`:



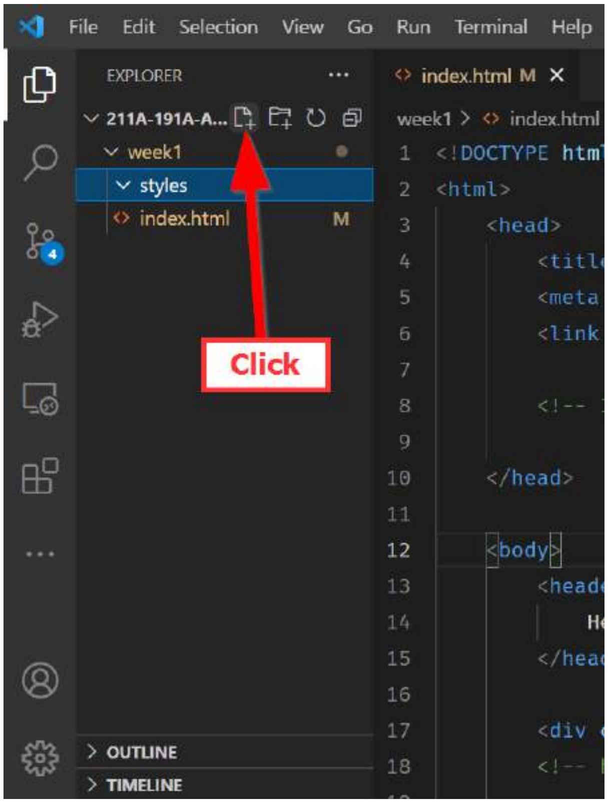
```
<!DOCTYPE html
<html>
    <head>
        <titl
        <meta
        <link

        <!--

    </head>

    <body>
        <head
            H
        </hea

        <div c
        <!--
```

Highlight the `styles` folder by clicking on it:



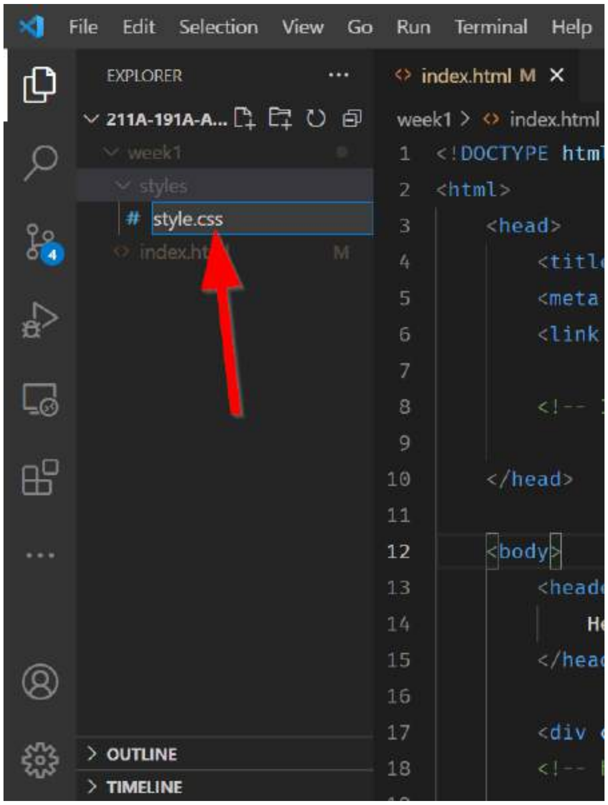
```
<!DOCTYPE htm
<html>
    <head>
        <titl
        <meta
        <link

        <!-- 

    </head>

    <body>
        <head
            He
        </hea

        <div 
        <!-- 
```

Then click on the New file 🗋 button:



```
<!DOCTYPE htm
<html>
    <head>
        <titl
        <meta
        <link

        <!-- 

    </head>

    <body>
        <head
            He
        </hea

        <div 
        <!-- 
```

Name the file style.css:



```
<!DOCTYPE htm
<html>
    <head>
        <titl
        <meta
        <link

        <!--

    </head>

    <body>
        <head
            H
        </hea

        <div
        <!--
```

Double click to open the new file. Then copy and paste the following CSS:

styles/style.css

```css
body{
    display: grid;
    /* grid-template-columns: 1fr;  */
    grid-auto-rows: auto 1fr;
    grid-template-areas: "header" "main_content" "footer";
    background-color: aqua;
    /* height: 100vh; */
}

header{
    grid-area: header;
}

#footer{
    grid-area: footer;
}

.main{
    grid-area: main_content;
    grid-template-areas: "content";
}

#contents{
    grid-area: content;
}
```

Reminder!

Remember to save the `style.css` file (**PC:** `⌃ Ctrl` + `S` | **Mac:** `⌘ Cmd` + `S` **!**

Next, go back to the index.html file and replace your entire `<style> </style>` content and tags with this code:

index.html

```
<link rel="stylesheet" href="styles/style.css">
```

This code tells the HTML file to use all of the CSS styles linked in the `href` attribute.

More external CSS files?

You can have as many external references as you'd like, as long as you link them in this way. The bottom most CSS file has the most priority because it is the last CSS read and applied!

We will go into CSS in more detail later, but what you need to know is that CSS has `HTML element selectors` which are then followed by the styles in `{ }`.

Last update: 2023-04-05

Let’s Git to Committing!

Commits are the basis of `Git` and `GitHub`.

