D Y PATIL INTERNATIONAL UNIVERSITY
AKURDI PUNE

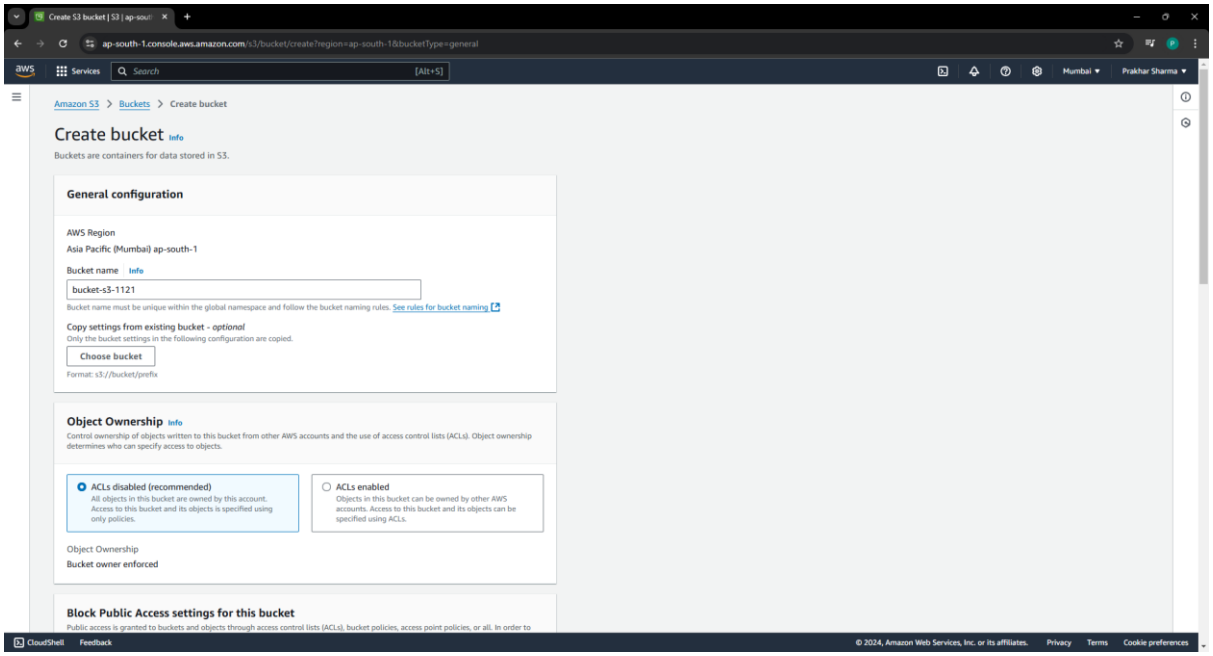
School of Computer Science, Engineering and Applications(SCSEA)
B.C.A. TY (CCSA)
Subject : Advanced Cloud Computing (P)

Name of the Student: Prakhar Anil Sharma **PRN:** 20220801121

Title of Practical : **Encrypt an S3 bucket using AWS KMS**

Step 1: Create an S3 Bucket

1. Open the S3 Service:
   - Navigate to the S3 service in the AWS Management Console.
2. Create a New Bucket:
   - Click on Create bucket.
   - Enter a unique name for your bucket and configure other settings as needed.



