Lab A

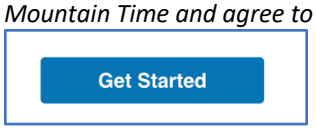
Getting familiar with the AWS Cloud interface and creating a static website using an S3 bucket.

1. Open the Learner lab:

- Visit https://awsacademy.instructure.com and login.

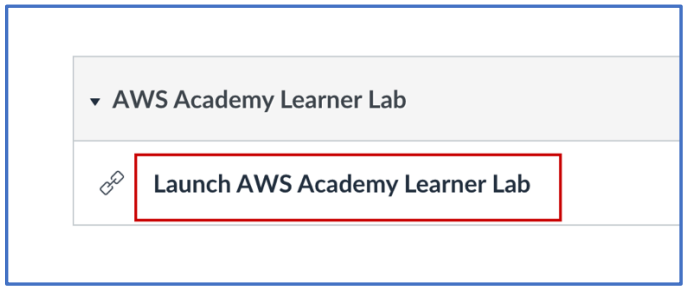
or if you don't know your login yet:

Click the link the 'Get Started' button from your email you received from AWS. Make ***sure it's the 'Learner Lab' email invitation*** and not the other Cloud Foundations one. (*If this is your first time, you may be asked to create an account before you can get started. Your email is your login name, choose a password and Mountain Time and agree to the terms and click 'Register'.)*



- From your dashboard, open the 'Learner Lab' course.
- Click on the 'Modules' link.

- And then on 'Launch AWS Academy Learner Lab' in the module.



Then, scroll down and agree to the conditions.

2. Start the Lab

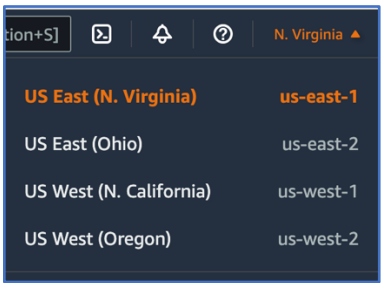
- Click the 'Start Lab' link.

Give it some time to load.
Eventually you will see the AWS link to the left with a green circle next to it. That means the lab is ready.

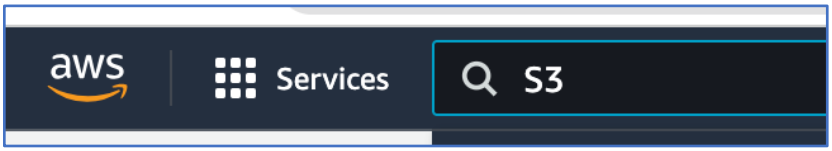
- Click the AWS link once it has the green circle next to it.

3. Explore the AWS Sandbox Interface

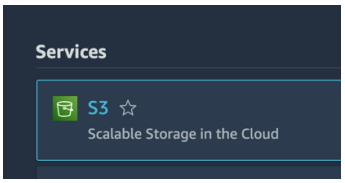
- As you enter each lab, always make note of what region you are in. It will be in the upper right area near the user information. If you click the region or 'Global' you will see all the region options. For now, just leave it as whatever the default is. We will choose a region when we create a bucket later.



- Notice the 'Services' icon which shows a list of all services. Next to it is the search box that you can also type in services, and they will come up. Type in S3, which stands for Simple Storage Service.



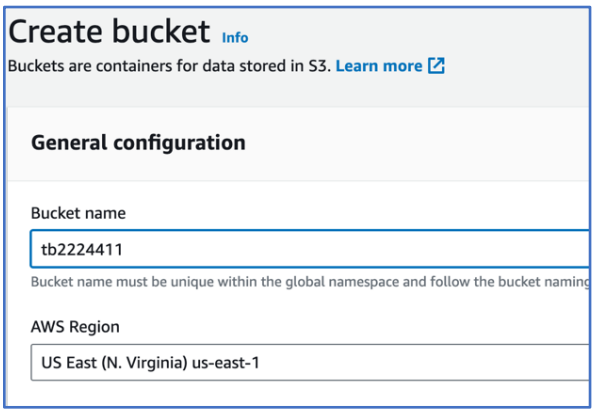
- A list of services will come up with the closest to what you typed at the top. Click the blue S3 link.



