PRACTICAL FILE

CLOUD COMPUTING

‘

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224050

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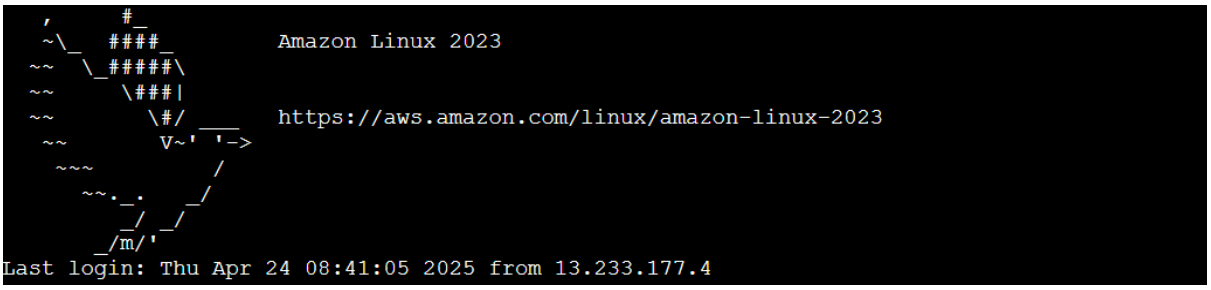
4	Create an S3 Bucket for file storage. Upload 5 objects with different file extensions
5	Use the created bucket in the previous task to host static websites, and upload an index.html file and error.html page.
6	Create a CloudWatch billing alarm that goes off when the estimated charges go above $500.
7	Create a CloudWatch alarm which goes off to an Alarm state when the CPU utilization of an EC2 instance goes above 65%. Also, add an SNS topic so that it notifies the person when the threshold is crossed.
8	Set up a local OpenStack environment for practice.
9	Create a virtual machine (VM) using OpenStack.

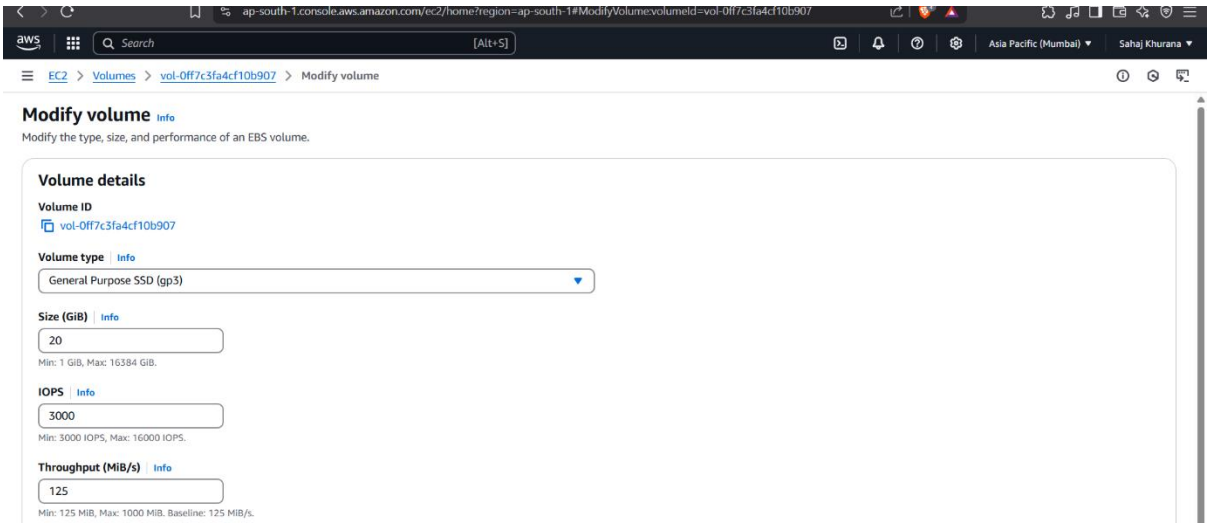
Ques 1:

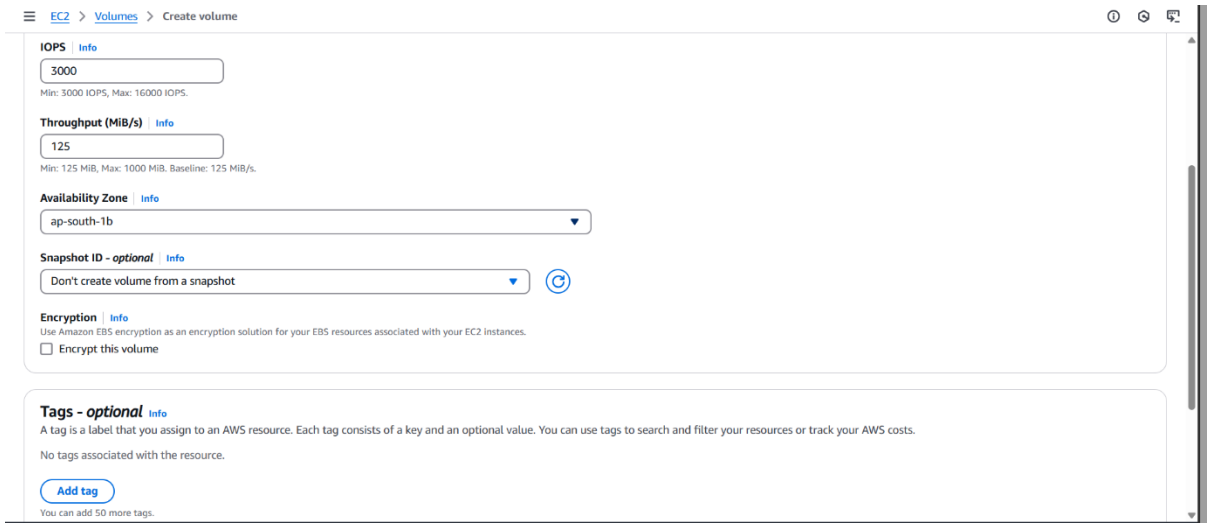
Launch a Linux EC2 instance.

