Codec Technologies : 1-Month Cloud Internship

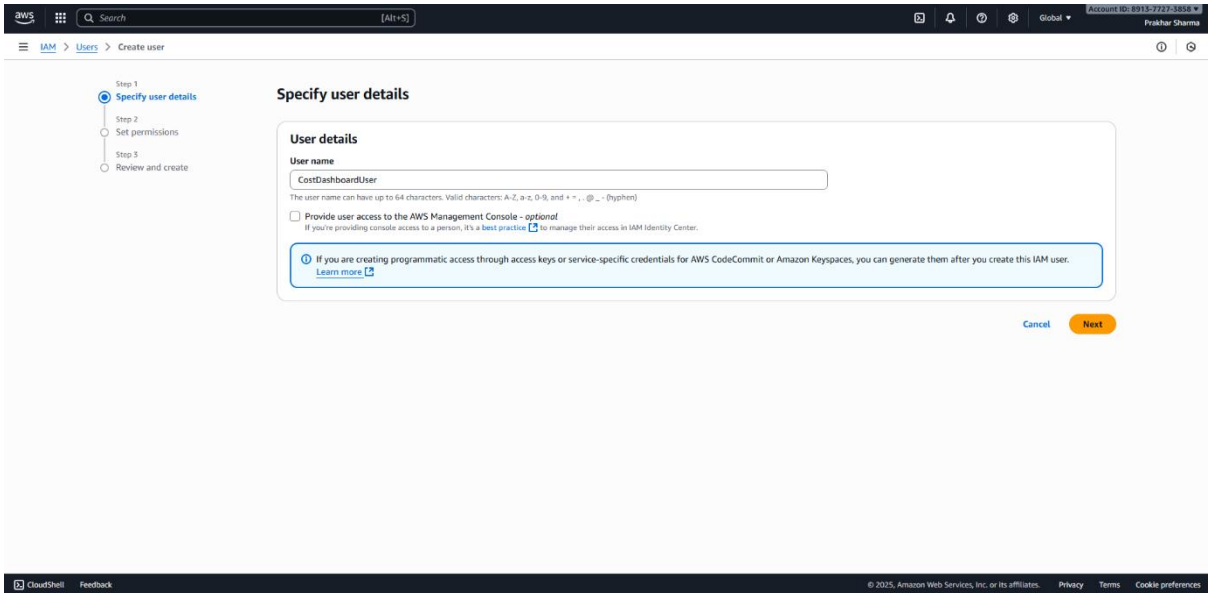
Name :Prakhar Anil Sharma

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.



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 .

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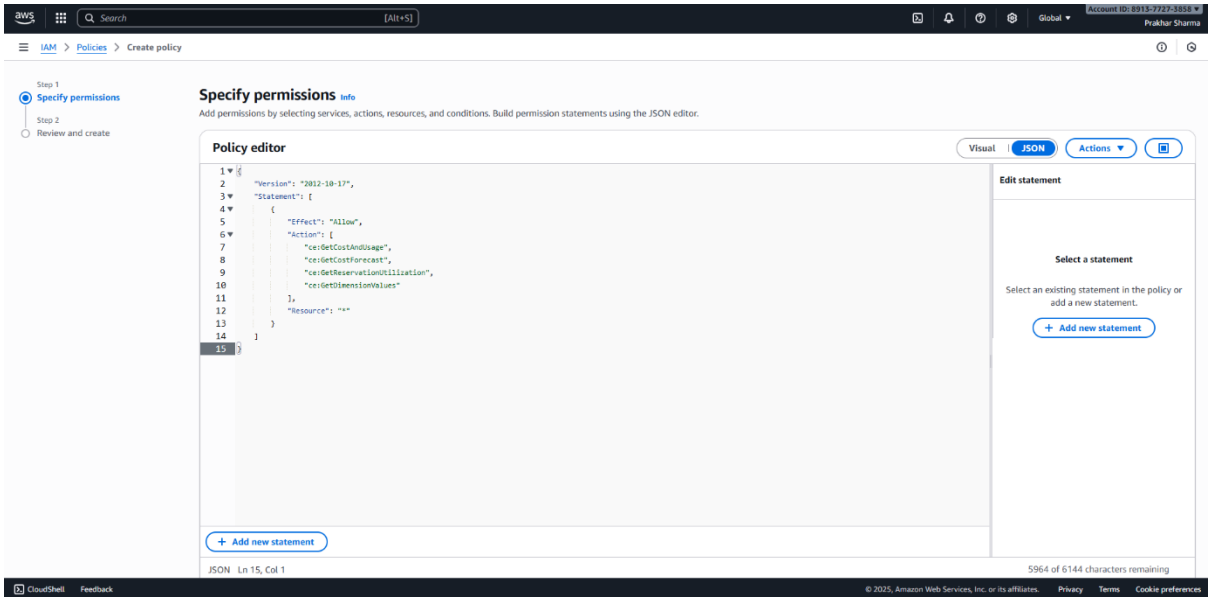
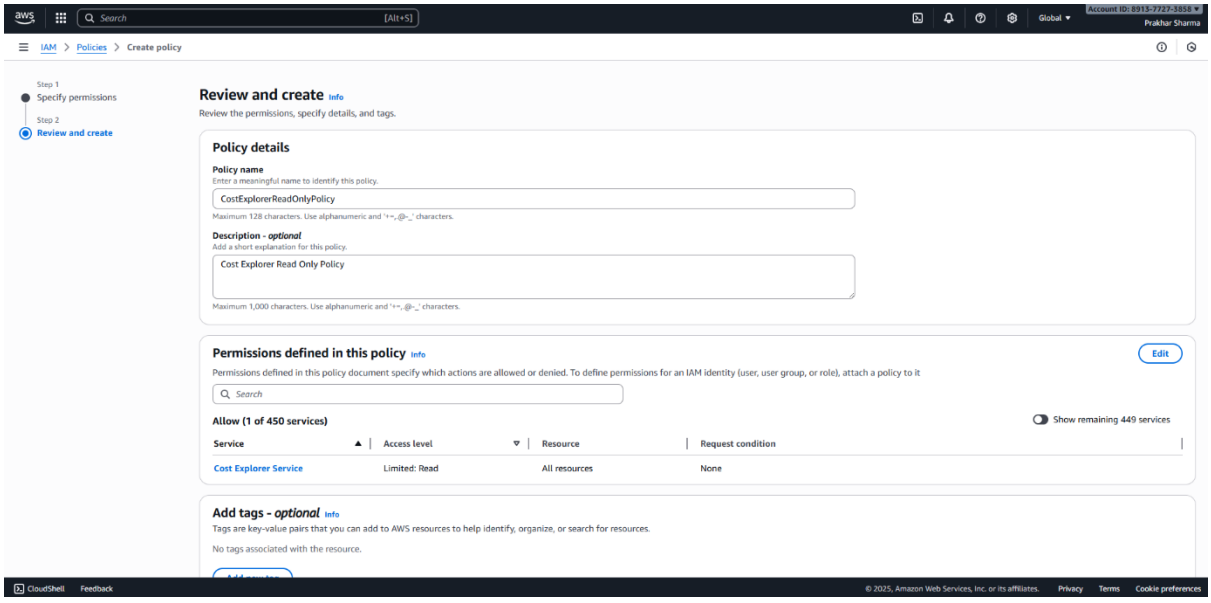


