SVKM'S NMIM'S Nilkamal School of Mathematics, Applied Statistics & Analytics

Master of Science (Data Science)

Practical-4 Storage as a service using AWS.

Writeup:-

● Storage as a service-s3

Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance. Customers of all sizes and industries can use Amazon S3 to store and protect any amount of data for a range of use cases, such as data lakes, websites, mobile applications, backup and restore, archive, enterprise applications, IoT devices, and big data analytics. Amazon S3 provides management features so that you can optimize, organize, and configure access to your data to meet your specific business, organizational, and compliance requirements.

Amazon Simple Storage Service (Amazon S3) is an object storage service offering industry-leading scalability, data availability, security, and performance. Customers of all sizes and industries can store and protect any amount of data for virtually any use case, such as data lakes, cloud-native applications, and mobile apps. With cost-effective storage classes and easy-to-use management features, you can optimize costs, organize data, and configure fine-tuned access controls to meet specific business, organizational, and compliance requirements.

● S3 use cases

Build a data lake

Run big data analytics, artificial intelligence (AI), machine learning (ML), and high performance computing (HPC) applications to unlock data insights.

Back up and restore critical data

Meet Recovery Time Objectives (RTO), Recovery Point Objectives (RPO), and compliance requirements with S3's robust replication features.

Archive data at the lowest cost

Move data archives to the Amazon S3 Glacier storage classes to lower costs, eliminate operational complexities, and gain new insights.

Run cloud-native applications

Build fast, powerful mobile and web-based cloud-native apps that scale automatically in a highly available configuration

● Steps for s3

❖ **Sign in to the AWS Management Console and open the Amazon S3 console at https://console.aws.amazon.com/s3/.**