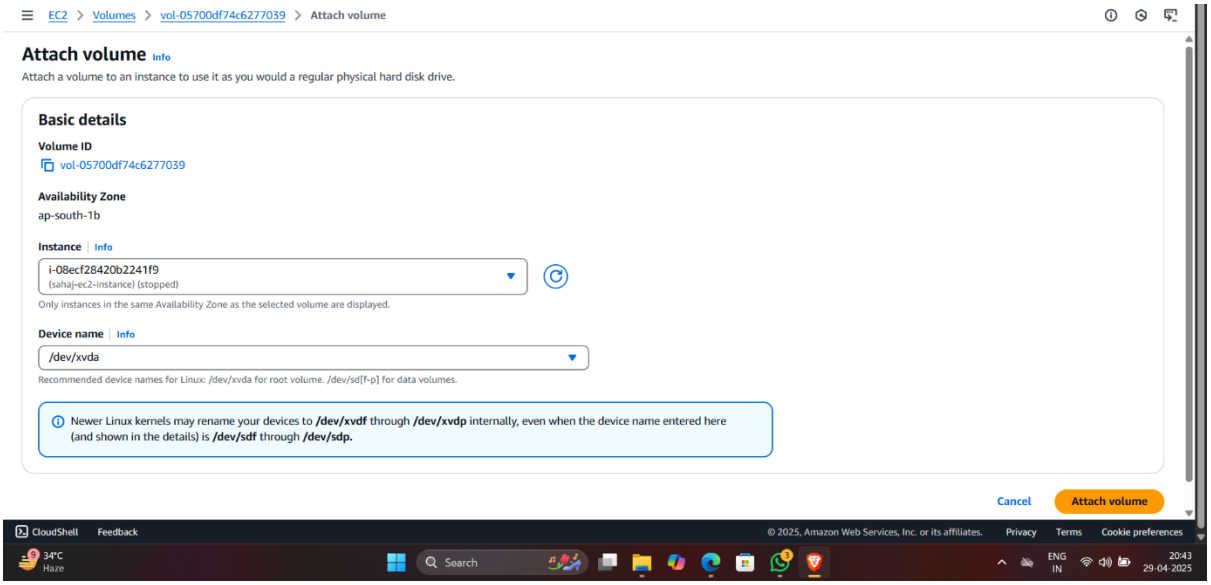


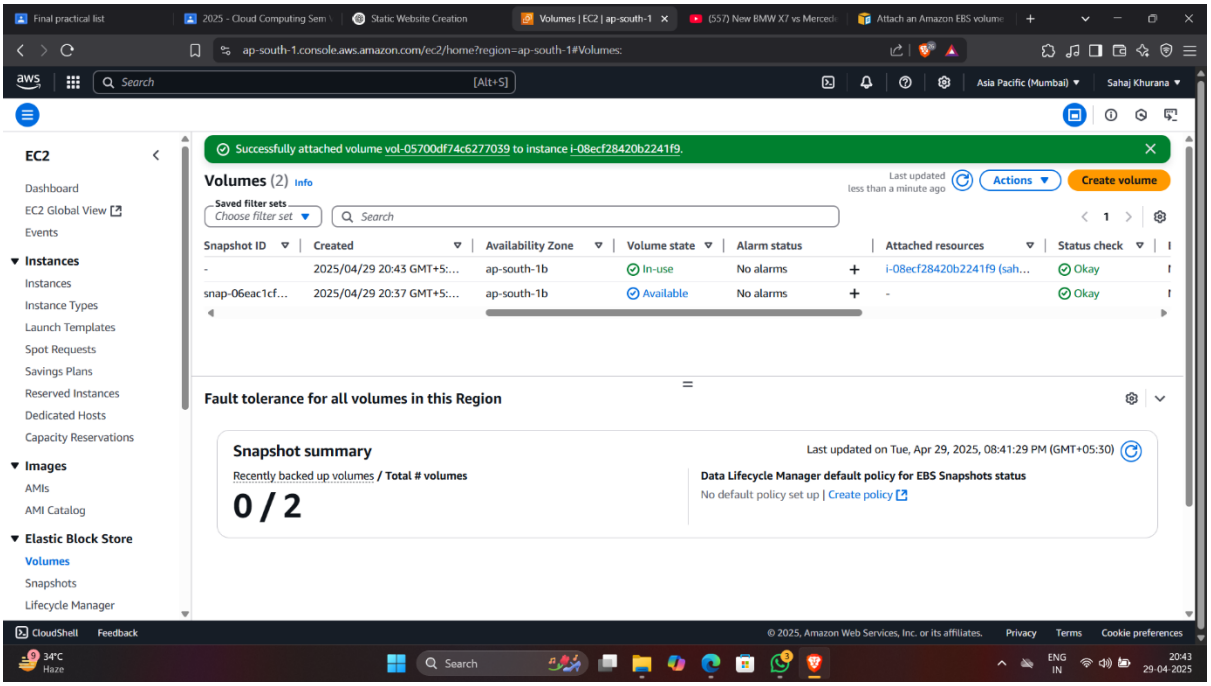
Ques 2:

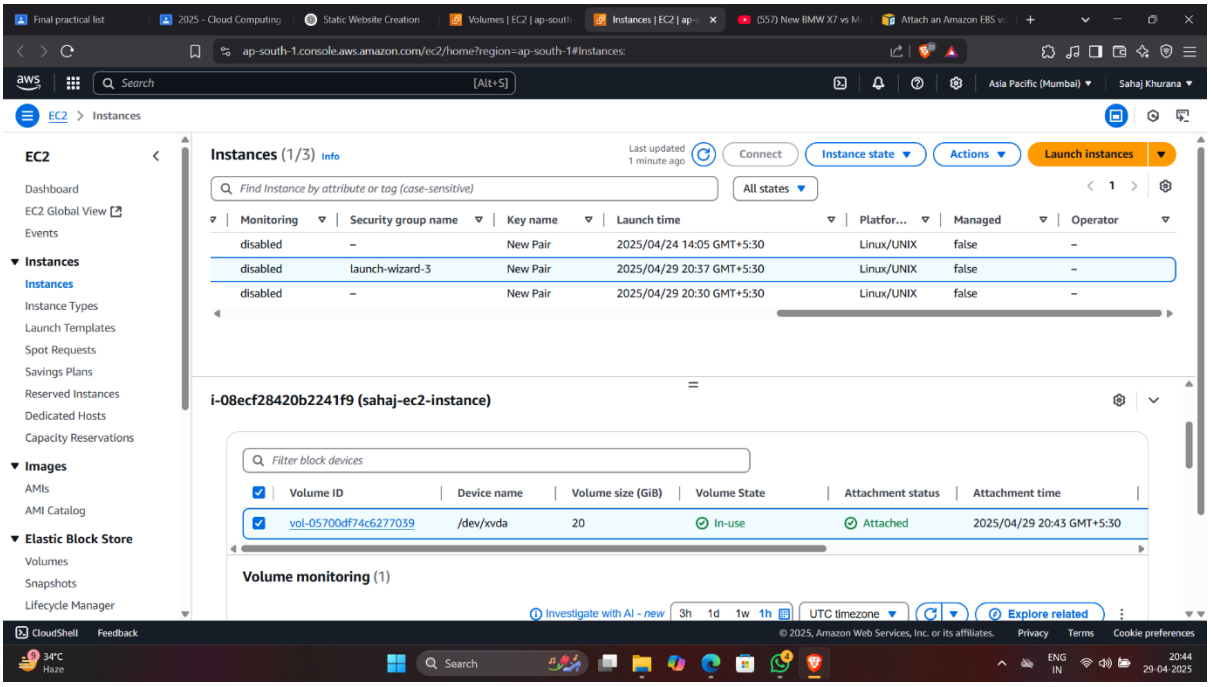
Create an EBS volume with 20 GB of storage and attach it to the created EC2 instance.





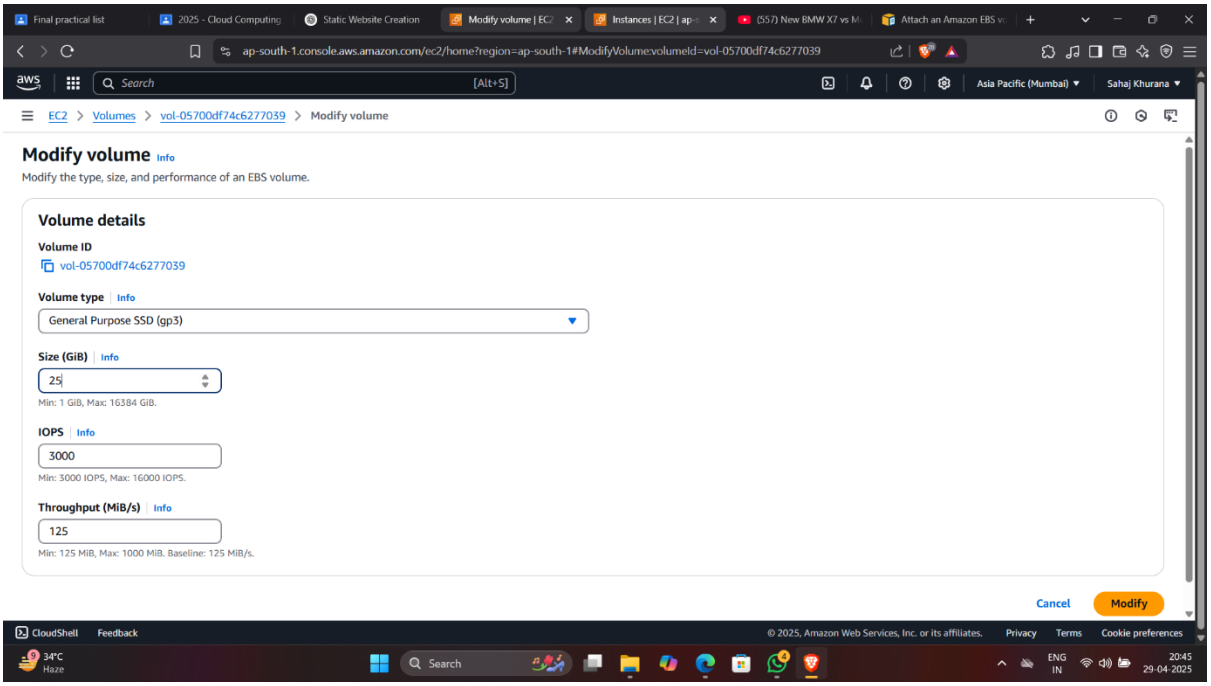

EC2 > Volumes > vol-05700df74c6277039 > Attach volume
Attach volume Info
Attach a volume to an instance to use it as you would a regular physical hard disk drive.
Basic details
Volume ID
vol-05700df74c6277039
Availability Zone
ap-south-1b
Instance Info
i-08ecf28420b2241f9
(sahaj-ec2-instance) (stopped)
Only instances in the same Availability Zone as the selected volume are displayed.
Device name Info
/dev/xvda
Recommended device names for Linux: /dev/xvda for root volume. /dev/sd[f-p] for data volumes.
Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.
Cancel
Attach volume
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