3. Finalize Bucket Creation:
   - Scroll down and click Create bucket.

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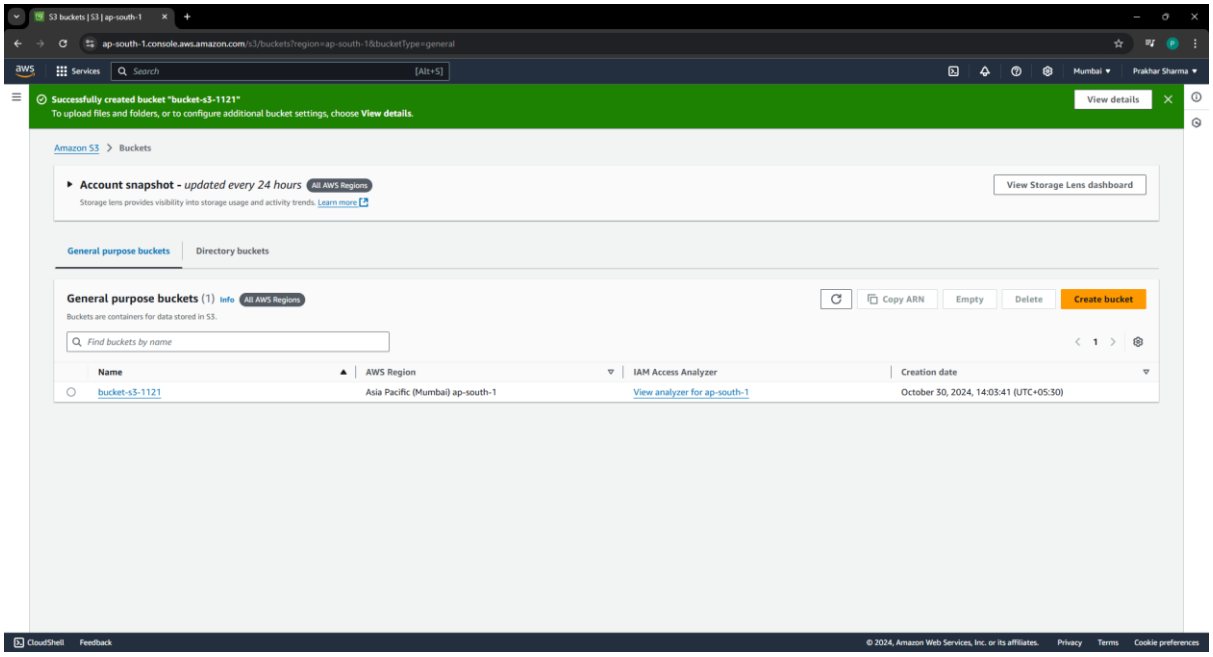
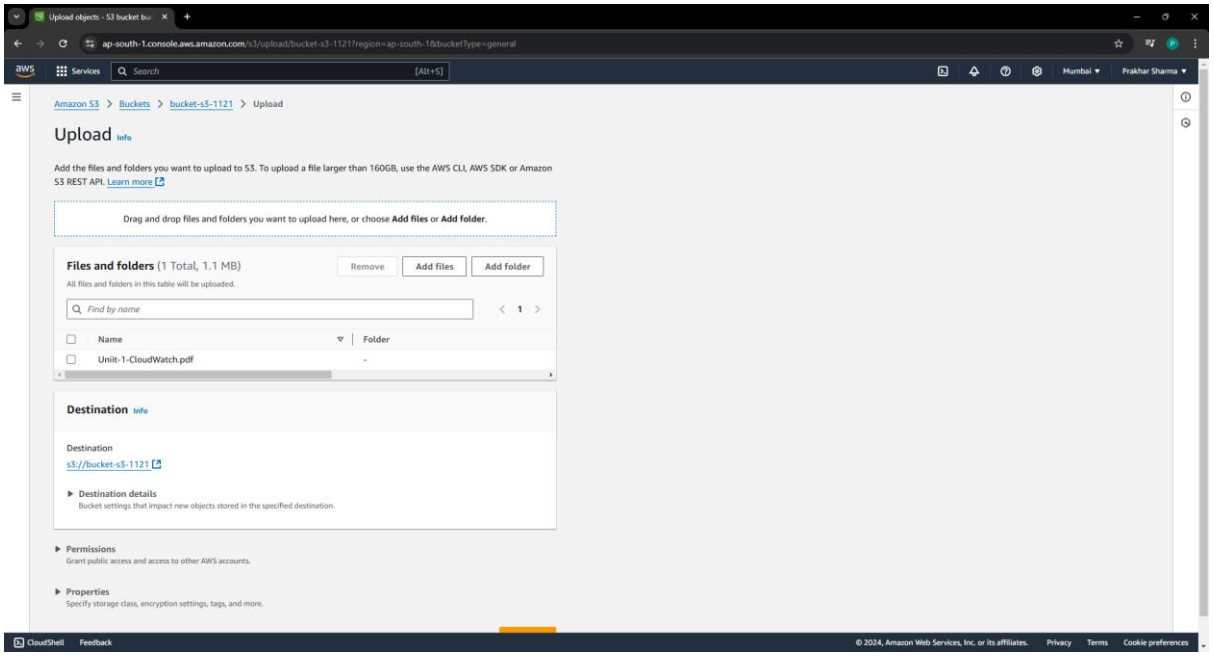


4. Upload a file in the newly created bucket.



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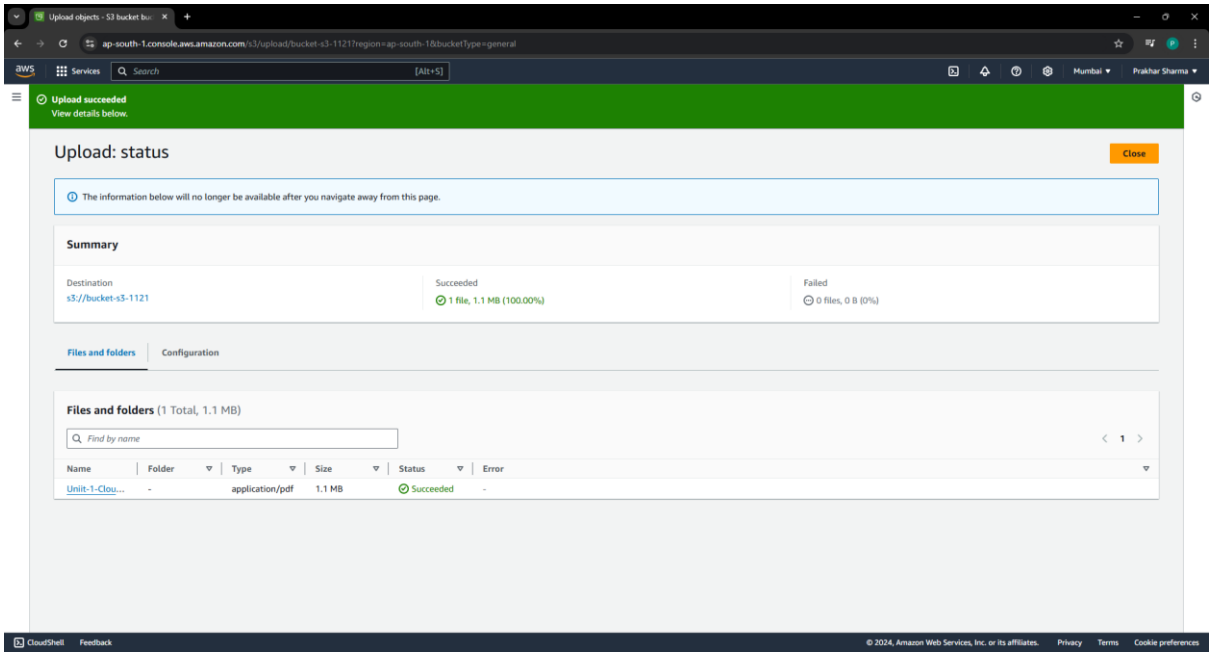

Step 2: Create a IAM User.

