



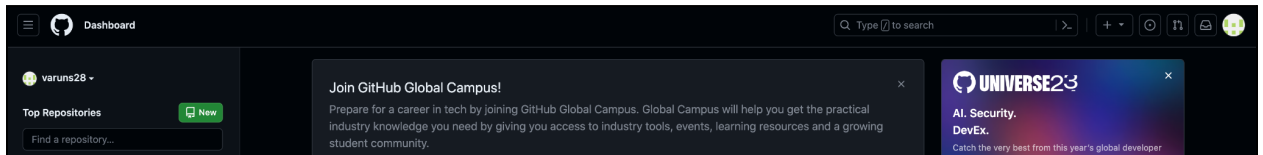
Varun Somarouthu

CSCE 412

Robert Lightfoot

How to create an AWS website that can be dynamically updated using Github

1. Go to <https://github.com/> and sign in to your account if you have one existing, or create a new account



2. Now create a new repository by clicking the green “New” button as seen above and then when the your screen looks like the one below, fill in information to create your repository
 - a. Choose an owner
 - b. Repository name

Create a new repository

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

Required fields are marked with an asterisk ().*

[Single sign-on](#) to see results in the `tamu-edu-students` organization.

Repository template

No template

Start your repository with a template repository's contents.

Owner * **Repository name ***

Choose an owner /

Great repository names are short and memorable. Need inspiration? How about `improved-sniffle`?

Description (optional)

[Please choose an owner](#) to see the available visibility options.

Initialize this repository with:

☐ **Add a README file**
This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

