

# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard

**Objective:** Build a dashboard to monitor and optimize cloud usage and costs.

**Guidelines:**

- Use AWS Cost Explorer API or Azure Cost Management.
- Visualize in Power BI or Grafana.
- Add budget alerts and optimization tips.

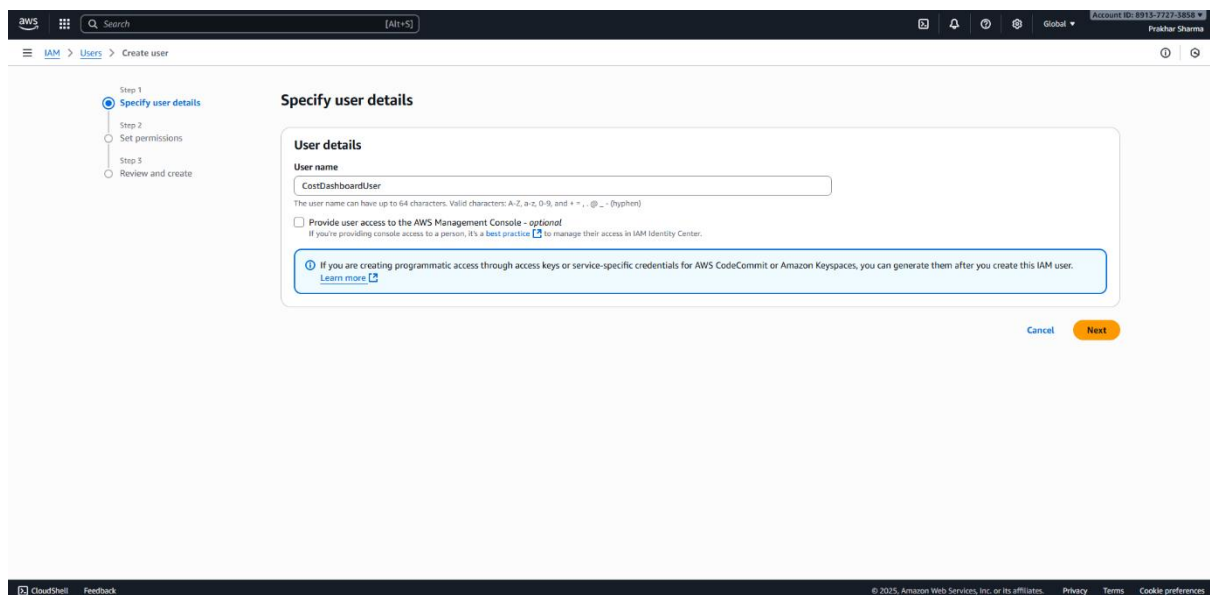
Step – 1] Go to AWS Management Console and log in.

Step – 2] Search IAM, At left navigation menu click on user.

Step – 3] Click create user.

Step – 4] Name the user.

Step – 5] Click next.



The screenshot shows the AWS IAM 'Create user' wizard. On the left, a progress bar indicates four steps: 'Specify user details' (selected), 'Set permissions', 'Review and create', and 'Review and create'. The main area is titled 'Specify user details' and contains a 'User details' section. The 'User name' field is populated with 'CostDashboardUser'. Below this, there is a checkbox for 'Provide user access to the AWS Management Console - optional', which is currently unchecked. A note states: 'If you're providing console access to a person, it's a best practice to manage their access in IAM Identity Center.' At the bottom of the form, there is a 'Next' button in orange and a 'Cancel' button in blue. The footer of the console shows '© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences'.

Step – 6] In the Navigation menu, Click on policy and open it in new tab.

Step – 7] Create policy.

Step – 8] Write the policy you want or as shown below .

# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard

The screenshot shows the AWS IAM console 'Create policy' wizard, Step 1: Specify permissions. The 'Policy editor' is in JSON mode, displaying a policy document that allows actions like 'ce:GetCostAndUsage', 'ce:GetCostForecast', 'ce:GetReservationUtilization', and 'ce:GetDimensionValues' on all resources. The 'Edit statement' panel on the right is empty, with a 'Select a statement' prompt and an 'Add new statement' button. The bottom status bar indicates '5964 of 6144 characters remaining'.

```
1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Effect": "Allow",
6       "Action": [
7         "ce:GetCostAndUsage",
8         "ce:GetCostForecast",
9         "ce:GetReservationUtilization",
10        "ce:GetDimensionValues"
11      ],
12      "Resource": "*"
13    }
14  ]
15 }
```

Step – 9] Click save and next.

Step -10] Name the policy and its description.

Step – 11] Click create policy.