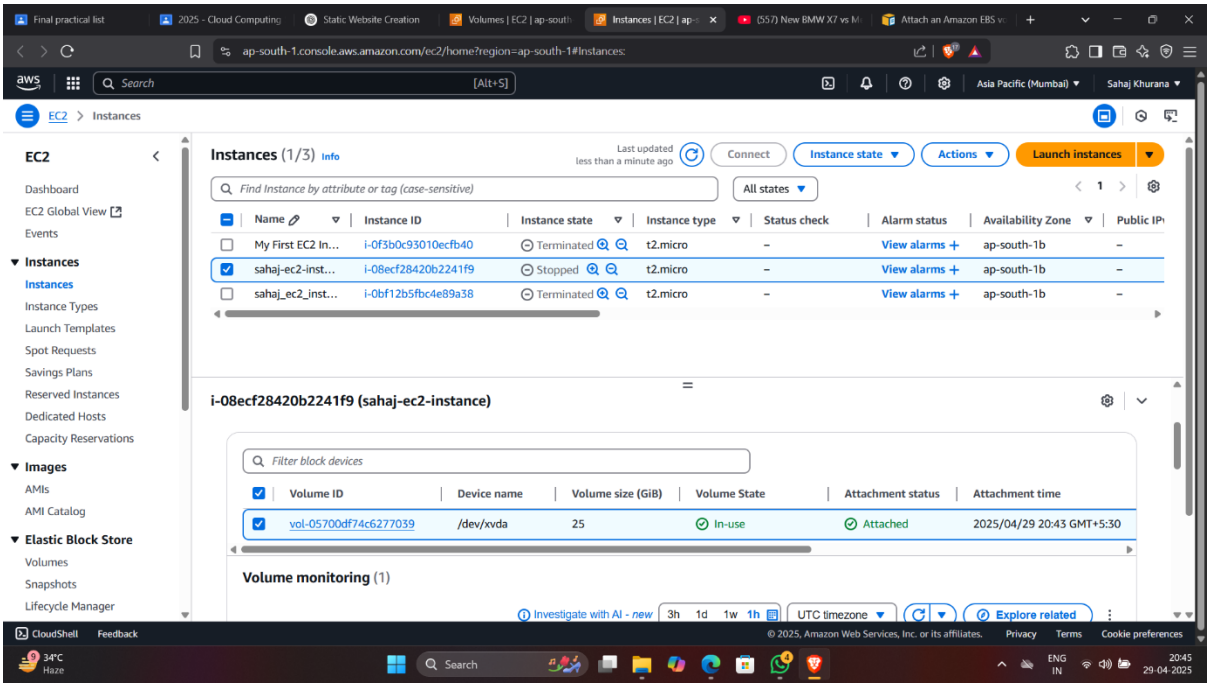

Successfully attached volume vol-05700df74c6277039 to instance i-08ecf28420b2241f9.
Volumes (2) Info
Last updated less than a minute ago
Actions
Create volume
Snapshot ID
Created
Availability Zone
Volume state
Alarm status
Attached resources
Status check
- 2025/04/29 20:43 GMT+5:... ap-south-1b In-use No alarms i-08ecf28420b2241f9 (sah... Okay
snap-06eac1cf... 2025/04/29 20:37 GMT+5:... ap-south-1b Available No alarms - Okay
Fault tolerance for all volumes in this Region
Snapshot summary
Last updated on Tue, Apr 29, 2025, 08:41:29 PM (GMT+05:30)
Recently backed up volumes / Total # volumes
0 / 2
Data Lifecycle Manager default policy for EBS Snapshots status
No default policy set up | Create policy


EC2 > Instances
Instances (1/3) Info
Last updated 1 minute ago
Connect
Instance state
Actions
Launch instances
Monitoring
Security group name
Key name
Launch time
Platfor...
Managed
Operator
disabled – New Pair 2025/04/24 14:05 GMT+5:30 Linux/UNIX false –
disabled launch-wizard-3 New Pair 2025/04/29 20:37 GMT+5:30 Linux/UNIX false –
disabled – New Pair 2025/04/29 20:30 GMT+5:30 Linux/UNIX false –
i-08ecf28420b2241f9 (sahaj-ec2-instance)
Volume ID
Device name
Volume size (GiB)
Volume State
Attachment status
Attachment time
vol-05700df74c6277039 /dev/xvda 20 In-use Attached 2025/04/29 20:43 GMT+5:30
Volume monitoring (1)
Explore related

Ques 3:

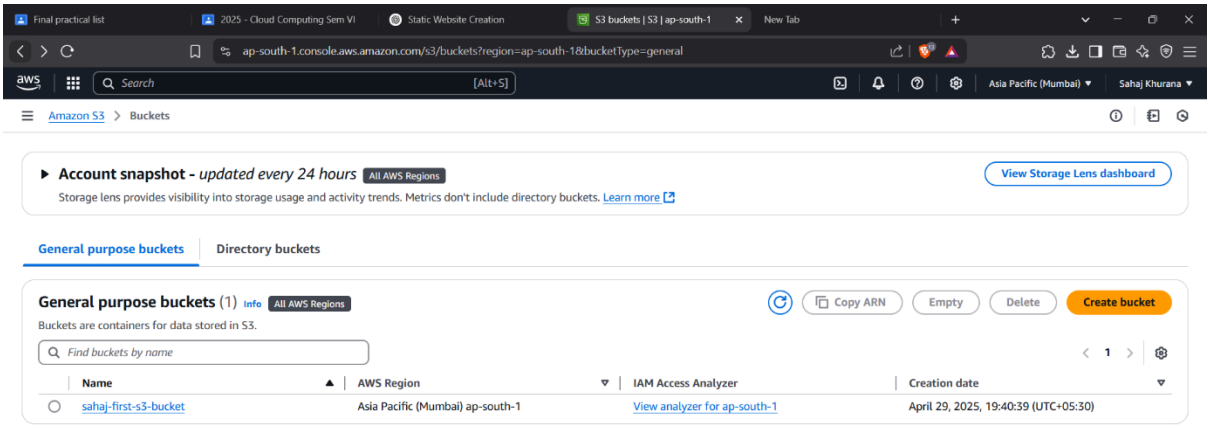
Resize the attached volume (in pre and make sure it reflects in the connected instance).

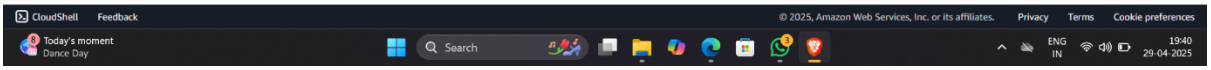


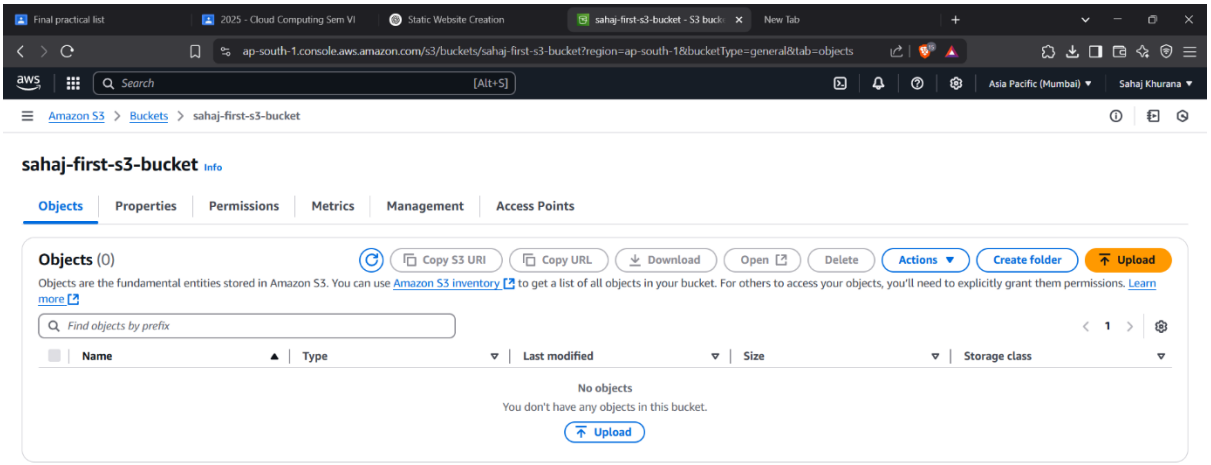


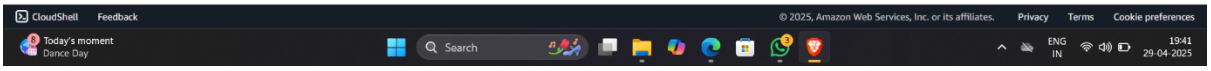
Ques 4:

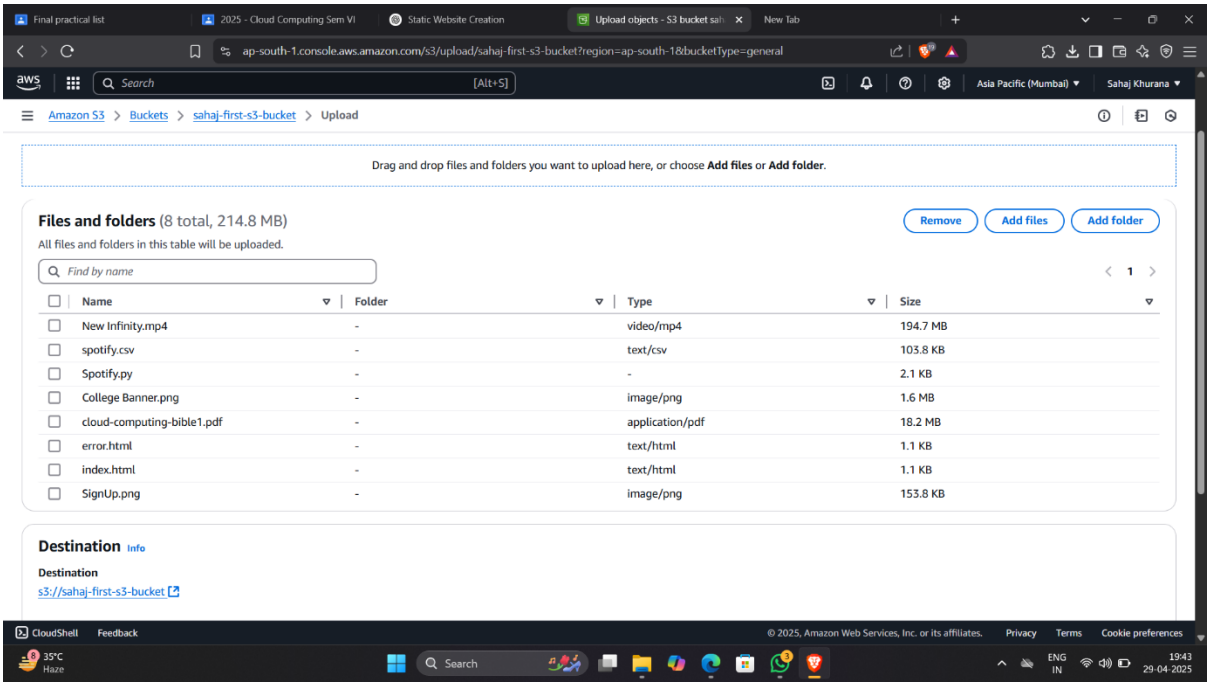
Create an S3 Bucket for file storage. Upload 5 objects with different file extensions.