Step – 9] Click save and next.
Step -10] Name the policy and its description.
Step – 11] Click create policy.



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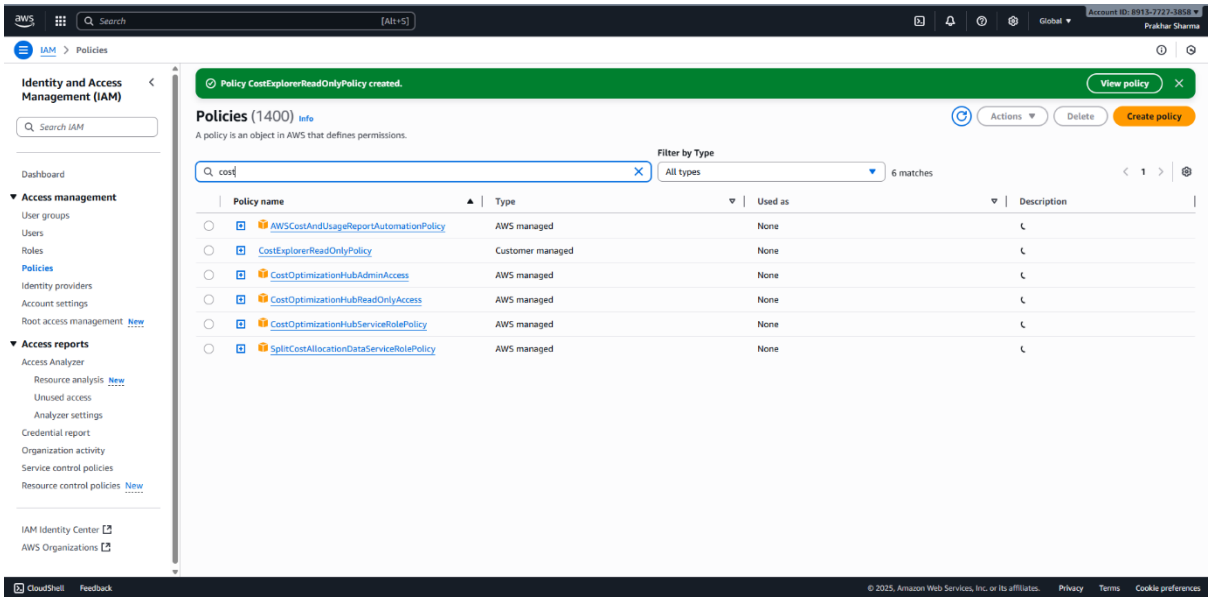
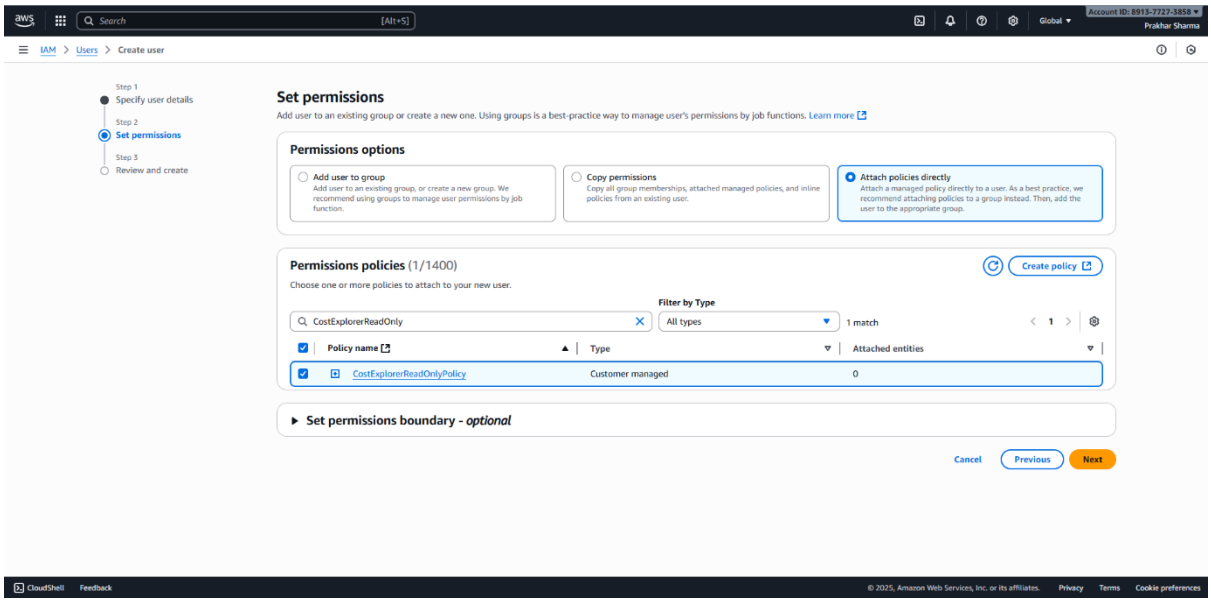
Major Project : Cloud Cost Optimization Dashboard