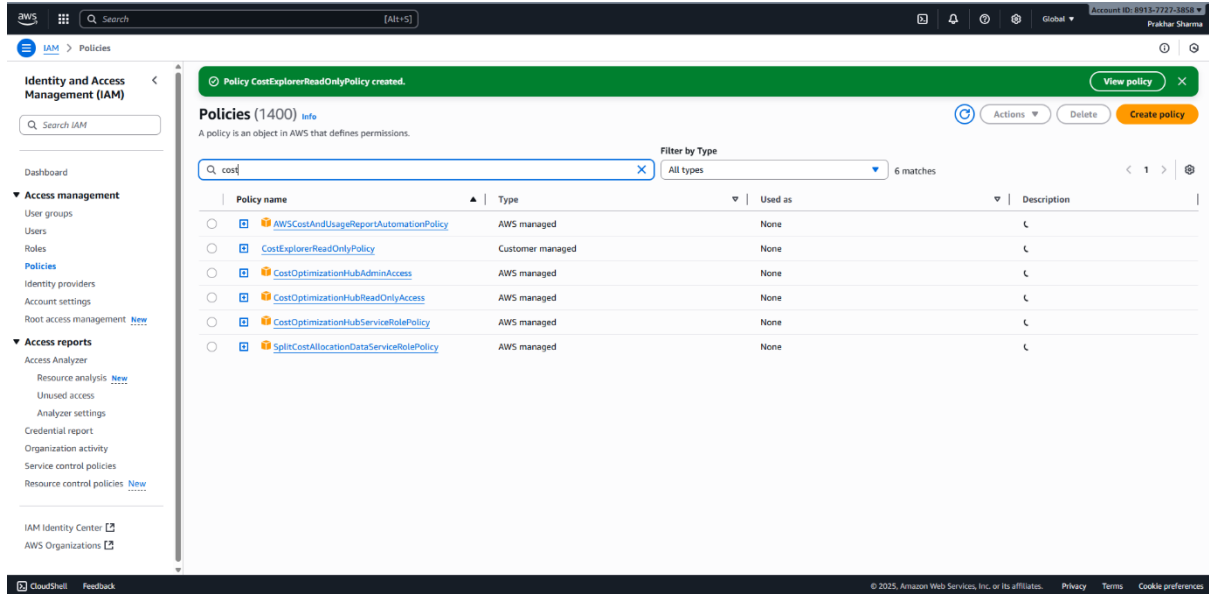
The screenshot shows the AWS IAM console 'Create policy' wizard, Step 2: Review and create. The 'Policy details' section has a 'Policy name' field with 'CostExplorerReadOnlyPolicy' and a 'Description - optional' field with 'Cost Explorer Read Only Policy'. The 'Permissions defined in this policy' section shows a table with one permission: 'Cost Explorer Service' with 'Limited: Read' access level and 'All resources' as the resource. The 'Add tags - optional' section is empty, showing 'No tags associated with the resource.'

Service	Access level	Resource	Request condition
Cost Explorer Service	Limited: Read	All resources	None

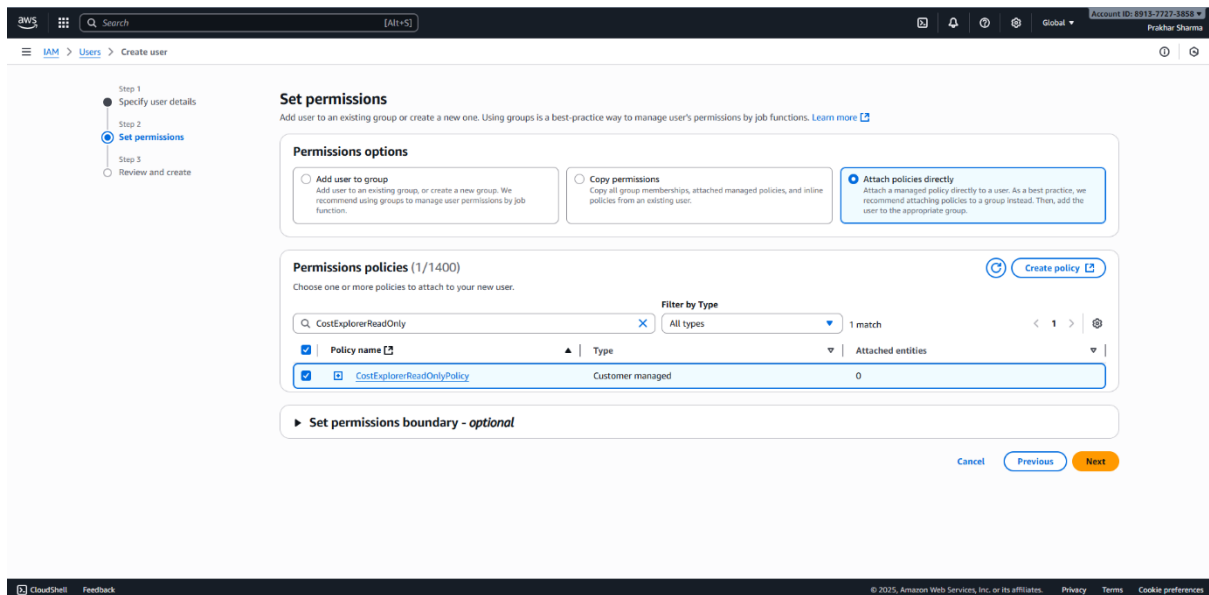
# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard



Step – 12] Now go back to IAM user you are creating, and attach the policy you created and click next .



# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard

Step -13] Click create user .

The screenshot shows the AWS IAM 'Create user' page, Step 3: Review and create. The page has a sidebar with navigation links for IAM, Users, and Create user. The main content area is titled 'Review and create' and includes a progress indicator showing three steps: Step 1: Specify user details, Step 2: Set permissions, and Step 3: Review and create. The 'User details' section shows the user name 'CostDashboardUser', console password type 'None', and 'Require password reset' set to 'No'. The 'Permissions summary' section shows a table with one policy: 'CostExplorerReadOnlyPolicy', which is a 'Customer managed' policy. The 'Tags' section is optional and currently empty. At the bottom right, there are buttons for 'Cancel', 'Previous', and 'Create user'.

