Assignment no:4

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Aim : Deploy Web application using S3 Bucket

Theory :

1) **What is S3 service of AWS**

Amazon S3 (Simple Storage Service) provides object storage, which is built for storing and recovering any amount of information or data from anywhere over the internet. It provides this storage through a web services interface. While designed for developers for easier web-scale computing, it provides 99.999999999 percent durability and 99.99 percent availability of objects. It can also store computer files up to 5 terabytes in size.

Benefits of S3 :

- **Durability:** S3 provides 99.999999999 percent durability.
- **Low cost:** S3 lets you store data in a range of "storage classes." These classes are based on the frequency and immediacy you require in accessing files.
- **Scalability:** S3 charges you only for what resources you actually use, and there are no hidden fees or overage charges. You can scale your storage resources to easily meet your organization's ever-changing demands.
- **Availability:** S3 offers 99.99 percent availability of objects
- **Security:** S3 offers an impressive range of access management tools and encryption features that provide top-notch security.
- **Flexibility:** S3 is ideal for a wide range of uses like data storage, data backup, software delivery, data archiving, disaster recovery, website hosting, mobile applications, IoT devices, and much more.
- **Simple data transfer:** You don't have to be an IT genius to execute data transfers on S3. The service revolves around simplicity and ease of use.

S3 is a simple key-value store
S3 is object-based.
Objects consist of the following:

- **Key :** It is simply the name of the object. For example, hello.txt, spreadsheet.xlsx, etc. You can use the key to retrieve the object.

- **Value :** It is simply the data which is made up of a sequence of bytes. It is actually a data inside the file.

- **Version ID :** Version ID uniquely identifies the object. It is a string generated by S3 when you add an object to the S3 bucket.

- **Metadata :** It is the data about data that you are storing. A set of a name-value pair with which you can store the information regarding an object. Metadata can be assigned to the objects in Amazon S3 bucket.

- **Subresources :** Subresource mechanism is used to store object-specific information.

- **Access control information :** You can put the permissions individually on your files.

How Amazon S3 works

- Amazon S3 is an object storage service, which differs from other types of cloud computing storage types, such as block and file storage.

- Each object is stored as a file with its metadata included. The object is also given an ID number. Applications use this ID number to access objects.

- This is unlike file and block cloud storage, where a developer can access an object via a representational state transfer (REST) API.

- The S3 object storage cloud service gives a subscriber access to the same systems that Amazon uses to run its own websites.

- S3 enables customers to upload, store and download practically any file or object that is up to 5 terabytes (TB) in size -- with the largest single upload capped at 5 gigabytes (GB).

2) **Step-by-step screenshot to upload static web application on the aws cloud using S3 service**

Steps :

1) **Go to AWS Management Console. Search for S3. Click on Create Bucket**

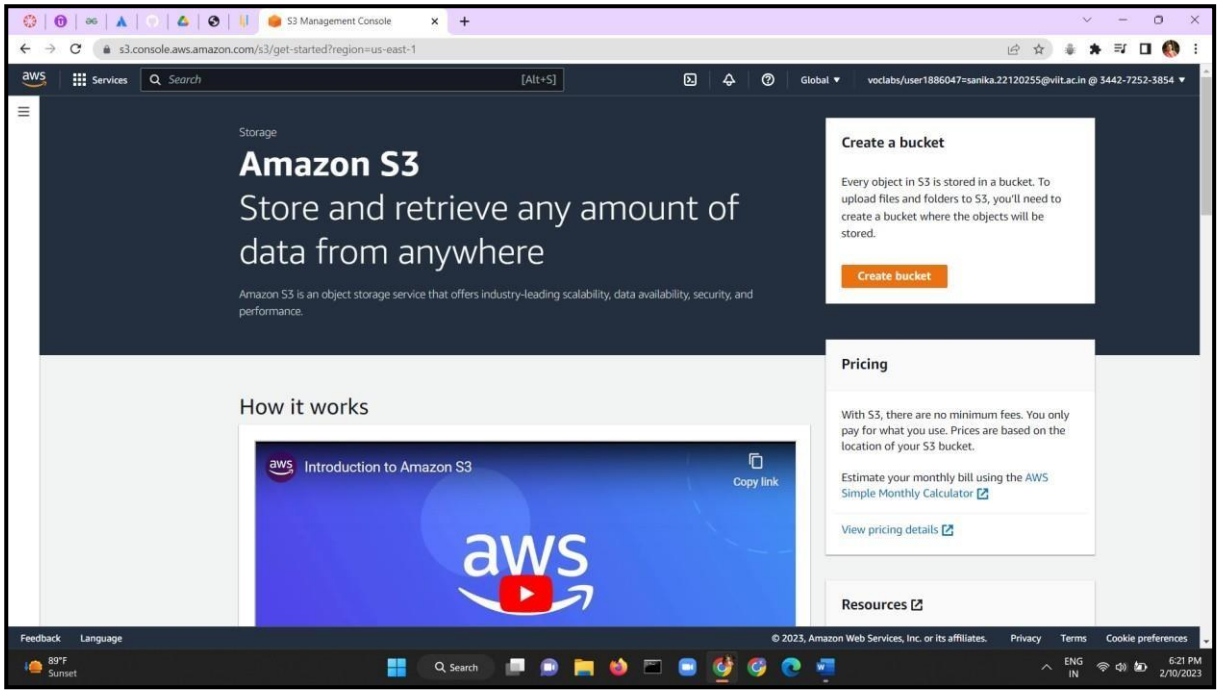


Fig 1 : Creating a Bucket

2) **Enter the Bucket name. Choose the Region where you want to create the bucket. To accept the default settings and create the bucket, choose Create.**

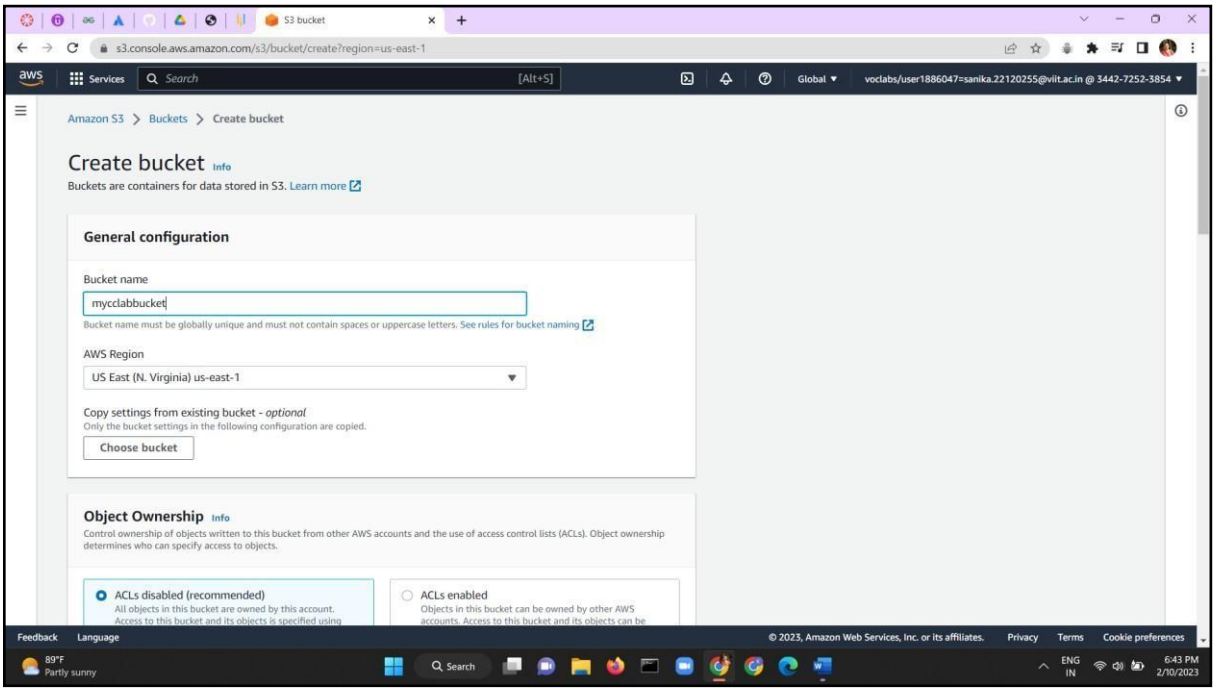
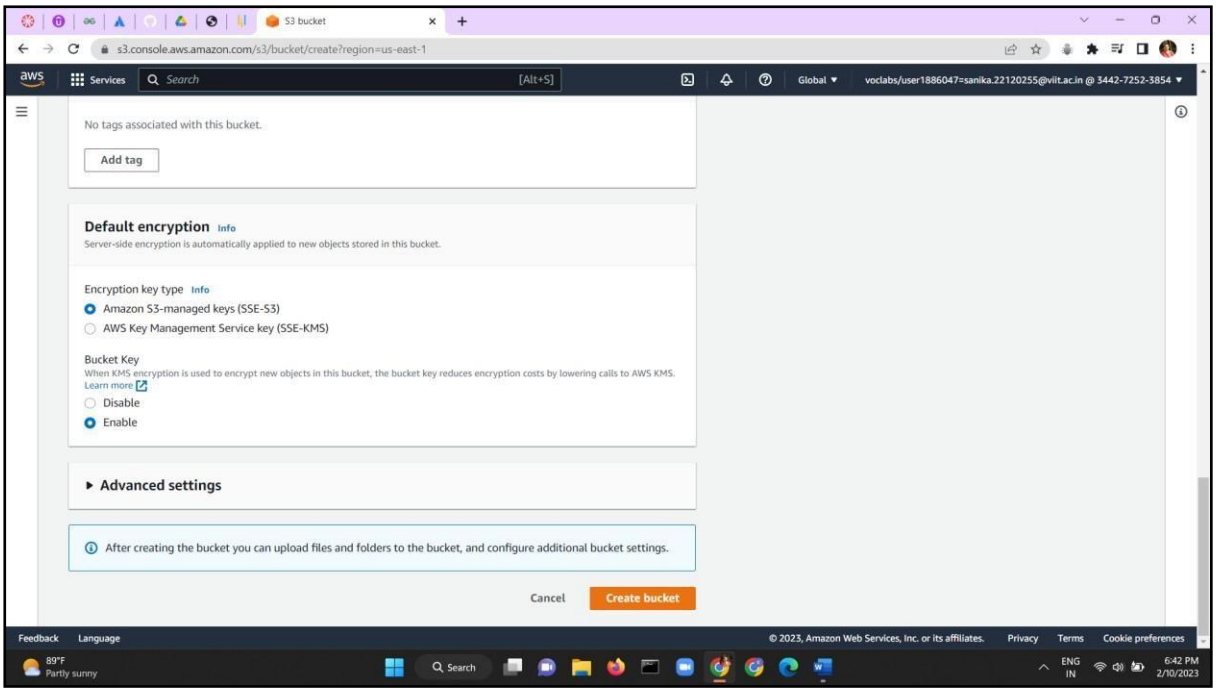