Do not upload manually!

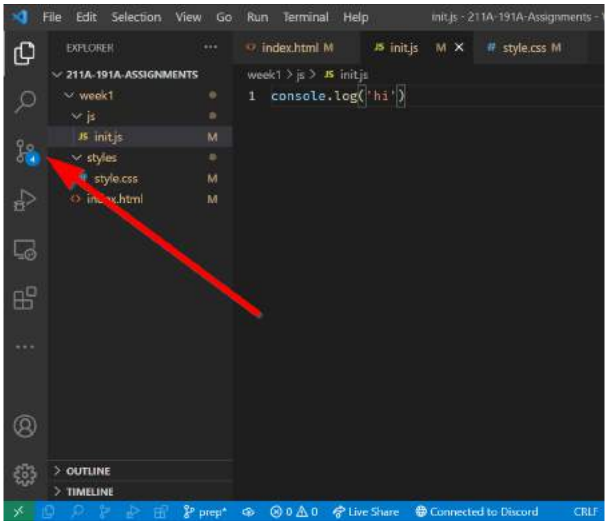
While it may be tempting to manually upload files through GitHub, for the purposes of this class, this will cause many headaches. For this class you should **only** commit through VS Code!!!

In a nutshell, **Committing** is `Git` speak for **saving files**. However, these saves come with a note so that you can refer back to save later!

It’s better than autosaving because you have a description of what that save is!

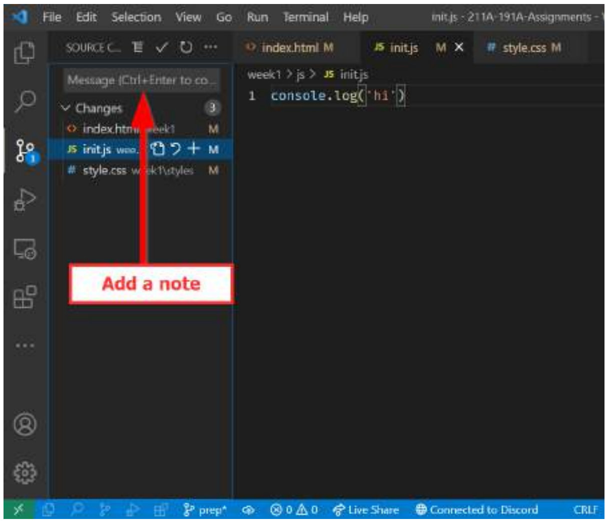
Let’s make our first commit:

Click on the `Source Control` icon in the activity bar in VS Code:



```
1  console.log('hi')
```

Enter a note for your commit:



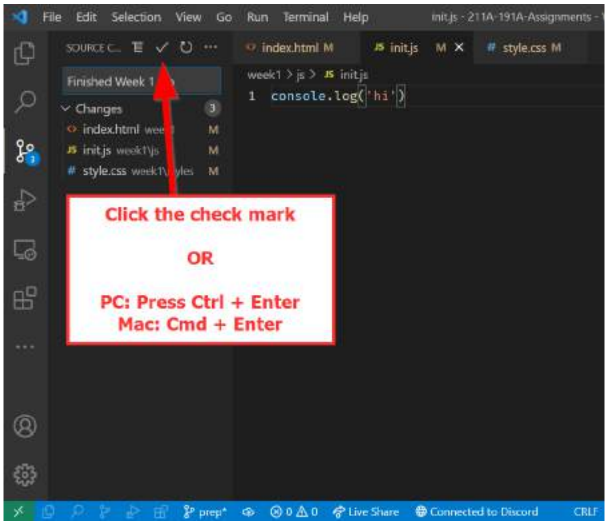
Message (Ctrl+Enter to co...

```
console.log('hi')
```

Add a note

Click the `checkmark` OR use the following shortcut:

- **PC:** ^ Ctrl + Enter ⏎
- **MAC:** ⌘ Cmd + Enter ⏎



Finished Week 1

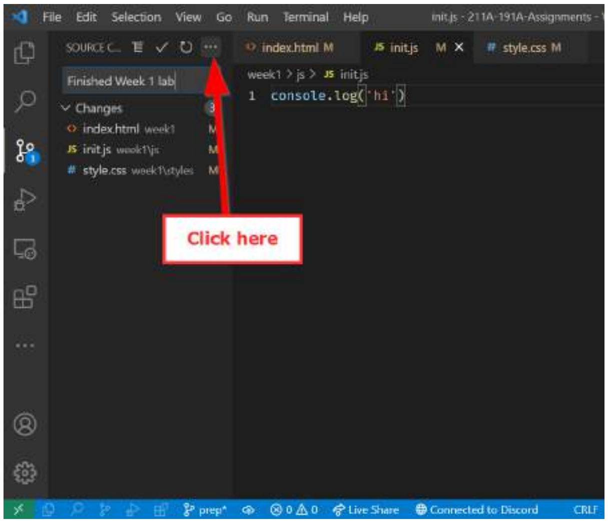
```
console.log('hi')
```

Click the check mark

OR

PC: Press Ctrl + Enter
Mac: Cmd + Enter

Next, click on the `...` for expanding the menu items:

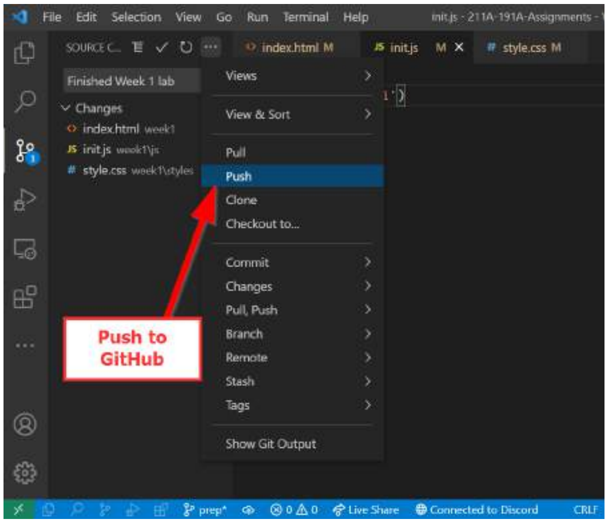


Finished Week 1 lab

```
console.log('hi')
```

Click here

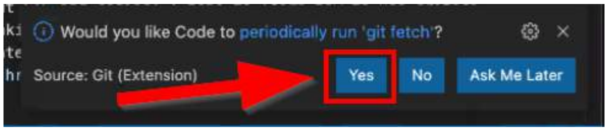
Finally, click on `Push` to upload your changes to GitHub:



Finished Week 1 lab

Push to GitHub

If you see the `VS Code periodically wants to run fetch` dialogue, click `Yes` to allow it to randomly update your repository.



Would you like Code to periodically run 'git fetch'?

Source: Git (Extension)

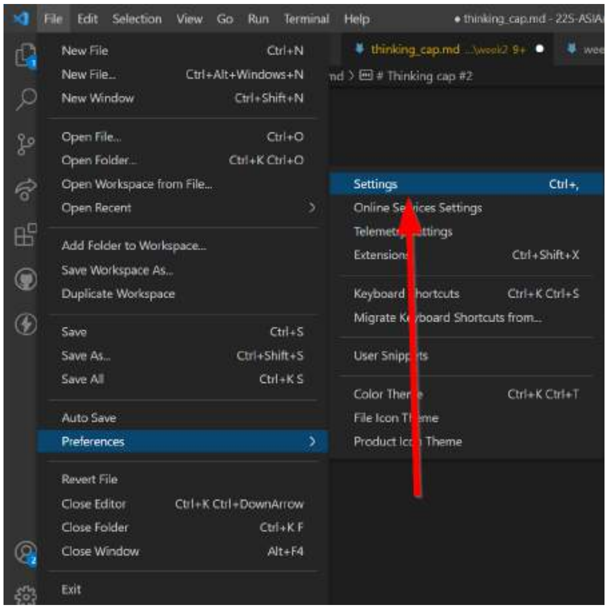
Optional: Easier Commits

✓ **Timesaving Tip!**

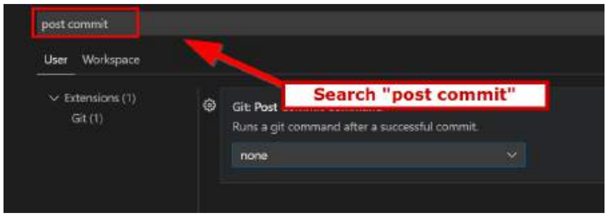
You can avoid having to do the extra steps of clicking `...` then `push` by turning on a setting to `push` after each commit!

Here's how to do so:

- Go to `File` -> `Prefences` -> Settings

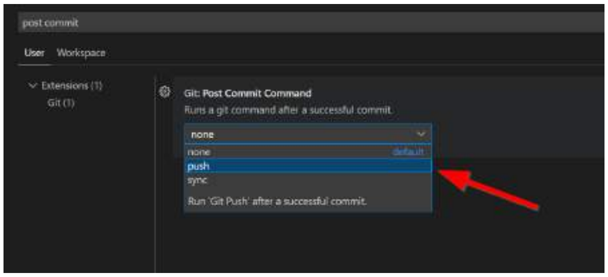


- Search post commit in the text box at the top



Git: Post Commit Command
Runs a git command after a successful commit.
none

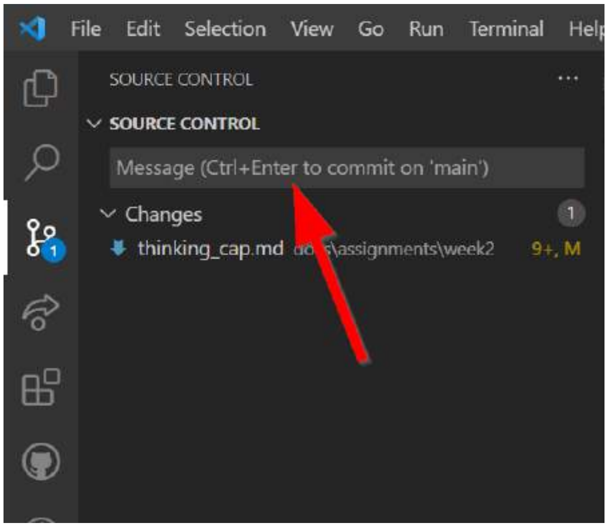
- Change the setting from `none` to push



Git: Post Commit Command
Runs a git command after a successful commit.
none
none default
push
sync
Run 'Git Push' after a successful commit.

- Now the next time you commit by pressing the following shortcut, it will push automatically!

