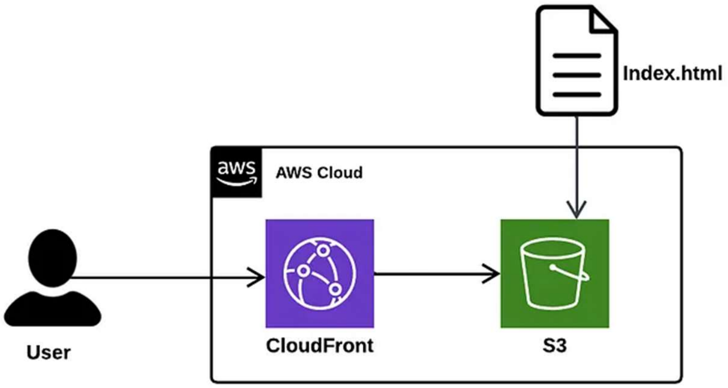
Deploy a static website on AWS

In this project, we will learn how to create a static website and deploy it using AWS services. A static website is a site that consist of HTML, CSS and JavaScript files, and it doesn`t require server-side processing or a database.

Introduction:

A website is static when the system services used to render web pages and script are all client rather than server-based. On the other hand, a dynamic website relies on server-side processing, including server-side scripts such as PHP, JSP or ASP.NET.

Most website are becoming static website which means they run zero server side and code consist of only HTML, CSS and JavaScript. With no server-side code to run, there is no reason to host them on a traditional server.



You can start creating an Amazon S3 bucket, enabling the Amazon S3 website hosting feature and configuring access permissions for the bucket. After you have uploaded files and setup Website, Amazon S3 takes care if serving your content to your visitors.

Topics

- Step 1: Create a bucket.
- Step 2: Enable static website hosting.
- Step 3: Edit block public access settings.
- Step 4: Add a bucket policy that makes your bucket content publicly available.
- Step 5: Configure an index document.
- Step 6: Configure an error document.
- Step 7: Test your website endpoint.
- Step 8 : clean up.

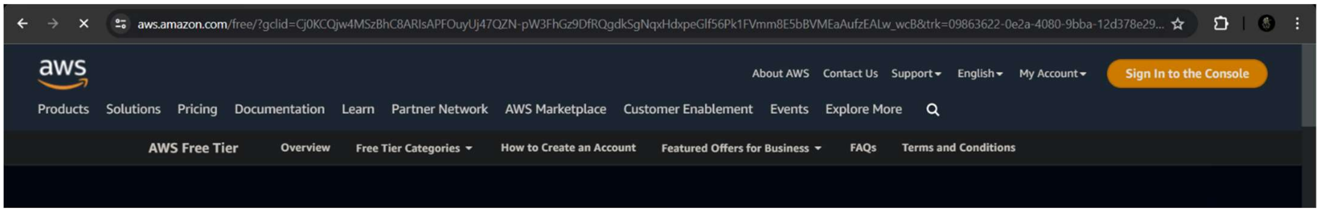
Sign in to AWS Management Console

1. Click on the Open Console button, and you will get redirected to AWS Console in a new browser tab.

2. On the AWS sign-in page,

- Leave the Account ID as default. Never edit/remove the 12-digit Account ID present in the AWS Console. otherwise, you cannot proceed with the lab.
- Now copy your User Name and Password in the Lab Console to the IAM Username and Password in AWS Console and click on the Sign in button.

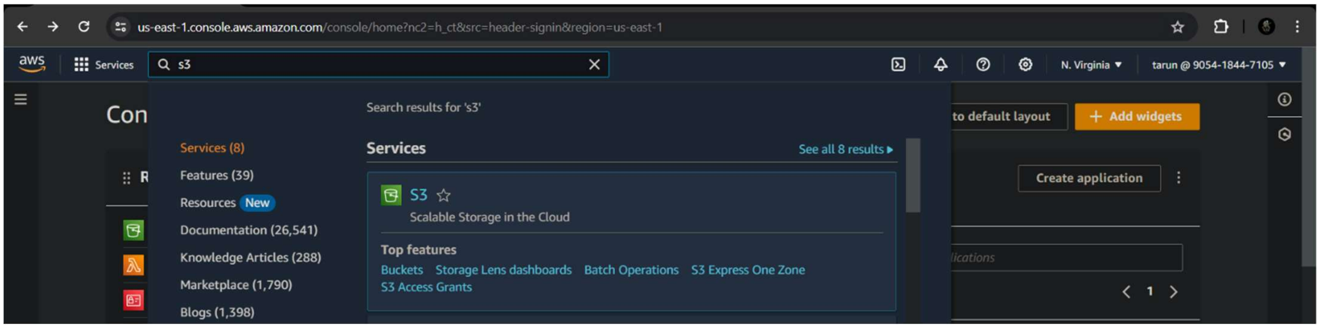
3. Once Signed In to the AWS Management Console, Make the default AWS Region as US East (N. Virginia) us-east-1.



Step 1: Create a bucket

we are going to create a new S3 bucket in the US East (N. Virginia) region with a unique name disabling ACLs, and allowing public access for hosting the static website.

- Navigate to S3 by clicking on the Services menu at the top, then click on S3 in the Storage section.

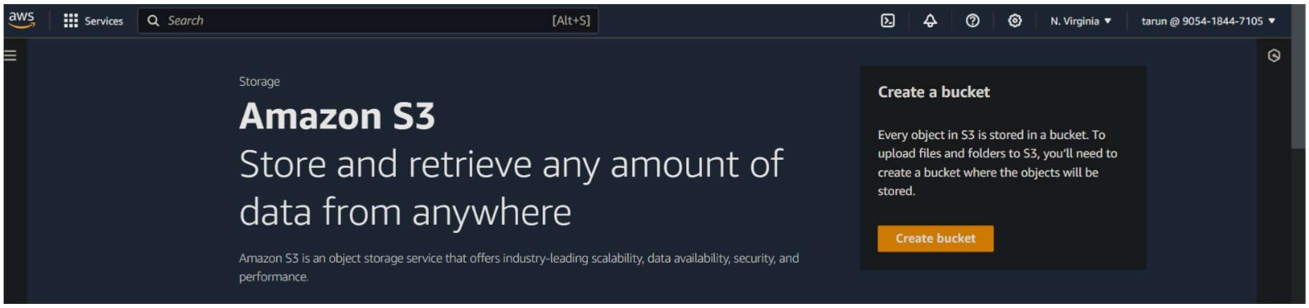


us-east-1.console.aws.amazon.com/console/home?nc2=h_ct&src=header-signin&region=us-east-1