Fig 2 : Bucket Name



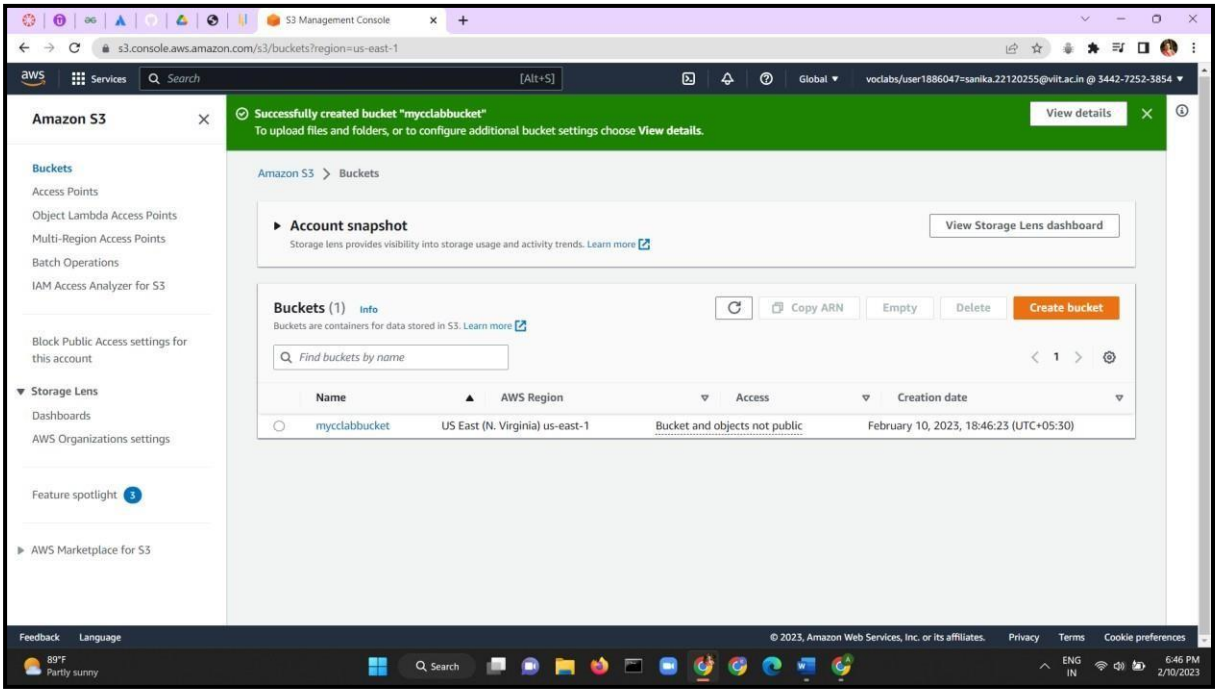


Fig 3 : Bucket created successfully

Enable Static Website Hosting :

1) In the Buckets list, click on the name of the bucket that you want to enable static website hosting for. Choose Properties.