- Search IAM in the Amazon management console, click on it.
- In the left hand panel , click on users.
- Click on create user.
- Name the user and click next.

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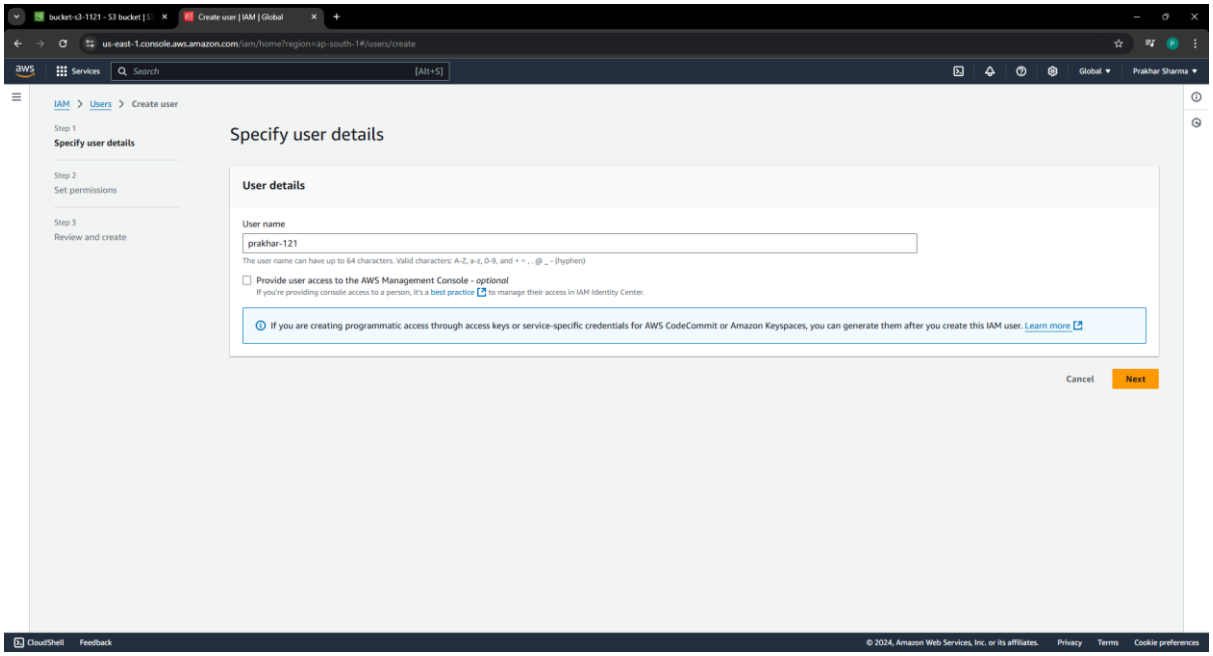
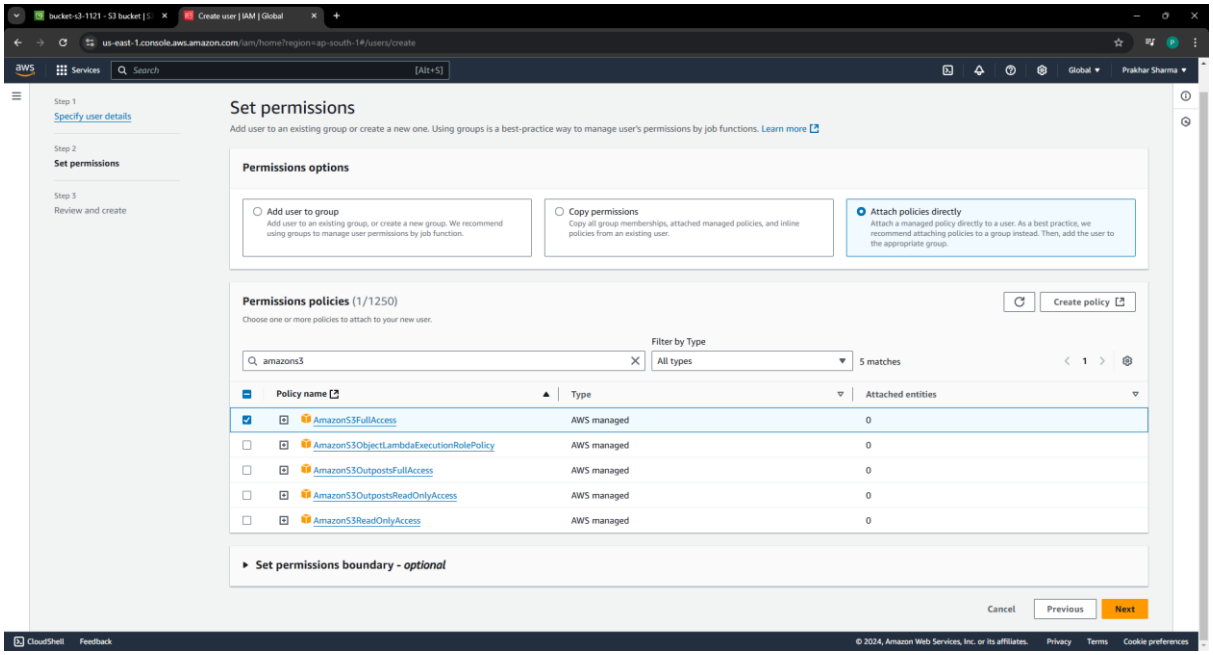


- In Set permissions, Select Attach policies directly options in the permissions options.
- In Permissions policies, Search AmazonS3FullAccess and select it, click on next.