Search: s3

Search results for 's3'

- Choose Create bucket



Storage

Amazon S3

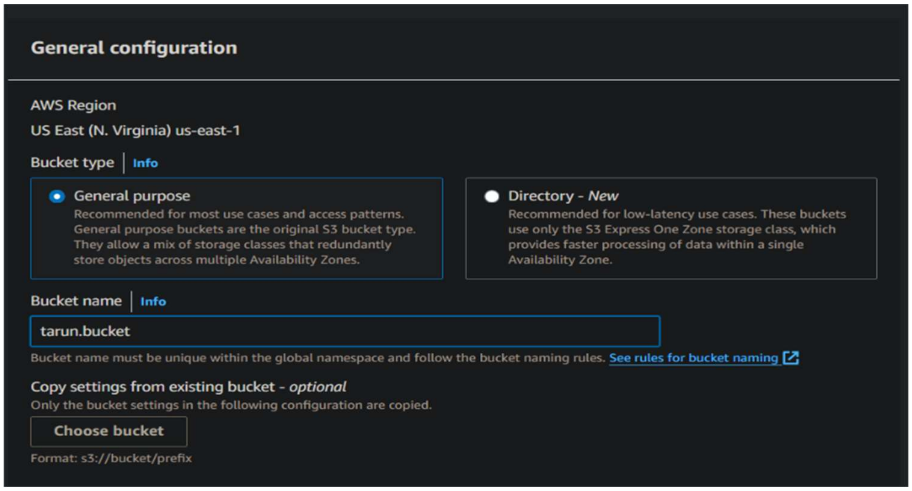
Store and retrieve any amount of data from anywhere

Amazon S3 is an object storage service that offers industry-leading scalability, data availability, security, and performance.

Create a bucket

Every object in S3 is stored in a bucket. To upload files and folders to S3, you'll need to create a bucket where the objects will be stored.

- Check bucket type general configuration.in bucket name you can give your bucket name like in my case it is “tarun.bucket”.



General configuration

AWS Region

US East (N. Virginia) us-east-1

Bucket type | Info

● General purpose
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

○ Directory - *New*
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name | Info

tarun.bucket

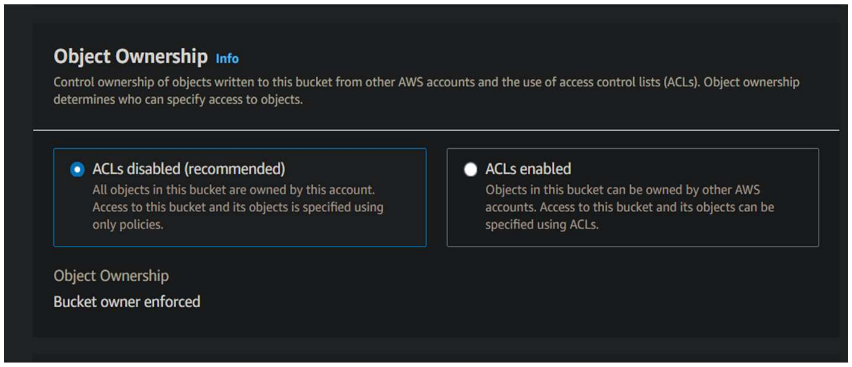
Bucket name must be unique within the global namespace and follow the bucket naming rules. See rules for bucket naming

Copy settings from existing bucket - *optional*

Only the bucket settings in the following configuration are copied.

Format: s3://bucket/prefix

- Choose the ALC to enabled.



Object Ownership Info

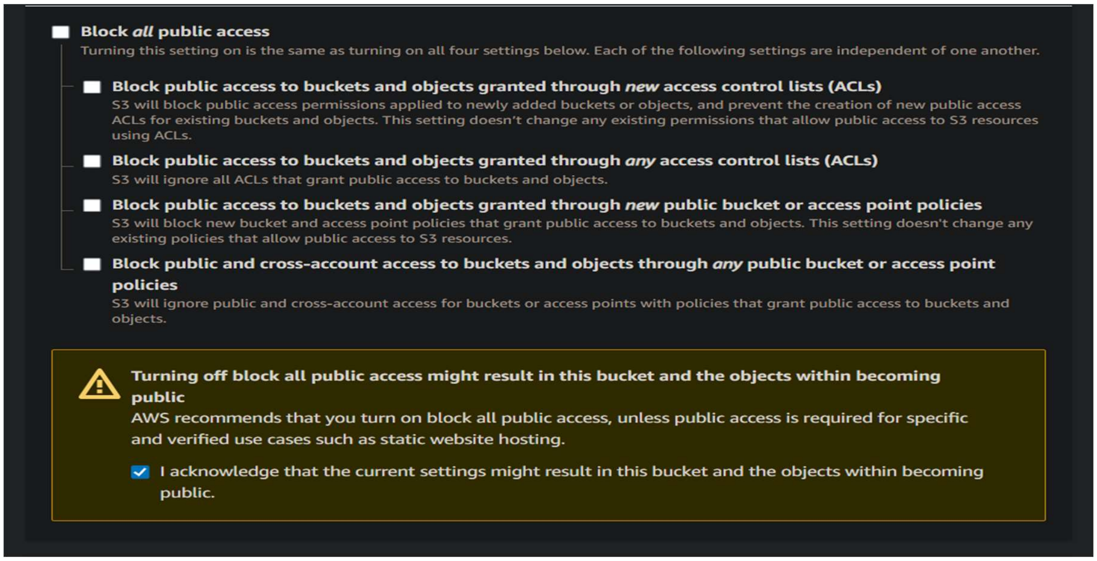
Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

● ACLs disabled (recommended)
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

○ ACLs enabled
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

Object Ownership
Bucket owner enforced

- In the option of Block Public Access settings for this bucket, Uncheck the option of Block all public access, and check the I acknowledge that……….



□ **Block *all* public access**
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

□ **Block public access to buckets and objects granted through *new* access control lists (ACLs)**
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

□ **Block public access to buckets and objects granted through *any* access control lists (ACLs)**
S3 will ignore all ACLs that grant public access to buckets and objects.