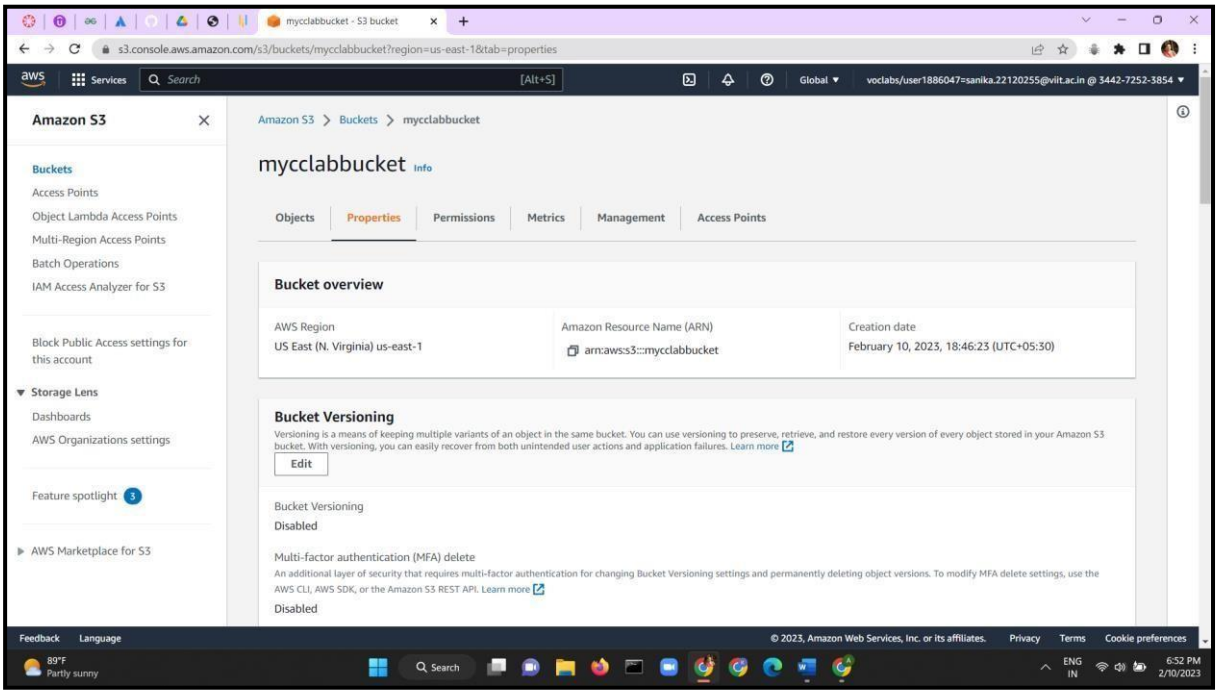


Fig 4 : Properties of Bucket

2) Go to Static website hosting, choose Edit

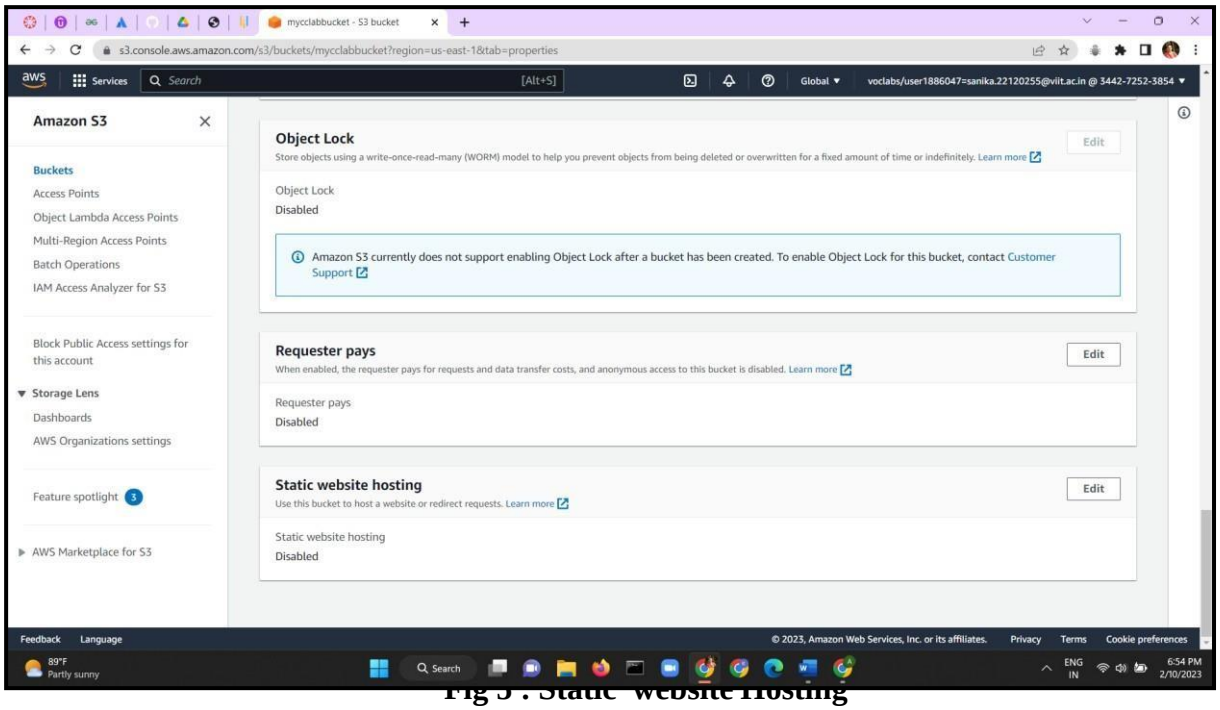


Fig 5 : Static website Hosting

3) Under Static website hosting, choose Enable. Choose hosting type as host a static website

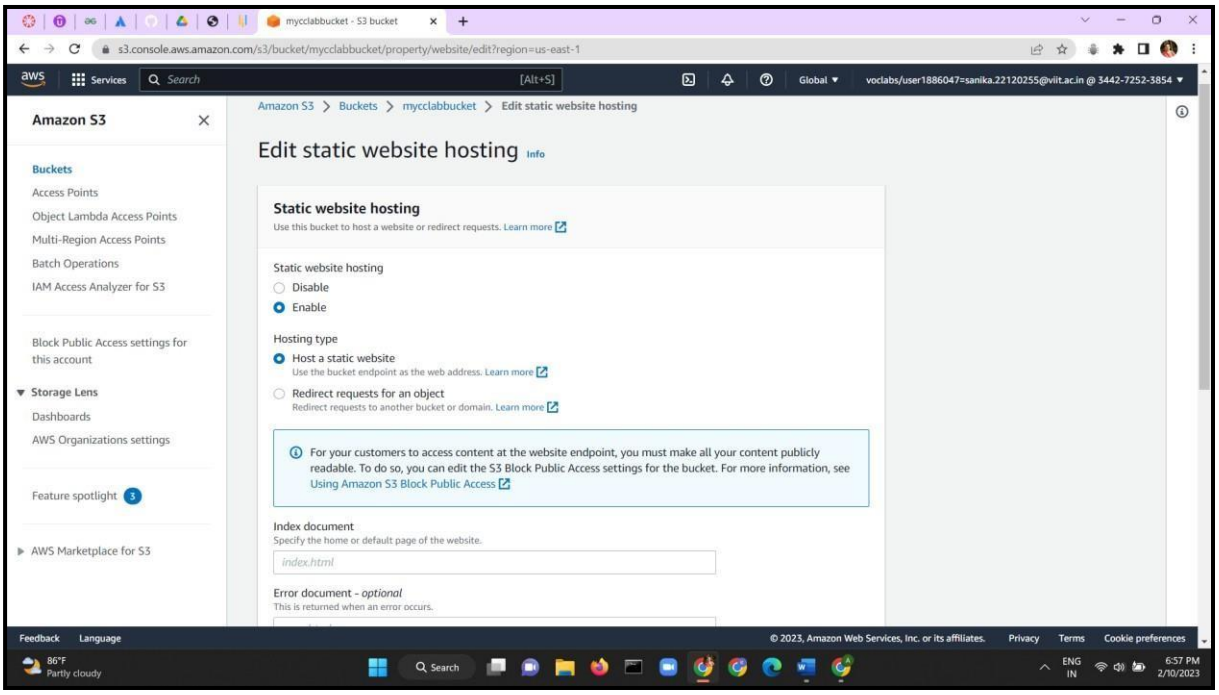


Fig 6 : Static Website Hosting

<u>Edit Block Public Access settings :</u>

1) Choose the name of the bucket that you have configured as a static website .Choose Permissions. Under Block public access (bucket settings), choose Edit

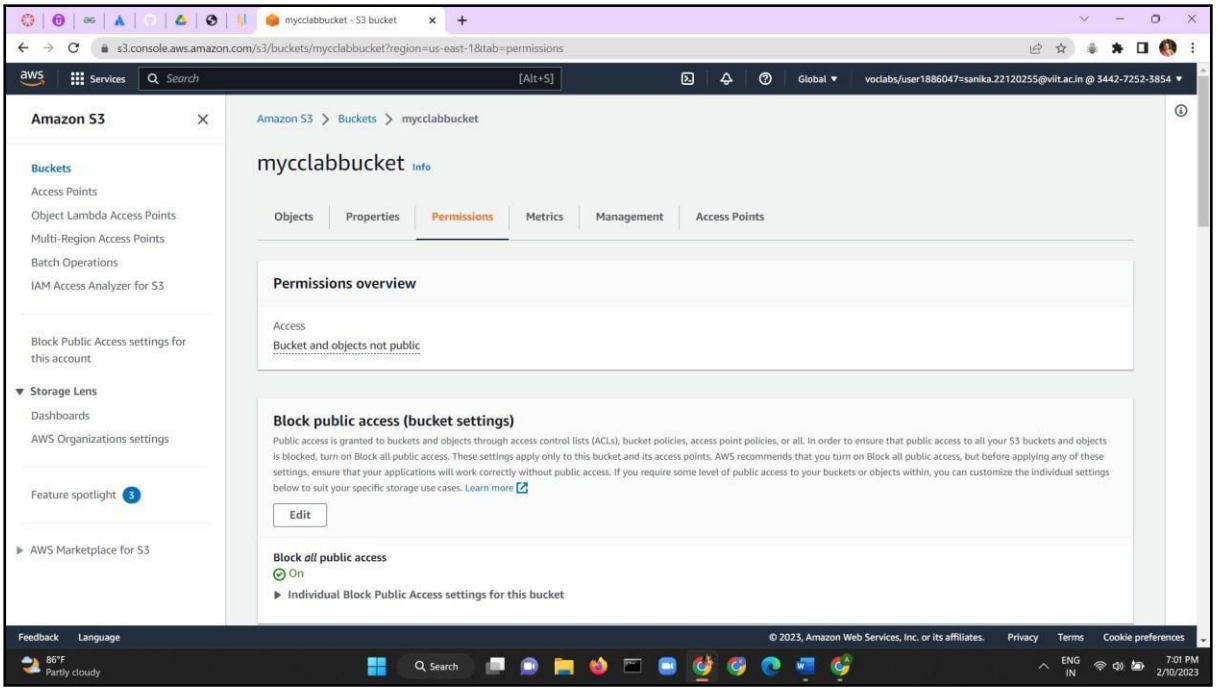


Fig 7 : Permission Tab

2) Clear Block all public access, and choose Save changes.