The screenshot shows the AWS IAM 'Users' page. A green banner at the top indicates 'User created successfully' with a 'View user' button. The 'Users (1)' section shows a table with one user: 'CostDashboardUser'. The table has columns for User name, Path, Groups, Last activity, MFA, Password age, Console last sign-in, Access key ID, Active key age, and Access. The user 'CostDashboardUser' has a path of '/', is in group '0', and has no last activity, MFA, password age, or console last sign-in. The 'Access key ID' and 'Active key age' are also empty. The 'Access' column is empty. The sidebar on the left shows the 'Identity and Access Management (IAM)' navigation menu with links for Dashboard, Access management (User groups, Users, Roles, Policies, Identity providers, Account settings, Root access management), Access reports (Access Analyzer, Resource analysis, Unused access, Analyzer settings, Credential report, Organization activity, Service control policies, Resource control policies), IAM Identity Center, and AWS Organizations.

Step – 14] Now go to Security credential at top right corner.

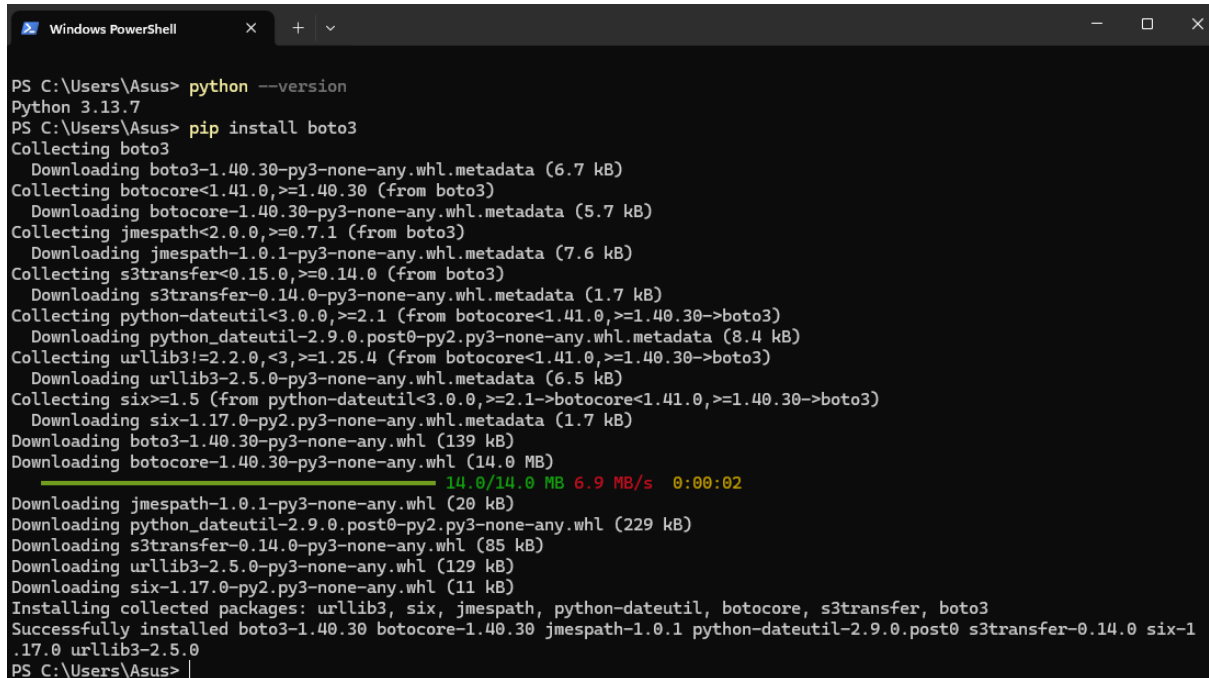
Step – 15] Create access key and secret key , and save it in notepad .



# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard



```
PS C:\Users\Asus> python --version
Python 3.13.7
PS C:\Users\Asus> pip install boto3
Collecting boto3
  Downloading boto3-1.40.30-py3-none-any.whl.metadata (6.7 kB)
Collecting botocore<1.41.0,>=1.40.30 (from boto3)
  Downloading botocore-1.40.30-py3-none-any.whl.metadata (5.7 kB)
Collecting jmespath<2.0.0,>=0.7.1 (from boto3)
  Downloading jmespath-1.0.1-py3-none-any.whl.metadata (7.6 kB)
Collecting s3transfer<0.15.0,>=0.14.0 (from boto3)
  Downloading s3transfer-0.14.0-py3-none-any.whl.metadata (1.7 kB)
Collecting python-dateutil<3.0.0,>=2.1 (from botocore<1.41.0,>=1.40.30->boto3)
  Downloading python_dateutil-2.9.0.post0-py2.py3-none-any.whl.metadata (8.4 kB)
Collecting urllib3!=2.2.0,<3,>=1.25.4 (from botocore<1.41.0,>=1.40.30->boto3)
  Downloading urllib3-2.5.0-py3-none-any.whl.metadata (6.5 kB)
Collecting six>=1.5 (from python-dateutil<3.0.0,>=2.1->botocore<1.41.0,>=1.40.30->boto3)
  Downloading six-1.17.0-py2.py3-none-any.whl.metadata (1.7 kB)
Downloading boto3-1.40.30-py3-none-any.whl (139 kB)
Downloading botocore-1.40.30-py3-none-any.whl (14.0 MB)
 14.0/14.0 MB 6.9 MB/s 0:00:02
Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)
Downloading python_dateutil-2.9.0.post0-py2.py3-none-any.whl (229 kB)
Downloading s3transfer-0.14.0-py3-none-any.whl (85 kB)
Downloading urllib3-2.5.0-py3-none-any.whl (129 kB)
Downloading six-1.17.0-py2.py3-none-any.whl (11 kB)
Installing collected packages: urllib3, six, jmespath, python-dateutil, botocore, s3transfer, boto3
Successfully installed boto3-1.40.30 botocore-1.40.30 jmespath-1.0.1 python-dateutil-2.9.0.post0 s3transfer-0.14.0 six-1.17.0 urllib3-2.5.0
PS C:\Users\Asus>
```