❖ **Create a bucket**

❖ **Add an object to Bucket**

❖ **Add a folder to Bucket**

❖ **View an Object**

❖ **Move an Object**

❖ **Delete an Object and Bucket**

❖ **To empty a bucket**

❖ **To delete a bucket**

❖ **Hosting a Static Website on Amazon S3**

❖ **AWS user to control S3**

Step 1- Go to AWS and under Storage- Go ot S3-Buckets
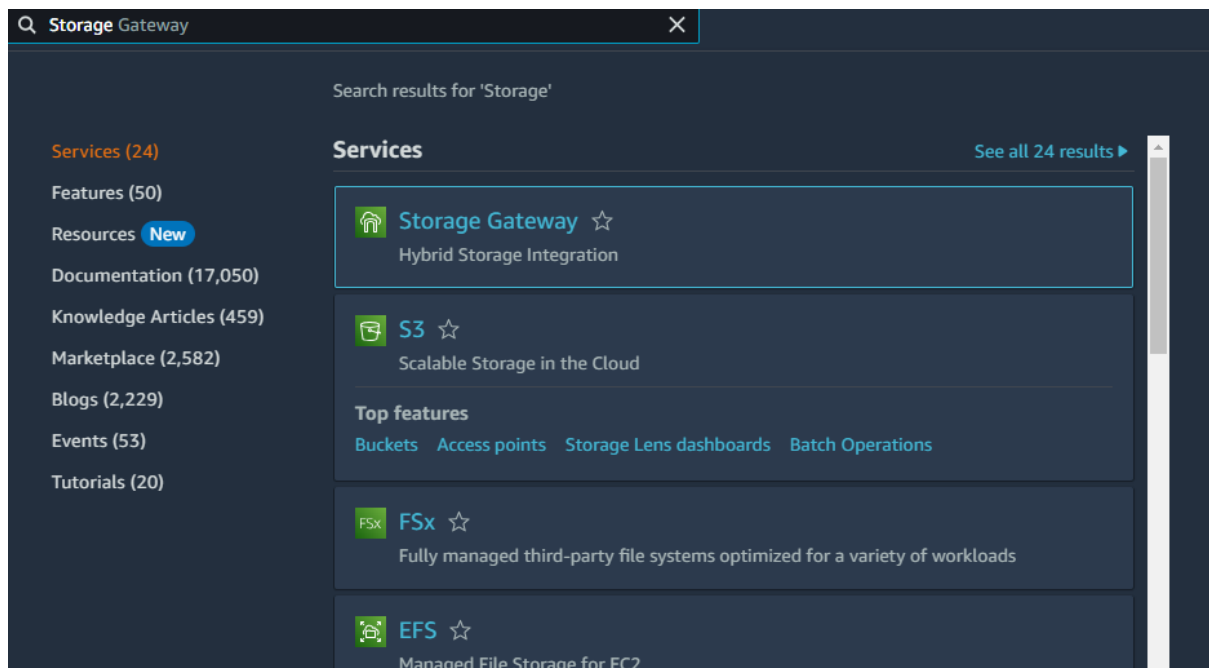
Step 2 Create a New Bucket
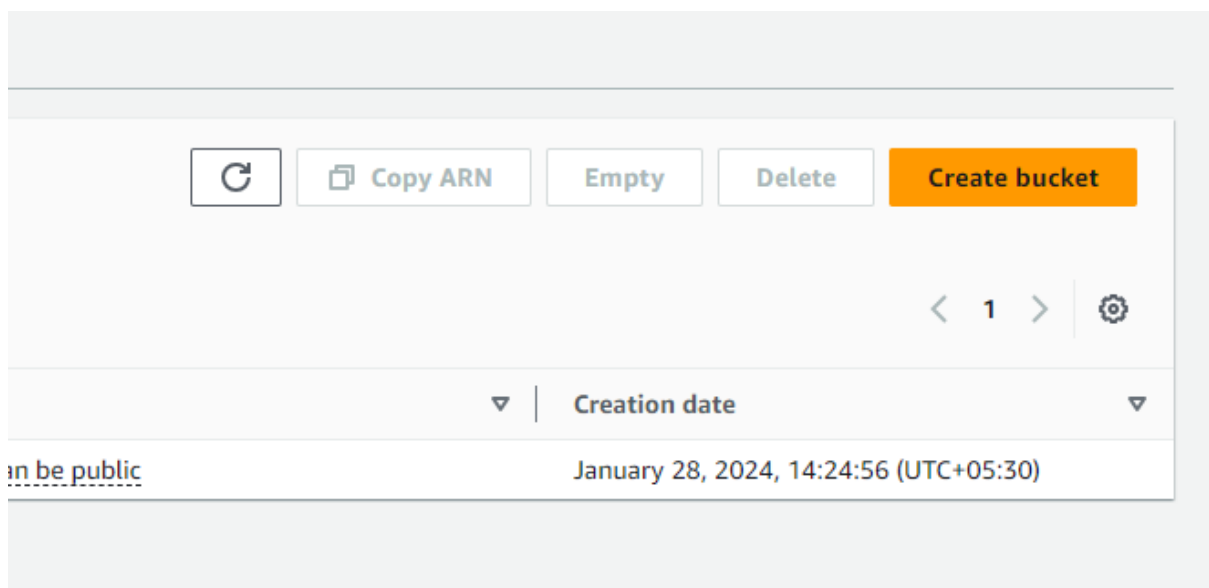
Step 3 – Under the New Bucket provide the name and choose the pre created bucket from the AWS

Create bucket Info

Buckets are containers for data stored in S3.

General configuration

AWS Region

Asia Pacific (Mumbai) ap-south-1 ▼

Bucket name   Info

darshit

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.

Choose bucket

Format: s3://bucket/prefix

⊘ elasticbeanstalk-ap-south-1-872362024427

   Creation date: January 28, 2024, 14:24:56 (UTC+05:30)

ⓘ To remove the copied bucket settings, and restore the following configuration to   **Restore defaults**
   the defaults settings, choose **Restore defaults**.

Step 4- Select the Acknowledge Checkbox and go to last and select "Create Bucket"

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.

Advanced settings

Object Lock

Store objects using a write-once-read-many (WORM) model to help you prevent objects from being deleted or overwritten for a fixed amount of time or indefinitely. Object Lock works only in versioned buckets. Learn more 🗗

- ● **Disable**
- ○ **Enable**
  Permanently allows objects in this bucket to be locked. Additional Object Lock configuration is required in bucket details after bucket creation to protect objects in this bucket from being deleted or overwritten.