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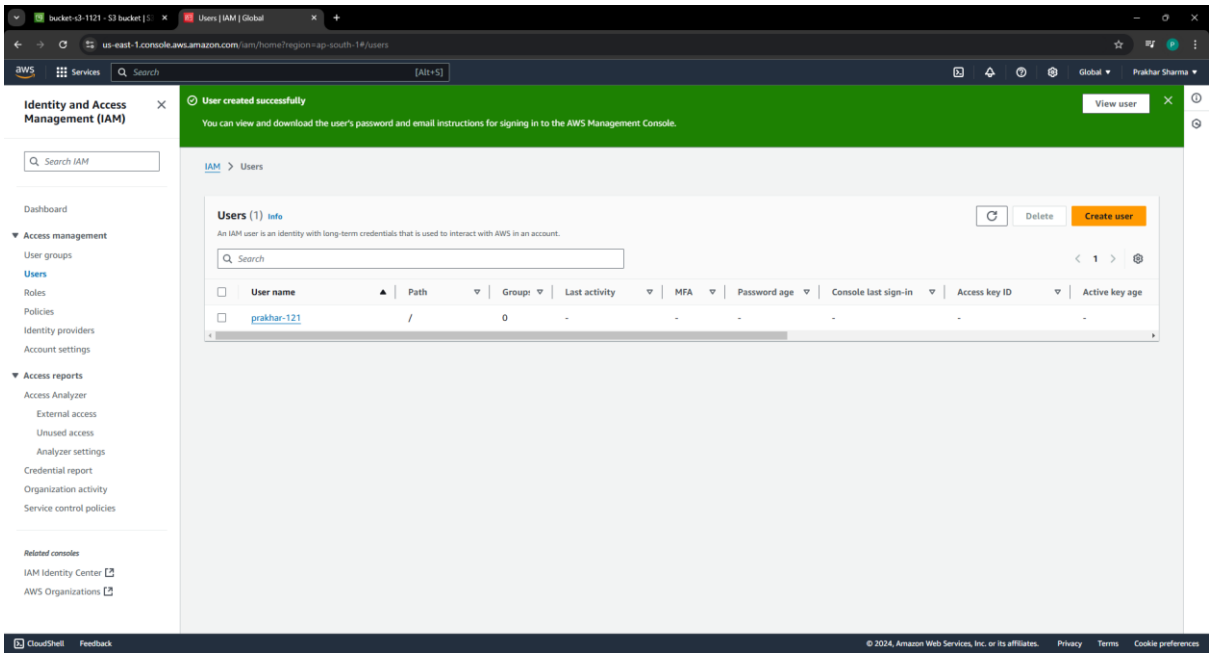
- Click on create user.



Now Login with IAM User Credential in new tab and check that the object file uploaded is opening or not.

Step-3 : Create a KMS Key.

- Search KMS in the amazon management console and click on it.
- In the left hand panel, click on customer managed keys.
- Click on create key.
- Select Key type as Symmetric and Key usage as Encrypt and Decrypt.
- Click on next.