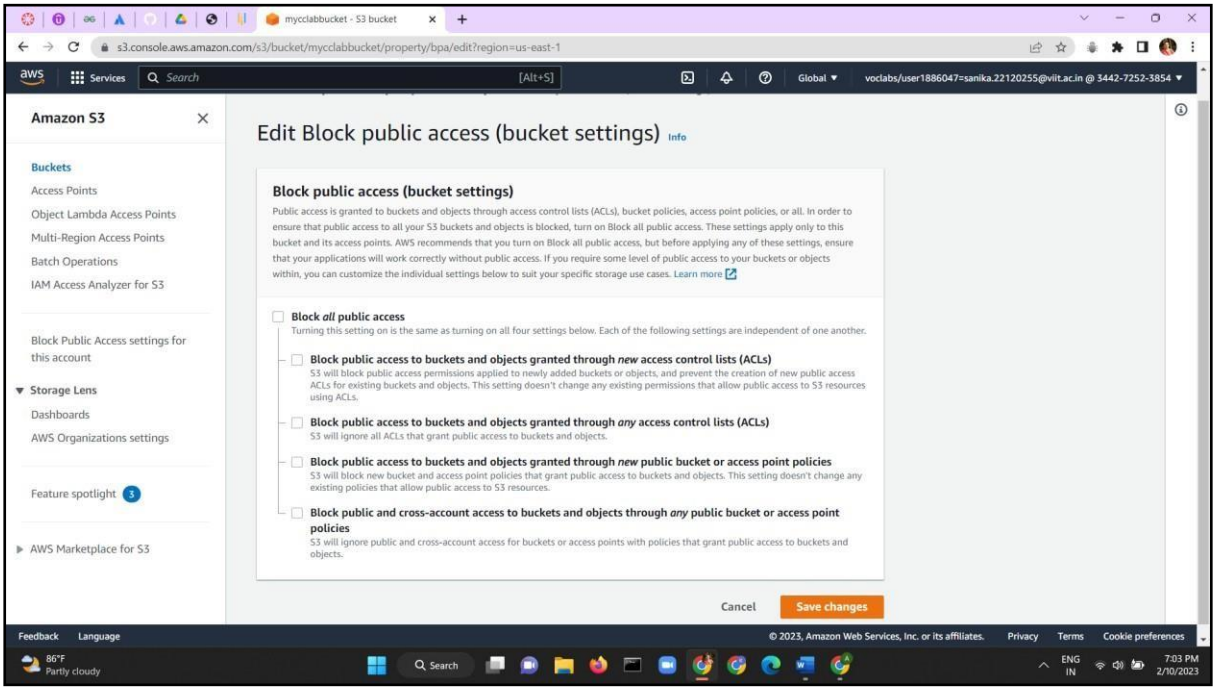
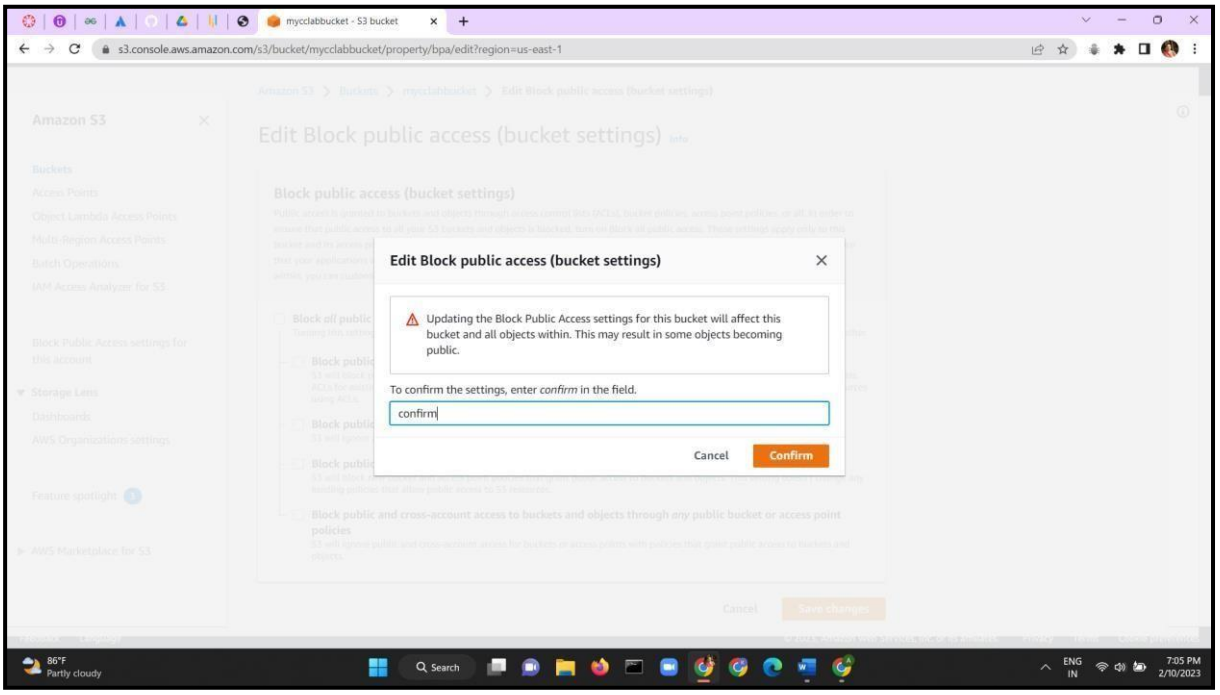
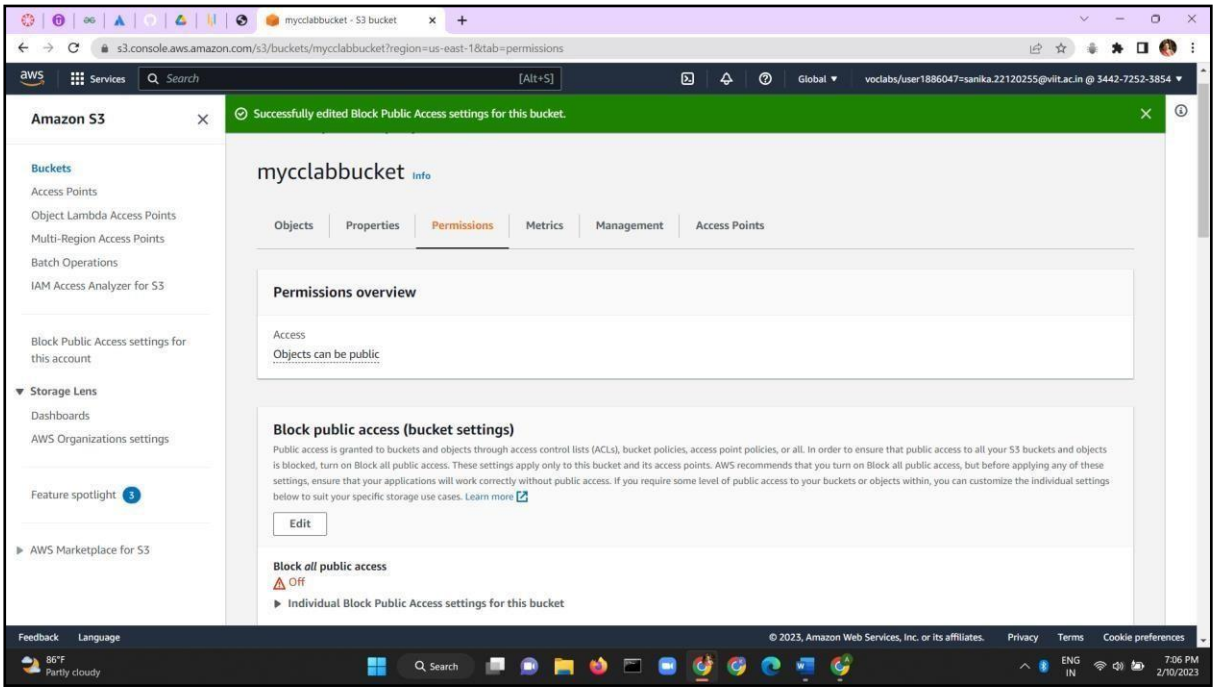


Fig 8 : Bucket Settings : Block Public Access

3) Write confirm and then click on confirm.