- **PC:** `^ Ctrl` + `Enter ⏎`
- **MAC:** `⌘ Cmd` + `Enter ⏎`



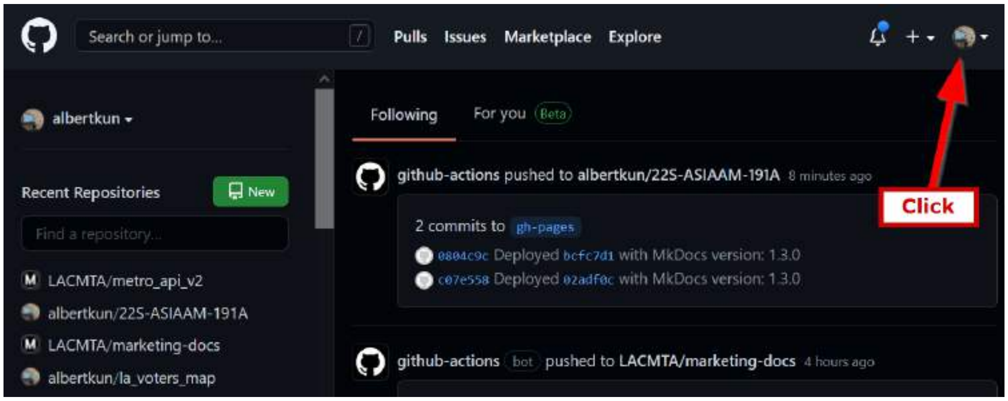
Using GitHub Pages

After you have saved and committed your files to GitHub visit your repository on https://www.github.com.

What is a repository?

A repository is GitHub speak for location for a specific project and/or bunch of files. You can think of it as `folder`. For this class, instead of making a new repository for each week we will have just one lab assignment repository with **different** folders for the weeks. Learn more about repositories here: About repositories (GitHub.com).

You can find your repositories by clicking on your profile picture:



github-actions pushed to albertkun/22S-ASIAAM-191A 8 minutes ago

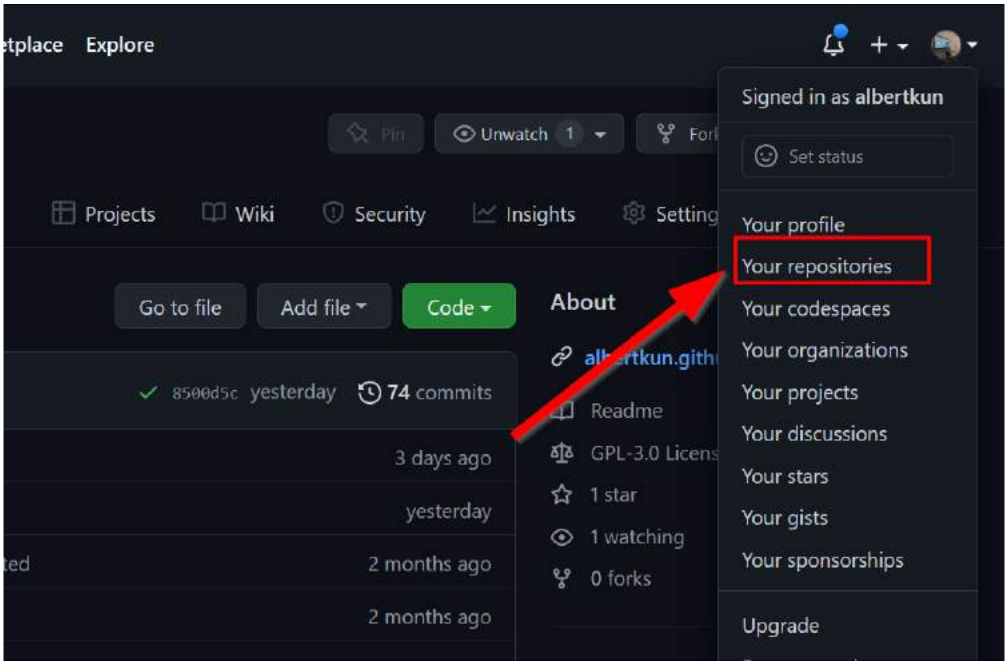
2 commits to gh-pages

0804c9c Deployed bcfc7d1 with MkDocs version: 1.3.0

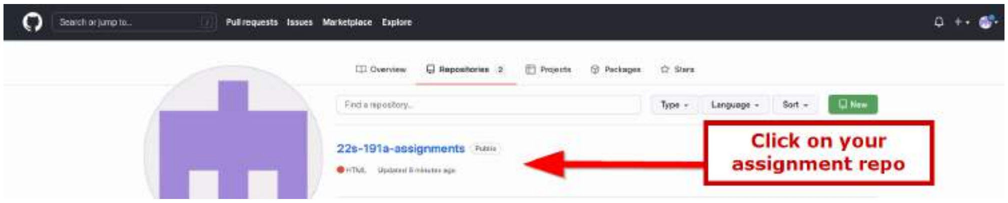
c07e558 Deployed 02adf0c with MkDocs version: 1.3.0