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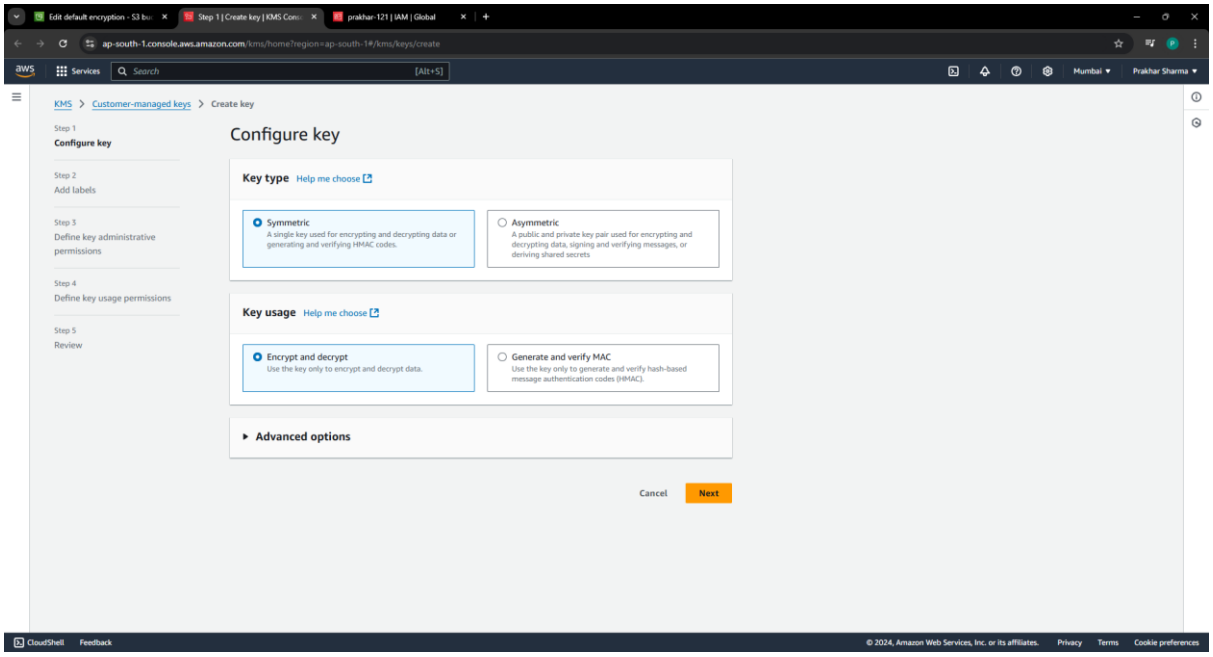
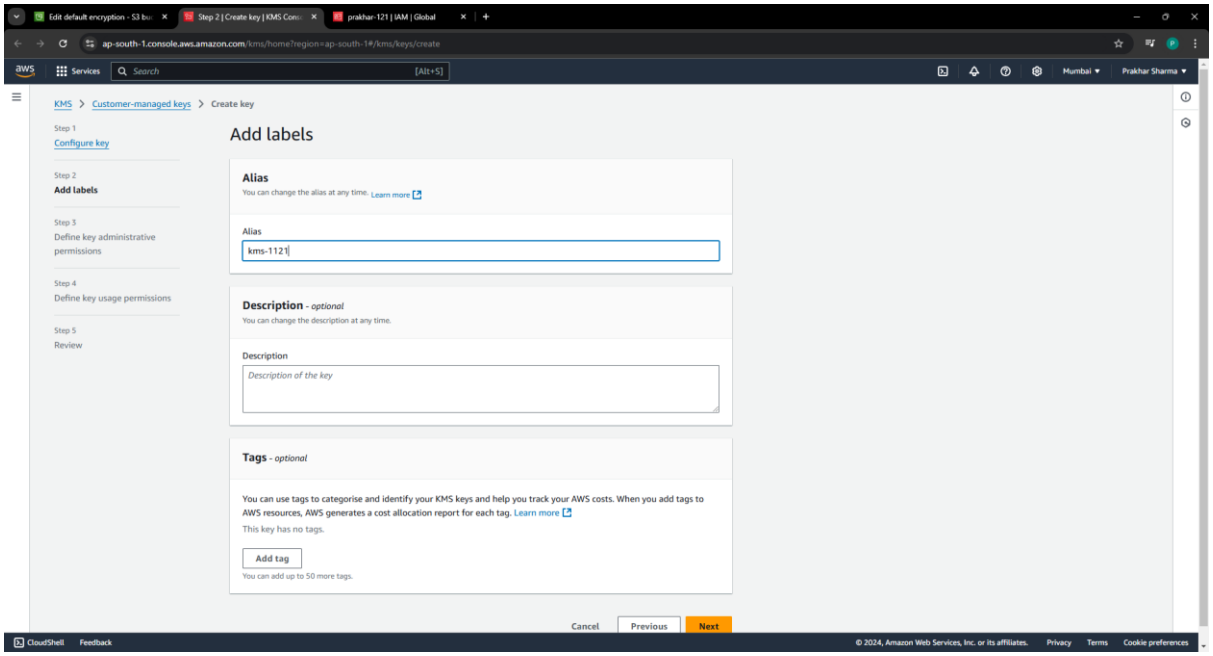


- Name the key in Alias , click next till last step.



- Click create key.