Step – 17] Now write a python script for fetching the cost for AWS cost explorer ,like shown below .

## Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

### Major Project : Cloud Cost Optimization Dashboard

```
fetch_cost.py X
C: > Users > Asus > Documents > Internship > Codec Clouud internship > fetch_cost.py >
1  import boto3
2  from datetime import datetime, timedelta
3  import json
4
5  # AWS credentials
6  AWS_ACCESS_KEY = 'AKIA47CRZZQBPIMNB5FV'
7  AWS_SECRET_KEY = '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'
8
9  client = boto3.client(
10     'ce',
11     aws_access_key_id=AWS_ACCESS_KEY,
12     aws_secret_access_key=AWS_SECRET_KEY,
13     region_name='us-east-1'
14 )
15
16 def fetch_cost_data():
17     today = datetime.today().date()
18     start = (today - timedelta(days=30)).strftime('%Y-%m-%d')
19     end = today.strftime('%Y-%m-%d')
20
21     response = client.get_cost_and_usage(
22         TimePeriod={'Start': start, 'End': end},
23         Granularity='DAILY',
24         Metrics=['UnblendedCost']
25     )
26     return response['ResultsByTime']
27
28 def save_data(data):
29     with open('cost-data.json', 'w') as f:
30         json.dump(data, f, indent=4)
31
32 if __name__ == '__main__':
33     cost_data = fetch_cost_data()
34     save_data(cost_data)
35     print(f"Saved {len(cost_data)} days of cost data.")
```

Step -18 ] Now run the script and you will get the output like this which will generate a json file

## Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

Major Project : Cloud Cost  
Optimization Dashboard

named cost-data.json .

```
PS C:\Users\Asus\Documents\Internship\Codec Cloud internship> python fetch_cost.py
Saved 30 days of cost data.
PS C:\Users\Asus\Documents\Internship\Codec Cloud internship> |
```



```
{
  "TimePeriod": {
    "Start": "2025-08-15",
    "End": "2025-08-16"
  },
  "Total": {
    "UnblendedCost": {
      "Amount": "-0",
      "Unit": "USD"
    }
  },
  "Groups": [],
  "Estimated": false
},
{
  "TimePeriod": {
    "Start": "2025-08-16",
    "End": "2025-08-17"
  },
  "Total": {
    "UnblendedCost": {
      "Amount": "0",
      "Unit": "USD"
    }
  },
  "Groups": [],
  "Estimated": false
},
{
  "TimePeriod": {
    "Start": "2025-08-17",
    "End": "2025-08-18"
  },
  "Total": {
    "UnblendedCost": {
      "Amount": "0",
      "Unit": "USD"
    }
  },
  "Groups": [],
  "Estimated": false
}
```



## **Codec Technologies : 1-Month Cloud Internship**

**Name :Prakhar Anil Sharma**

**Major Project : Cloud Cost  
Optimization Dashboard**

---

Step – 19] Now write a html page code for the dashboard of the project I want to make and the code will be like below .

# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard

```
fetch_cost.py  index.html X
C: > Users > Asus > Documents > Internship > Codec Cloud internship > index.html > html
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>Cloud Cost Optimization Dashboard</title>
5      <script src="https://cdn.jsdelivr.net/npm/chart.js"></script>
6  </head>
7  <body>
8      <h1>Daily Cloud Costs (Last 30 Days)</h1>
9      <canvas id="costChart" width="800" height="400"></canvas>
10
11     <h2>Optimization Tips</h2>
12     <ul id="alerts"></ul>
13
14     <script>
15         fetch('cost-data.json')
16             .then(response => response.json())
17             .then(data => {
18                 const labels = data.map(d => d.TimePeriod.Start);
19                 const costs = data.map(d => parseFloat(d.Total.UnblendedCost.Amount));
20
21                 new Chart(document.getElementById('costChart'), {
22                     type: 'line',
23                     data: {
24                         labels: labels,
25                         datasets: [{
26                             label: 'Daily Cost (USD)',
27                             data: costs,
28                             borderColor: 'blue',
29                             fill: false
30                         }]
31                     }
32                 });
33
34                 // Simple Hardcoded Optimization Tips
35                 const alerts = [
36                     "Review EC2 instances for underutilization.",
37                     "Implement S3 lifecycle rules to reduce storage costs.",
38                     "Use Reserved Instances for steady workloads."
39                 ];
40
41                 const alertsContainer = document.getElementById('alerts');
42                 alerts.forEach(alert => {
43                     const li = document.createElement('li');
44                     li.textContent = alert;
45                     alertsContainer.appendChild(li);
46                 });
47             });
48     </script>
49 </body>
50 </html>
```