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



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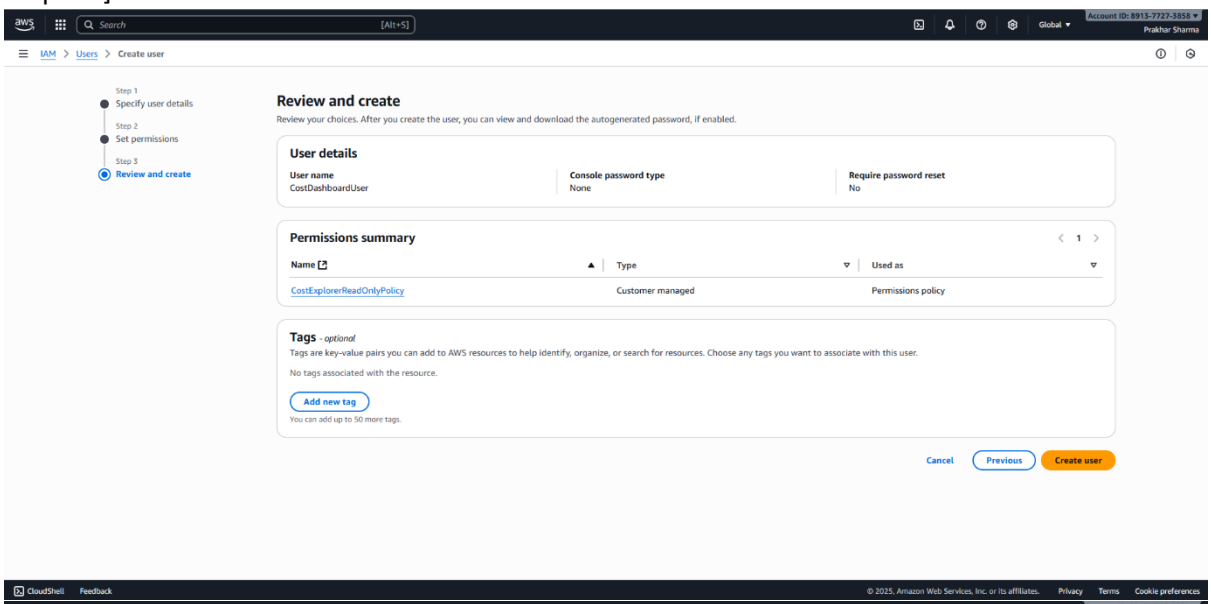
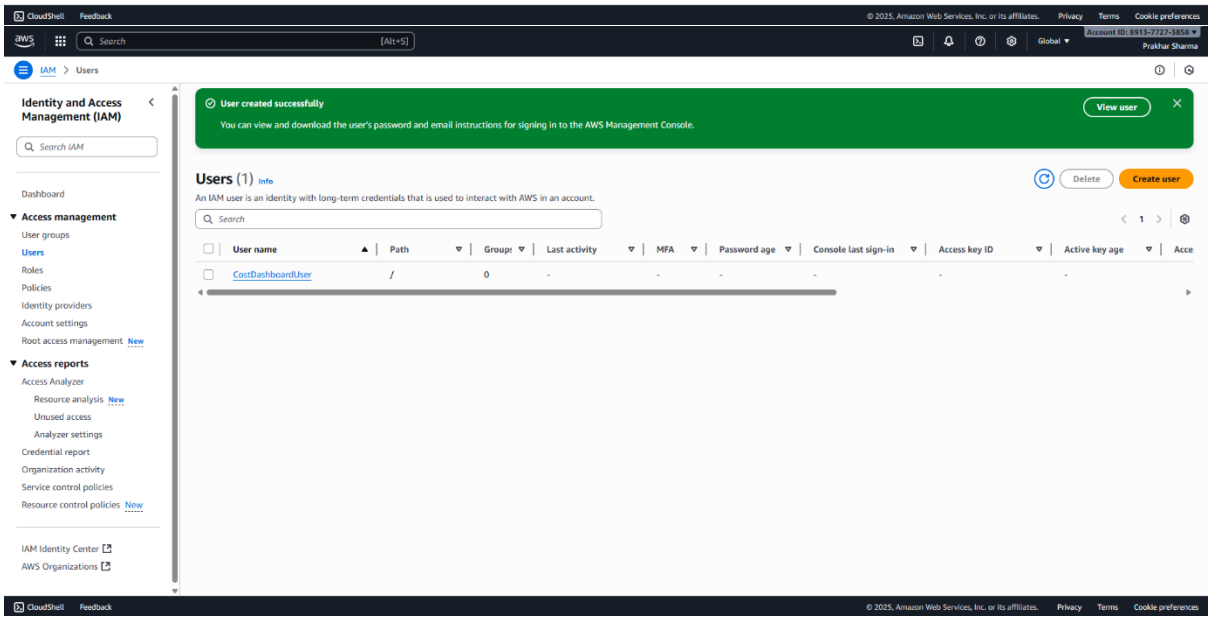
Major Project : Cloud Cost Optimization Dashboard

Step -13] Click create user .