<u>Add a bucket policy that makes your bucket content</u>

1) publicly available Under Buckets, click on the name of your bucket. Choose Permissions. Under Bucket Policy, choose Edit.

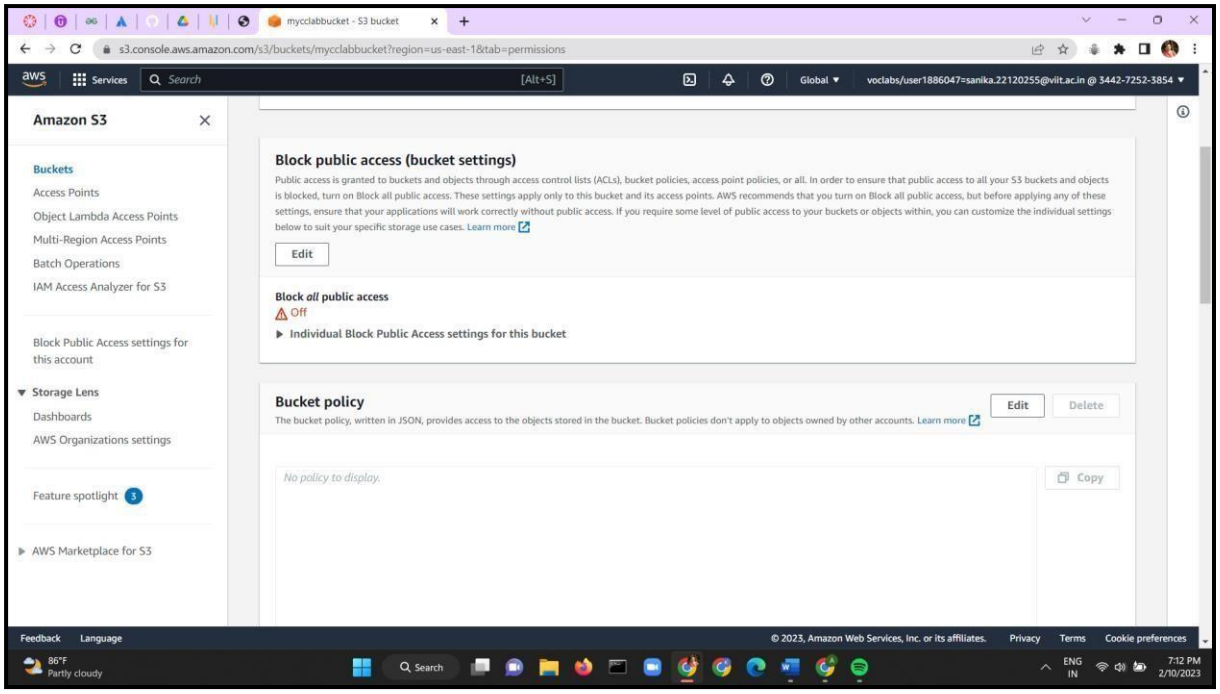
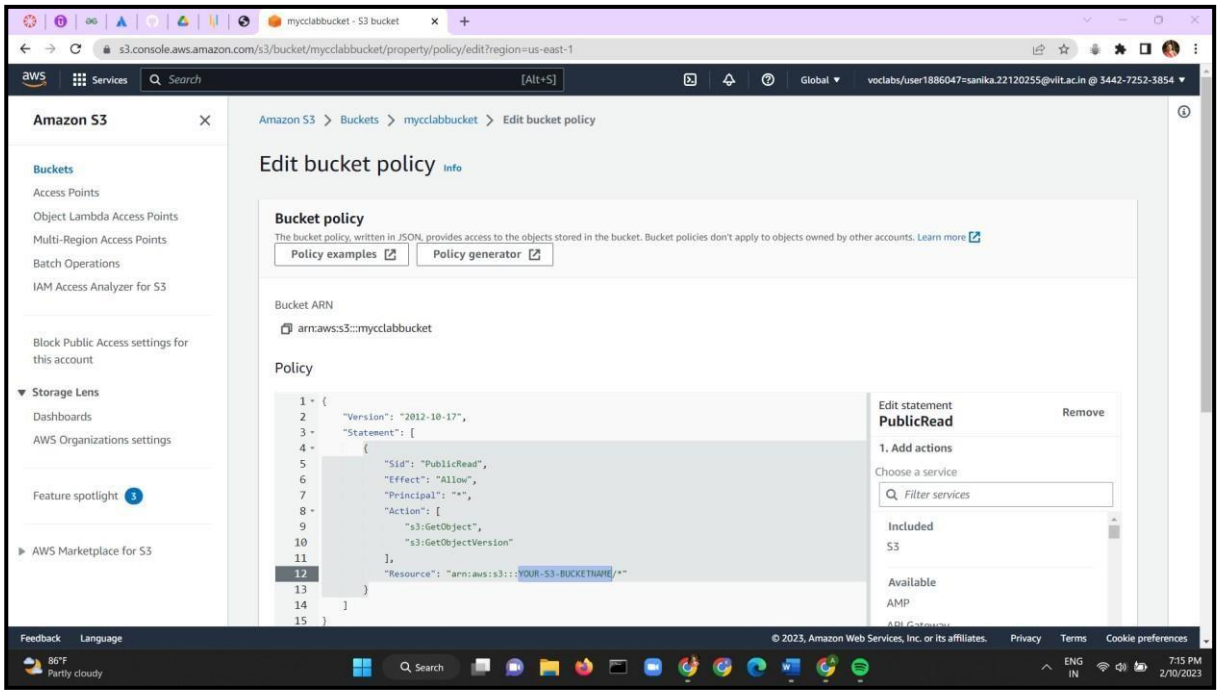
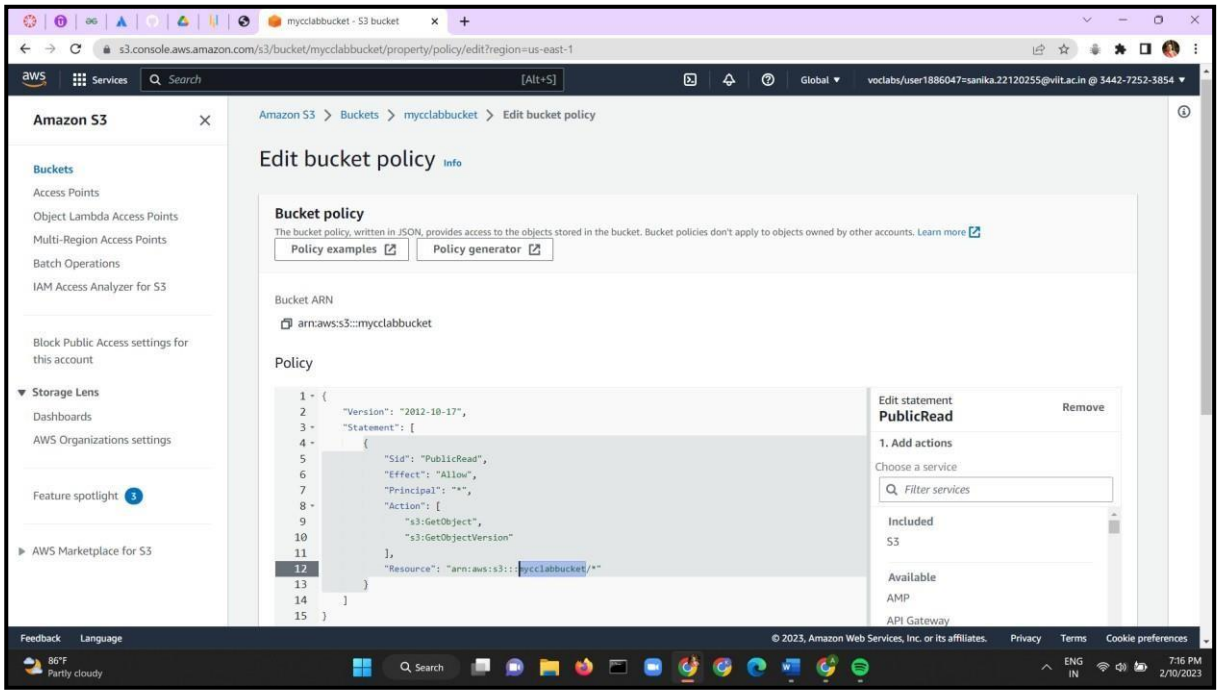