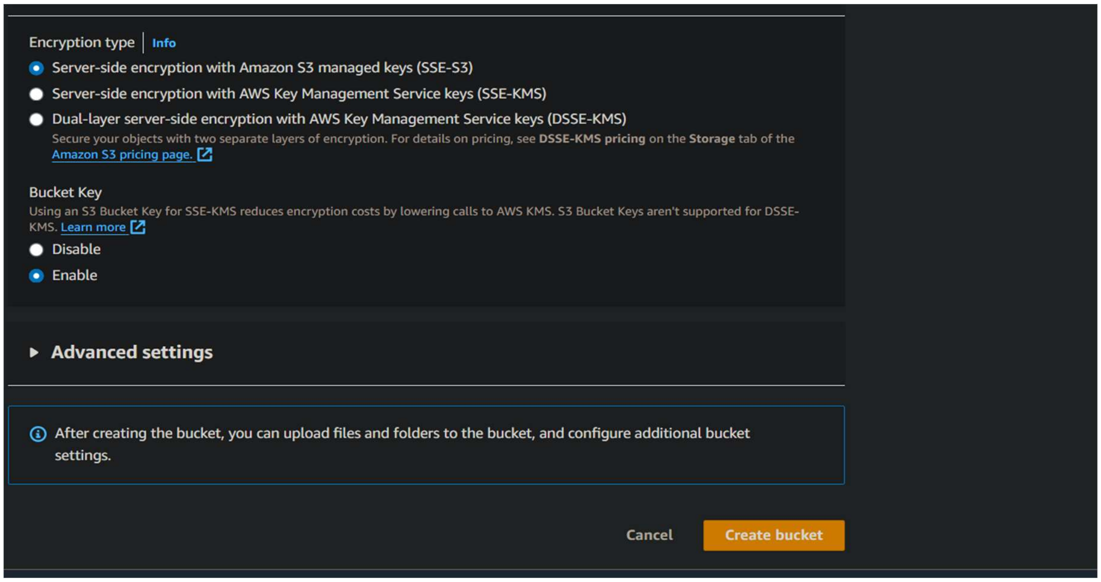
□ **Block public access to buckets and objects granted through *new* public bucket or access point policies**
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

□ **Block public and cross-account access to buckets and objects through *any* public bucket or access point policies**
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

⚠ **Turning off block all public access might result in this bucket and the objects within becoming public**
AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.

☑ I acknowledge that the current settings might result in this bucket and the objects within becoming public.

- Now leave the extra settings a default and click on the create bucket option.



Encryption type | Info
● Server-side encryption with Amazon S3 managed keys (SSE-S3)
○ Server-side encryption with AWS Key Management Service keys (SSE-KMS)
○ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, see **DSSE-KMS pricing** on the **Storage** tab of the Amazon S3 pricing page.

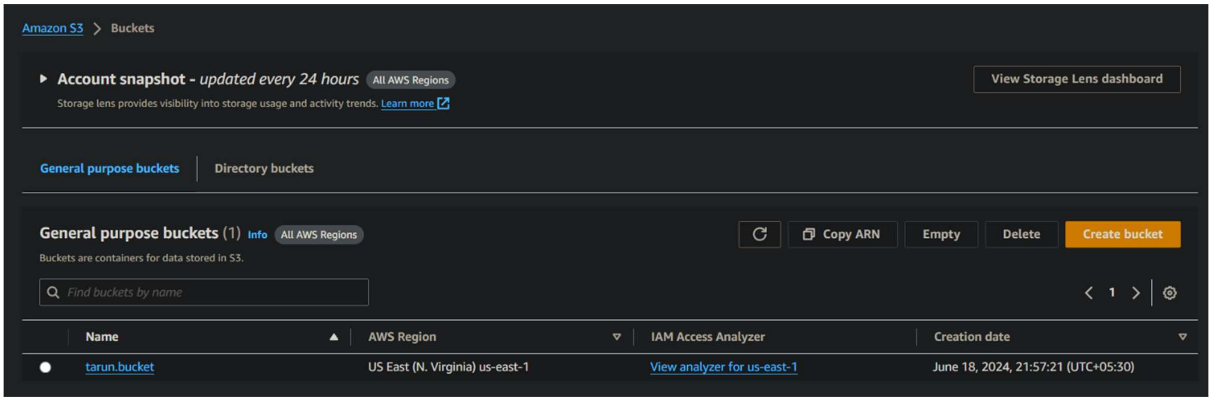
Bucket Key
Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. Learn more
○ Disable
● Enable

▸ **Advanced settings**

ⓘ After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

Step 2: Enable static website hosting

- Go to buckets section, navigate to your bucket click on the bucket.



Account snapshot - *updated every 24 hours* All AWS Regions

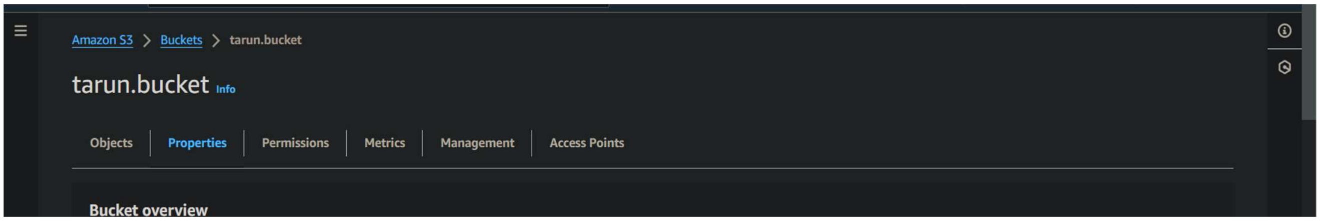
Storage lens provides visibility into storage usage and activity trends. Learn more

General purpose buckets (1)

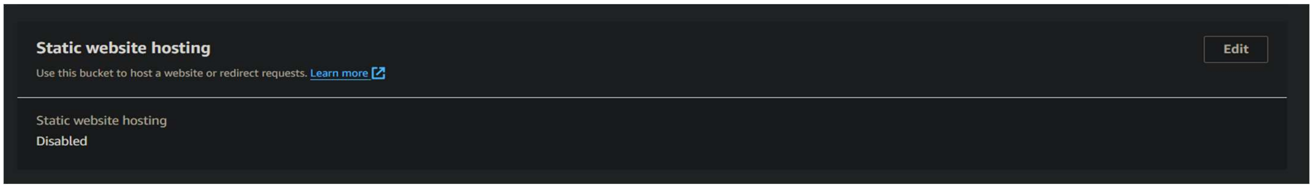
Buckets are containers for data stored in S3.

	Name	AWS Region	IAM Access Analyzer	Creation date
○	tarun.bucket	US East (N. Virginia) us-east-1	View analyzer for us-east-1	June 18, 2024, 21:57:21 (UTC+05:30)

- Go to the properties section of your bucket.