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

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

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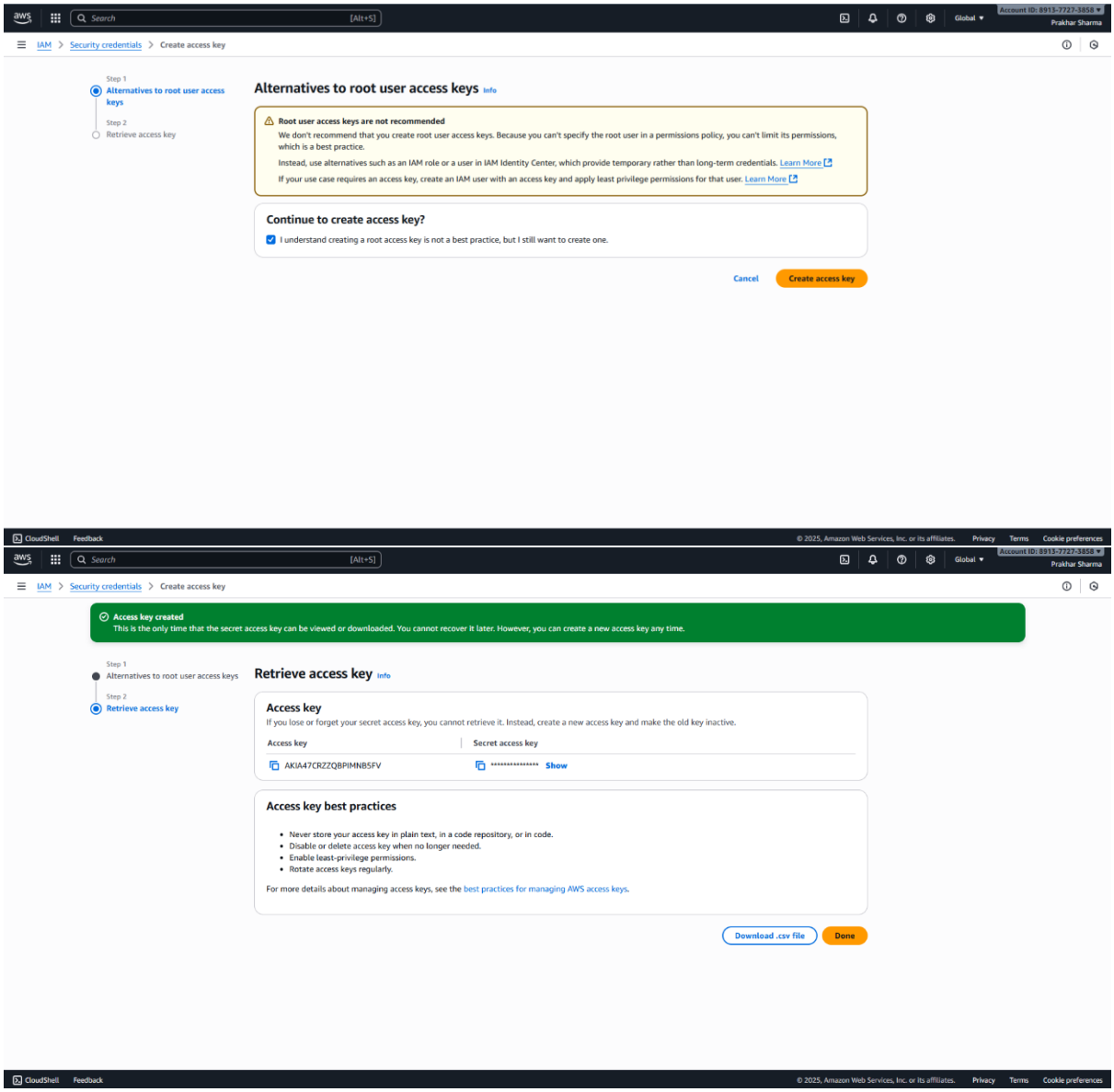
Major Project : Cloud Cost Optimization Dashboard



Step – 16] Now Install Python and boto3 on your machine .

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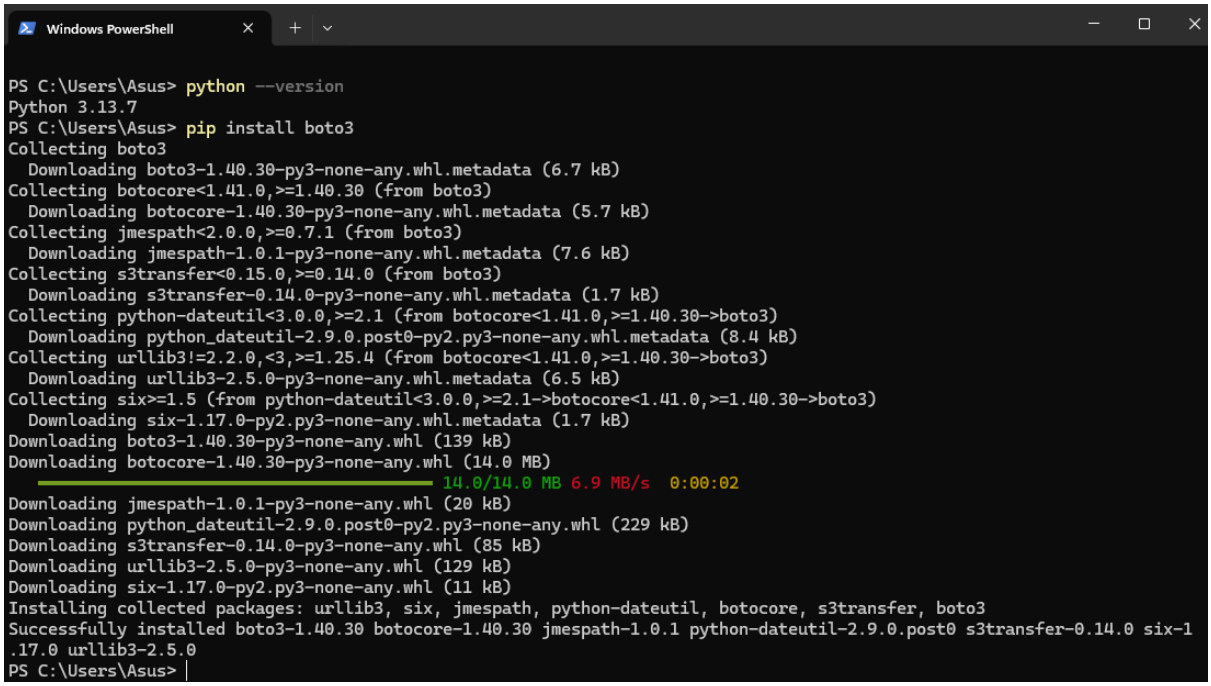

Step – 17] Now write a python script for fetching the cost for AWS cost explorer ,like shown below .