ⓘ Object Lock works only in versioned buckets. Enabling Object Lock automatically enables Versioning.

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

Cancel   **Create bucket**

Step 5 – Bucket created Successfully

Step 6- Upload any file in the Bucket

Step 7- File uploaded Successfully

Step 8- Create a Folder in your Bucket

Amazon S3 > Buckets > darshit

darshit Info

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (1) Info
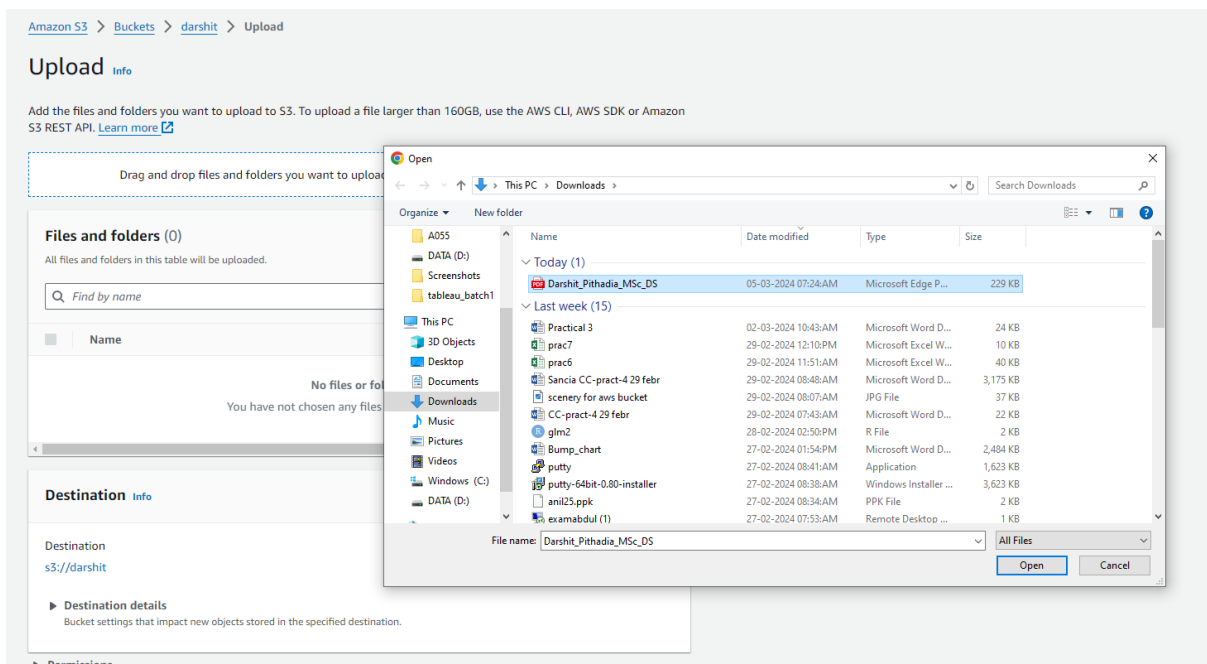
Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory ☑ to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more ☑
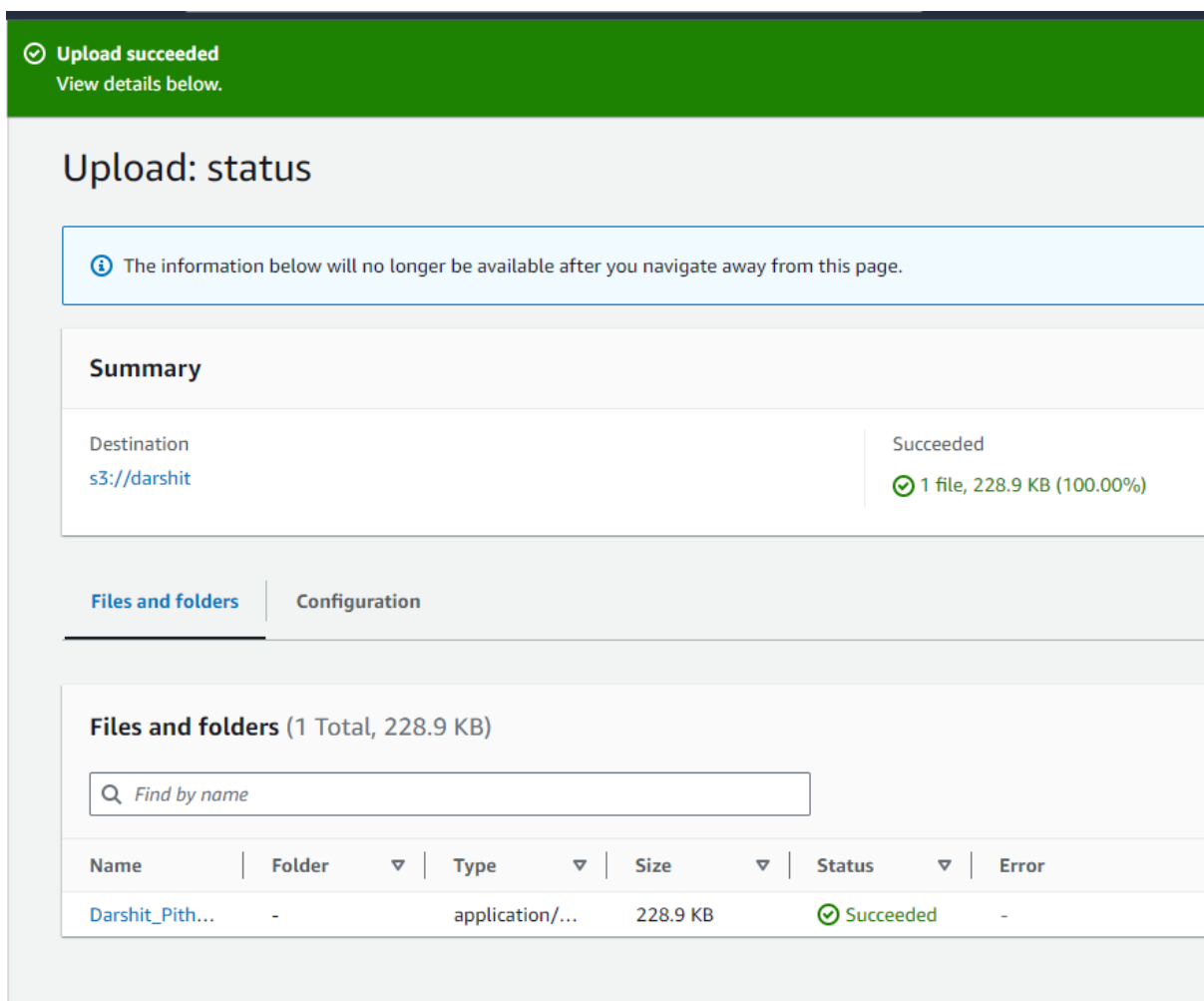
Copy S3 URI | Copy URL | Download | Open ☑ | Delete | Actions ▼ | Create folder | Upload