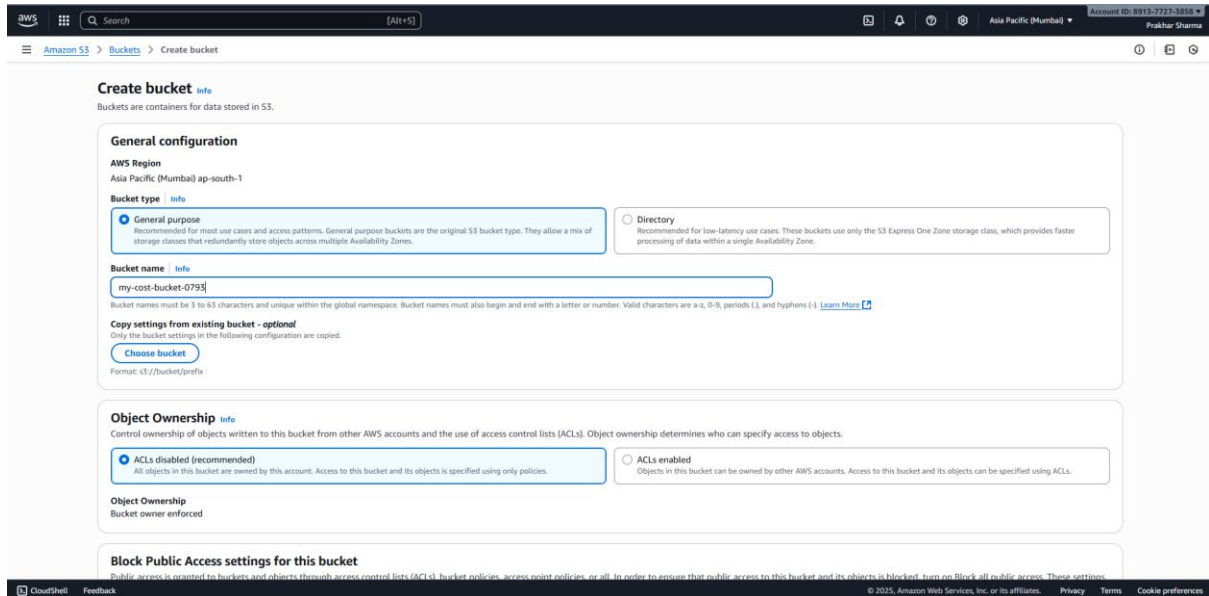
# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard

Step – 20] Now go to AWS and search S3 bucket and click create bucket .

Step – 21] Name the bucket .



**Create bucket** [info](#)

Buckets are containers for data stored in S3.

**General configuration**

**AWS Region**  
Asia Pacific (Mumbai) ap-south-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**  
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](#)  
my-cost-bucket-0793  
Bucket names must be 3 to 63 characters and unique within the global namespace. Bucket names must also begin and end with a letter or number. Valid characters are a-z, 0-9, periods (.), and hyphens (-). [Learn More](#)

**Copy settings from existing bucket - optional**  
Only the bucket settings in the following configuration are copied.

Format: s3://bucket/prefix

**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.

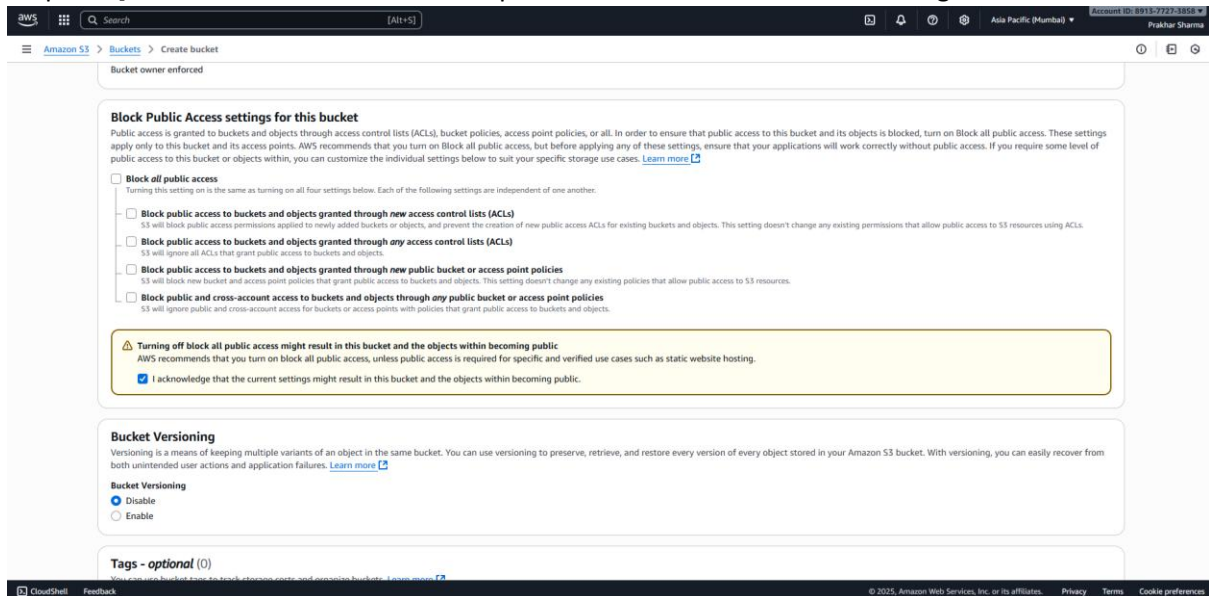
☒ **ACLs disabled (recommended)**  
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