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Name :Prakhar Anil Sharma

Major Project : Cloud Cost Optimization Dashboard

fetch_cost.py

C: > Users > Asus > Documents > Internship > Codec Clouud internship > fetch_cost.py

```python
import boto3
from datetime import datetime, timedelta
import json

# AWS credentials
AWS_ACCESS_KEY = 'AKIA47CRZZQBPIMNB5FV'
AWS_SECRET_KEY = '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'

client = boto3.client(
    'ce',
    aws_access_key_id=AWS_ACCESS_KEY,
    aws_secret_access_key=AWS_SECRET_KEY,
    region_name='us-east-1'
)

def fetch_cost_data():
    today = datetime.today().date()
    start = (today - timedelta(days=30)).strftime('%Y-%m-%d')
    end = today.strftime('%Y-%m-%d')

    response = client.get_cost_and_usage(
        TimePeriod={'Start': start, 'End': end},
        Granularity='DAILY',
        Metrics=['UnblendedCost']
    )
    return response['ResultsByTime']

def save_data(data):
    with open('cost-data.json', 'w') as f:
        json.dump(data, f, indent=4)

if __name__ == '__main__':
    cost_data = fetch_cost_data()
    save_data(cost_data)
    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

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>
```

cost-data.json

C: > Users > Asus > Documents > Internship > Codec Cloud int


```json
[
    {
        "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"
        },
```

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 .

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Name :Prakhar Anil Sharma

Major Project : Cloud Cost Optimization Dashboard

fetch_cost.py | index.html

C: > Users > Asus > Documents > Internship > Codec Cloud internship > index.html > html

```
<!DOCTYPE html>
<html>
<head>
    <title>Cloud Cost Optimization Dashboard</title>
    <script src="https://cdn.jsdelivr.net/npm/chart.js"></script>
</head>
<body>
    <h1>Daily Cloud Costs (Last 30 Days)</h1>
    <canvas id="costChart" width="800" height="400"></canvas>

    <h2>Optimization Tips</h2>
    <ul id="alerts"></ul>

    <script>
        fetch('cost-data.json')
            .then(response => response.json())
            .then(data => {
                const labels = data.map(d => d.TimePeriod.Start);
                const costs = data.map(d => parseFloat(d.Total.UnblendedCost.Amount));

                new Chart(document.getElementById('costChart'), {
                    type: 'line',
                    data: {
                        labels: labels,
                        datasets: [{
                            label: 'Daily Cost (USD)',
                            data: costs,
                            borderColor: 'blue',
                            fill: false
                        }]
                    }
                });

                // Simple Hardcoded Optimization Tips
                const alerts = [
                    "Review EC2 instances for underutilization.",
                    "Implement S3 lifecycle rules to reduce storage costs.",
                    "Use Reserved Instances for steady workloads."
                ];

                const alertsContainer = document.getElementById('alerts');
                alerts.forEach(alert => {
                    const li = document.createElement('li');
                    li.textContent = alert;
                    alertsContainer.appendChild(li);
                });
            });
    </script>
</body>
</html>
```

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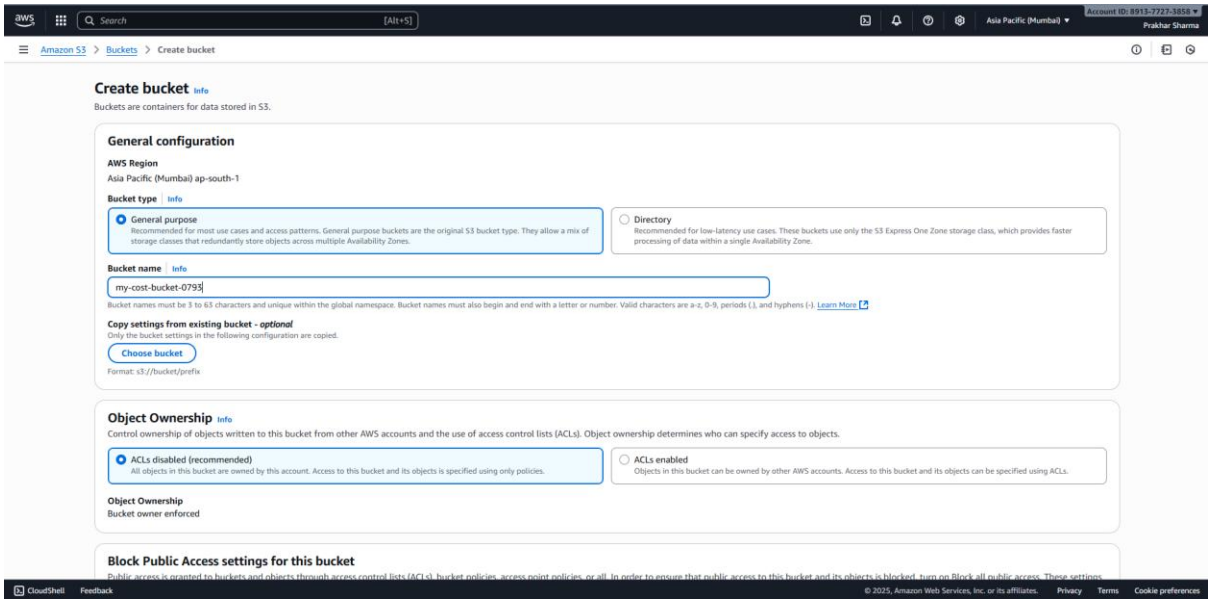
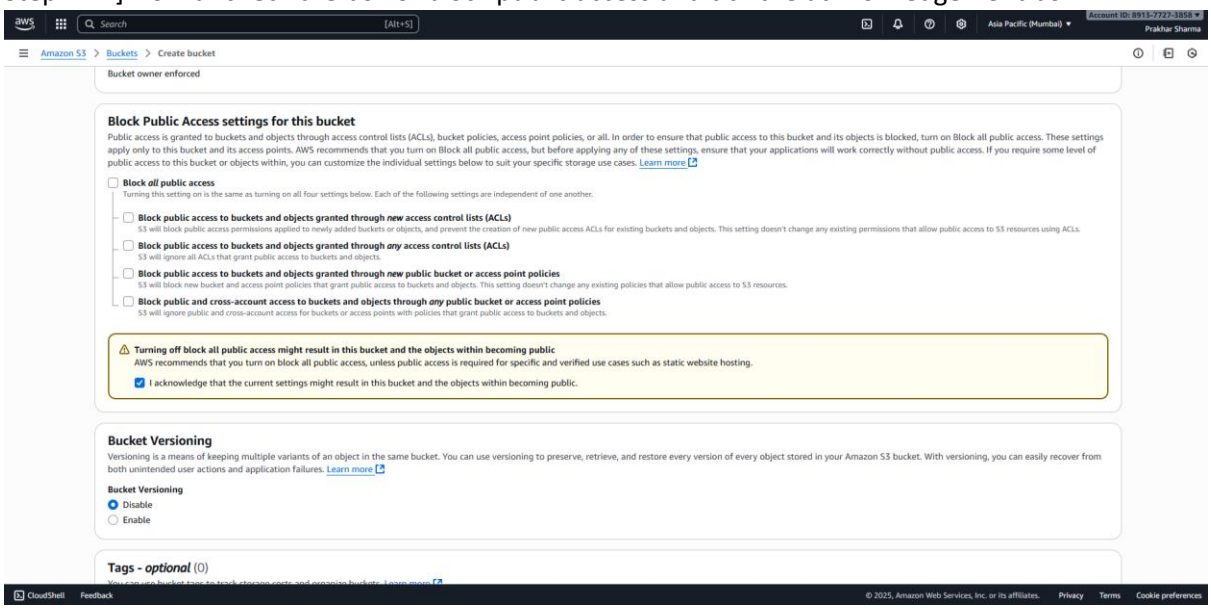
Major Project : Cloud Cost Optimization Dashboard