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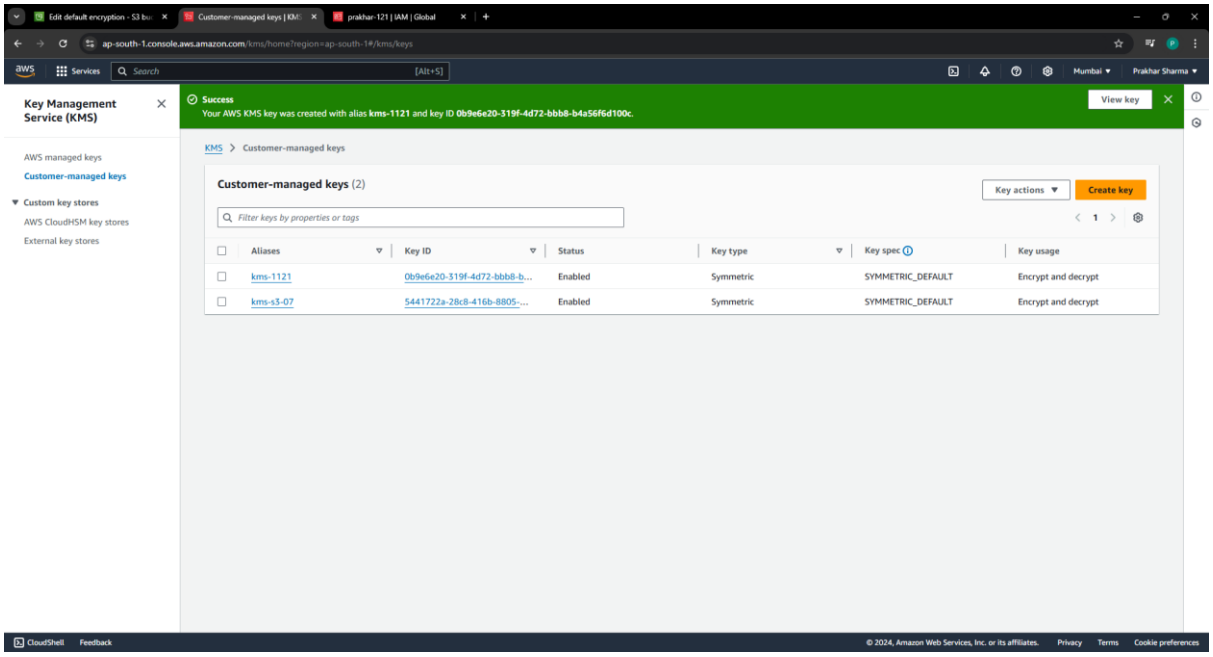
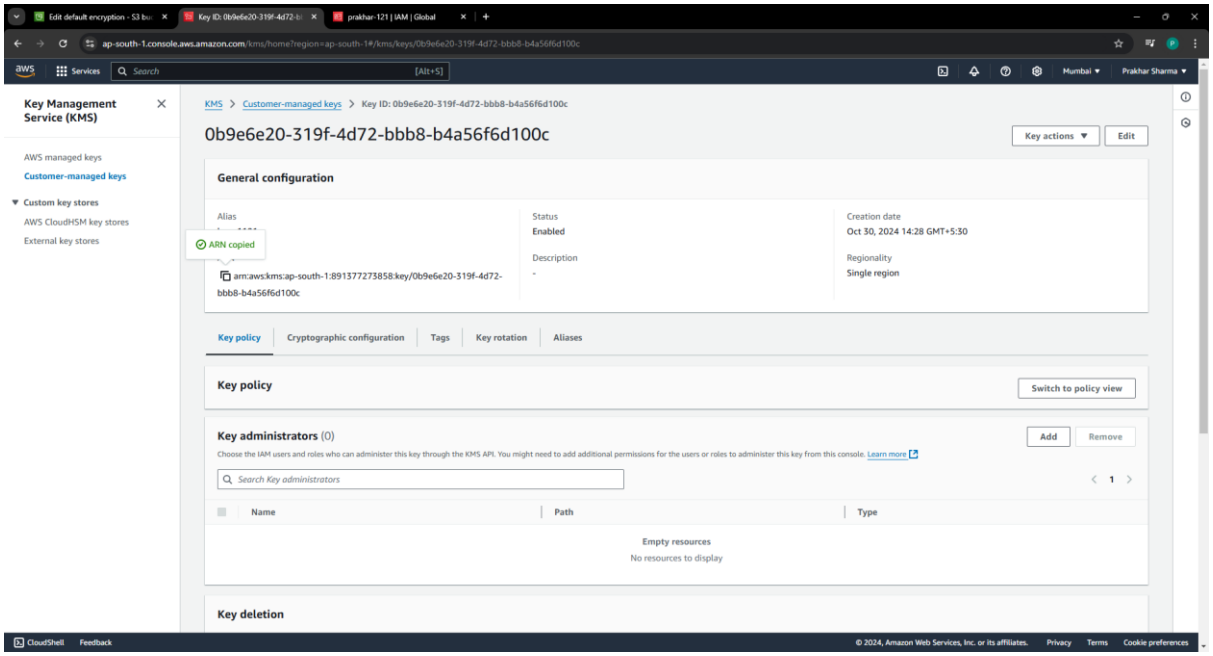


- Click on the key we created and copy the ARN of the key .



Step-4 : Add the KMS key in the S3 bucket.

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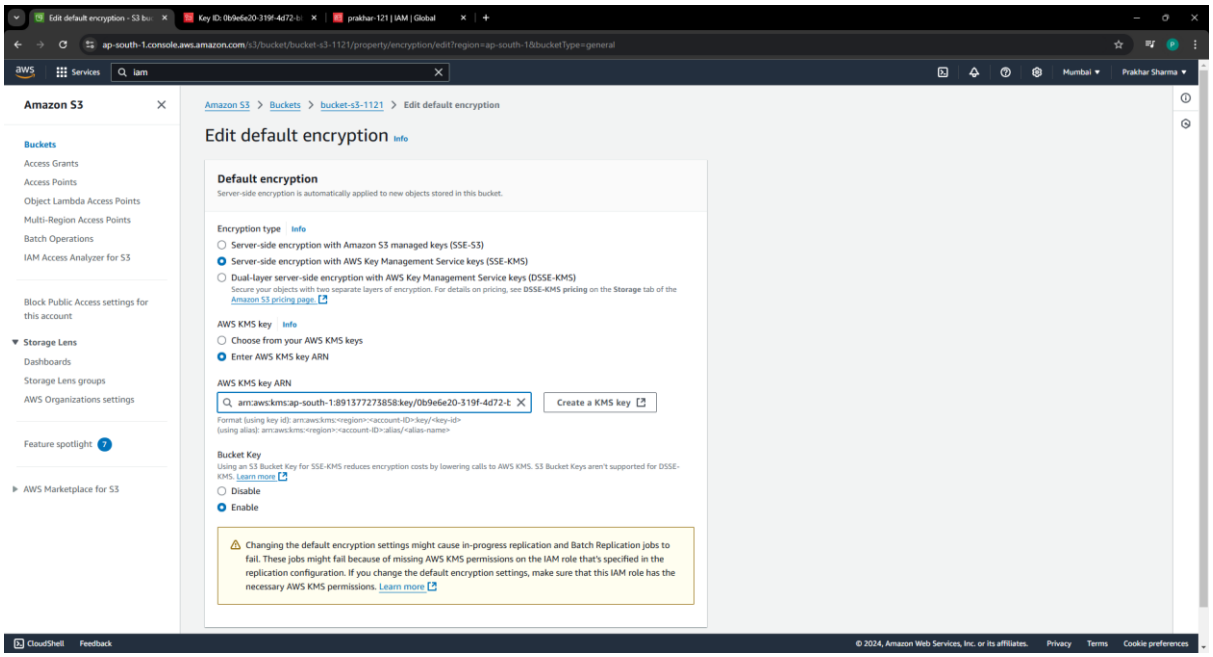
- Go to S3, Click on the bucket we created .
- In Object tab, search for default encryption
- Click on edit.
- Select Encryption type as SSE-KMS (Second Option).
- In AWS KMS Key Select the second option and enter the ARN we copied.
- In Bucket Key, enable it.
- Click on save changes.