Find objects by prefix

< 1 > ⚙

	Name	▲	Type	▽	Last modified	▽	Size	▽	Storage class	▽
☐	🗋 Darshit_Pithadia_MSc_DS.pdf		pdf		March 5, 2024, 07:50:12 (UTC+05:30)		228.9 KB		Standard	

Folder

Folder name

newfolder   /

Folder names can't contain "/". See rules for naming ☑

Server-side encryption   Info

Server-side encryption protects data at rest.

ⓘ The following encryption settings apply only to the folder object and not to sub-folder objects.

Server-side encryption

● Do not specify an encryption key
The bucket settings for default encryption are used to encrypt the folder object when storing it in Amazon S3.

○ Specify an encryption key
The specified encryption key is used to encrypt the folder object before storing it in Amazon S3.

⚠ If your bucket policy requires objects to be encrypted with a specific encryption key, you must specify the same encryption key when you create a folder. Otherwise, folder creation will fail.

Cancel   **Create folder**

Step 9- Folder added

Amazon S3 > Buckets > darshit

darshit Info

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (2) 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 your objects, you'll need to explicitly grant t

[Copy S3 URI] [Copy URL] [Downl

🔍 Find objects by prefix

	Name ▲	Type ▽	Last modified	Si
☐	📄 Darshit_Pithadia_MSc_DS.pdf	pdf	March 5, 2024, 07:50:12 (UTC+05:30)	
☐	📁 newfolder/	Folder	-	

Step 10- Move the File which we have uploaded in the Bucket

Amazon S3 > Buckets > darshit > Darshit_Pithadia_MSc_DS.pdf

Darshit_Pithadia_MSc_DS.pdf Info

[Copy S3 URI] [Download] [Open ☑] [Object actions ▲]

Download as
Share with a presigned URL
Calculate total size
Copy
Move
~~Initiate restore~~
Query with S3 Select
Edit actions
Rename object
Edit storage class
Edit server-side encryption
Edit metadata
Edit tags
~~Make public using ACL~~

Properties | Permissions | Versions

Object overview

Owner
6416a09fb203b2a95bfdbaa9cb7b05d01338a8c13a56f476c68bcbf42ffd17b1

AWS Region
Asia Pacific (Mumbai) ap-south-1

Last modified
March 5, 2024, 07:50:12 (UTC+05:30)

Size
228.9 KB

Type
pdf

Key
📄 Darshit_Pithadia_MSc_DS.pdf

S3 URI
📄 s3://darshit/Darshit_Pithadia_MSc_DS.pdf

Amazon Resource Name (ARN)
📄 arn:aws:s3:::darshit/Darshit_Pithadia_MSc_DS.pdf

Entity tag (Etag)
📄 4d2072803f6a26829fc1ea187ec1d80a

Object URL
📄 https://darshit.s3.ap-south-1.amazonaws.com/Darshit_Pithadia_MSc_DS.pdf

Step 11- Choose the Destination to move the object from the Bucket

Destination ✕

S3 Buckets > darshit

Objects (1/2)

	Name	Type	Last modified	Size	Storage class
⦿	📁 newfolder/	Folder	-	-	-
○	📄 Darshit_Pithadia_MSc_DS.pdf	pdf	March 5, 2024, 07:50:12 (UTC+05:30)	228.9 KB	Standard

[Cancel] [Choose destination]

Destination details

The following bucket settings impose new objects stored in the specified destination.

Bucket Versioning   Default encryption type   Object Lock

Step 12- Check the File name which is about to be moved

Destination details

The following bucket settings impact new objects stored in the specified destination.

Bucket Versioning

When enabled, multiple variants of an object can be stored in the bucket to easily recover from unintended user actions and application failures. Learn more ☑

⚠ Disabled

Default encryption type

Bucket settings for default encryption are automatically applied to any specified object that is unencrypted.

Server-side encryption with Amazon S3 managed keys (SSE-S3)

Object Lock

When enabled, objects in this bucket might be prevented from being deleted or overwritten for a fixed amount of time or indefinitely. Learn more ☑

Disabled

⚠ We recommend that you enable Bucket Versioning to help protect against unintentionally overwriting or deleting objects. Learn more ☑

Enable Bucket Versioning

Specified objects

🔍 Find objects by name

Name ▲	Type ▽	Last modified ▽	Size ▽
📄 Darshit_Pithadia_MSc_DS.pdf	pdf	March 5, 2024, 07:50:12 (UTC+05:30)	228.9 KB

Checksums Info

Checksum functions are used for additional data integrity verification of new objects. Learn more ☑

Additional checksums

🔘 Copy existing checksum functions

Apply the same checksum function to the destination object. The checksum value may change compared to when it was added. Learn more ☑

⚪ Replace with a new checksum function

Specify a new checksum function for additional data integrity validation which will overwrite any existing data integrity settings.