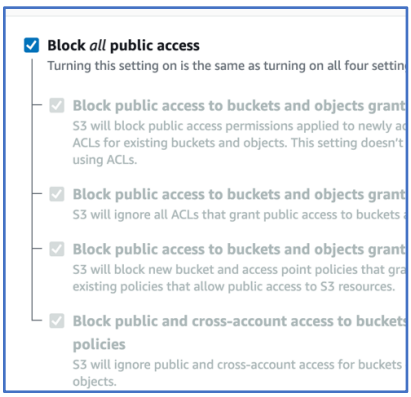
4. Create a bucket.

- Click the 'Create bucket' orange button.

- Give the bucket a unique name. It must be different from all other buckets at AWS, so get creative. Use lowercase letters, numbers, or dashes but no other characters. You will also notice the AWS Region. Let's leave it at the 'US East (N. Virginia) us-east-1'

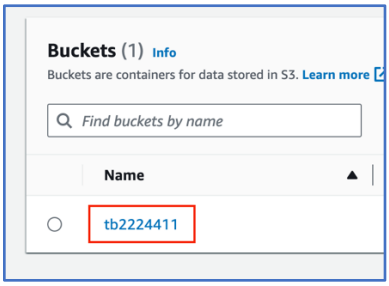


- Scroll down to the 'Block all public access' area. This prevents others from seeing our files. Leave all the defaults here.



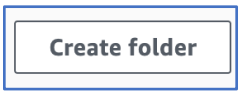
- Scroll through all the remaining settings and leave all the defaults with no changes. Then click the ‘Create bucket’ orange button on the very bottom.

- The bucket name will then show up under the name column. Click the blue bucket name link.

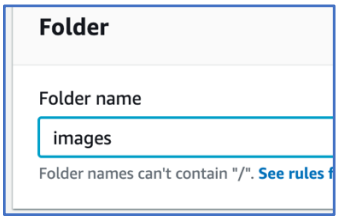


5. Create a folder in the bucket.

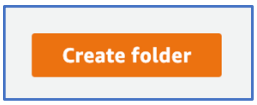
- You will see that there are no files (or objects) inside the bucket yet. Before we upload a file, let’s create a folder to place our file into. Click the ‘Create folder’ button.



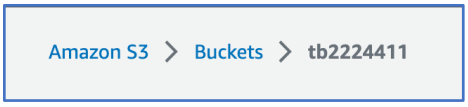
- Give it the Folder name of ‘images’.



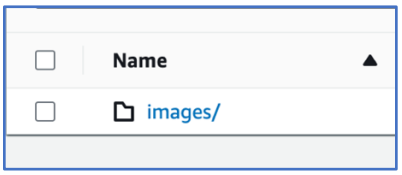
- Scroll down and click the ‘Create folder’ orange button.



- Notice the pathway breadcrumbs at the top left showing where you are at inside the bucket.



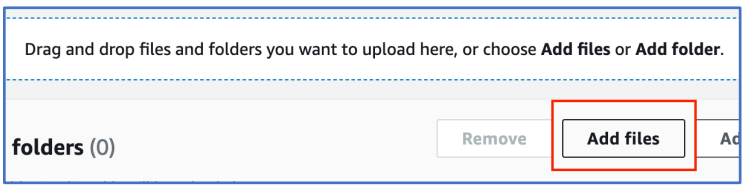
- You will also see the folder listed under the Name column. Click the ‘images/’ blue link.



6. Upload an image into the folder.

- Click the ‘Upload’ button.

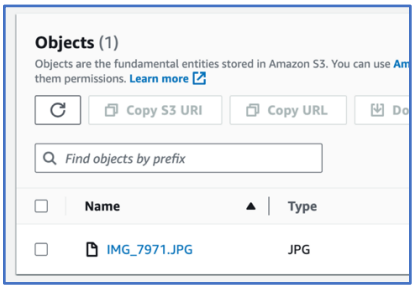
- Drag and drop a file over or click the ‘Add files’ button.



- Choose an image of yourself or you with your family. Once your file is added, keep any other defaults, and click the ‘Upload’ button.