github-actions bot pushed to LACMTA/marketing-docs 4 hours ago

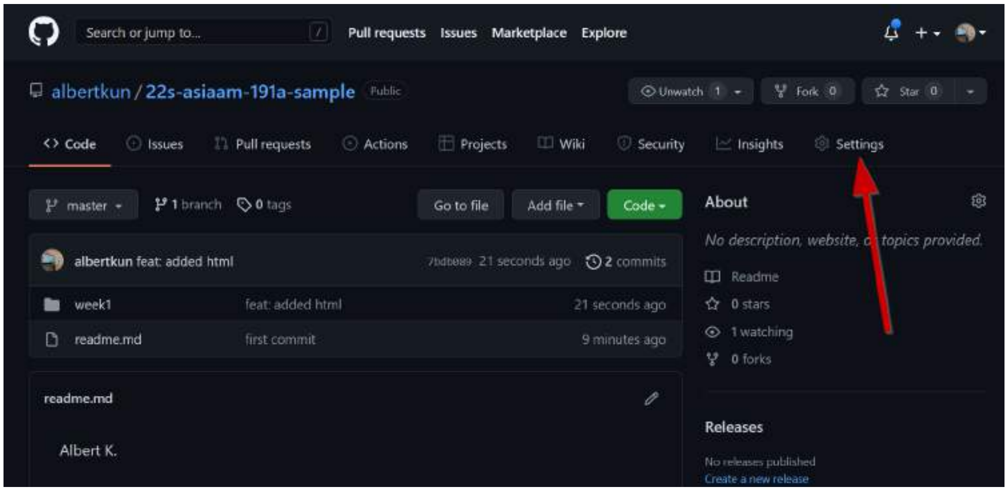
Then click on Your repositories



Find your assignment repository and click on it:



Click on Settings:



albertkun feat: added html 7bdb089 21 seconds ago 2 commits

week1 feat: added html 21 seconds ago

readme.md first commit 9 minutes ago

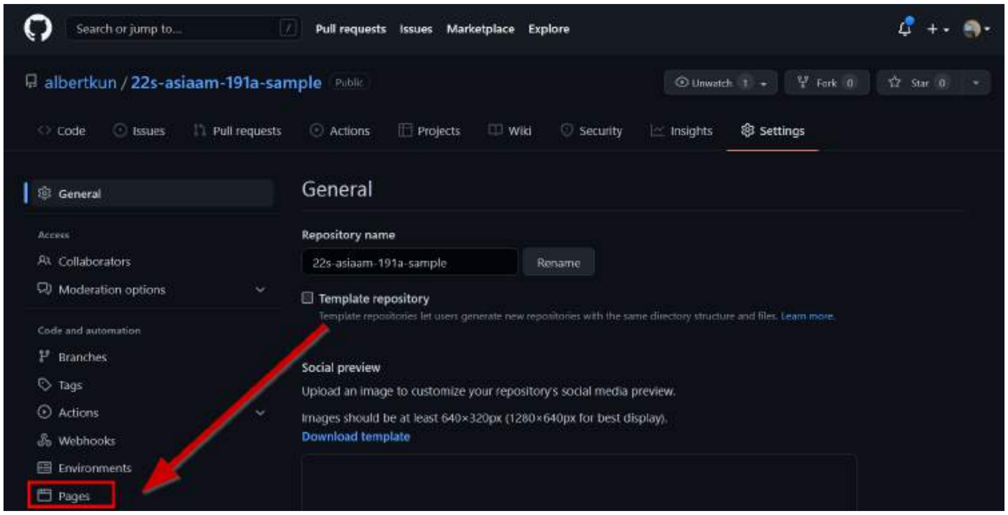
readme.md

Albert K.

No description, website, or topics provided.

No releases published

Click on Pages:



General

Repository name: 22s-asiaam-191a-sample

□ Template repository

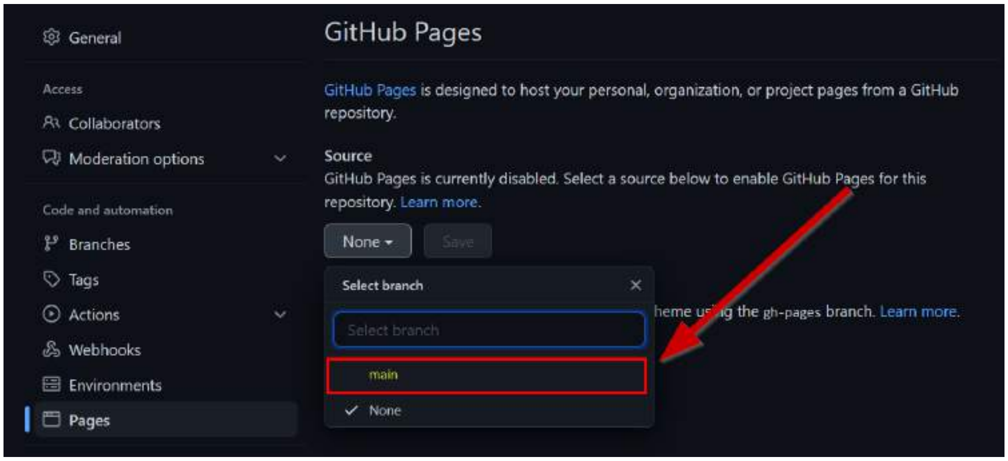
Template repositories let users generate new repositories with the same directory structure and files. Learn more.

Social preview

Upload an image to customize your repository's social media preview.