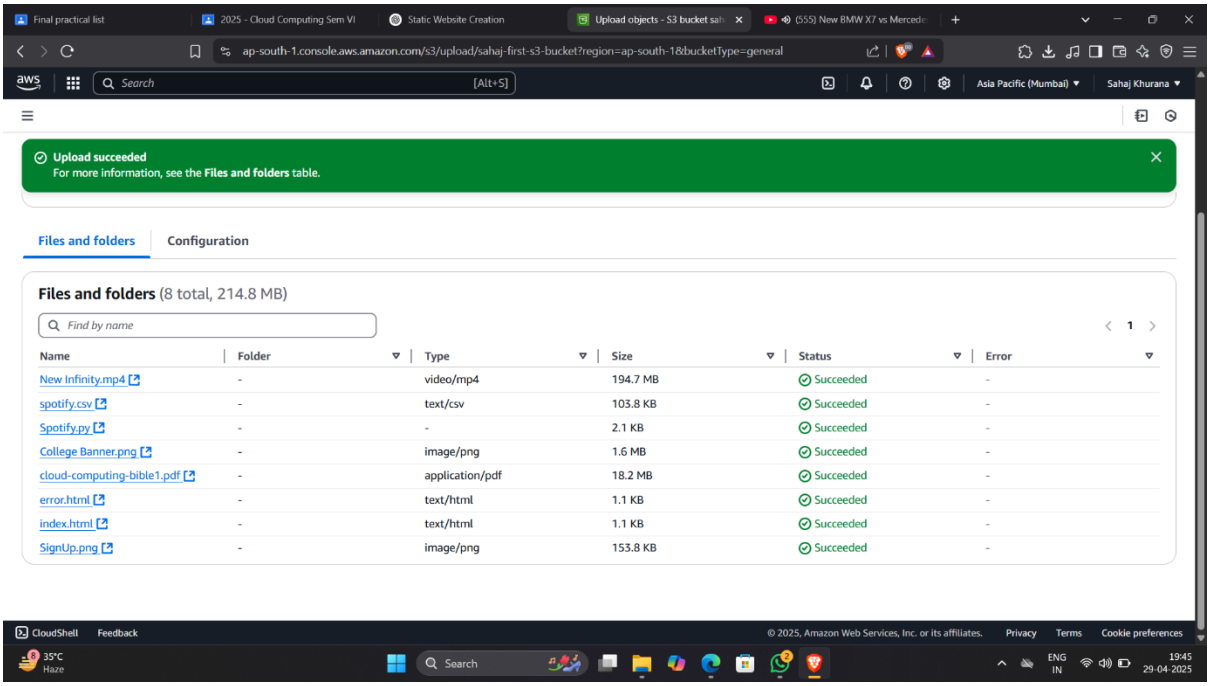






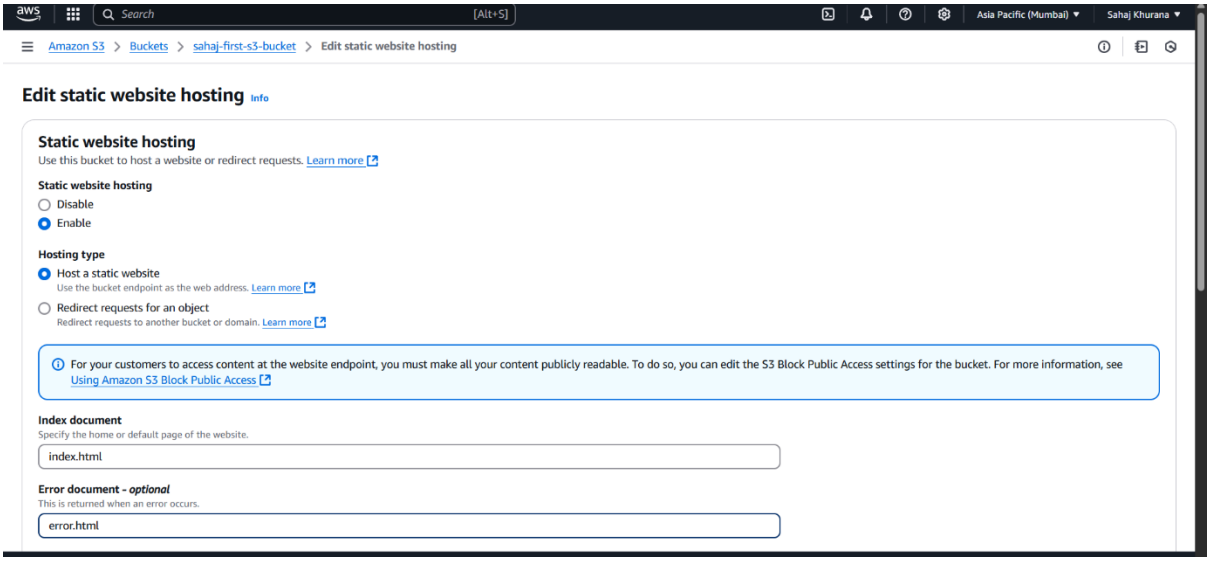


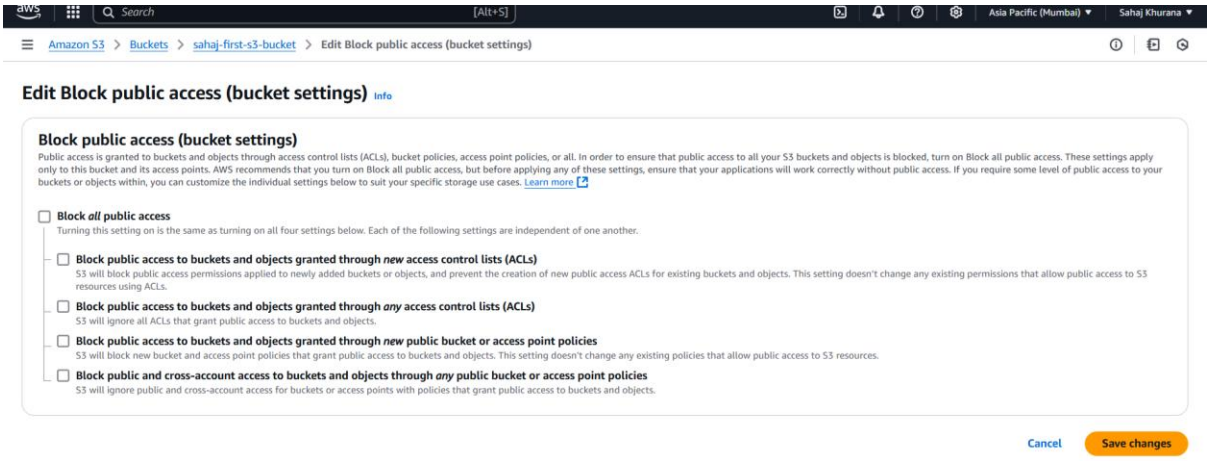

Final practical list
2025 - Cloud Computing Sem VI
Static Website Creation
Upload objects - S3 bucket sah
New Tab
ap-south-1.console.aws.amazon.com/s3/upload/sahaj-first-s3-bucket?region=ap-south-1&bucketType=general
Search
[Alt+S]
Asia Pacific (Mumbai)
Sahaj Khurana
Amazon S3 > Buckets > sahaj-first-s3-bucket > Upload
Drag and drop files and folders you want to upload here, or choose Add files or Add folder.
Files and folders (8 total, 214.8 MB)
All files and folders in this table will be uploaded.
Remove
Add files
Add folder
Find by name
Name
Folder
Type
Size
New Infinity.mp4 - video/mp4 194.7 MB
spotify.csv - text/csv 103.8 KB
Spotify.py - - 2.1 KB
College Banner.png - image/png 1.6 MB
cloud-computing-bible1.pdf - application/pdf 18.2 MB
error.html - text/html 1.1 KB
index.html - text/html 1.1 KB
SignUp.png - image/png 153.8 KB
Destination Info
Destination
s3://sahaj-first-s3-bucket
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
35°C
Haze
Search
ENG
IN
19:43
29-04-2025

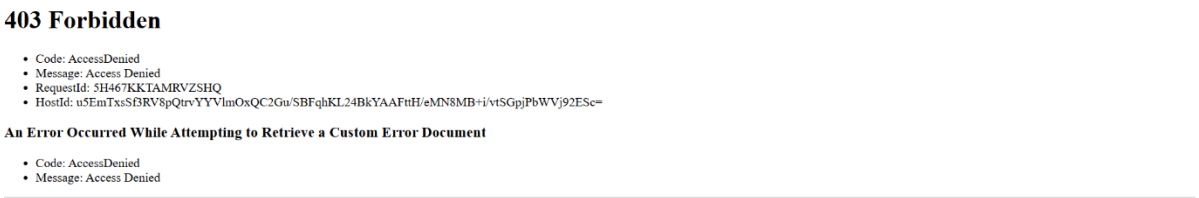

Final practical list
2025 - Cloud Computing Sem VI
Static Website Creation
Upload objects - S3 bucket sah
(555) New BMW X7 vs Mercede
ap-south-1.console.aws.amazon.com/s3/upload/sahaj-first-s3-bucket?region=ap-south-1&bucketType=general
Search
[Alt+S]
Asia Pacific (Mumbai)
Sahaj Khurana
Upload succeeded
For more information, see the Files and folders table.
Files and folders
Configuration
Files and folders (8 total, 214.8 MB)
Find by name
Name
Folder
Type
Size
Status
Error
New Infinity.mp4 - video/mp4 194.7 MB Succeeded -
spotify.csv - text/csv 103.8 KB Succeeded -
Spotify.py - - 2.1 KB Succeeded -
College Banner.png - image/png 1.6 MB Succeeded -
cloud-computing-bible1.pdf - application/pdf 18.2 MB Succeeded -
error.html - text/html 1.1 KB Succeeded -
index.html - text/html 1.1 KB Succeeded -
SignUp.png - image/png 153.8 KB Succeeded -
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
35°C
Haze
Search
ENG
IN
19:45
29-04-2025

Ques 5:

Use the created bucket in the previous task to host static websites, and upload an index.html file and error.html page.