Step – 20] Now go to AWS and search S3 bucket and click create bucket .
Step – 21] Name the bucket .



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



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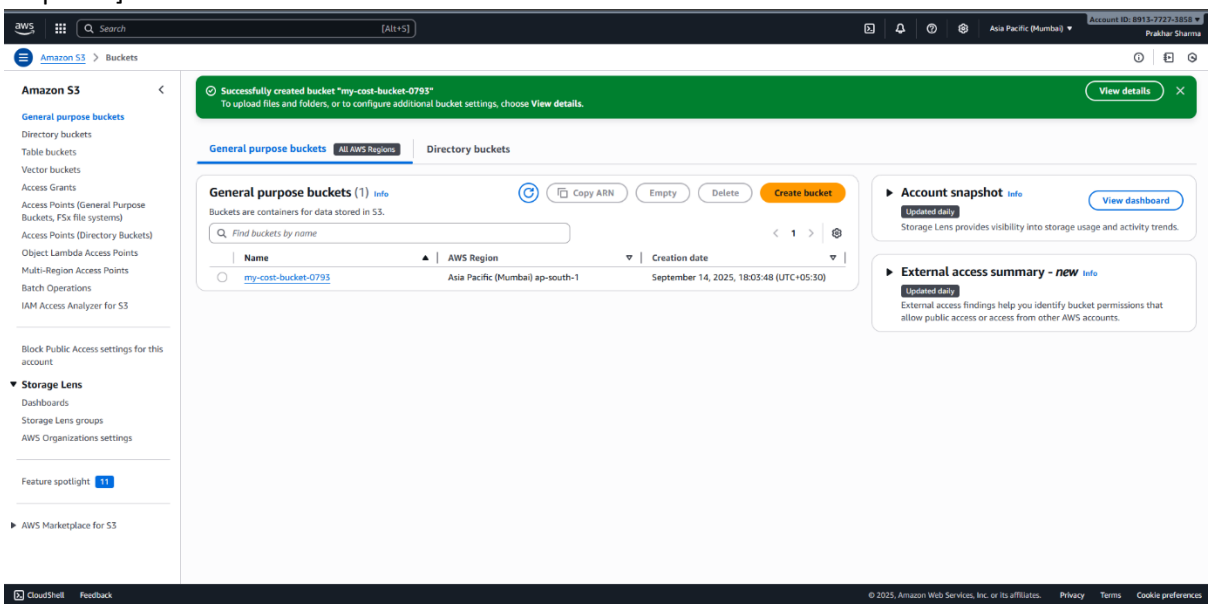
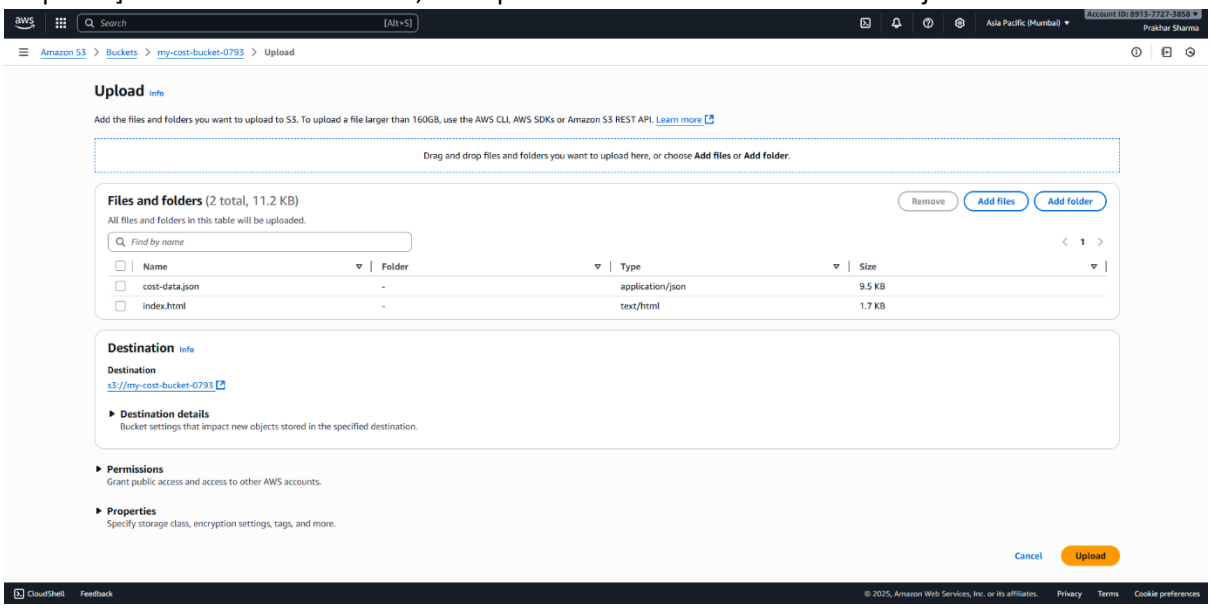
Name :Prakhar Anil Sharma

Major Project : Cloud Cost Optimization Dashboard

Step – 23] Now click create bucket .