- Navigate to the end of the page where the static website hosting is written you have to enable that option and click on edit option on the right side of the page.

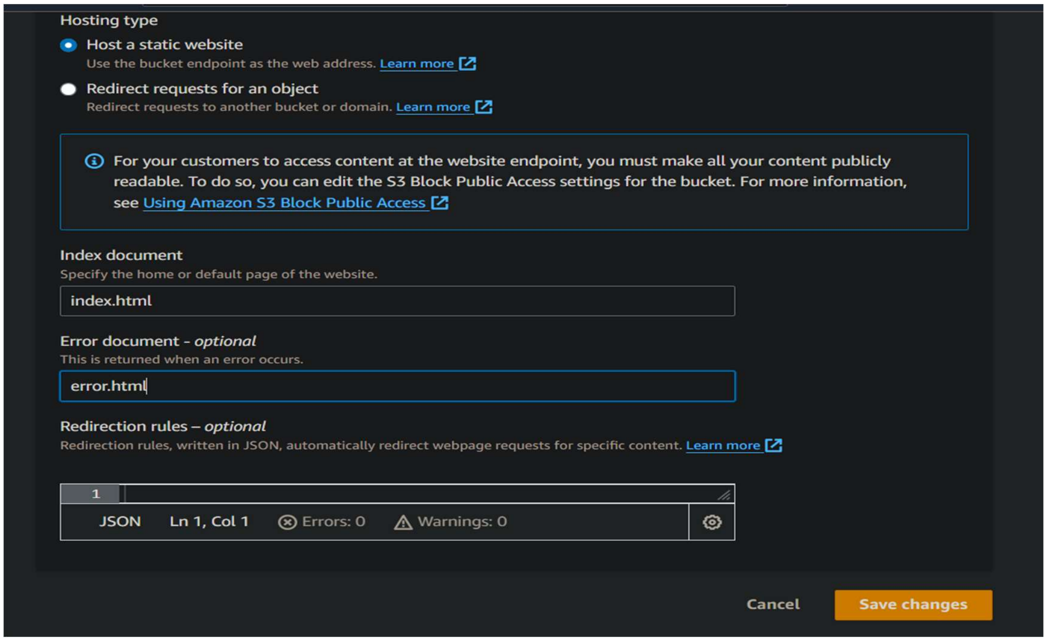


Static website hosting

Use this bucket to host a website or redirect requests. Learn more

Static website hosting
Disabled

- After enabling the static website hosting In Index document, enter the file name of the index document, typically `index.html`.
- The index document name is case sensitive and must exactly match the file name of the HTML index document that you plan to upload to your S3 bucket. When you configure a bucket for website hosting, you must specify an index document. Amazon S3 returns this index document when requests are made to the root domain or any of the subfolders
- To provide your own custom error document for 4XX class errors, in Error document, enter the custom error document file name.



Hosting type

● Host a static website
Use the bucket endpoint as the web address. Learn more

○ Redirect requests for an object
Redirect requests to another bucket or domain. Learn more

For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see Using Amazon S3 Block Public Access

Index document
Specify the home or default page of the website.
index.html

Error document - *optional*
This is returned when an error occurs.
error.html

Redirection rules – *optional*
Redirection rules, written in JSON, automatically redirect webpage requests for specific content. Learn more

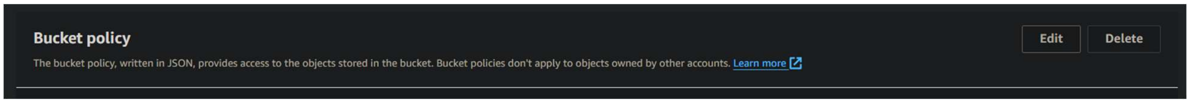
- Click on save changes.

Step 3: Edit block public access settings

- already did the public access setting in the bucket making section in the 1 step.

Step 4: Add a bucket policy that makes your bucket content publicly available.

- Under Buckets, choose the name of your bucket.
- Choose Permissions.
- Under Bucket Policy, choose Edit.



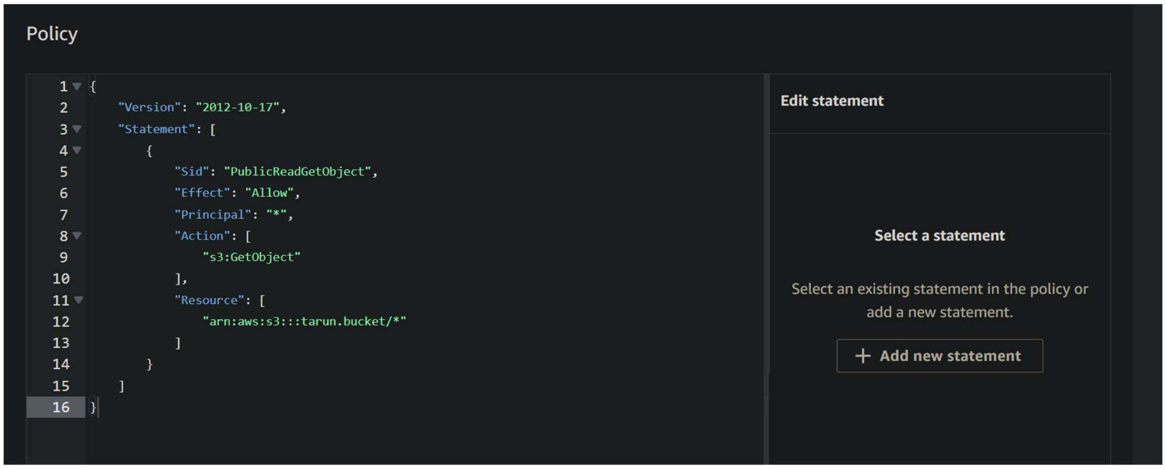
Bucket policy
The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. Learn more

- In the edit bucket policy edit the policy to make all the object public in the bucket

To do so we have to write the given policy in the policy section.

- Make sure to edit the ARN of the bucket policy.