Images should be at least 640×320px (1280×640px for best display).

and under **Source** , click on the main branch [1]:



GitHub Pages

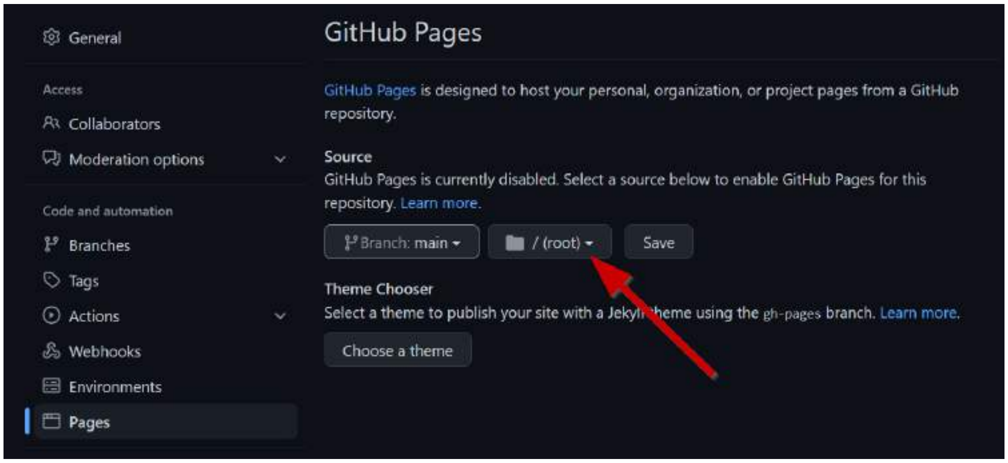
GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

Source

GitHub Pages is currently disabled. Select a source below to enable GitHub Pages for this repository. Learn more.

heme using the gh-pages branch. Learn more.

Choose root:



GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

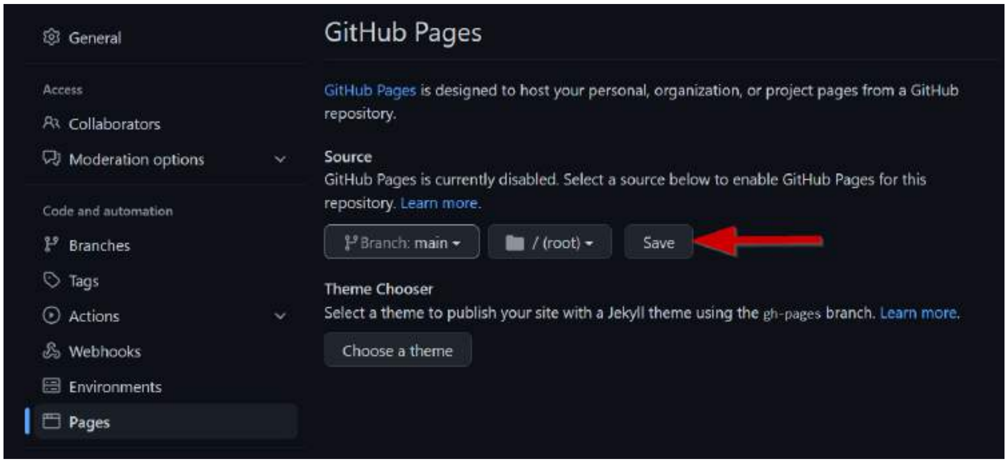
Source

GitHub Pages is currently disabled. Select a source below to enable GitHub Pages for this repository. Learn more.

Theme Chooser

Select a theme to publish your site with a Jekyll theme using the gh-pages branch. Learn more.

Click on Save:



GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

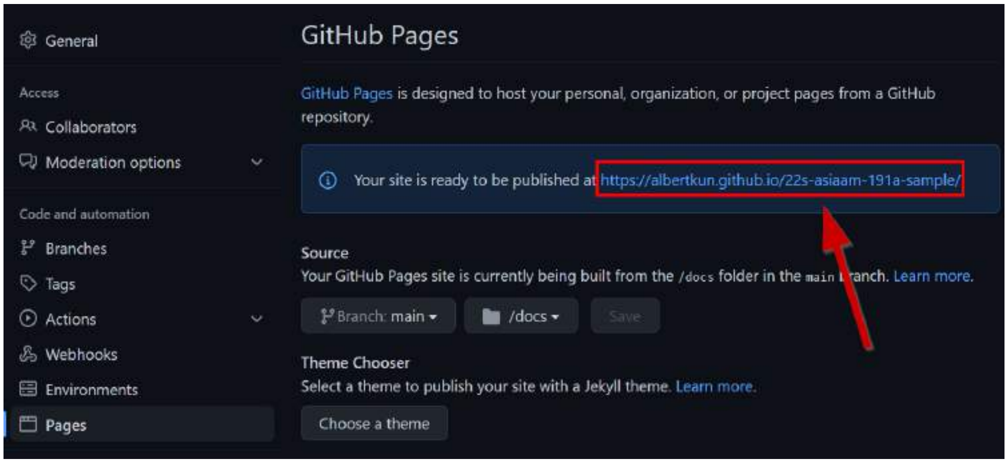
Source

GitHub Pages is currently disabled. Select a source below to enable GitHub Pages for this repository. Learn more.

Theme Chooser

Select a theme to publish your site with a Jekyll theme using the gh-pages branch. Learn more.

Copy this link:



GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

Your site is ready to be published at https://albertkun.github.io/22s-asiaam-191a-sample/

Source

Your GitHub Pages site is currently being built from the /docs folder in the main branch. Learn more.

Theme Chooser

Select a theme to publish your site with a Jekyll theme. Learn more.