gitignore template: `None`

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

Choose a license

License: `None`

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

Create repository

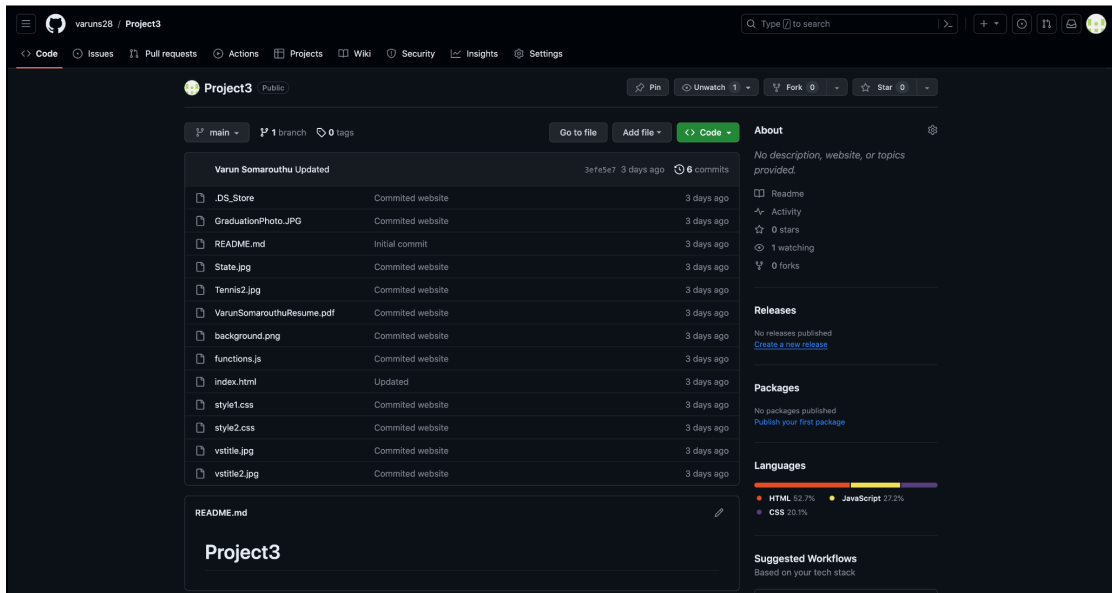



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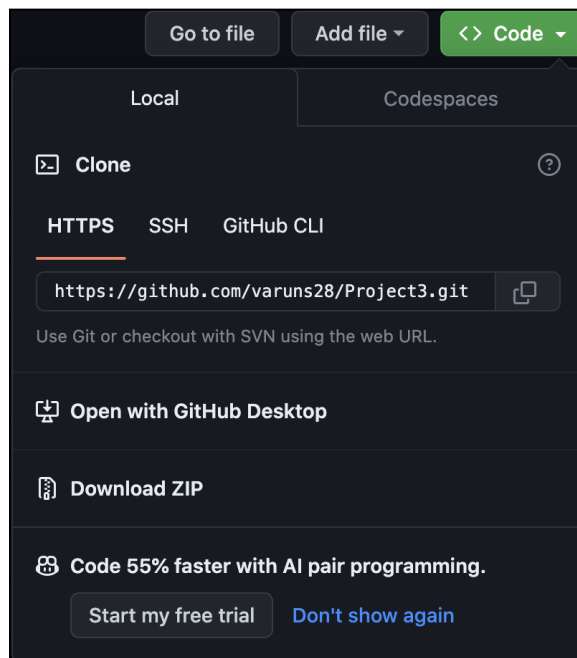
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- Once you have created your new repository after hitting “Create repository”, (you won’t have any files in the repo, it should be empty) navigate over to the top right area of your new repository and click on the green “Code”



- Click  next to the repository URL once you have clicked “Code” to copy the URL of the repository to clone





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5. Open up a terminal and navigate to the directory that you want to clone your repository in, using the cd command as seen in the image below

```
(base) varuns@Varuns-MacBook-Pro ~ % cd Desktop/Fall2023/CSCE412/
```

6. Once you are in the folder you want your repository in, use the command “git clone <repositoryURLcopied>” to clone the repository into that folder

```
((base) varuns@Varuns-MacBook-Pro Fall2023 % cd ..  
(base) varuns@Varuns-MacBook-Pro CSCE412 % git clone https://github.com/varuns28/Project3.git
```

7. Add all of your website files that were used for your secure website by dragging all of them into the repository that was just cloned.
8. Once you have dragged all of the files and entered the command “ls” you should see all your files for your secure website

```
(base) varuns@Varuns-MacBook-Pro CSCE412 % cd Project3  
(base) varuns@Varuns-MacBook-Pro Project3 % ls  
GraduationPhoto.JPG          VarunSomarouthuResume.pdf    style1.css  
README.md                    background.png                style2.css  
State.jpg                    functions.js                  vstitle.jpg  
Tennis2.jpg                  index.html                   vstitle2.jpg  
(base) varuns@Varuns-MacBook-Pro Project3 %
```

9. Use the following commands each on a separate line to push your changes to github

```
git add .  
git commit -m "Any message you want"  
git push origin
```



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10. Terminal should look like this

```
(base) varuns@Varuns-MacBook-Pro Project3 % git add .
(base) varuns@Varuns-MacBook-Pro Project3 % git commit -m "Test"
[main e45a71a] Test
Committer: Varun Somarouthu <varuns@Varuns-MacBook-Pro.local>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

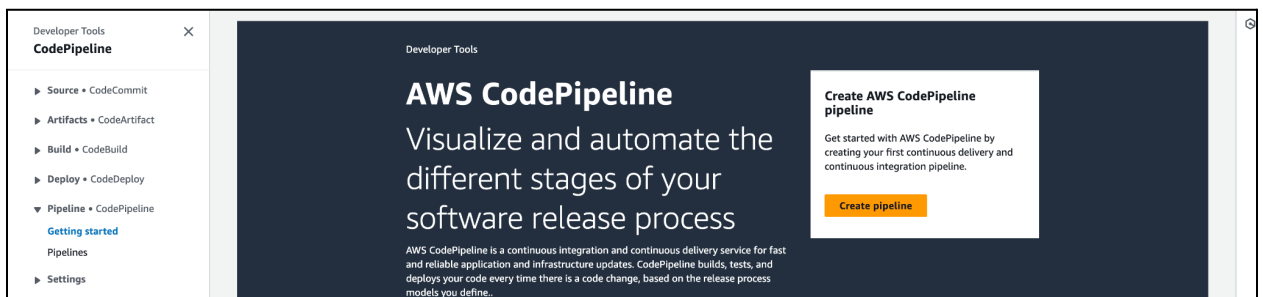
    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

1 file changed, 1 insertion(+), 1 deletion(-)
(base) varuns@Varuns-MacBook-Pro Project3 % git push origin
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 311 bytes | 311.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/varuns28/Project3.git
   3efe5e7..e45a71a  main -> main
(base) varuns@Varuns-MacBook-Pro Project3 %
```

11. Now, go to [AWS Codepipeline](https://aws.amazon.com/codestar/codepipeline/), and click “Create pipeline” in the top right



12. Give your pipeline a name in the first box and the scroll to the bottom and hit “Next”

13. Select “Github (Version 2)” for the source provider

Developer Tools > CodePipeline > Pipelines > Create new pipeline

Step 1
Choose pipeline settings

Step 2
Add source stage

Step 3
Add build stage

Step 4
Add deploy stage

Step 5
Review

Add source stage Info

Step 2 of 5

Source

Source provider
This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.