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



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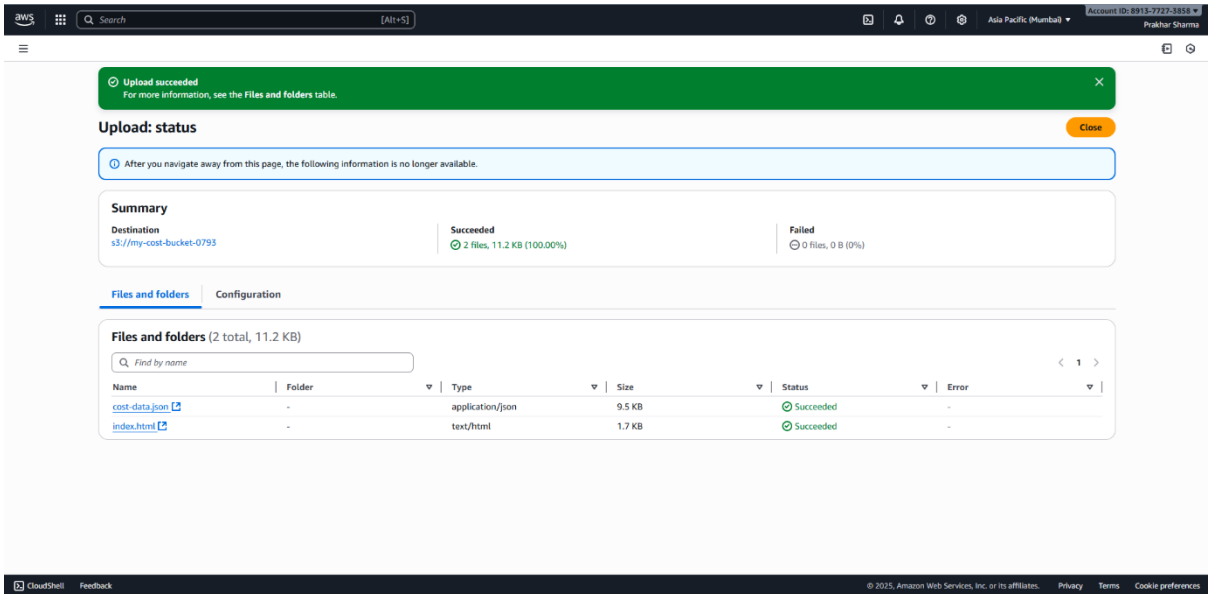
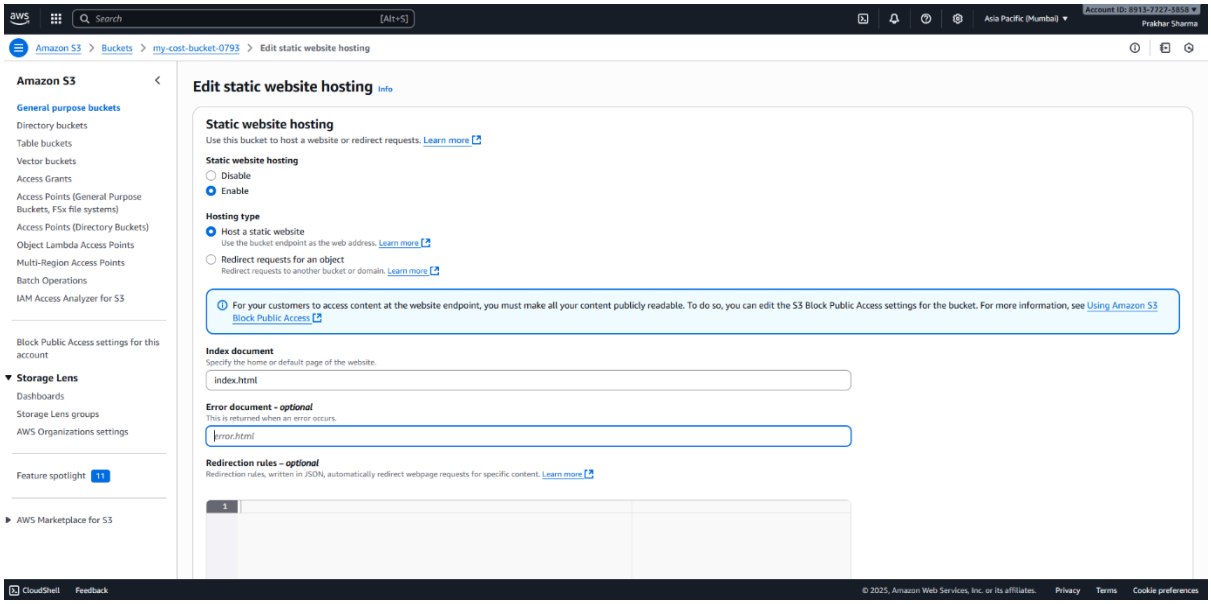
Major Project : Cloud Cost Optimization Dashboard



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.