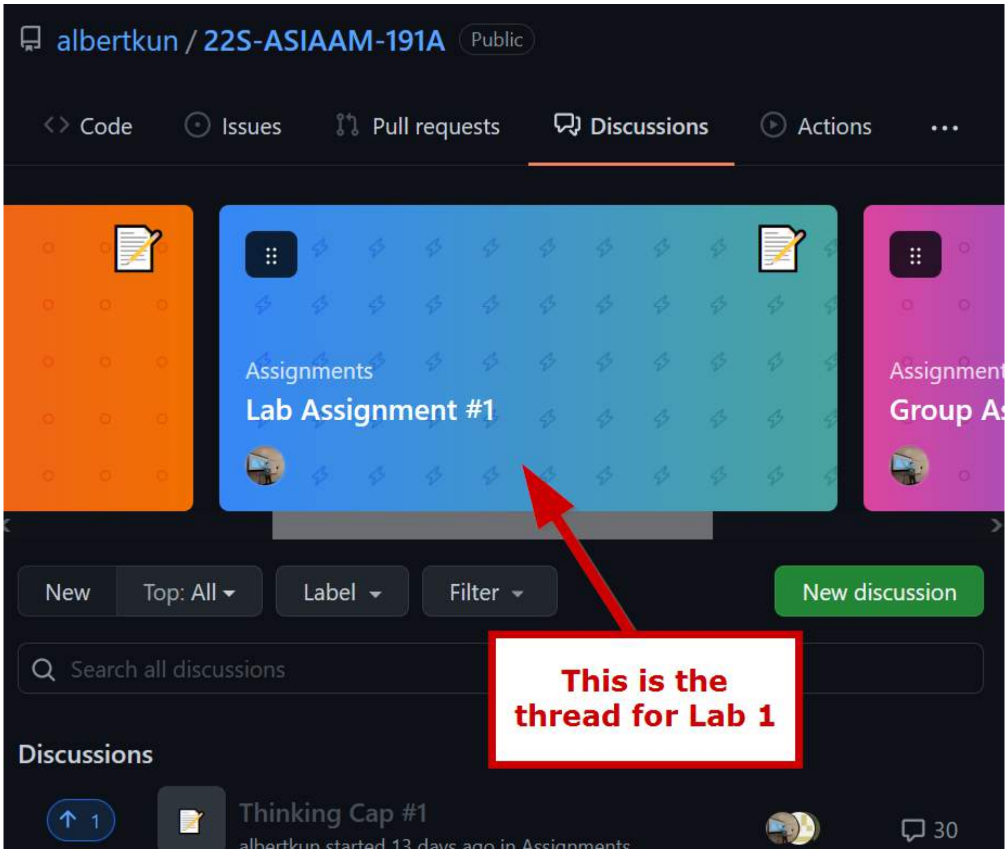
⚠ Nothing shows up?!😱

If you navigate to `https://YOUR_GITHUB_ACCOUNT.github.io/23s-asiaam-191a-assignments/` it will be blank because there’s nothing in the `root`.

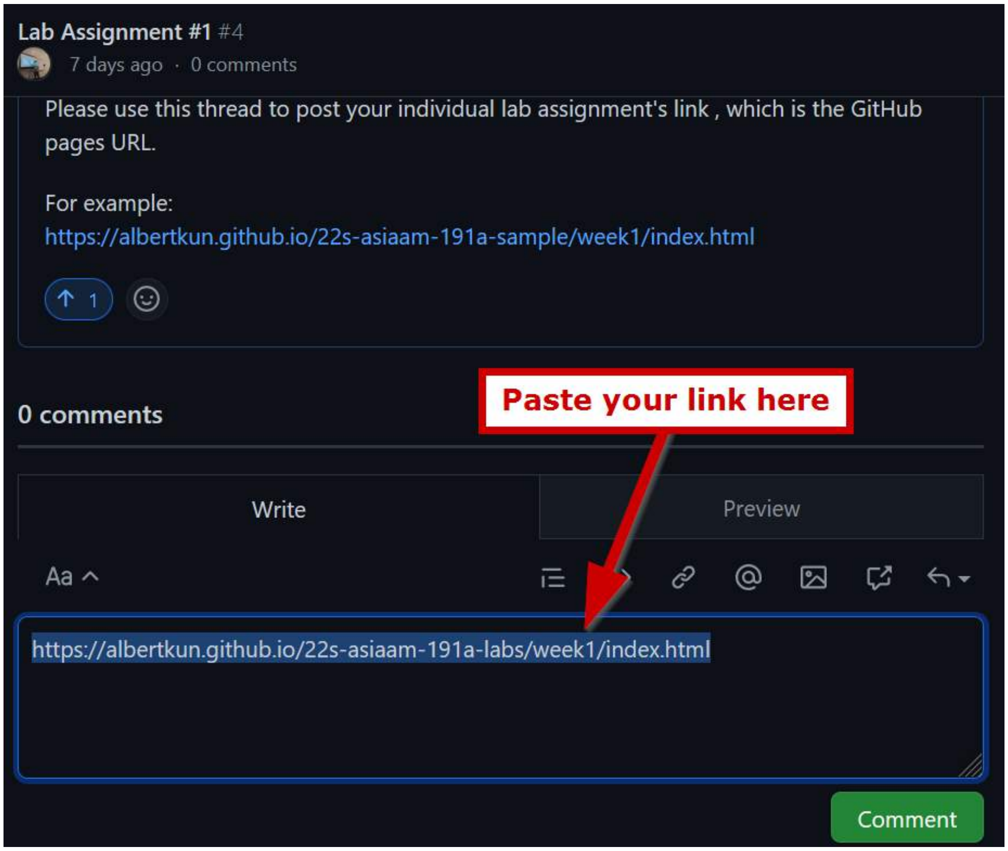
You have to add `/YOUR_WEEK_1_FOLDER_NAME/index.html` to access the contents of the lab!