Cancel   **Move**

Step 12- File Moved Successfully

⊘ **Successfully moved objects**
View details below. To view successfully moved objects, go to the specified destination.

Move: status

Step 13- Delete an Object which is uploaded

Delete objects Info

⚠ • If a folder is selected for deletion, all objects in the folder will be deleted, and any new objects added while the delete action is in progress might also be deleted. If an object is selected for deletion, any new objects with the same name that are uploaded before the delete action is completed will also be deleted.
• Deleting the specified objects can't be undone.

Learn more ↗

Specified objects

Q Find objects by name

Name ▲	Type ▽	Last modified ▽	Size ▽
🗋 Darshit_Pithadia_MSc_DS.pdf	pdf	March 5, 2024, 07:56:43 (UTC+05:30)	228.9 KB

Permanently delete objects?

To confirm deletion, type *permanently delete* in the text input field.

permanently delete

Cancel   **Delete objects**

Step 14- Delete the Folder created now

Delete objects Info

⚠ • If a folder is selected for deletion, all objects in the folder will be deleted, and any new objects added while the delete action is in progress might also be deleted. If an object is selected for deletion, any new objects with the same name that are uploaded before the delete action is completed will also be deleted.
• Deleting the specified objects can't be undone.

Learn more ↗

Specified objects

Q Find objects by name

Name ▲	Type ▽	Last modified ▽	Size ▽
🗋 newfolder/	Folder	-	-

Permanently delete objects?

To confirm deletion, type *permanently delete* in the text input field.

permanently delete

Cancel   **Delete objects**

Step 15- Delete the Bucket created now

Step 16- Bucket Deleted Successfully

Step 17- Write a sample HTML code & error code.Recreate a new bucket and follow the above


```
static - Notepad
File  Edit  Format  View  Help
<!DOCTYPE html>
<html>
<body>

<p>This is a paragraph.</p>
<p>This is another paragraph.</p>

</body>
</html>
```

```
error - Notepad
File  Edit  Format  View  Help
<!DOCTYPE html>
<html>
<body>

<p> Error 404 Not Found</p>

</body>
</html>
```

Step 18- Upload the static.html and error.html file

Step 19- Go to properties and edit the static hosting for the bucket

Step 20- Static Hosting enabled
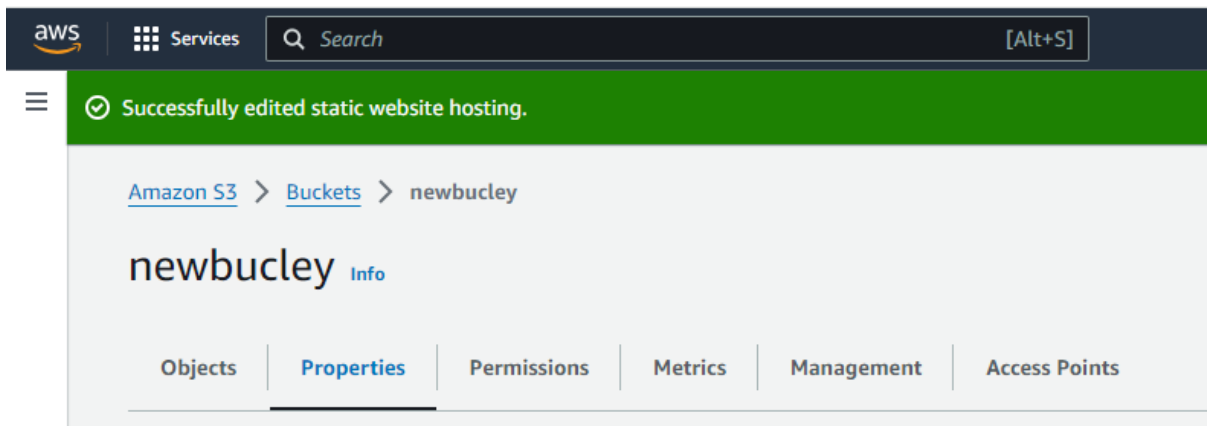
Step 21- Enabled Static Hosting