Q |

- AWS CodeCommit
- Amazon ECR
- Amazon S3
- Bitbucket
- GitHub (Version 1)
- GitHub (Version 2)**
- GitHub Enterprise Server
- GitLab

Previous Next

14. Once you select that, the page will look like the image below. Click “Connect to github” on the right on connection

Step 5
Add build stage

Step 4
Add deploy stage

Step 5
Review

Source provider

This is where you stored your input artifacts for your pipeline. Choose the provider and then provide the connection details.

GitHub (Version 2)

New GitHub version 2 (app-based) action
To add a GitHub version 2 action in CodePipeline, you create a connection, which uses GitHub Apps to access your repository. Use the options below to choose an existing connection or create a new one. [Learn more](#)

Connection

Choose an existing connection that you have already configured, or create a new one and then return to this task.

Q | or **Connect to GitHub**

Repository name

Choose a repository in your GitHub account.

Q |

You can type or paste the group path to any project that the provided credentials can access. Use the format 'group/subgroup/project'.

Pipeline trigger

Source action can either use change detection (branch and commit) or a pipeline trigger configuration, such as Git tags, but not both. Note: Choosing a trigger that is not the branch option will not enable automated change detection for the pipeline.

☒ **Push in a branch**

☐ Git tags
Pipeline type V2 required

☐ None
Your pipeline only runs if you start it manually or on a schedule.

Branch name

Choose a branch of the repository.

Q |

Output artifact format

Choose the output artifact format.

☒ **CodePipeline default**
AWS CodePipeline uses the default zip format for artifacts in the pipeline. Does not include Git metadata about the repository.

☐ **Full clone**
AWS CodePipeline passes metadata about the repository that allows subsequent actions to do a full Git clone. Only supported for AWS CodeBuild actions.



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15. Once you click that, you have to give a connection name in a window that pops up and click connect to github.

16. Once you have clicked connect to github, it will ask you to click “Install new app” and then direct you to github to select the account associated with it.



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17. Once you have selected the github account to link, now select the repository that pops up once you click on the search box for “Repository name”, then select the “main” branch and then finally hit “Next”
18. For the next step
 - a. Skip the build stage
 - b. For the bucket provider, choose “Amazon S3”
 - c. Choose the region of your bucket
 - d. Check the “Extract file before deploy” box
 - e. Choose “Next”
 - f. Choose “Create Pipeline”
19. Now, go to [AWS Cloudfront](#), sign in if you have to, and select your distribution that associates with the website.

Distributions (1) Info			
<input type="text" value="Search all distributions"/>			
<input type="checkbox"/>	ID	Description	Type
<input type="checkbox"/>	E1EN8QJJFEBQVA	-	Production

20. Go to the behaviors tab, choose the behavior associated with the website and click edit in the top right as shown below

[CloudFront](#)

>

[Distributions](#)

>

E1EN8QJJFEBQVA

E1EN8QJJFEBQVA

General

Security

Origins

Behaviors

Error pages

Invalidations

Tags

Behaviors

Save

Move up

Move down

Edit

Q

Filter behaviors by property or value

Preced...

Path pattern

Origin or origin group

Viewer protocol policy

Cache policy name

Origin request policy

0

Default (*)

cs412vsomarouthu.xyz.s...

Redirect HTTP to HTTPS

Managed-CachingDisabled

-

21. Scroll down and change the default cache behavior to “CachingDisabled” and save changes as shown below



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Cache key and origin requests

We recommend using a cache policy and origin request policy to control the cache key and origin requests.

☒ Cache policy and origin request policy (recommended)
☐ Legacy cache settings

Cache policy
Choose an existing cache policy or create a new one.