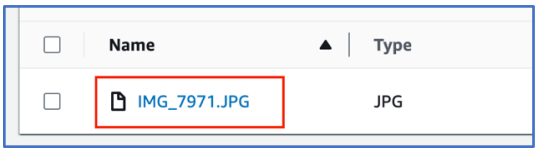
- You should then see the summary page with the file successfully uploaded. Click the ‘Close’ orange button to close the summary page.

- You should now see the file as an object in the bucket with your file in the Name column.



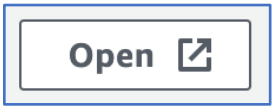
7. Open the image inside the bucket.

- Click the object image file and you will see properties of that image.



- There is a lot of information about the file now inside your bucket but let's look at a few. Notice the 'Object URL'. This could be used in a browser to see your image. But because we blocked all public access which was the default, we won't have access to see the image online.

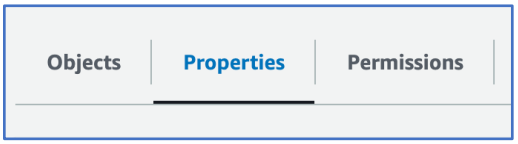
- If you try clicking it, you will get an error of access denied. So, let's use the 'Open' button near the top.



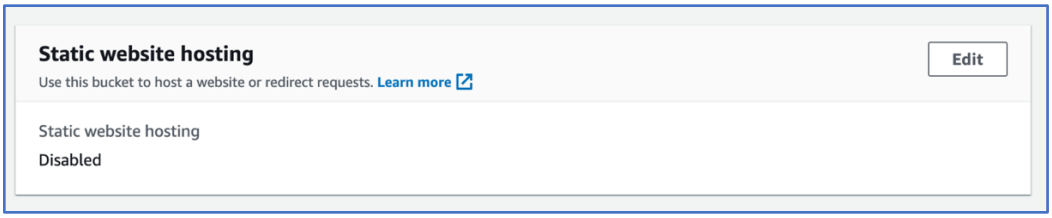
- Our image will open.

8. Make the image public to be seen on the Internet.

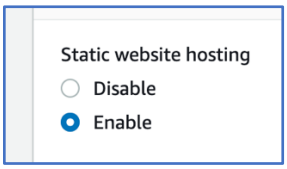
- Use the breadcrumbs to go back to the bucket. Click on the properties tab of the bucket.



- Scroll all the way down and in the 'Static website hosting' area click 'Edit'.

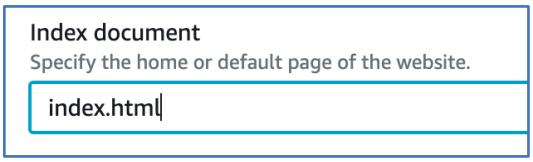


- Click the ‘Enable’ radio button.

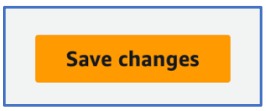


- Leave the default of ‘Host a static website’.

- Under the ‘Index document’ type index.html.



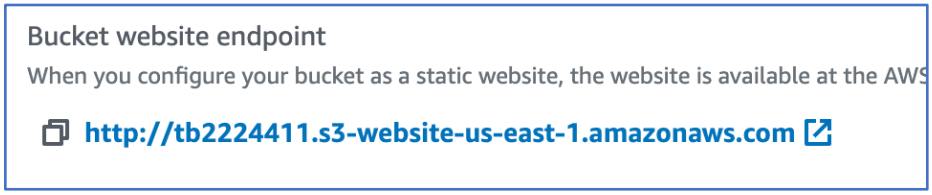
- Then scroll to the bottom and click ‘Save changes’.



- You will return to the bucket properties.

9. Exploring the new URL

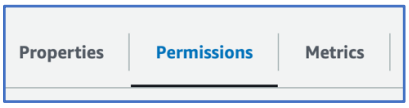
- At the very bottom of the bucket properties, you should see a ‘Bucket website endpoint.’