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



Policy
Edit statement
Select a statement
Select an existing statement in the policy or add a new statement.
+ Add new statement

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

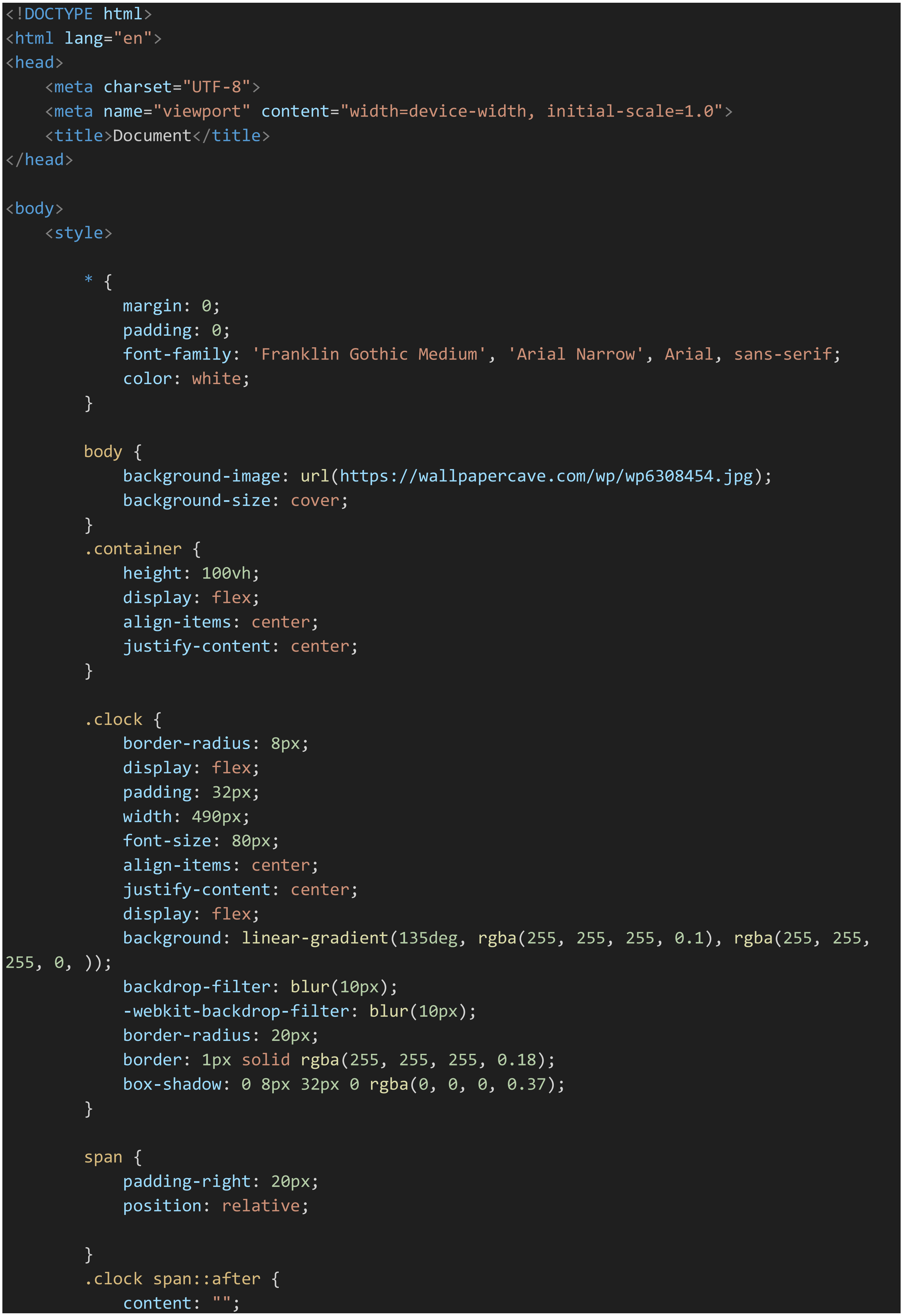
- After writing the policy click on save changes.

Step 5: Configure an index document

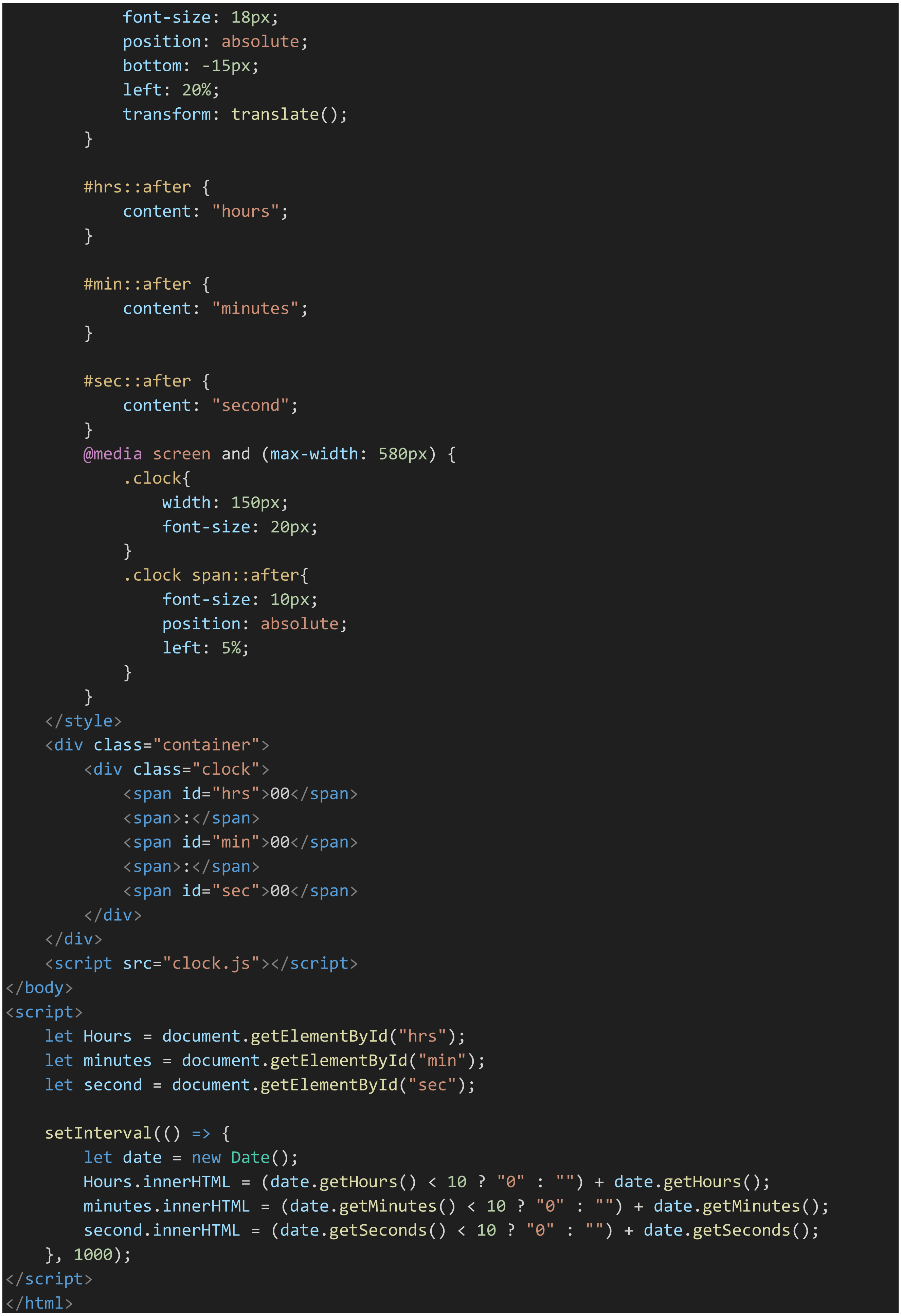
When you enable static website hosting for your bucket, you enter the name of the index document (for example, index.html). After you enable static website hosting for the bucket, you upload an HTML file with this index document name to your bucket.