Static website hosting

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

Static website hosting
Enabled
Hosting type
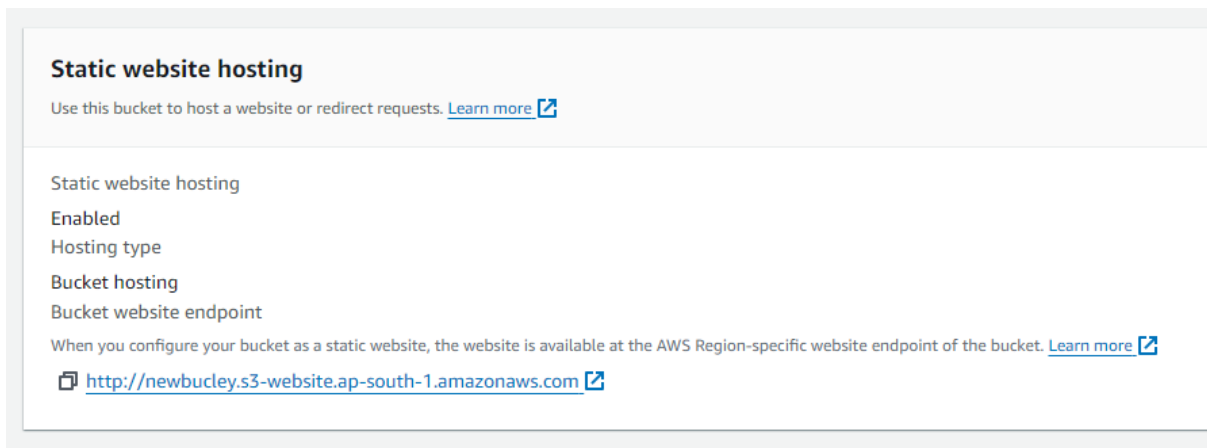Bucket hosting
Bucket website endpoint
When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. Learn more ⧉

⧉ http://newbucley.s3-website.ap-south-1.amazonaws.com ⧉

Step 22- Select the Bucket and under that go to permissions and create a new bucket policy
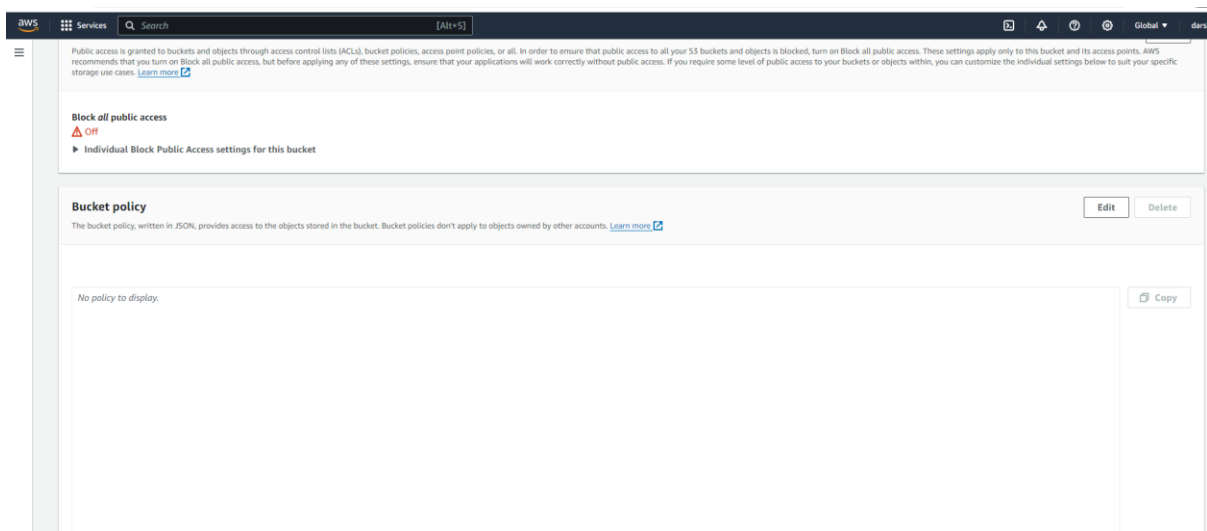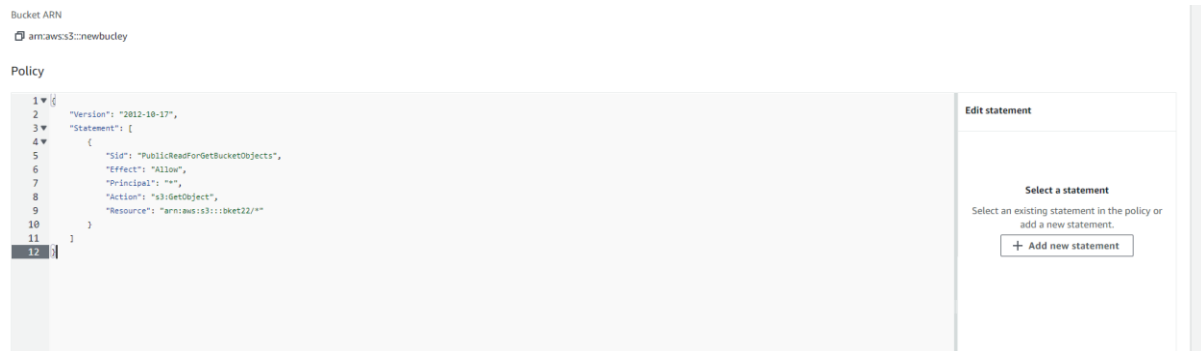