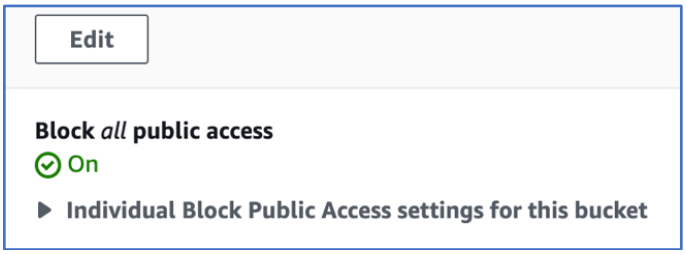
- If you tried to open this web address on your browser, you will be denied access (‘403 Forbidden’). This is because we left the default for all S3 buckets to block all public access.

10. Allow public access to the bucket.

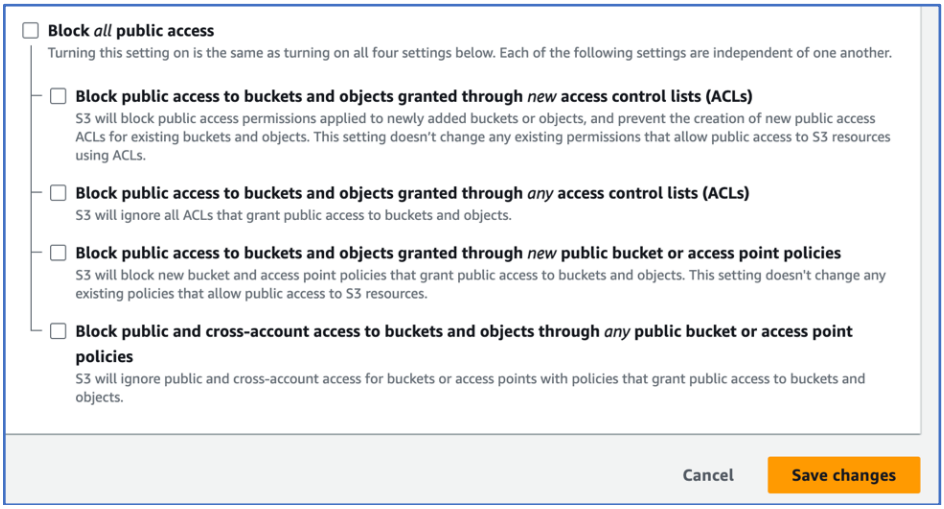
- Let’s change the access. So now we will go to the permissions tab back at the top.



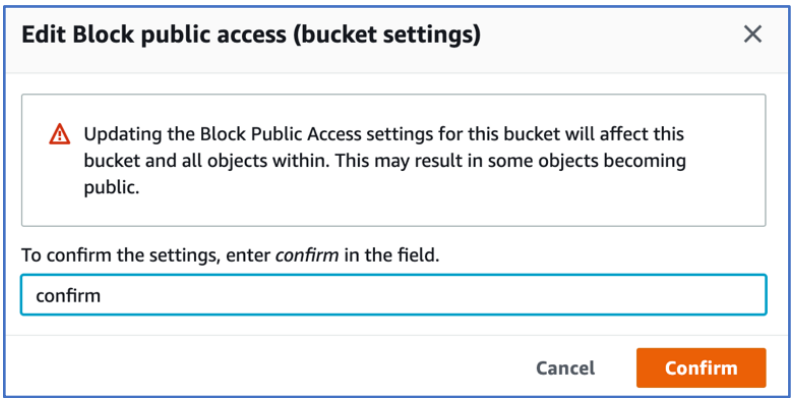
- Click the ‘Edit’ button in the ‘Block public access (bucket settings)’ area.



- Uncheck the ‘Block all public access’ and click Save changes.



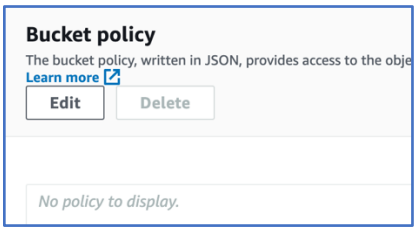
- There are risks for doing this which we won’t worry about for this lab. So, type in ‘confirm’ and click the ‘Confirm’ button.



- You will return to the permissions of the bucket.

11. Include a policy for bucket contents.

- We also need to write a policy that will allow the contents of the bucket to be publicly available. Scroll down to 'Bucket policy'. And click the 'Edit' button.