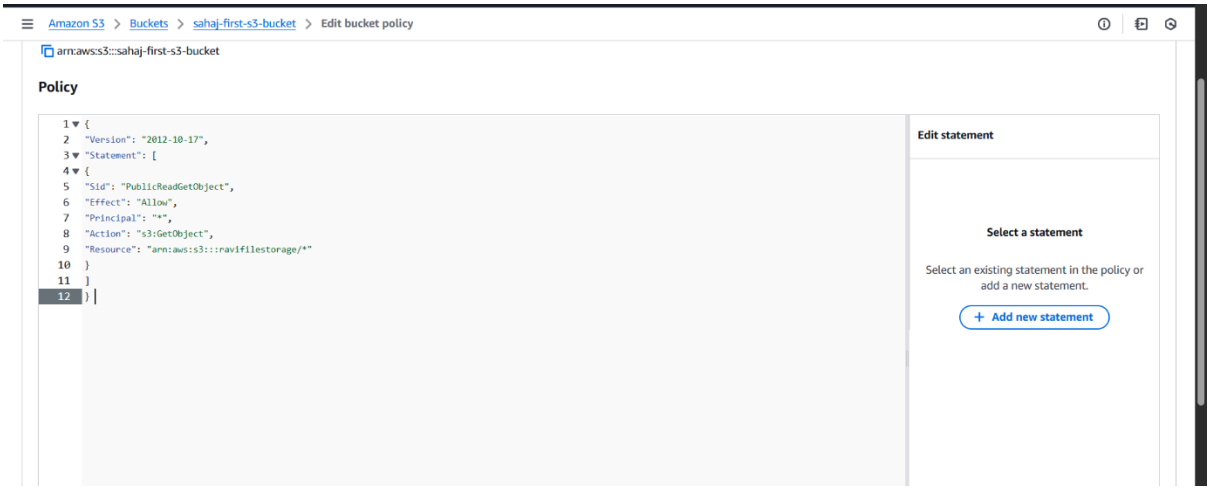


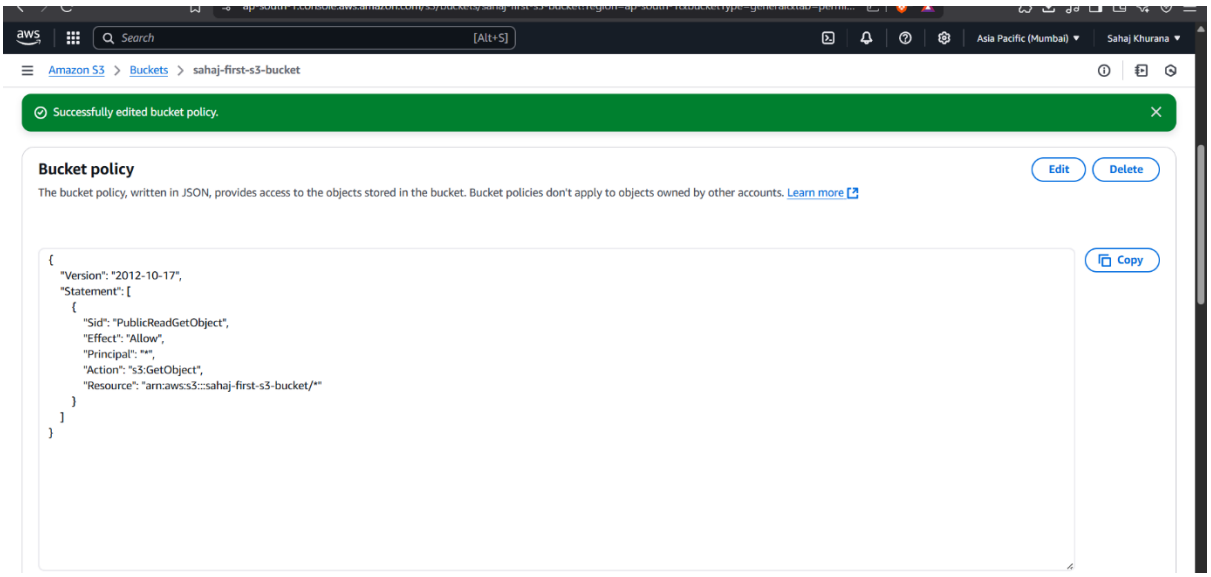
403 Forbidden

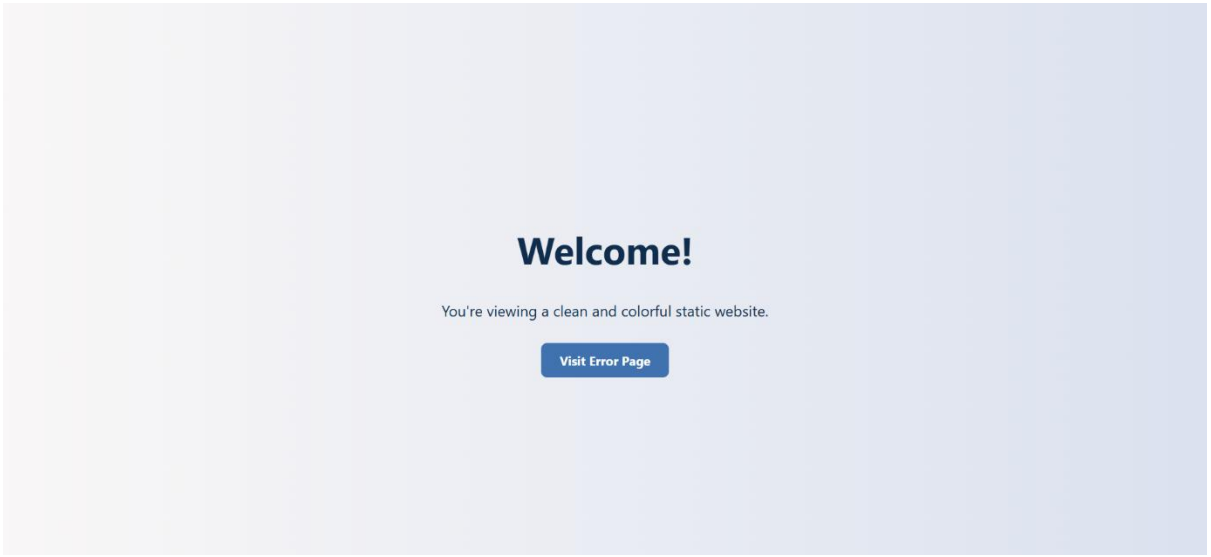
- Code: AccessDenied
- Message: Access Denied
- RequestId: 5H467KKTAMRVZSHQ
- HostId: u5EmTxsSf3RV8pQtrvYYVlmOxQC2Gu/SBFqhKL24BkYAAFttH/eMN8MB+i/vtSGpjPbWVj92ESc=

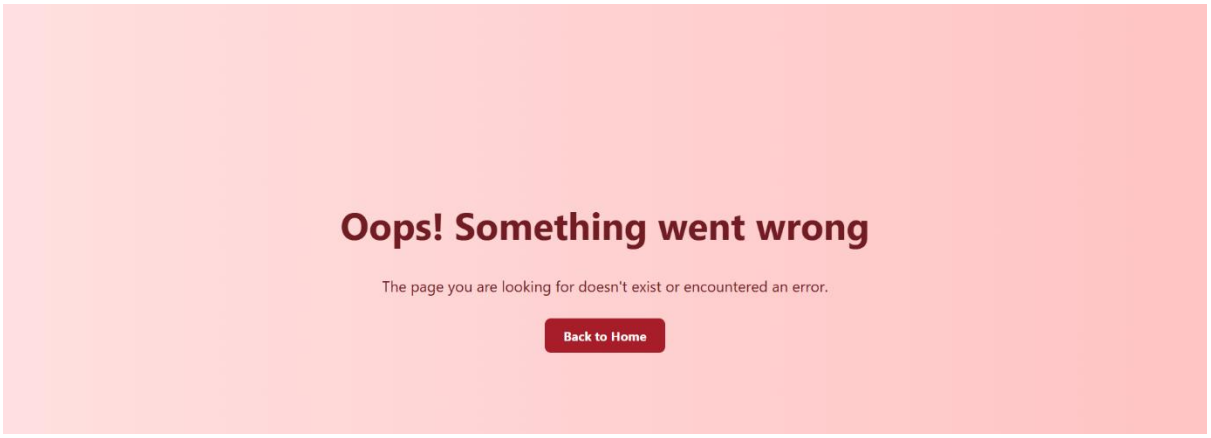
An Error Occurred While Attempting to Retrieve a Custom Error Document

- Code: AccessDenied
- Message: Access Denied


Amazon S3 > Buckets > sahaj-first-s3-bucket > Edit bucket policy
arn:aws:s3:::sahaj-first-s3-bucket
Policy
{
"Version": "2012-10-17",
"Statement": [
{
"Sid": "PublicReadGetObject",
"Effect": "Allow",
"Principal": "*",
"Action": "s3:GetObject",
"Resource": "arn:aws:s3:::ravifilestorage/*"
}
]
}
Edit statement
Select a statement
Select an existing statement in the policy or add a new statement.
+ Add new statement


aws
Search
[Alt+S]
Asia Pacific (Mumbai)
Sahaj Khurana
Amazon S3 > Buckets > sahaj-first-s3-bucket
Successfully edited bucket policy.
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
Edit
Delete
Copy
{
"Version": "2012-10-17",
"Statement": [
{
"Sid": "PublicReadGetObject",
"Effect": "Allow",
"Principal": "*",
"Action": "s3:GetObject",
"Resource": "arn:aws:s3:::sahaj-first-s3-bucket/*"
}
]
}


Welcome!
You're viewing a clean and colorful static website.
Visit Error Page



QUES 6:

Create CloudWatch Billing Alarm Over $500

To create a billing alarm when estimated AWS charges exceed $500.

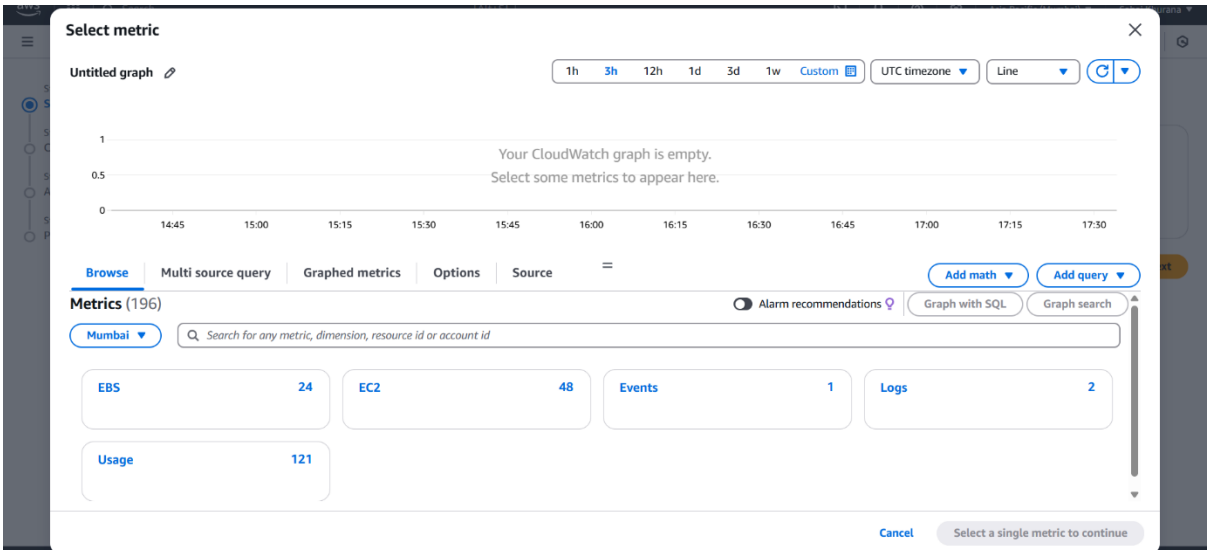
Tools Used: AWS Management Console, CloudWatch Service