Fig 9 : Permission Tab

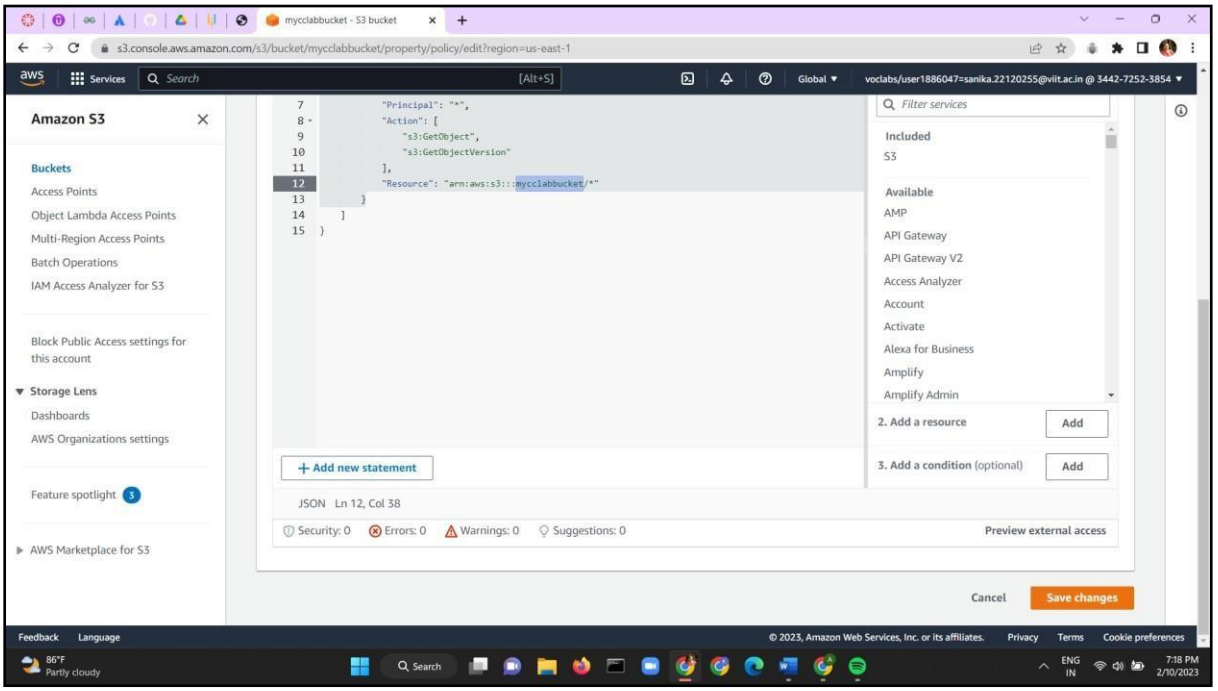
2) To grant public read access for your website, Paste the following JSON in the editor to allow the public to read files from the bucket



Make sure to replace "Bucket-name" with your S3 bucket name in the JSON policy.



3) Click on save changes.

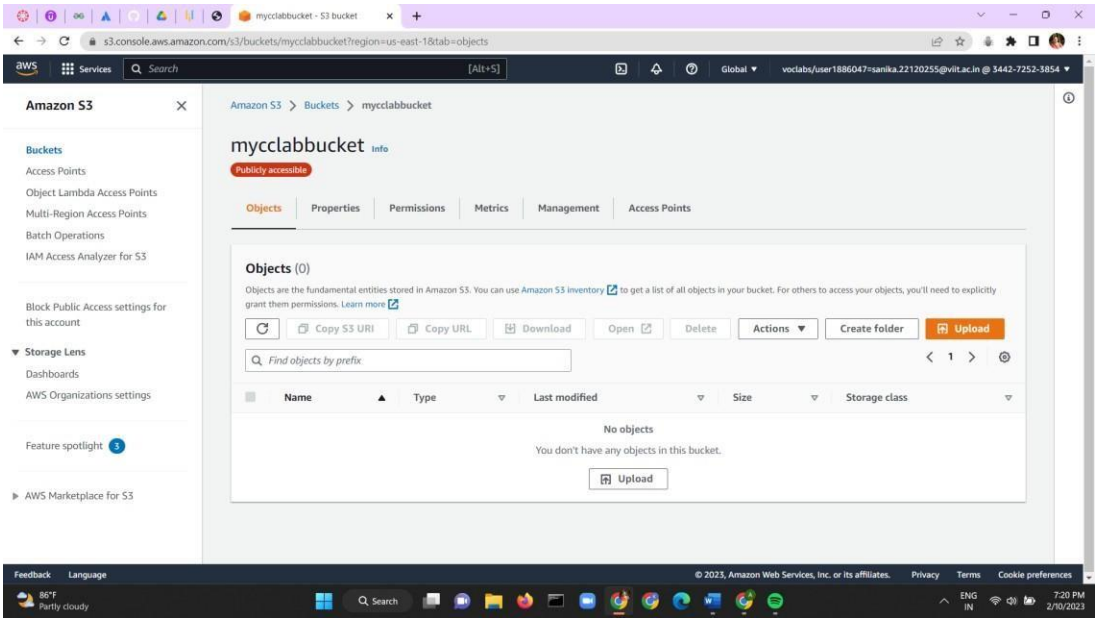


Upload Your Website to the S3 Bucket :

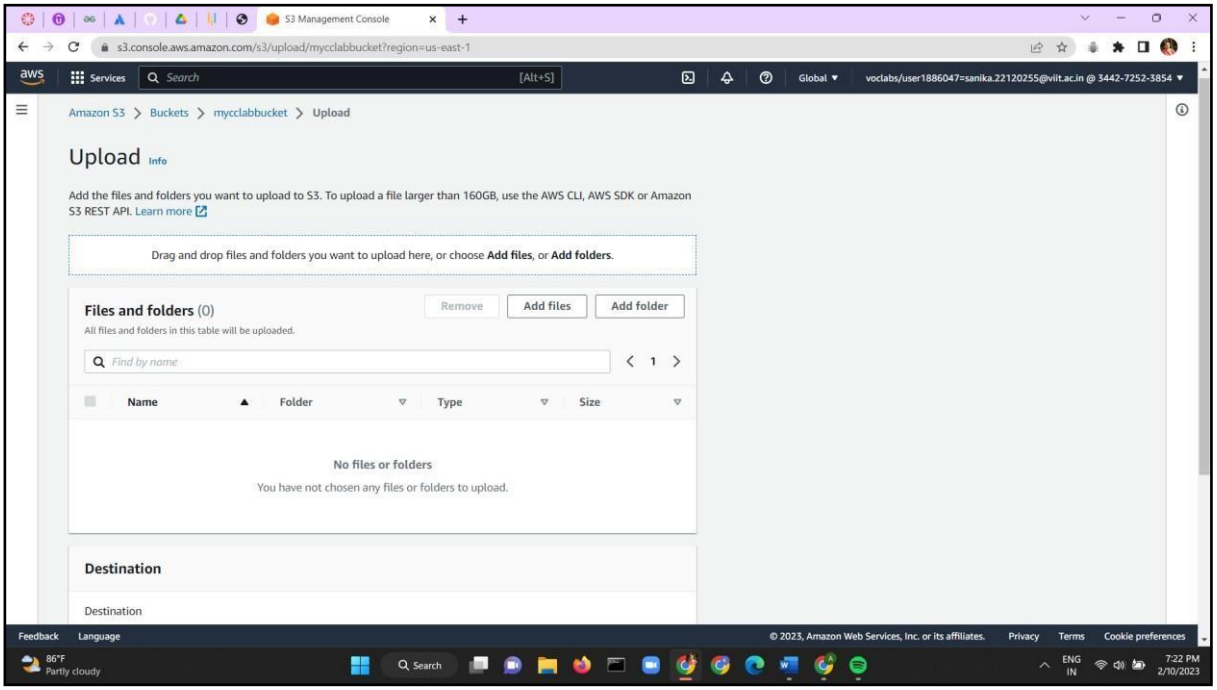
When you enable static website hosting for your bucket, you enter the name of the index document and name of the error document