To configure the index document

- Create a index.html.
- Save the index file locally.
- And upload it in your bucket.
- This is the code of my index.html.



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>

<body>
    <style>

        * {
            margin: 0;
            padding: 0;
            font-family: 'Franklin Gothic Medium', 'Arial Narrow', Arial, sans-serif;
            color: white;
        }

        body {
            background-image: url(https://wallpapercave.com/wp/wp6308454.jpg);
            background-size: cover;
        }
        .container {
            height: 100vh;
            display: flex;
            align-items: center;
            justify-content: center;
        }

        .clock {
            border-radius: 8px;
            display: flex;
            padding: 32px;
            width: 490px;
            font-size: 80px;
            align-items: center;
            justify-content: center;
            display: flex;
            background: linear-gradient(135deg, rgba(255, 255, 255, 0.1), rgba(255, 255,
255, 0, ));
            backdrop-filter: blur(10px);
            -webkit-backdrop-filter: blur(10px);
            border-radius: 20px;
            border: 1px solid rgba(255, 255, 255, 0.18);
            box-shadow: 0 8px 32px 0 rgba(0, 0, 0, 0.37);
        }

        span {
            padding-right: 20px;
            position: relative;

        }
        .clock span::after {
            content: "";
```

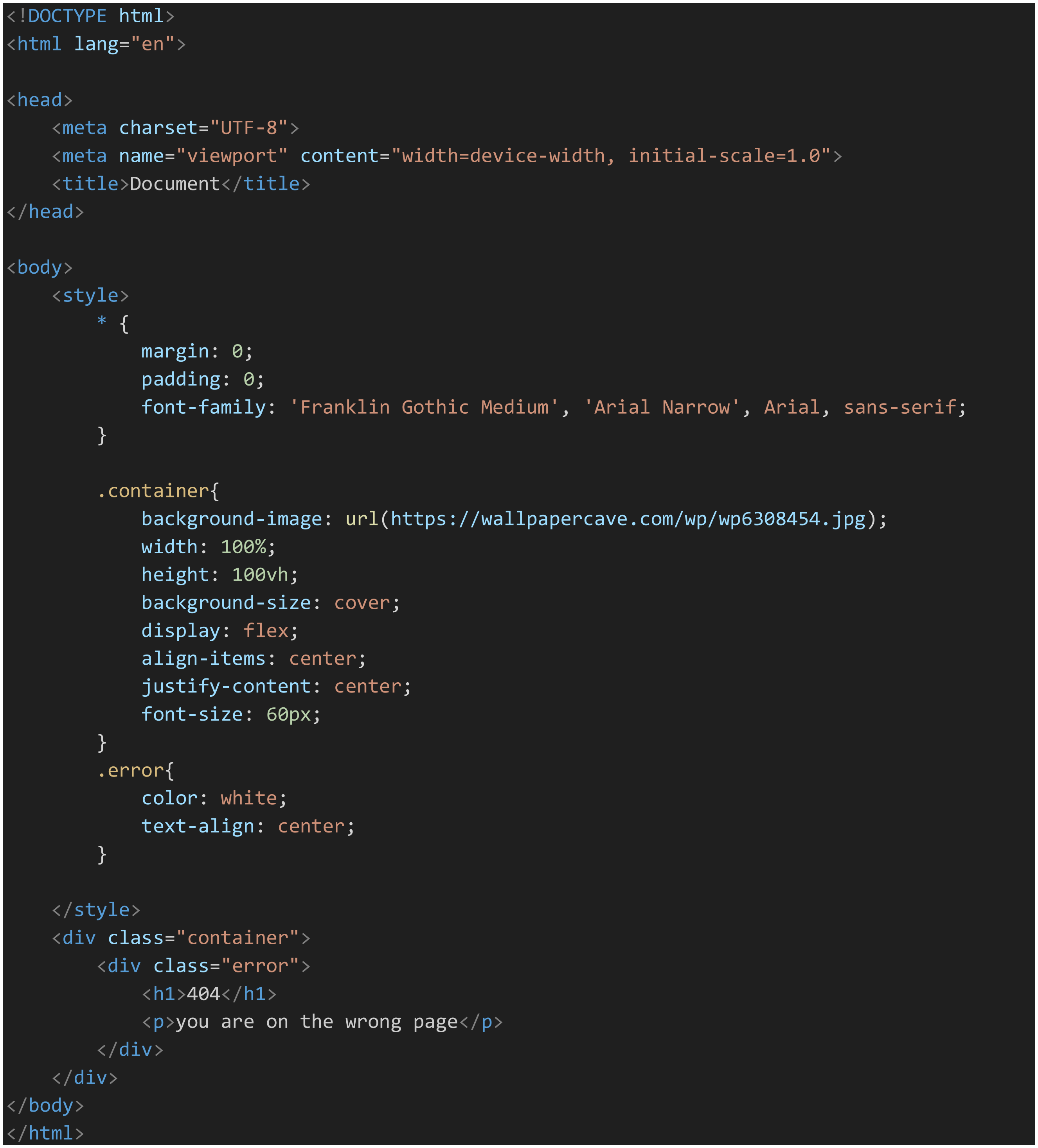


```
            font-size: 18px;
            position: absolute;
            bottom: -15px;
            left: 20%;
            transform: translate();
        }