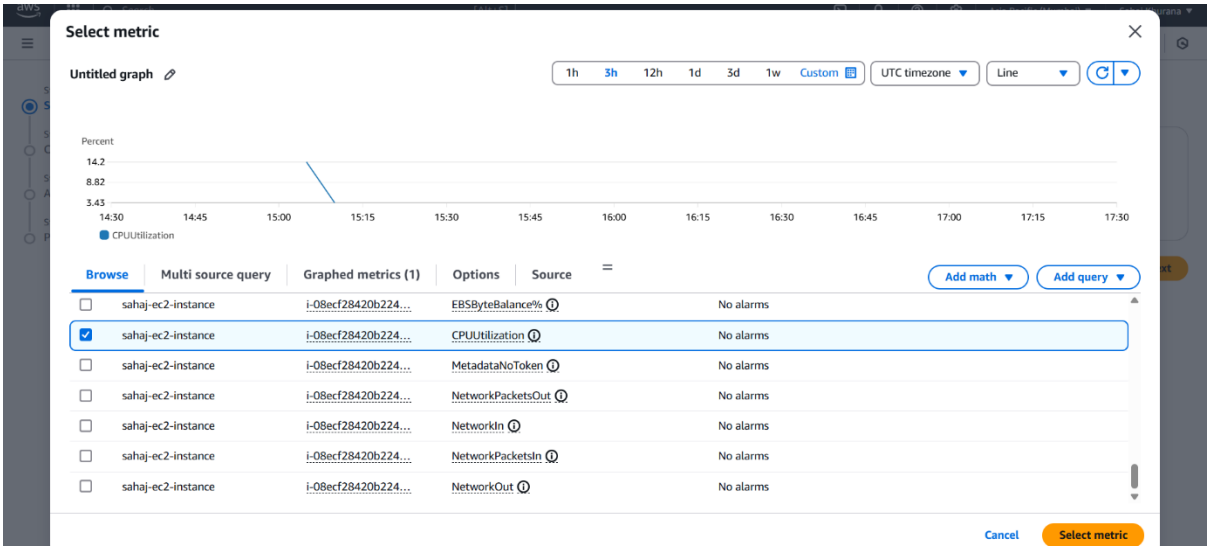
Procedure:

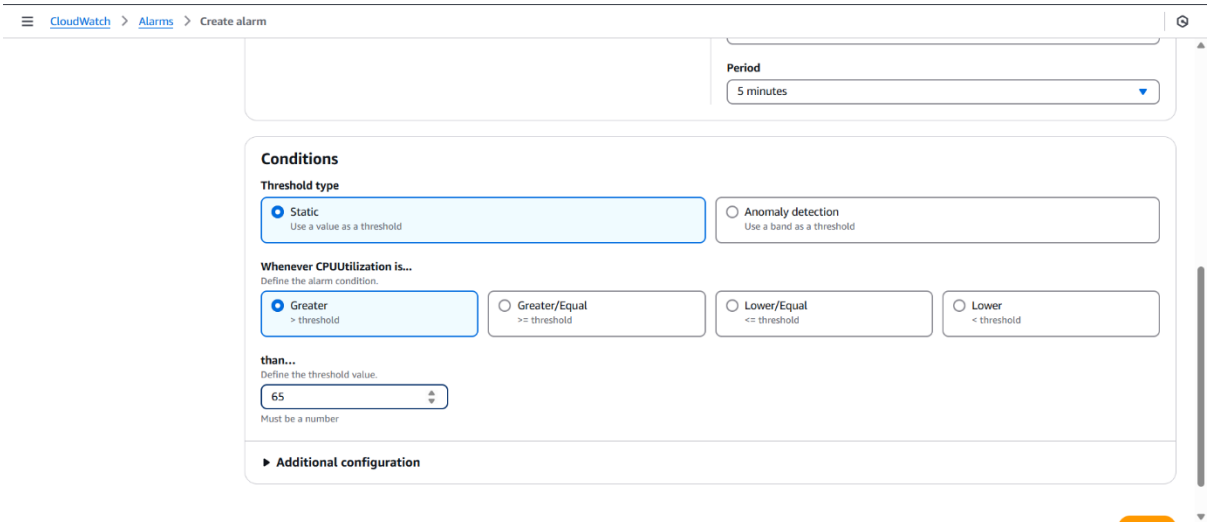
1. Open CloudWatch.
2. Navigate to Alarms > Create Alarm.
3. Choose Billing Metric → EstimatedCharges.
4. Set threshold as Greater than 500.
5. Add notification using SNS (Simple Notification Service).
6. Complete the setup.

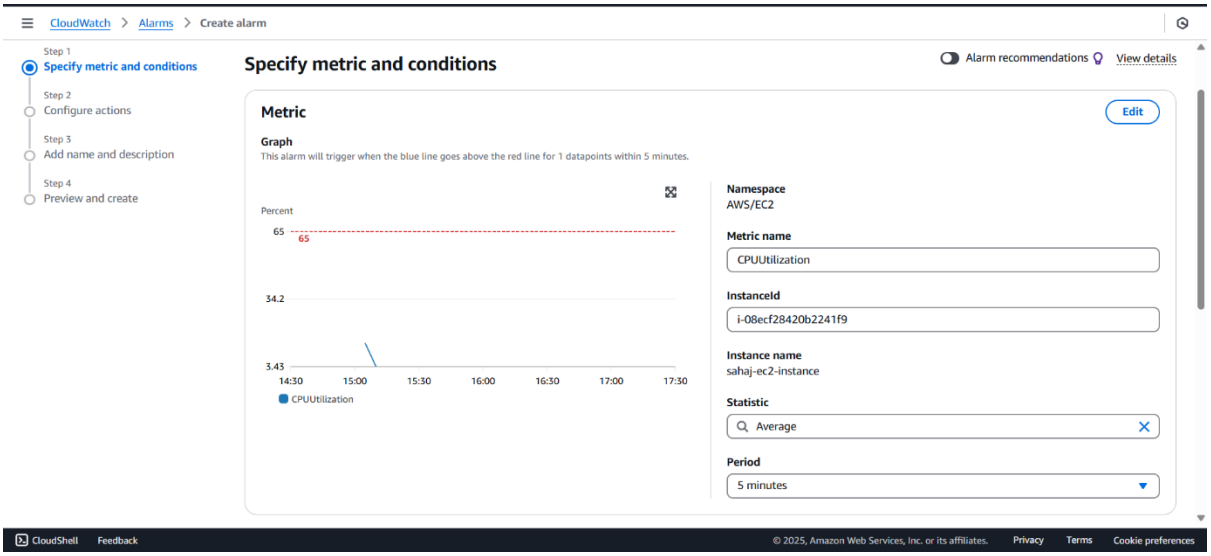
Ques 7:

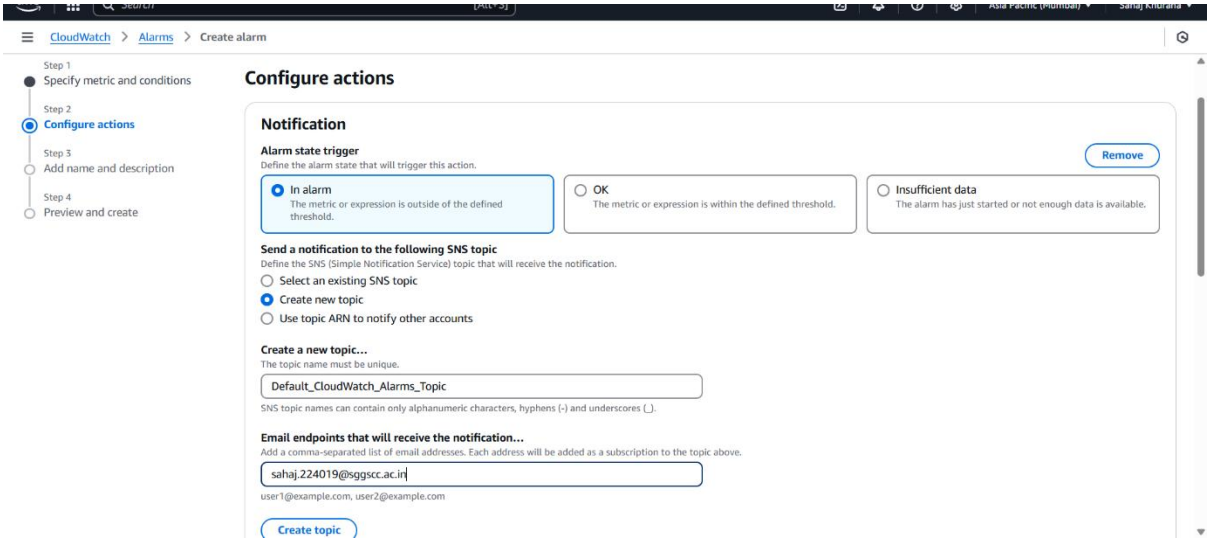
Create a CloudWatch alarm which goes off to an Alarm state when the CPU utilization of an EC2 instance goes above 65%. Also, add an SNS topic so that it notifies the person when the threshold is crossed.