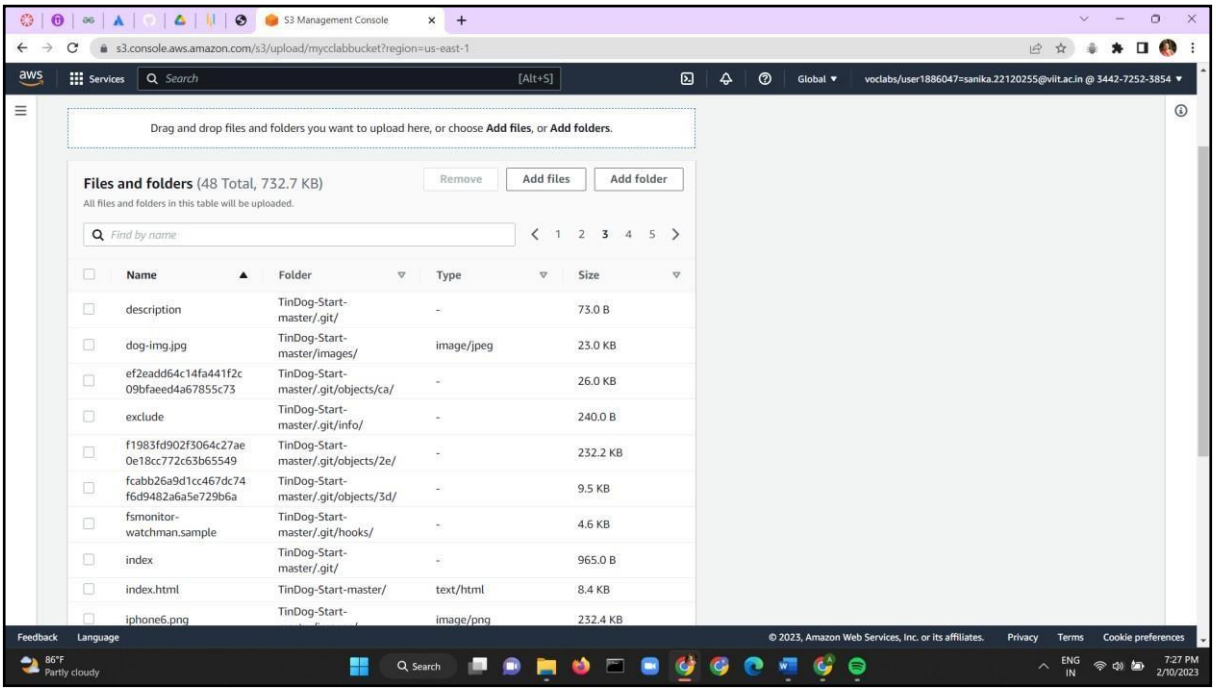
After you enable static website hosting for the bucket, you upload an HTML file with this index and error document name to your bucket.

In the Buckets list, choose the name of the bucket that you want to upload your folders or files to. Under objects, Choose Upload

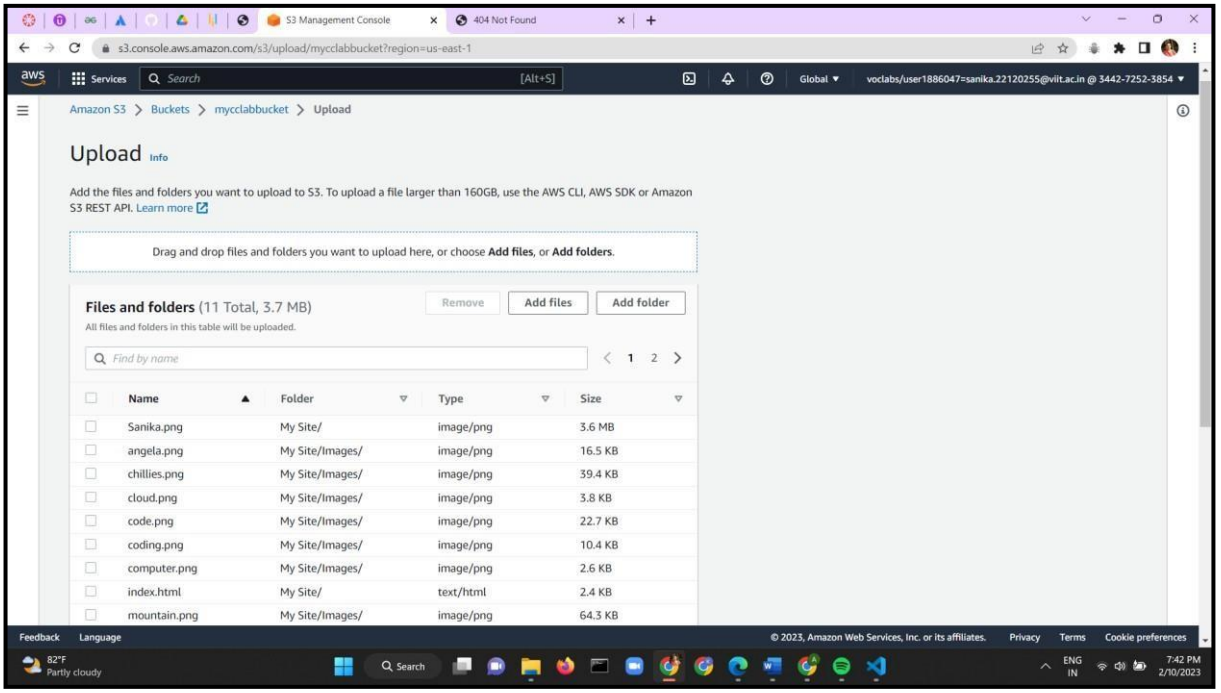


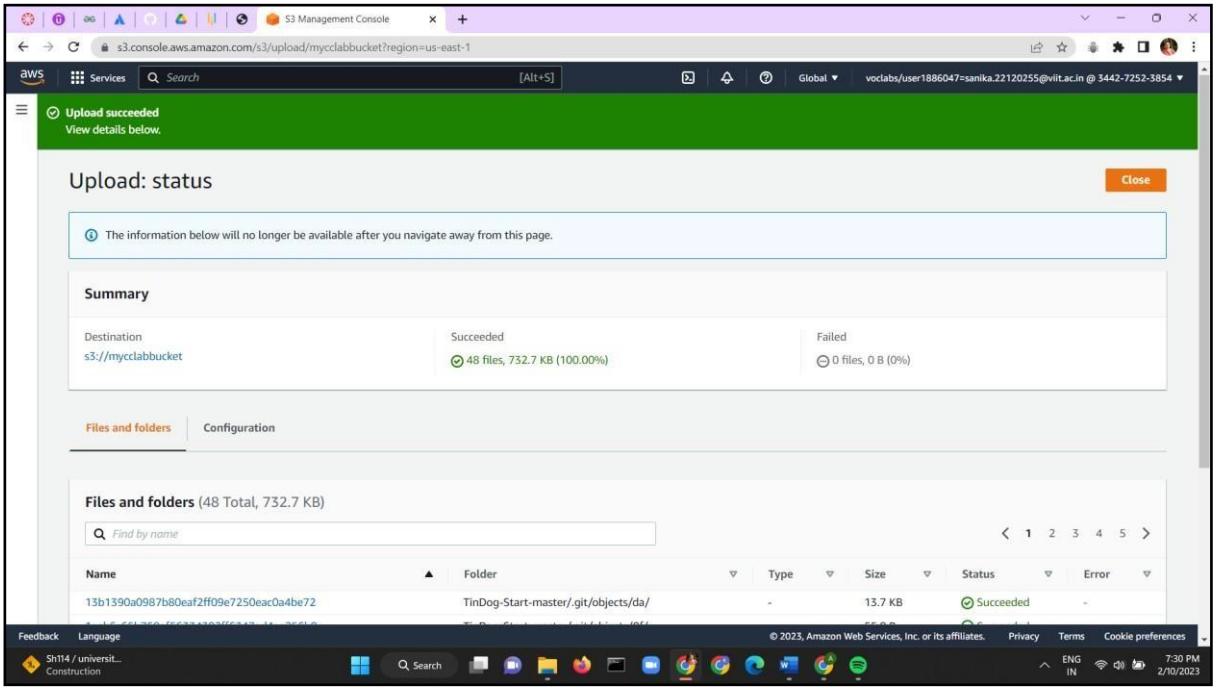
2) Choose Add file or Add folder, choose files or folders to upload, and choose Open