        #hrs::after {
            content: "hours";
        }

        #min::after {
            content: "minutes";
        }

        #sec::after {
            content: "second";
        }
        @media screen and (max-width: 580px) {
            .clock{
                width: 150px;
                font-size: 20px;
            }
            .clock span::after{
                font-size: 10px;
                position: absolute;
                left: 5%;
            }
        }
    </style>
    <div class="container">
        <div class="clock">
            <span id="hrs">00</span>
            <span>:</span>
            <span id="min">00</span>
            <span>:</span>
            <span id="sec">00</span>
        </div>
    </div>
    <script src="clock.js"></script>
</body>
<script>
    let Hours = document.getElementById("hrs");
    let minutes = document.getElementById("min");
    let second = document.getElementById("sec");

    setInterval(() => {
        let date = new Date();
        Hours.innerHTML = (date.getHours() < 10 ? "0" : "") + date.getHours();
        minutes.innerHTML = (date.getMinutes() < 10 ? "0" : "") + date.getMinutes();
        second.innerHTML = (date.getSeconds() < 10 ? "0" : "") + date.getSeconds();
    }, 1000);
</script>
</html>
```

Step 6: Configure an error document

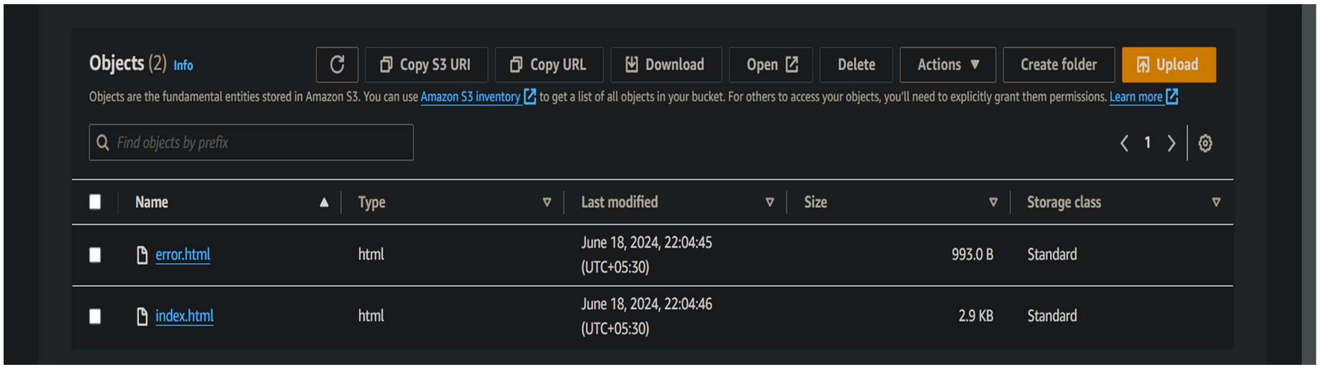
To configure the error document

- Create a error.html
- Save the file locally.
- And upload it in the bucket.
- This is the code of my error.html



```html
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>

<body>
    <style>
        * {
            margin: 0;
            padding: 0;
            font-family: 'Franklin Gothic Medium', 'Arial Narrow', Arial, sans-serif;
        }

        .container{
            background-image: url(https://wallpapercave.com/wp/wp6308454.jpg);
            width: 100%;
            height: 100vh;
            background-size: cover;
            display: flex;
            align-items: center;
            justify-content: center;
            font-size: 60px;
        }
        .error{
            color: white;
            text-align: center;
        }