For example, `https://albertkun.github.io/23s-asiaam-191a-assignments/week1/index.html`

Post it in the Discussion forum for the appropriate lab:



Paste your link in the comment box at the bottom



Lab Assignment #1 #4

7 days ago · 0 comments

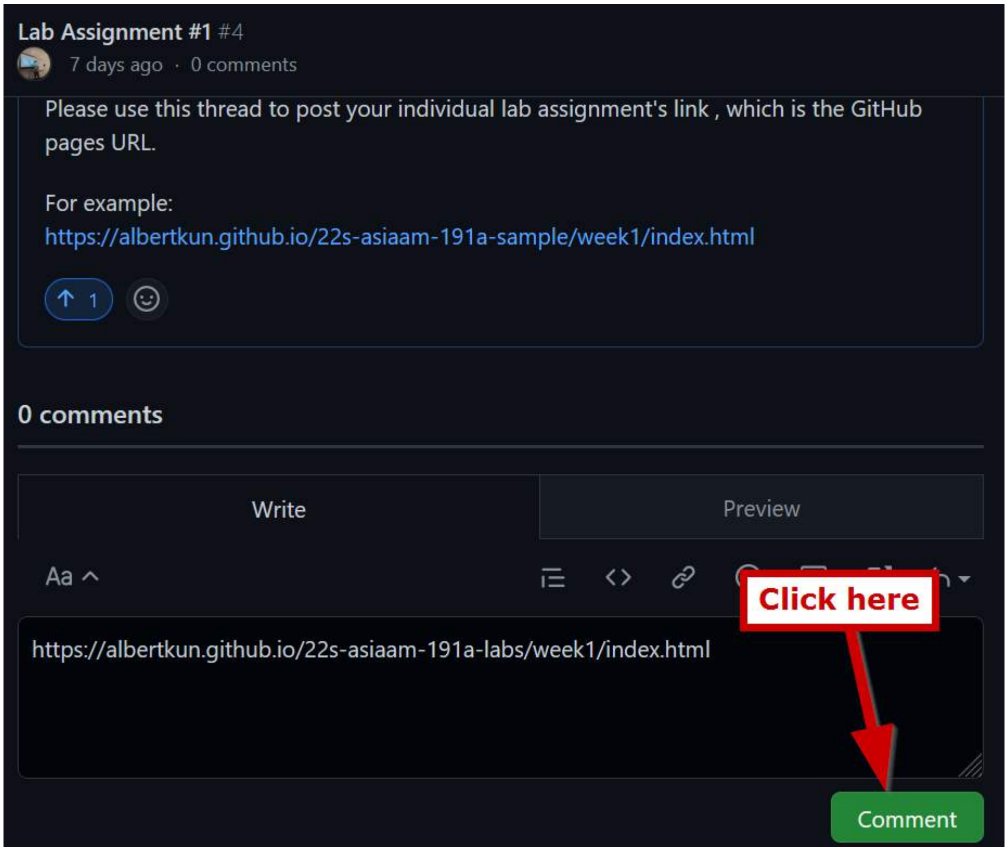
Please use this thread to post your individual lab assignment's link , which is the GitHub pages URL.

For example:
https://albertkun.github.io/22s-asiaam-191a-sample/week1/index.html

0 comments

https://albertkun.github.io/22s-asiaam-191a-labs/week1/index.html

Click on Comment to submit the lab:



Lab Assignment #1 #4

7 days ago · 0 comments

Please use this thread to post your individual lab assignment's link , which is the GitHub pages URL.

For example:
https://albertkun.github.io/22s-asiaam-191a-sample/week1/index.html

0 comments

https://albertkun.github.io/22s-asiaam-191a-labs/week1/index.html

---

1. Your branch may be called master if your repo was created in VS Code. Read more about why here. ↩

Last update: 2023-04-05

✅ Final Template Code

index.html

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Hello World</title>
        <!-- hint: remember to change your page title! -->
        <meta charset="utf-8" />
        <link rel="shortcut icon" href="#">
        <link rel="stylesheet" href="styles/style.css">
    </head>

    <body>
        <header>
            <!-- hint: you can make a menu with other links here if you'd like -->
        </header>

        <div class="main">
            <!-- hint: the majority of your assignment can do here -->
        </div>
        <div id="footer">
            Copyright(2023)
        </div>
    </body>
</html>
```

/styles/style.css

```css
body{
    display: grid;
    /* grid-template-columns: 1fr;  */
    grid-auto-rows: auto 1fr;
    grid-template-areas: "header" "main_content" "footer";
    background-color: aqua;
    /* height: 100vh; */
}

header{
    grid-area: header;
}

#footer{
    grid-area: footer;
}

.main{
    grid-area: main_content;
    grid-template-areas: "content";
}

#contents{
    grid-area: content;
}
```

Now you should be ready to take on the lab assignment!

Last update: 2023-04-05