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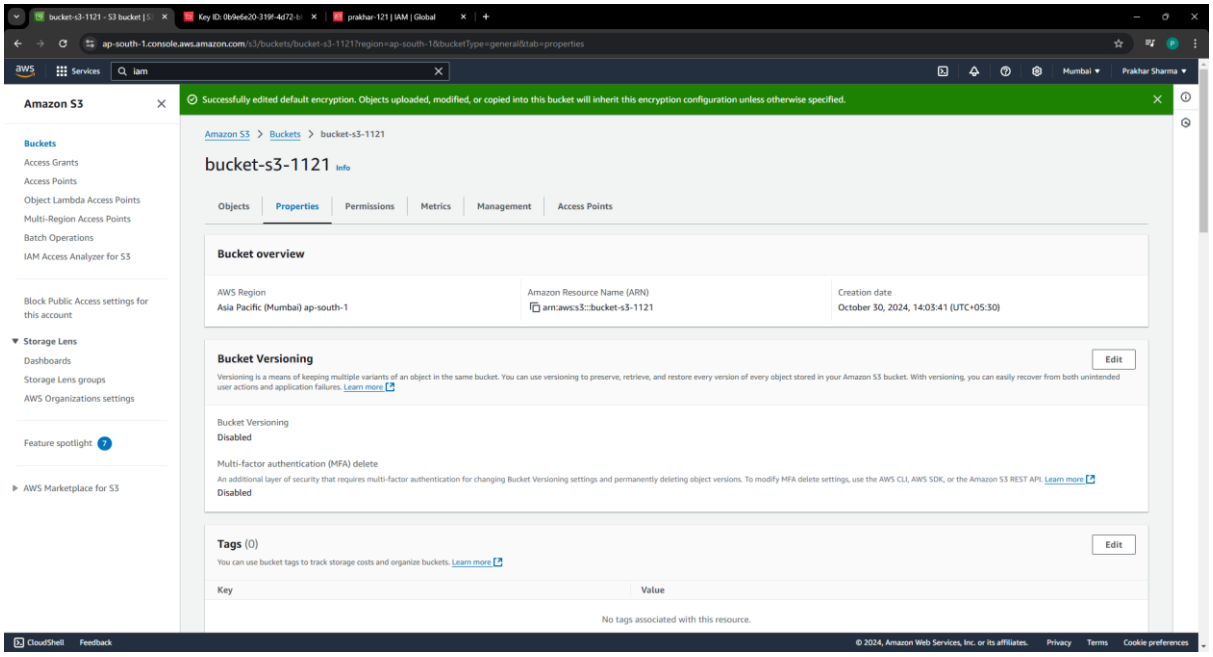
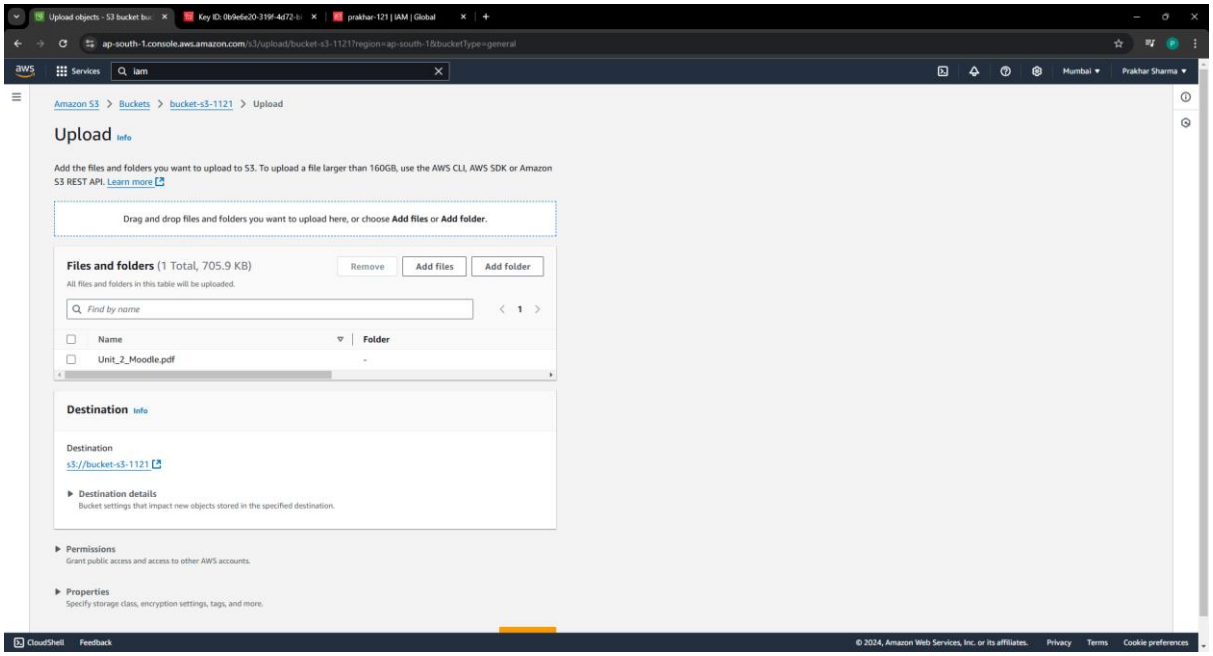


Now Upload another file in the bucket .