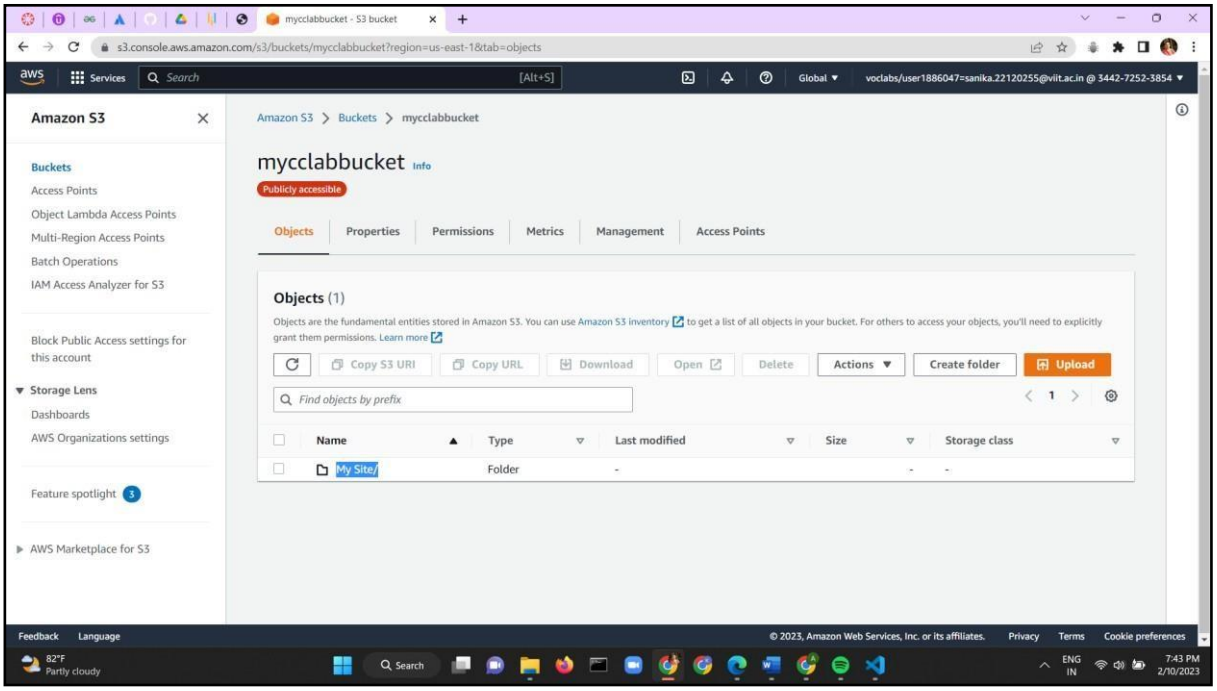
3) To upload the listed files and folders without configuring additional upload options, at the bottom of the page, choose Upload.



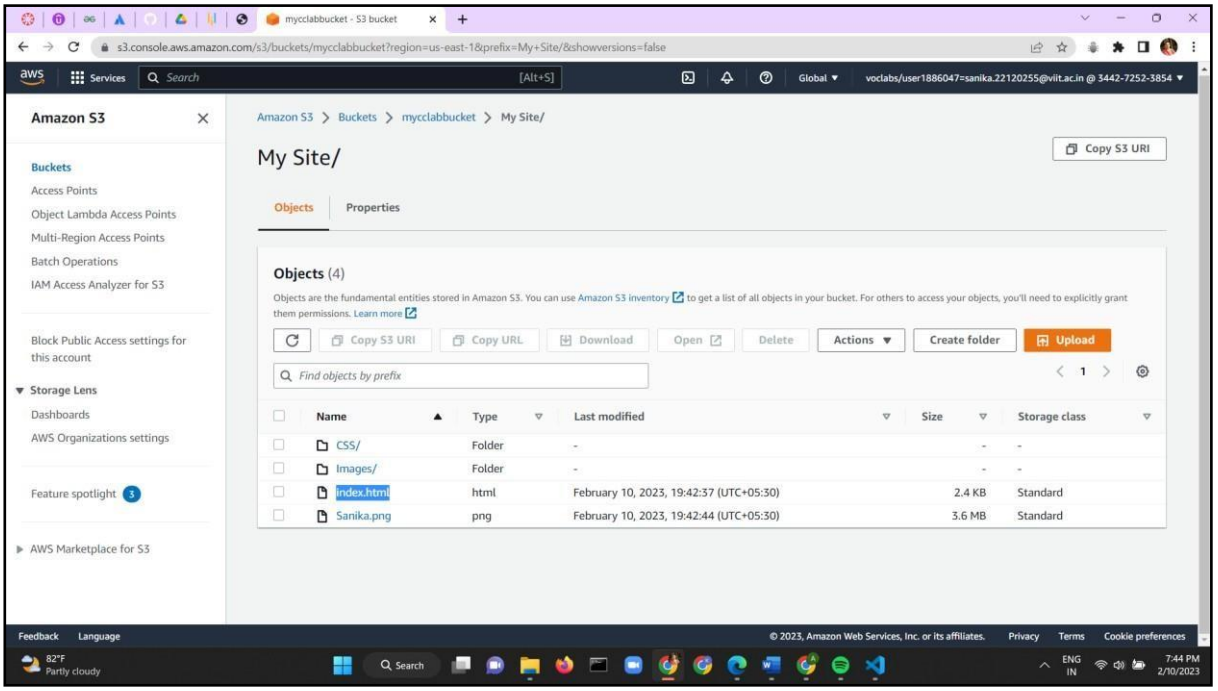


Test your website endpoint :

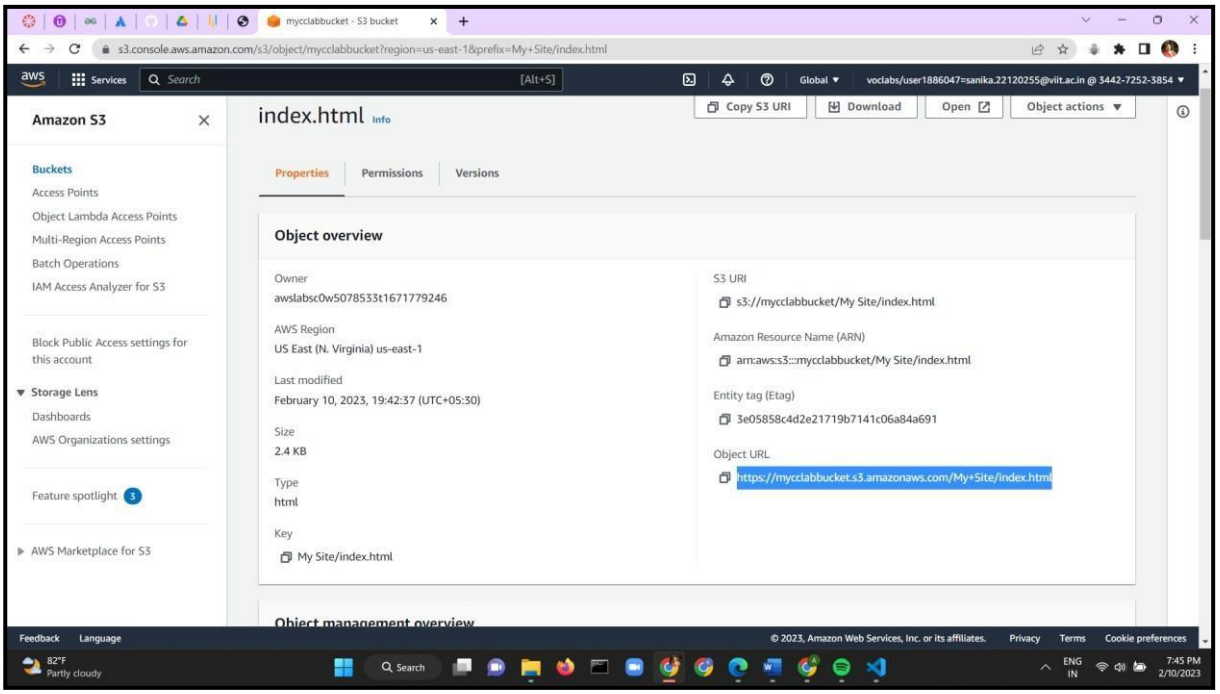
1) Under Buckets, choose the name of your bucket.
Choose Objects.
Under Object tab choose your bucket name



3) Click on your bucket name .
click on index.html



3) After clicking index.html click on object url link to open your website



You now successfully hosted a website on Amazon S3.