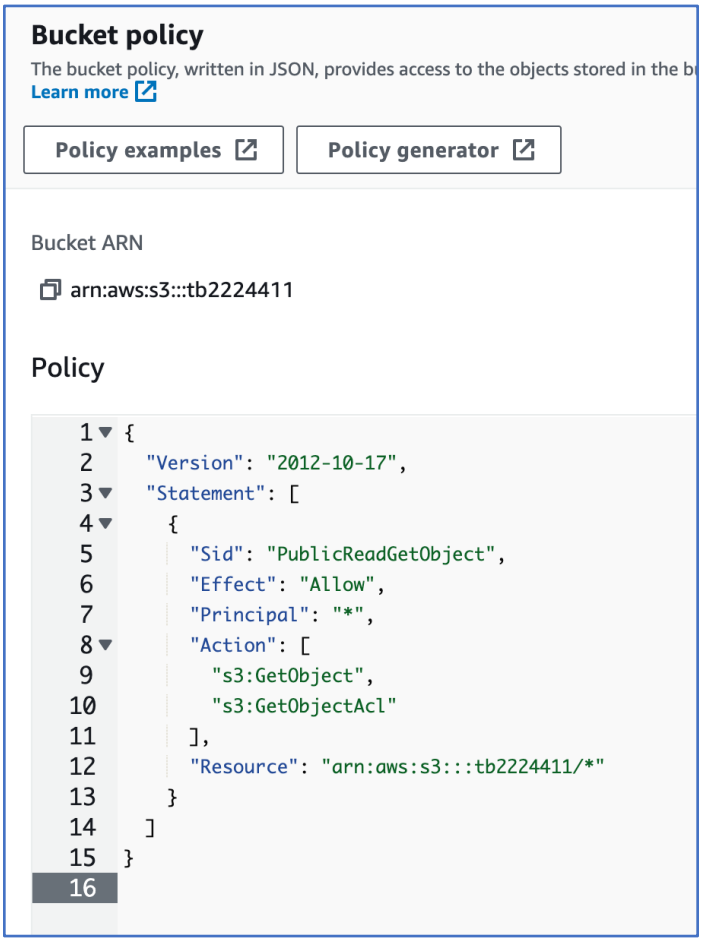


- There are examples of policies that you can find online, or you can ask an AI like ChatGPT (chat.openai.com) to create one for you with a prompt message like:'write a bucket policy for a AWS S3 bucket allowing all contents of the bucket to be publicly available'. If for some reason you get XML instead of JSON you can just mention in the ChatGPT prompt that you want JSON. With this prompt ChatGPT gave me this:

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "PublicReadGetObject",
   "Effect": "Allow",
   "Principal": "*",
   "Action": [
    "s3:GetObject",
    "s3:GetObjectAcl"
   ],
   "Resource": "arn:aws:s3:::YOUR_BUCKET_NAME/*"
  }
 ]
}
```

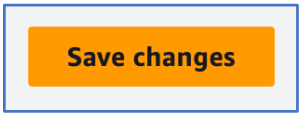
- Copy the policy code from ChatGPT.

- Paste the policy. Edit where it says 'YOUR_BUCKET_NAME' and replace that with your bucket name. i.e. "Resource": "arn:aws:s3:::tb2224411/*" *(your bucket name will be different, use your bucket name)*. Make sure there are no extra lines or spaces before the very beginning '{' curly brace of the policy statement.



- You can see from line 6 in the example image above that this is allowing everything from the bucket listed in line 12. Make sure the line in your code has your bucket name, not mine from the examples above.

- Click ‘Save changes’.

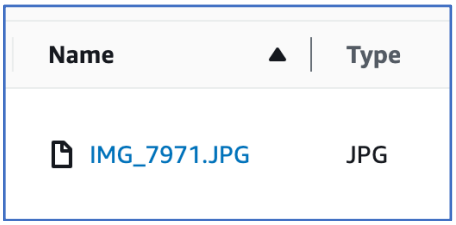


12. Check that contents are public.

- Let’s see if we can now see our image we put in the bucket in Lab A. Go back into the ‘Objects’ tab.

- Click the ‘images/’ blue folder name.

- Click the image file you have there.



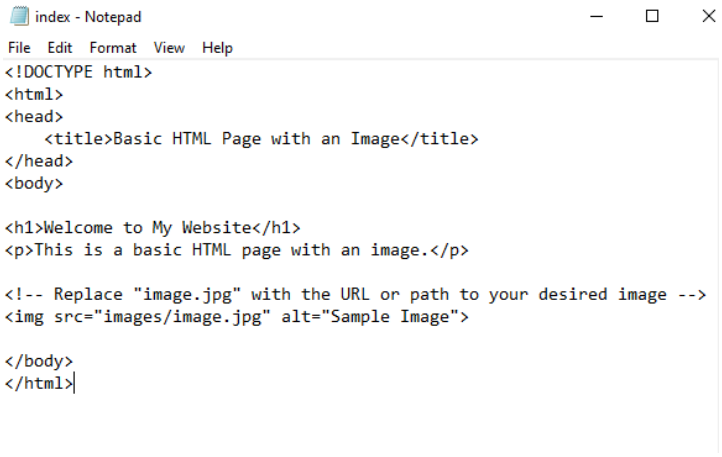
- In the ‘Object overview’ area you will see the ‘Object URL’. You can now copy and paste that URL into a new tab of your browser and see your image. (or right click and open in a new tab) You could even give this link to someone and see it from any device on any browser. This is because we allowed all our objects in the bucket to be accessed by anyone.

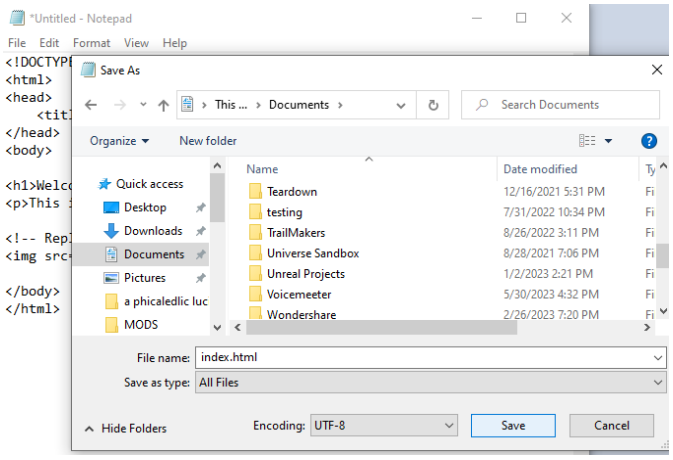
13. Add a home page for our website

- Let’s add an index.html (home) page.
- Go to Chat GPT and ask it to: create a basic index.html page that includes an image
- Copy and paste the results into notepad (Windows) or TextEdit (Mac) or if you want to use a different code editor that if fine as well.