    </style>
    <div class="container">
        <div class="error">
            <h1>404</h1>
            <p>you are on the wrong page</p>
        </div>
    </div>
</body>
</html>
```

- upload your both index or error file by navigating to the upload in your “tarun.bucket”.

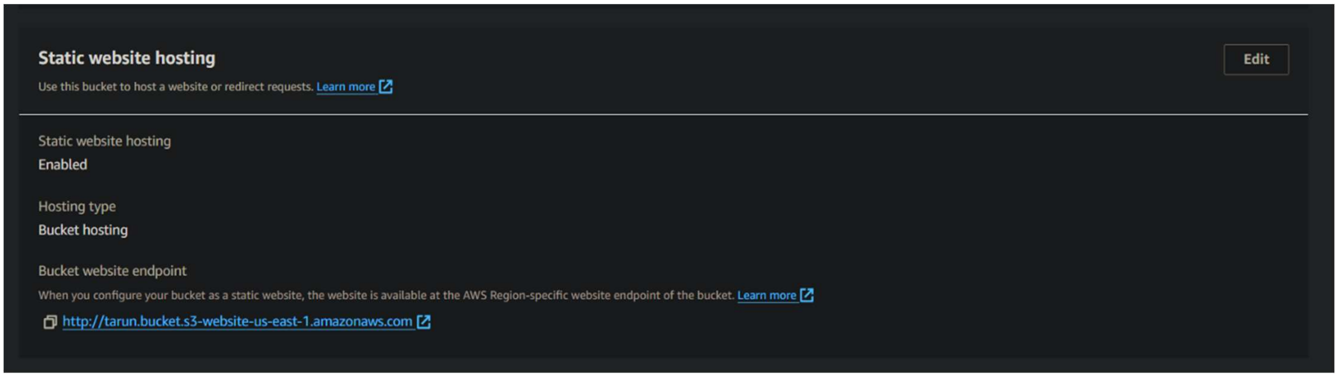


Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

□	Name	Type	Last modified	Size	Storage class
□	error.html	html	June 18, 2024, 22:04:45 (UTC+05:30)	993.0 B	Standard
□	index.html	html	June 18, 2024, 22:04:46 (UTC+05:30)	2.9 KB	Standard

Step 7: Test your website endpoint

- Under Buckets, choose the name of your bucket.
- Choose Properties.
- At the bottom of the page, under Static website hosting now a link is written you can access your static website from there.



Static website hosting

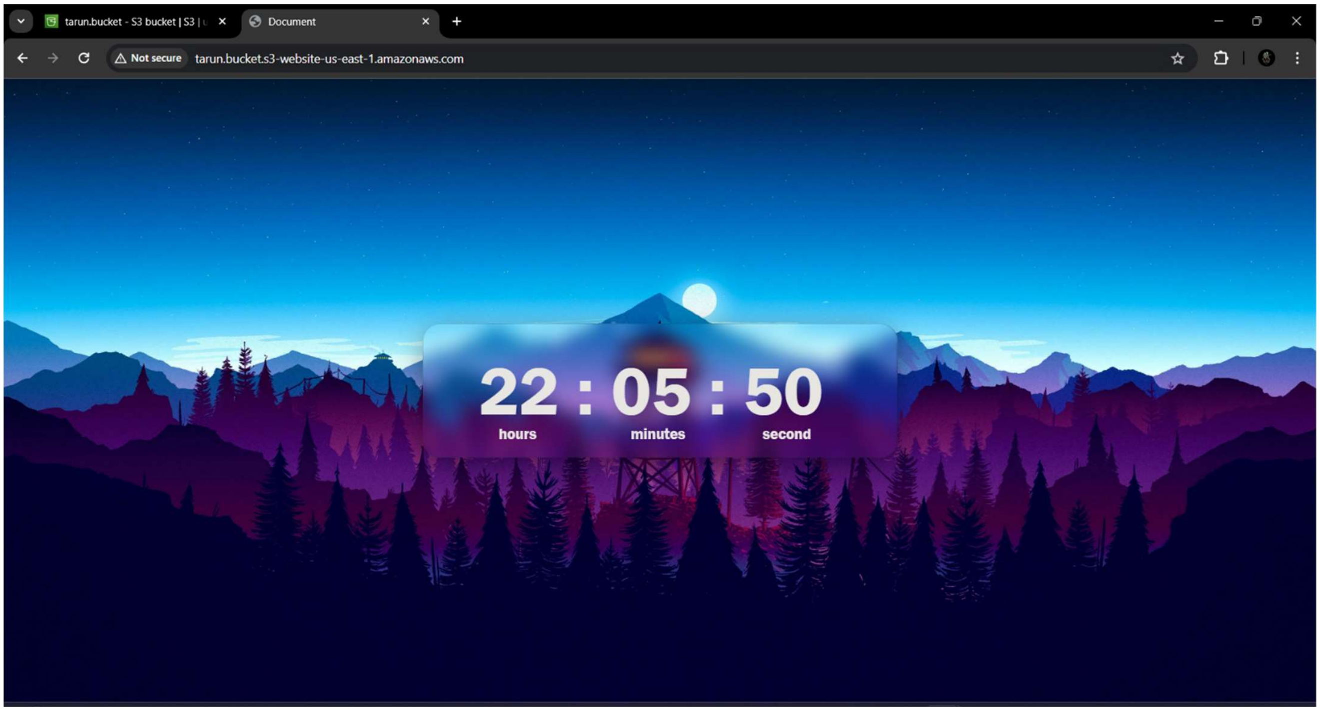
Use this bucket to host a website or redirect requests. Learn more

Static website hosting
Enabled

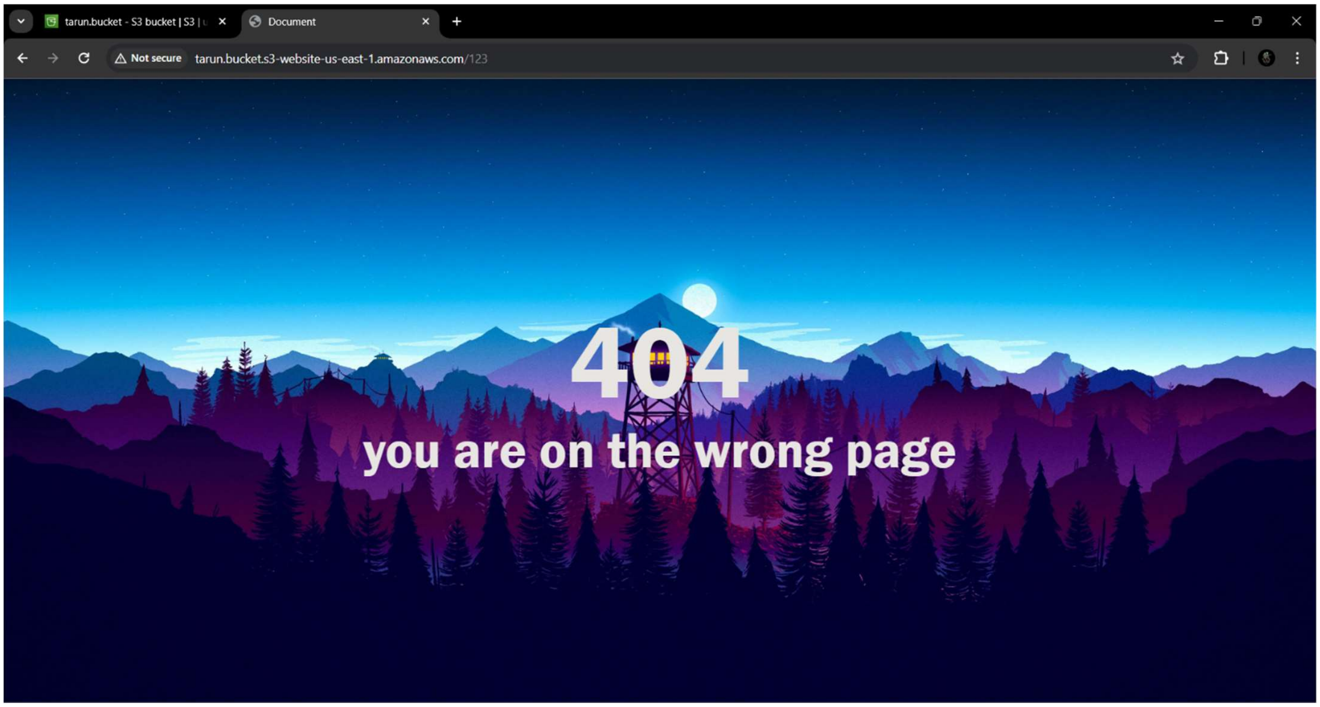
Hosting type
Bucket hosting

Bucket website endpoint
When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. Learn more
http://tarun.bucket.s3-website-us-east-1.amazonaws.com

- You can copy the given link and search it on the web to see your page


tarun.bucket - S3 bucket | S3 |
Document
Not secure
tarun.bucket.s3-website-us-east-1.amazonaws.com
22 : 05 : 50
hours
minutes
second

- If you want to see your error.html file you just have to change in the link little bit and you can see your error page.


tarun.bucket - S3 bucket | S3 |
Document
Not secure
tarun.bucket.s3-website-us-east-1.amazonaws.com/123
404
you are on the wrong page

Step 8 : clean up

If you created your static website only as a learning exercise, delete the AWS resources that you allocated so that you no longer accrue charges. After you delete your AWS resources, your website is no longer available.