☐ **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

**Block Public Access settings for this bucket**  
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 this bucket and its 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 this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Step – 22] Now uncheck the box of block public access and tick the acknowledgement box .



**Block Public Access settings for this bucket**  
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 this bucket and its 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 this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

☐ **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.**

**Bucket Versioning**  
Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

**Bucket Versioning**

☒ **Disable**

☐ **Enable**

**Tags - optional** (0)  
You can use bucket tags to track storage costs and manage buckets. [Learn more](#)

# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard

Step – 23] Now click create bucket .

Amazon S3 > Buckets

General purpose buckets

Directory buckets

Table buckets

Vector buckets

Access Grants

Access Points (General Purpose Buckets, FSx file systems)

Access Points (Directory Buckets)

Object Lambda Access Points

Multi-Region Access Points

Batch Operations

IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens

Dashboards

Storage Lens groups

AWS Organizations settings

Feature spotlight

AWS Marketplace for S3

Successfully created bucket "my-cost-bucket-0793"  
To upload files and folders, or to configure additional bucket settings, choose View details.

General purpose buckets | All AWS Regions | Directory buckets

General purpose buckets (1) Info

Buckets are containers for data stored in S3.

Find buckets by name

Name	AWS Region	Creation date
my-cost-bucket-0793	Asia Pacific (Mumbai) ap-south-1	September 14, 2025, 18:03:48 (UTC+05:30)

Account snapshot Info

Updated daily

Storage Lens provides visibility into storage usage and activity trends.

View dashboard

External access summary - new Info

Updated daily

External access findings help you identify bucket permissions that allow public access or access from other AWS accounts.

CloudShell Feedback

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Step – 24] Now click on the bucket, and upload the index.html and cost-data.json file .

Amazon S3 > Buckets > my-cost-bucket-0793 > Upload

Upload Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDKs or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose Add files or Add folder.

Files and folders (2 total, 11.2 KB)

All files and folders in this table will be uploaded.

Find by name

Name	Folder	Type	Size
cost-data.json	-	application/json	9.5 KB
index.html	-	text/html	1.7 KB

Remove Add files Add folder

Destination Info

Destination

s3://my-cost-bucket-0793

Destination details

Bucket settings that impact new objects stored in the specified destination.

Permissions

Grant public access and access to other AWS accounts.

Properties

Specify storage class, encryption settings, tags, and more.