Step 23- Write the following Policy for the same

{
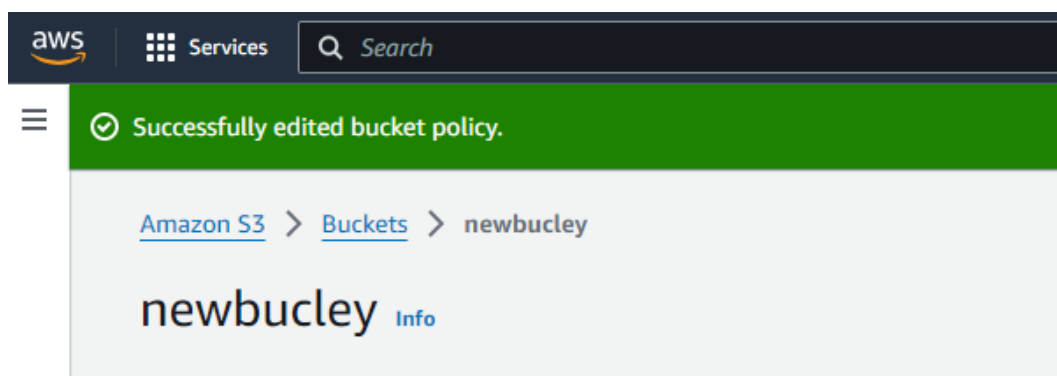 "Version": "2012-10-17",
  "Statement": [

```
{
    "Sid": "PublicReadForGetBucketObjects",
    "Effect": "Allow",
    "Principal": "*",
    "Action": "s3:GetObject",
    "Resource": "arn:aws:s3:::newbuckley/*" ## Change according to your bucket
    }
  ]
}
```

Bucket ARN

arn:aws:s3:::newbucley

Policy

```
1 ▼ {
2    "Version": "2012-10-17",
3 ▼   "Statement": [
4 ▼      {
5            "Sid": "PublicReadForGetBucketObjects",
6            "Effect": "Allow",
7            "Principal": "*",
8            "Action": "s3:GetObject",
9            "Resource": "arn:aws:s3:::bket22/*"
10       }
11    ]
12 }
```

Edit statement

Select a statement

Select an existing statement in the policy or
add a new statement.

+ Add new statement

Step 24- Edited Successfully

aws   ::: Services   Q Search

≡   ⊘ Successfully edited bucket policy.

Amazon S3 > Buckets > newbucley

newbucley Info

Step 25- Click on the Static website link and this is the output

This is a paragraph.

This is another paragraph.

–