- The only thing you will need to edit in this code is the src value of the img tag. Inside the quotes of the src value change it to the pathway of where our image will be and the image we have in the S3 bucket currently. Your pathway will also be images/ but the file needs to be the name of the image file you have in ***your*** S3 bucket. Mine would be src=”images/img_7991.jpg” It is case sensitive so if my file was IMG_7991.JPG, I’d have to capitalize it in my src value exactly as it shows in your images folder in your bucket.
- There are screen shots showing how to save this code as an index.html file below from both Windows and Mac. ***If you are using an editor like VSCode you can skip step 14.***

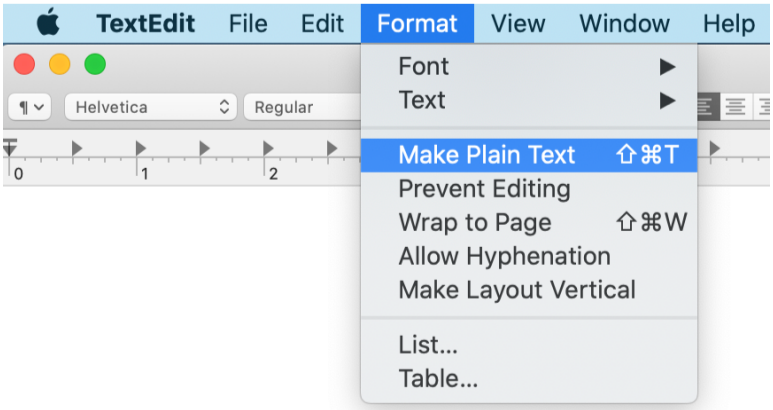
14. Saving your file as .html

- Using Notepad in Windows:

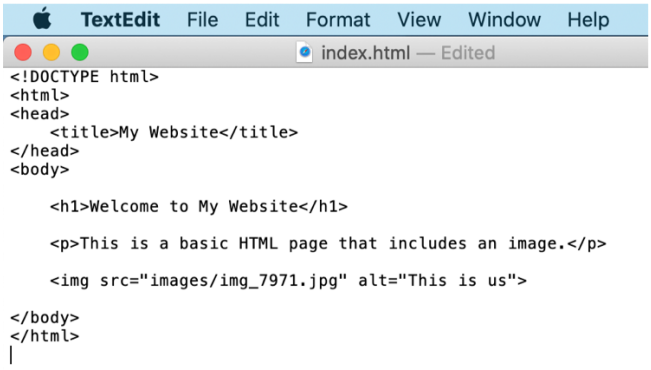




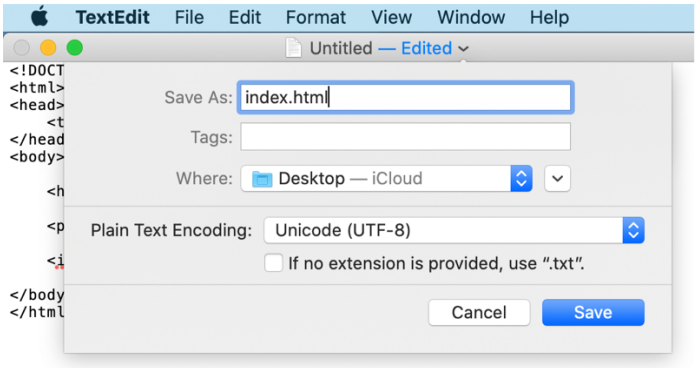
- Using TextEdit on a Mac:



- Paste code.



- Just make sure it's an .html file and not any other format.



15. Upload the index.html to the bucket

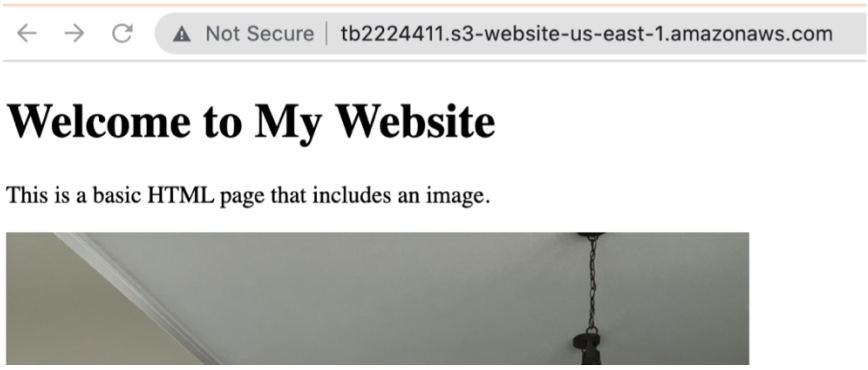
- Go back to your bucket in S3. Click on the Upload button.

- Add the index.html by dragging and dropping the file or by clicking 'Add files'. And click 'Upload' again.

- You should get a summary page showing the status as succeeded. Close the summary window.

16. Open the website

- Try the ‘Bucket website endpoint’ URL again on a tab in your browser. (You can find that URL under properties tab of your bucket at the very bottom)
- If your image is really large you can add a width attribute to the img tag in your html like this:
- <img src="images/IMG_7971.JPG" alt="Image Description" width="500">
- You will need to save it again and upload it again in your S3 bucket.
- You now have a website with one page that you could give that URL or web address to anyone, and they can see it. It’s got quite a long domain name but for being free, we won’t complain.
- Your page might look a bit different depending on what ChatGPT included in the page, but there should at least be the image.



- You will submit the URL (web address) at the top so copy it for submission.
- You can just close the tab bucket tab in your browser when done and click ‘End Lab’ and Yes in Learner Lab.

Great job! Your first lab is complete.