Cancel Upload

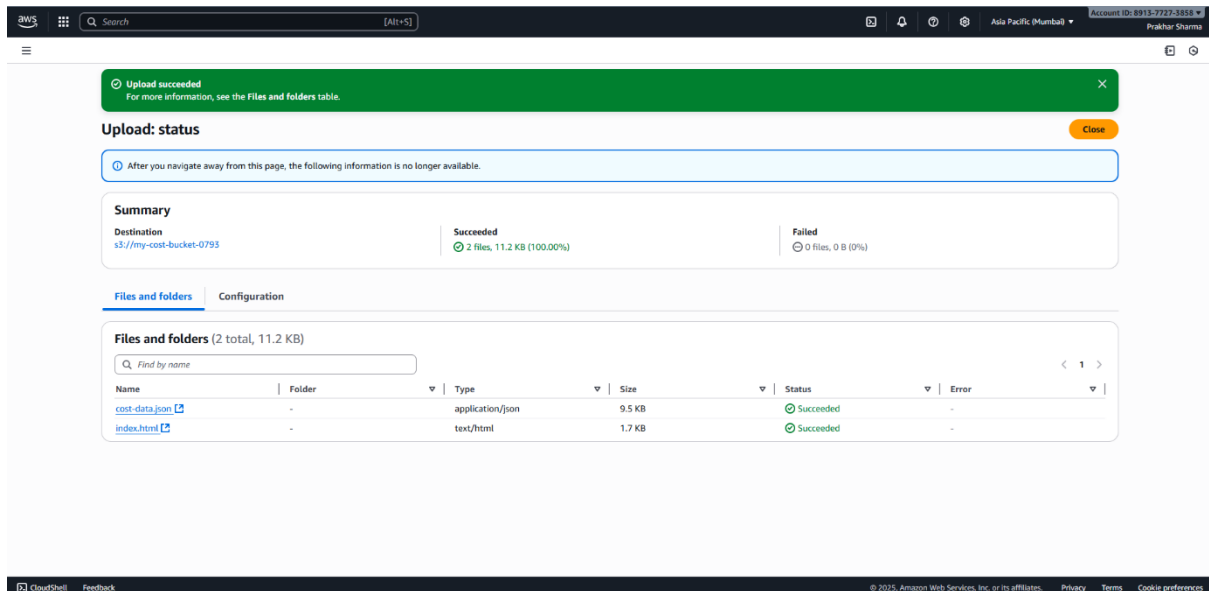
CloudShell Feedback

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

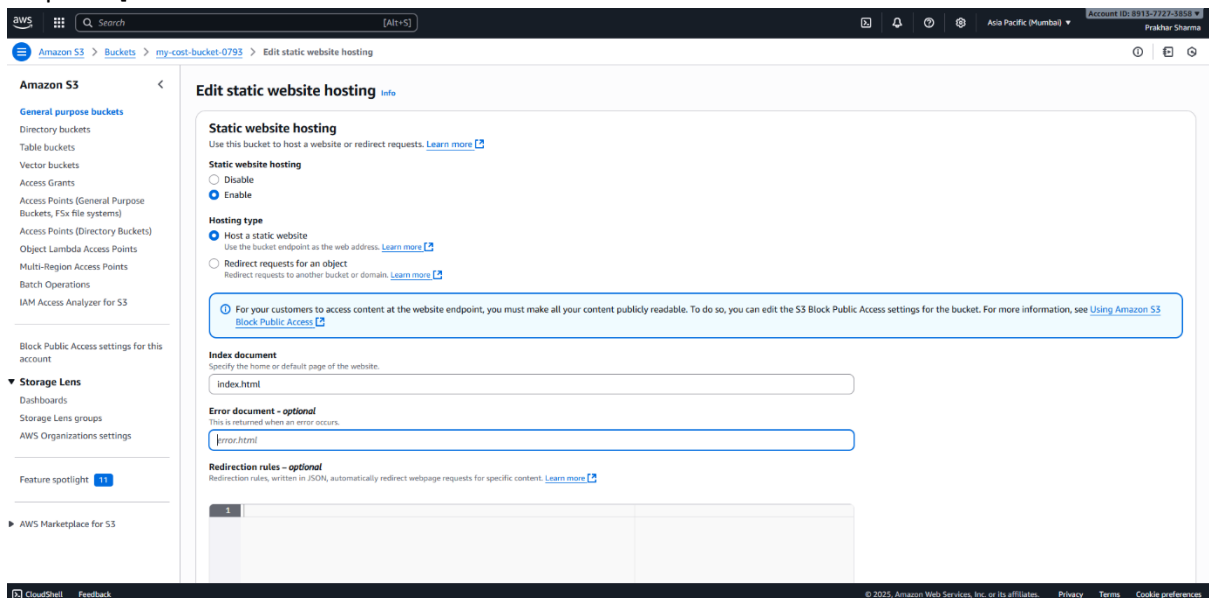
## Major Project : Cloud Cost Optimization Dashboard



Step – 25] Now go to permission tab and enable the static website hosting .

Step -26] Now in Index document write index.html as main page .

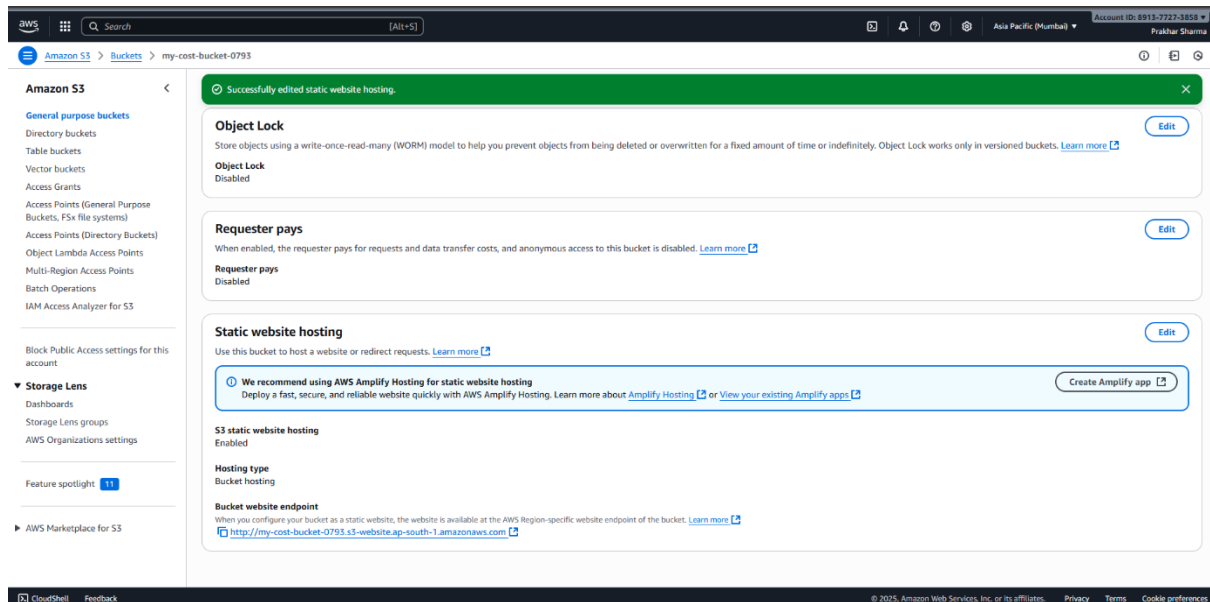
Step – 27[ Click save.