CachingDisabled
Policy with caching disabled

↕

↻

[Create cache policy](#) [View policy](#)

22. Now go back to the distribution that you were on and instead of clicking on the behaviors tab, click on the origins tab, select the origin and click “Edit”

CloudFront > Distributions > E1EN8QJJFEBQVA

E1EN8QJJFEBQVA

General | Security | **Origins** | Behaviors | Error pages | Invalidations | Tags

Origins Edit

Origin name	Origin domain	Origin path	Origin type	Origin Shield region
<input checked="" type="radio"/> cs412vsomarouthu.xyz.s3-us-east...	cs412vsomarouthu.xyz.s3-us-east...		S3	-

23. Scroll down to “Origin access” and select “origin access control settings”

Origin access | Info

☐ Public
Bucket must allow public access.

☒ Origin access control settings (recommended)
Bucket can restrict access to only CloudFront.

☐ Legacy access identities
Use a CloudFront origin access identity (OAI) to access the S3 bucket.

24. Below that under “Origin access control”, select “create control setting” or if there is already an existing control, then select that. If creating a new control make sure the origin type is “S3” and then click “Create”



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Origin access control
Select an existing origin access control (recommended) or create a new configuration.

cs412vsomarouthu.xyz.s3.us-east-2.amazonaws.com Origin type: S3 ▼ **Create control setting**

Create control setting ✕

Name
cs412vsomarouthu.xyz.s3.us-east-2.amazonaws.com
The name must be unique. Valid characters: letters, numbers and most special characters. Use up to 64 characters.

Description - optional
Enter description
The description can have up to 256 characters.

Signing behavior
☐ Do not sign requests
☒ Sign requests (recommended)
 ☐ Do not override authorization header
 Do not sign if incoming request has authorization header.

Origin type
S3 ▼
The origin type must be the same type as origin domain.

Cancel **Create**

25. Go down to “Bucket Policy” and click “Copy policy” then scroll down and click “Save changes”

Bucket policy
Policy must allow access to CloudFront IAM service principal role.

☒ I will manually update the policy

You must allow access to CloudFront using this policy statement. Learn more about [giving CloudFront permission to access the S3 bucket](#).

Copy policy

[Go to S3 bucket permissions](#)

26. Now go to AWS S3 and navigate to your bucket. Go to permissions, select “Edit” next to “Block public access” and check the box next to “Block all public access” and click “Save changes”



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Objects

Properties

Permissions

Metrics

Management

Access Points

Permissions overview

Access

Bucket and objects not public

Block public access (bucket settings)

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Block all public access

On

Individual Block Public Access settings for this bucket

Bucket policy

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

Public access is blocked because Block Public Access settings are turned on for this bucket

To determine which settings are turned on, check your Block Public Access settings for this bucket. Learn more about [using Amazon S3 Block Public Access](#)

27. Below the Block public access, click the edit next to Bucket policy and paste the policy that you copied over from cloudfront in step 25.
28. Click “Save changes”
29. Now you have complete all the steps to create an AWS website that can be dynamically updated using Github



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Updating the Website

1. Go to your repository in an IDE
2. Make any change you want to
3. Use git add, git commit, and git push to push the changes to github
4. Navigate to AWS Codepipeline and wait until it has succeeded
5. Open up your website and the change should have been reflected!
6. Here is an example of how I updated my website down below

Varun Somarouthu's Website Change

1. What my website looks like before the change. I am changing the words "About Me: " which can be seen in the second screenshot below. Right now the words are just regular but the change can be seen in later steps.



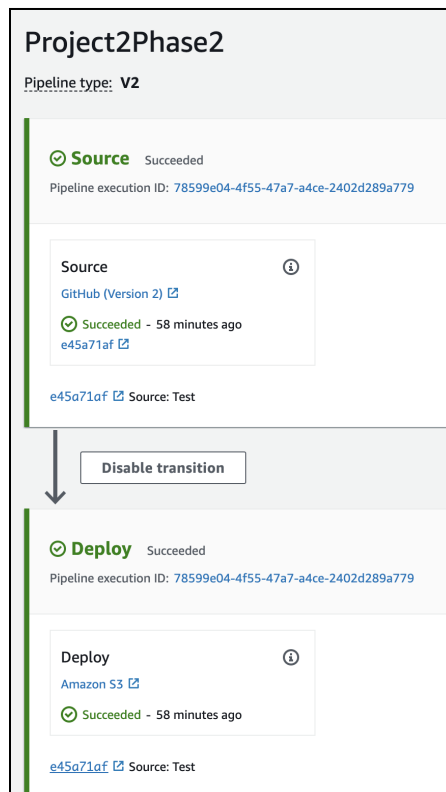


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About Me:

Howdy, I'm Varun! I was born and raised in Austin Texas and I think about how to approach so many tough problems/projects. Hearing other ideas help create multiple pathways of thought. Things to do outside of school are play tennis, ping pong or basketball. The year Westwood won its very FIRST state championship. Ever since I was a child, we used to make trips to India once a year. We also traveled to Naples, Positano, Amalfi, Capri in Italy, Vancouver and Seattle.

2. This is what my AWS Codepipeline looks like before the change





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3. This is what my AWS S3 bucket looks like before the change

Objects (13) [Info](#)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access

[Refresh](#) [Copy S3 URI](#) [Copy URL](#) [Download](#) [Open](#) [Delete](#) [Actions](#) [Create](#)

☐ Show versions

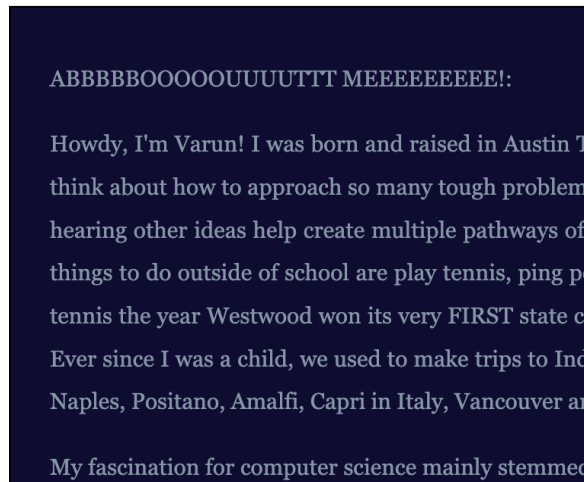
<input type="checkbox"/>	Name	Type	Last modified
<input type="checkbox"/>	.DS_Store	DS_Store	November 30, 2023, 11:25:50 (UTC-06:00)
<input type="checkbox"/>	background.png	png	November 30, 2023, 11:25:51 (UTC-06:00)
<input type="checkbox"/>	functions.js	js	November 30, 2023, 11:25:51 (UTC-06:00)
<input type="checkbox"/>	GraduationPhoto.JPG	JPG	November 30, 2023, 11:25:50 (UTC-06:00)
<input type="checkbox"/>	index.html	html	November 30, 2023, 11:25:51 (UTC-06:00)
<input type="checkbox"/>	README.md	md	November 30, 2023, 11:25:50 (UTC-06:00)
<input type="checkbox"/>	State.jpg	jpg	November 30, 2023, 11:25:50 (UTC-06:00)
<input type="checkbox"/>	style1.css	css	November 30, 2023, 11:25:51 (UTC-06:00)
<input type="checkbox"/>	style2.css	css	November 30, 2023, 11:25:51 (UTC-06:00)
<input type="checkbox"/>	Tennis2.jpg	jpg	November 30, 2023, 11:25:50 (UTC-06:00)
<input type="checkbox"/>	VarunSomarouthuResume.pdf	pdf	November 30, 2023, 11:25:51 (UTC-06:00)
<input type="checkbox"/>	vstitle.jpg	jpg	November 30, 2023, 11:25:51 (UTC-06:00)
<input type="checkbox"/>	vstitle2.jpg	jpg	November 30, 2023, 11:25:51 (UTC-06:00)

4. Now, I am changing the words “About Me” in my website to be all caps, with an exclamation mark and a lot longer, so like “ABBBUUUTTT MEEEEEEE!”