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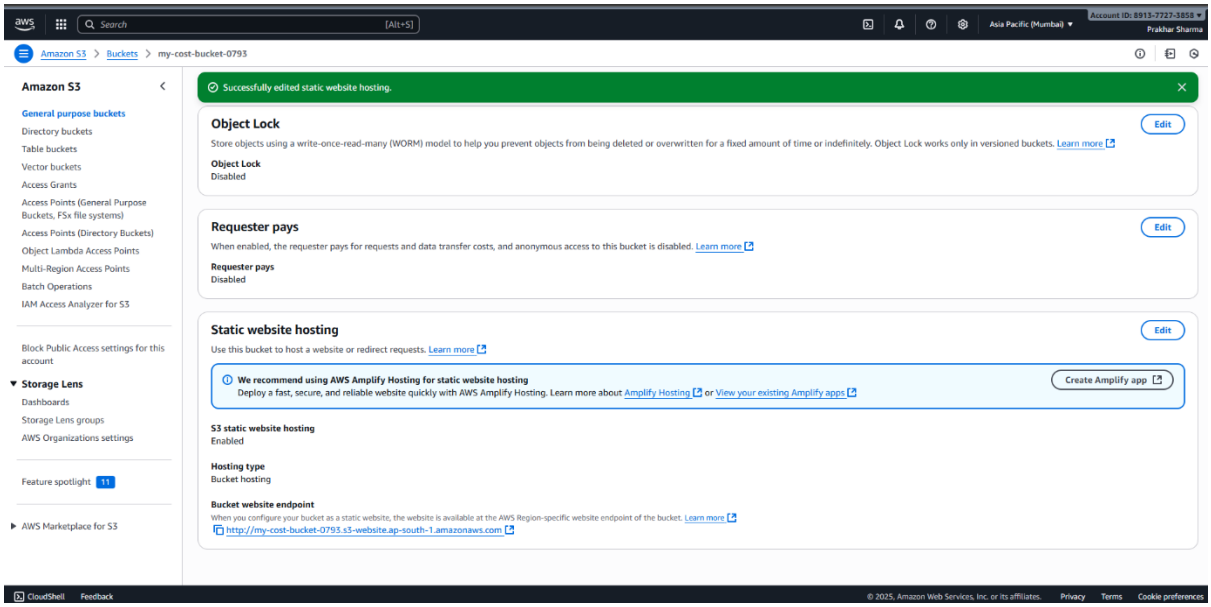
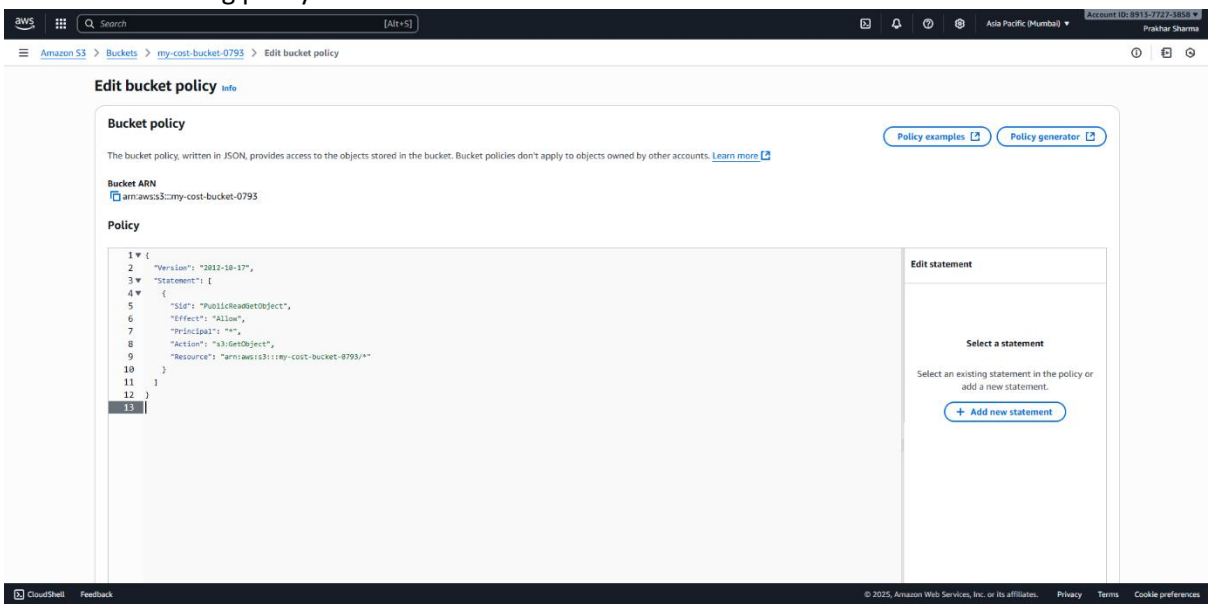


Step – 28] Now go to properties tab, and write the policy as shown below by clicking on edit and save it after writing policy .



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

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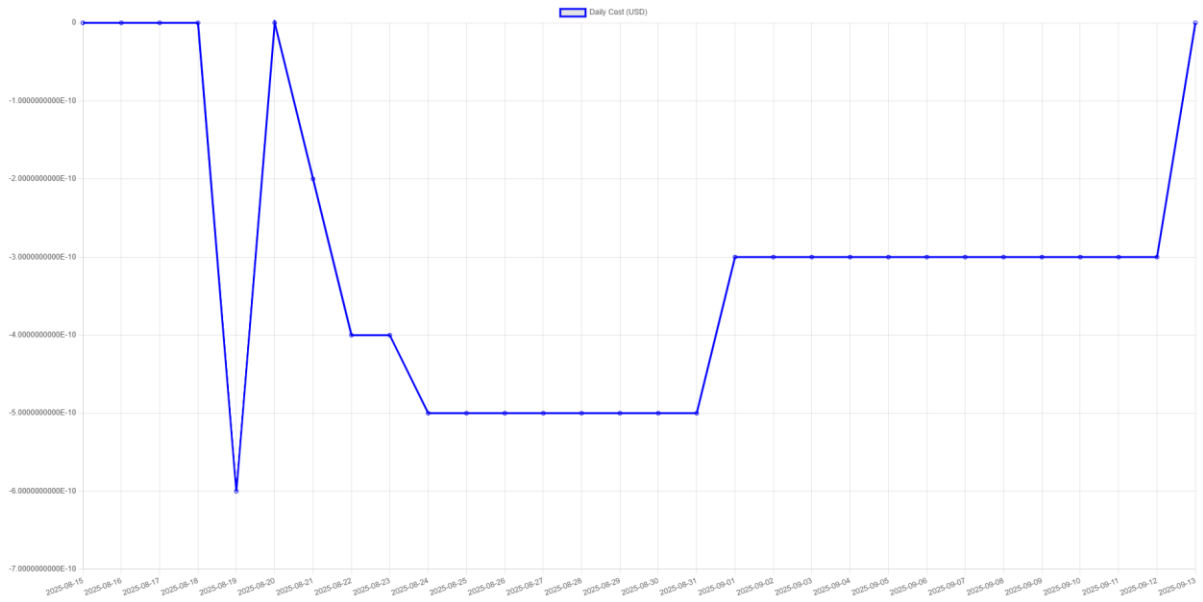
Major Project : Cloud Cost Optimization Dashboard

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.