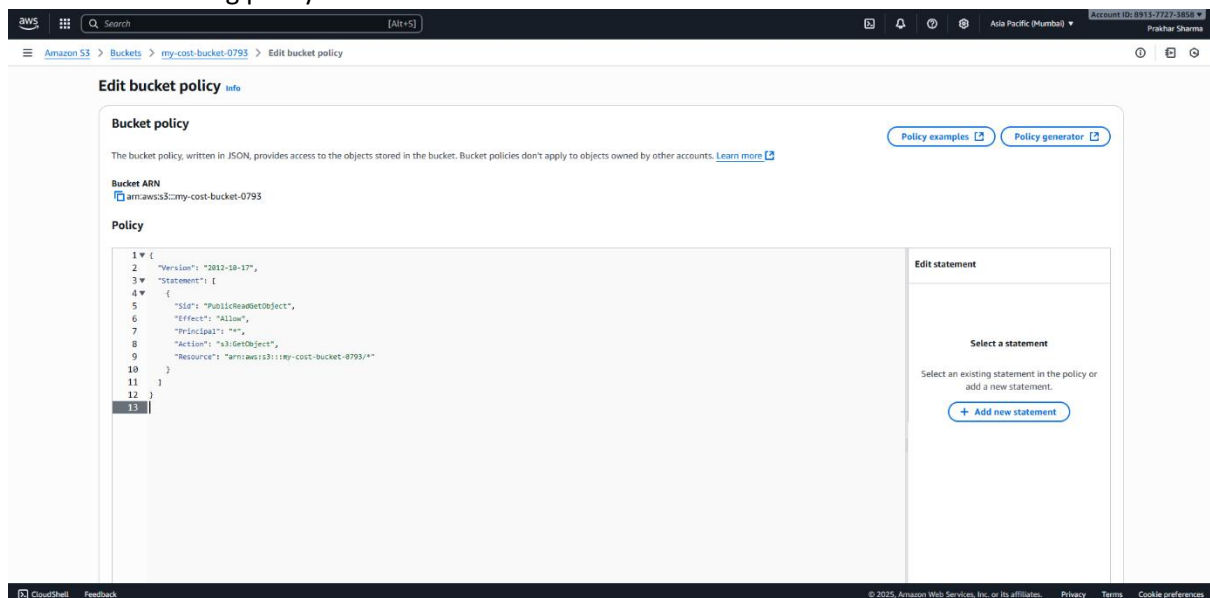
# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard



Step – 28] Now go to properties tab, and write the policy as shown below by clicking on edit and save it after writing policy .



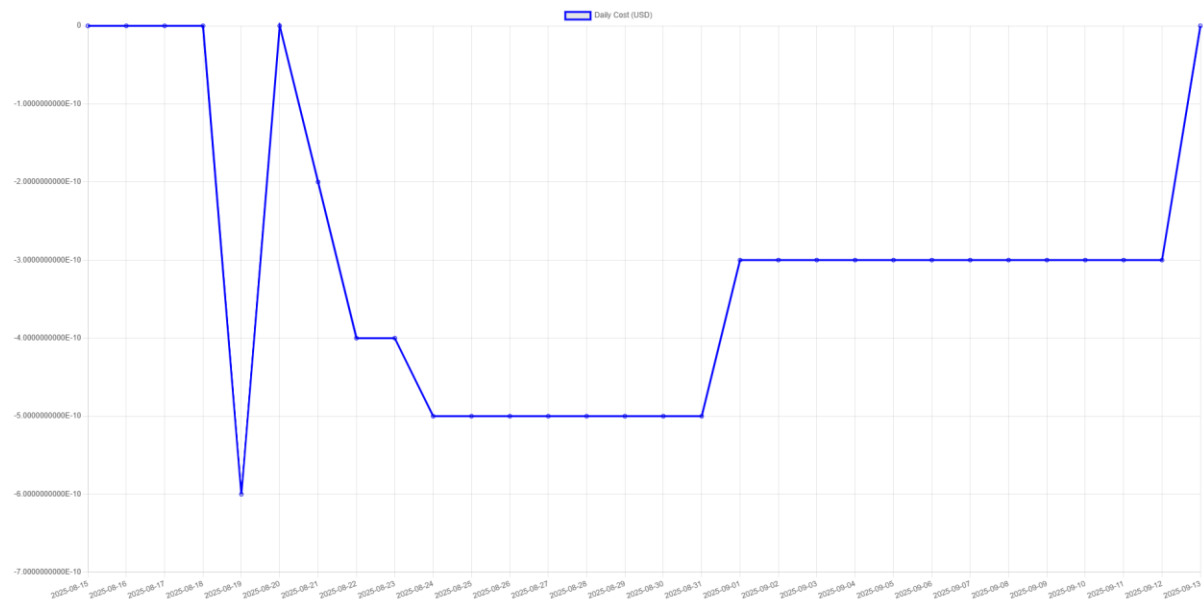
Step – 29] Now copy the static website link and paste it in new tab , you can see the cost dashboard.

# Codec Technologies : 1-Month Cloud Internship

Name :Prakhar Anil Sharma

## Major Project : Cloud Cost Optimization Dashboard

Daily Cloud Costs (Last 30 Days)



## Optimization Tips

- Review EC2 instances for underutilization.
- Implement S3 lifecycle rules to reduce storage costs.
- Use Reserved Instances for steady workloads.