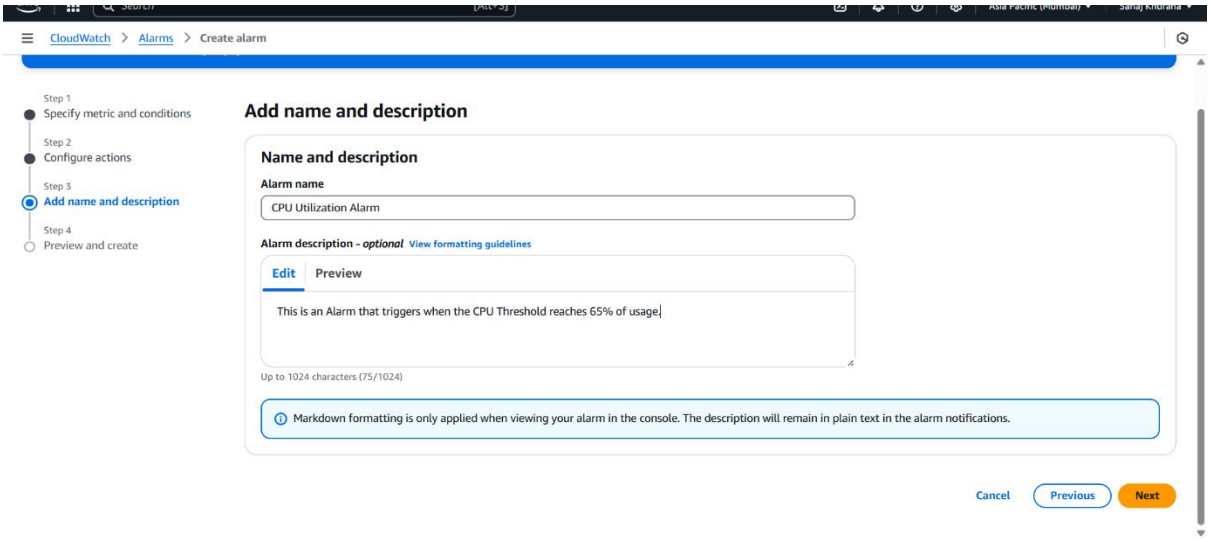


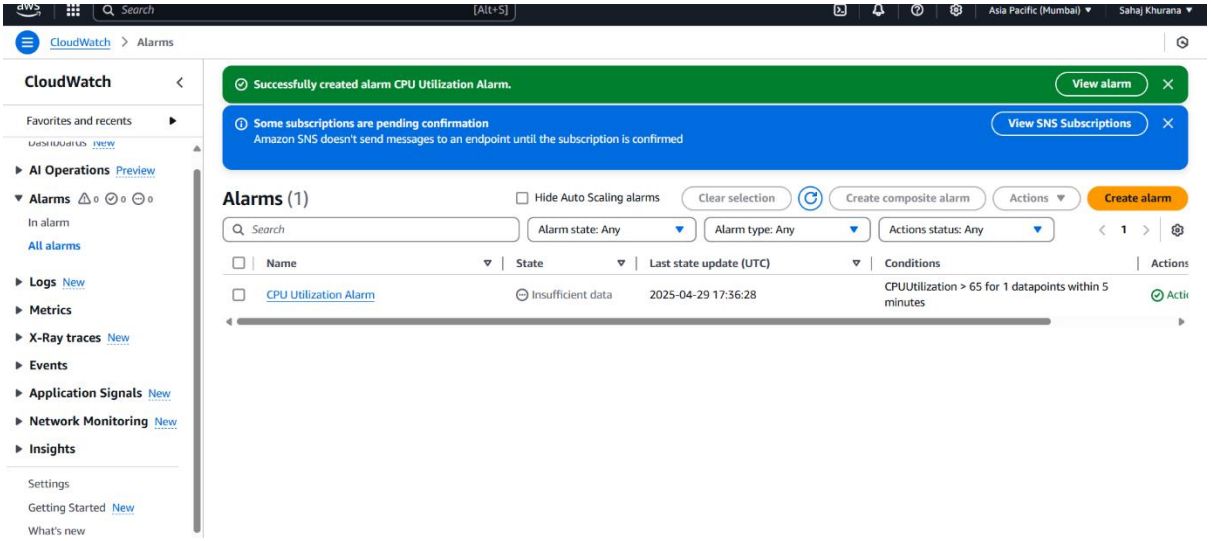





CloudWatch > Alarms > Create alarm
Step 1
Specify metric and conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create
Specify metric and conditions
Alarm recommendations
View details
Metric
Edit
Graph
This alarm will trigger when the blue line goes above the red line for 1 datapoints within 5 minutes.
Percent
65
65
34.2
3.43
14:30
15:00
15:30
16:00
16:30
17:00
17:30
CPUUtilization
Namespace
AWS/EC2
Metric name
CPUUtilization
InstanceId
i-08ecf28420b2241f9
Instance name
sahaj-ec2-instance
Statistic
Average
Period
5 minutes
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences


CloudWatch > Alarms > Create alarm
Step 1
Specify metric and conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create
Configure actions
Notification
Alarm state trigger
Define the alarm state that will trigger this action.
Remove
In alarm
The metric or expression is outside of the defined threshold.
OK
The metric or expression is within the defined threshold.
Insufficient data
The alarm has just started or not enough data is available.
Send a notification to the following SNS topic
Define the SNS (Simple Notification Service) topic that will receive the notification.
Select an existing SNS topic
Create new topic
Use topic ARN to notify other accounts
Create a new topic...
The topic name must be unique.
Default_CloudWatch_Alarms_Topic
SNS topic names can contain only alphanumeric characters, hyphens (-) and underscores (_).
Email endpoints that will receive the notification...
Add a comma-separated list of email addresses. Each address will be added as a subscription to the topic above.
sahaj.224019@sggscc.ac.in
user1@example.com, user2@example.com
Create topic


CloudWatch > Alarms > Create alarm
Step 1
Specify metric and conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create
Add name and description
Name and description
Alarm name
CPU Utilization Alarm
Alarm description - optional
View formatting guidelines
Edit
Preview
This is an Alarm that triggers when the CPU Threshold reaches 65% of usage
Up to 1024 characters (75/1024)
Markdown formatting is only applied when viewing your alarm in the console. The description will remain in plain text in the alarm notifications.
Cancel
Previous
Next



QUES 8:

OPENSTACK ENVIRONMENT

TASKS

Set up a local OpenStack environment for practice.

ANSWER

Setting up a local OpenStack environment for practice can be done using **DevStack**, a great tool for deploying OpenStack on a single machine.

STEP1: Prepare Your System

- Use a fresh installation of **Ubuntu 20.04 or later**.
- Ensure your system has at least **8GB RAM, 2 CPUs, and 50GB disk space**.
- Install dependencies: sudo apt update && sudo apt install -y git python3-dev python3-pip

STEP2: Clone DevStack Repository

- Navigate to your home directory and clone DevStack:
  git clone https://opendev.org/openstack/devstack.git
  cd devstack

STEP3: Create a Local Configuration File

- Inside the devstack directory, create a local.conf file: nano local.conf
- Add the following basic configuration:
  [[local|localrc]]
  ADMIN_PASSWORD=secret
  DATABASE_PASSWORD=secret
  RABBIT_PASSWORD=secret

SERVICE_PASSWORD=secret

STEP4: Run the Installation Script

- Start the installation process: ./stack.sh

STEP5: Access OpenStack Dashboard

- Once installation is complete, access the **Horizon dashboard** via: http://<your-server-ip>/dashboard
- Log in using the credentials set in local.conf.

STEP6: Verify OpenStack Services

- Check running services: openstack service list

STEP7: Create Your First Instance

- Upload an image: openstack image create --disk-format qcow2 --container-format bare --file ubuntu.qcow2 --public UbuntuImage
- Launch an instance: openstack server create --flavor m1.small --image UbuntuImage --network private --security-group default my-instance

QUES 9

TASKS

Create a virtual machine (VM) using OpenStack.

ANSWER

Creating a virtual machine (VM) in OpenStack involves several steps, from setting up the environment to launching an instance.

STEP1: Log in to OpenStack Dashboard

- Access the Horizon dashboard via your browser.
- Navigate to Project → Compute → Instances.

STEP2: Upload an Image

- Go to Project → Compute → Images.
- Click Create Image and upload a QCOW2 or RAW format image.

STEP3: Create a Network

- Navigate to Project → Network → Networks.
- Click Create Network, define subnets, and configure security groups.

STEP4: Allocate Floating IP

- Go to Project → Compute → Access & Security → Floating IPs.
- Allocate an IP to your project for external access.

STEP5: Launch an Instance

- Go to Project → Compute → Instances.
- Click Launch Instance and configure:
  - Instance Name
  - Flavor (CPU, RAM, Disk)
  - Image (Uploaded in Step 2)
  - Network (Created in Step 3)
  - Security Groups
  - Key Pair (for SSH access)

STEP6: Access the VM

- Assign a floating IP to the instance.
- SSH into the VM using: ssh -i my-key.pem ubuntu@<floating-ip>