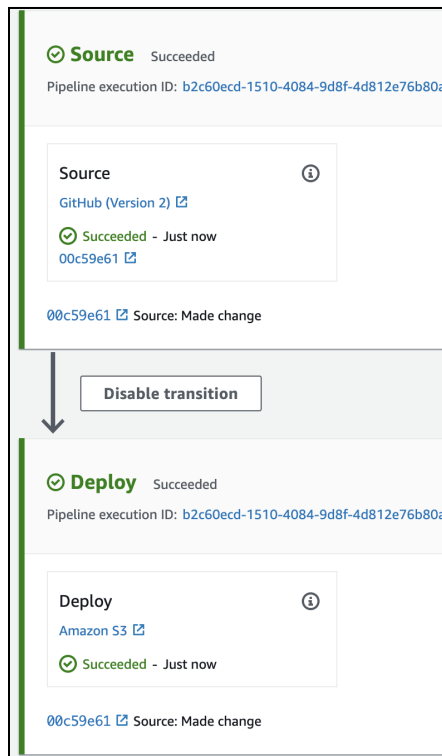


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5. After the change, my the portion of my website that changes looks like



6. After the change, my AWS Codepipeline looks like





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7. This is what my index.html file looks like after the change

```
<ul>
  <li class="litwo"><a href="javascript:showsection1()" class="buttonnav">Home</a></li>
  <li class="litwo"><a href="javascript:showsection2()" class="buttonnav">Technical Portfolio</a></li>
  <li class="litwo"><a href="javascript:showsection3()" class="buttonnav">Qualifications</a></li>
  <li class="litwo"><a href="javascript:showsection4()" class="buttonnav">Services</a></li>
</ul>
</div>

<div class="main" id="section1" role="main">
  <hr>
  <div id="aboutmetext" class="divborder">
    <div class="grid-container">
      <div class="grid-child">
        <img class="myimage" src= "file:Tennis2.jpg" />
      </div>
      <div class="grid-child">
        <img class="myimage" src= "file:GraduationPhoto.JPG" />
      </div>
      <div class="grid-child">
        <img class="myimage" src= "file:State.jpg" />
      </div>
    </div>
  </div>
  <div id="aboutmetext" class="divborder">
    <p class="textcolor2">ABBBBBB00000UUUUTT MEEEEEEEE!:</p>
    <p class="textcolor2" id="aboutme1">
      <script> document.getElementById('aboutme1').innerHTML = aboutme; </script>
    </p>
    <p class="textcolor2" id="fascination">
      <script> document.getElementById('fascination').innerHTML = fascination; </script>
    </p>
    <p class="textcolor2" id="favorite">
      <script> document.getElementById('favorite').innerHTML = favorite; </script>
    </p>
  </div>
  <div id="contactme" class="divborder2">
    <h1 class="textcolor2">Contact Me:</p>
    <table>
      <tr>
        <td class="tdtwo">
          <p class="textcolortwo" id="phone">Phone: 512 983 7935</p>
        </td>
        <td class="tdtwo">
          <p class="textcolortwo" id="email">Facebook: <a href="https://www.linkedin.com/in/varun-somarouthu-5">
        </td>
        <td class="tdtwo">
          <p class="textcolortwo" id="email">Instagram: <a href="https://www.linkedin.com/in/varun-somarouthu-5">
        </td>
      </tr>
    </table>
  </div>
</hr>
```



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8. Lastly, my AWS S3 bucket looks like this, with the timings modified

Objects (13) Info

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access

↻

📄

Copy S3 URI

📄

Copy URL

📄

Download

🔗

Open

🗑️

Delete

⌵

Actions

➕














Create

🔍

Find objects by prefix

🔘

Show versions

<input type="checkbox"/>	Name	Type	Last modified
<input type="checkbox"/>	 .DS_Store	DS_Store	November 30, 2023, 12:31:49 (UTC-06:00)
<input type="checkbox"/>	 background.png	png	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 functions.js	js	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 GraduationPhoto.JPG	JPG	November 30, 2023, 12:31:49 (UTC-06:00)
<input type="checkbox"/>	 index.html	html	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 README.md	md	November 30, 2023, 12:31:49 (UTC-06:00)
<input type="checkbox"/>	 State.jpg	jpg	November 30, 2023, 12:31:49 (UTC-06:00)
<input type="checkbox"/>	 style1.css	css	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 style2.css	css	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 Tennis2.jpg	jpg	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 VarunSomarouthuResume.pdf	pdf	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 vstitle.jpg	jpg	November 30, 2023, 12:31:50 (UTC-06:00)
<input type="checkbox"/>	 vstitle2.jpg	jpg	November 30, 2023, 12:31:50 (UTC-06:00)