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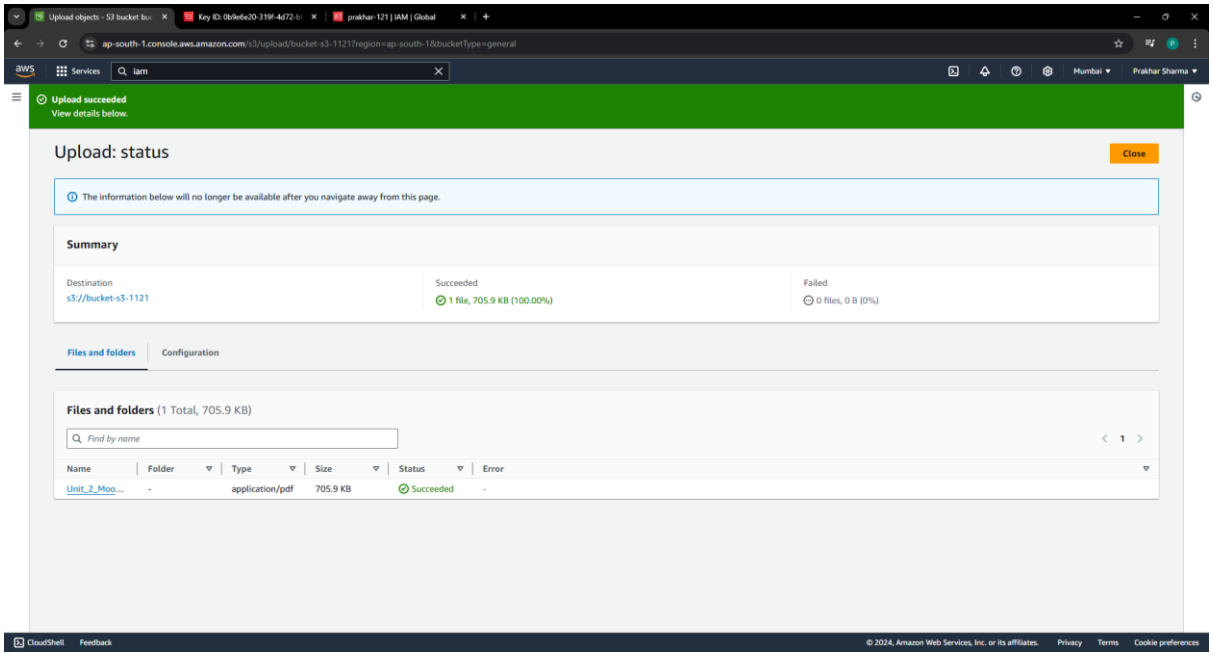

Now open the new uploaded object from the Logged In IAM User on other tab , you can see a message like this, it means you don't have the permission to open the file in the bucket.

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To Open it You have to add the user in the KMS Service

Step-5 : Go back to the root user tab and go to KMS

- In Customer managed keys ,open the created key.
- Search Key User Section ,click on add.
- Select the IAM user created above and click on add.

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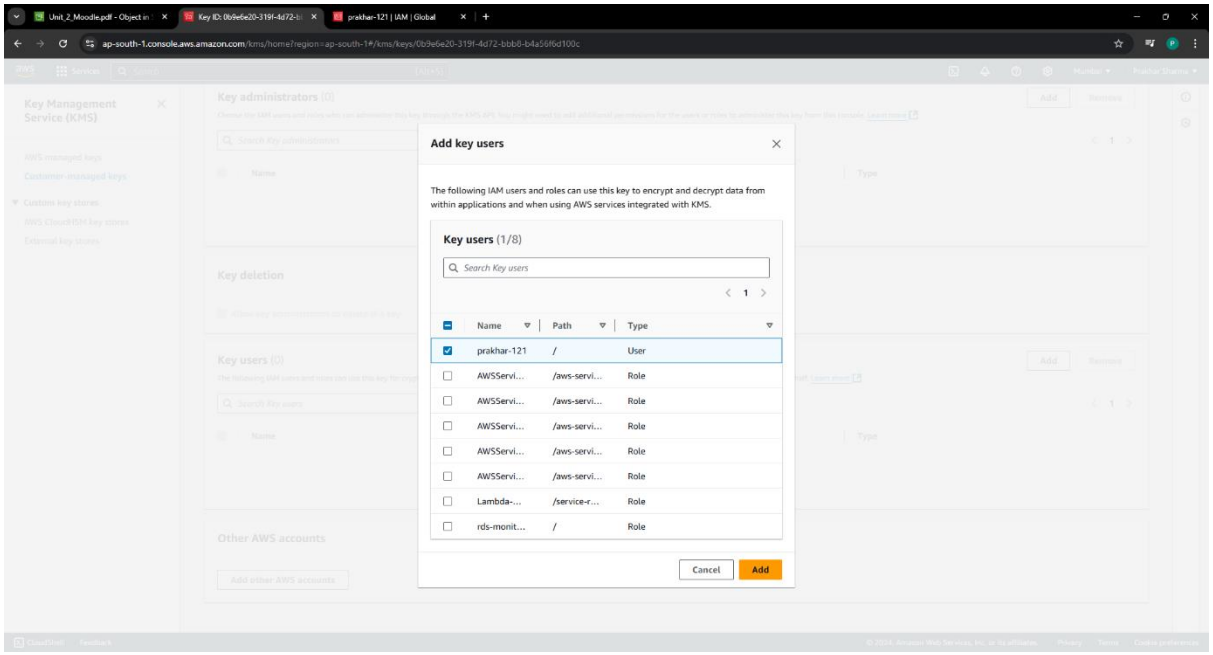

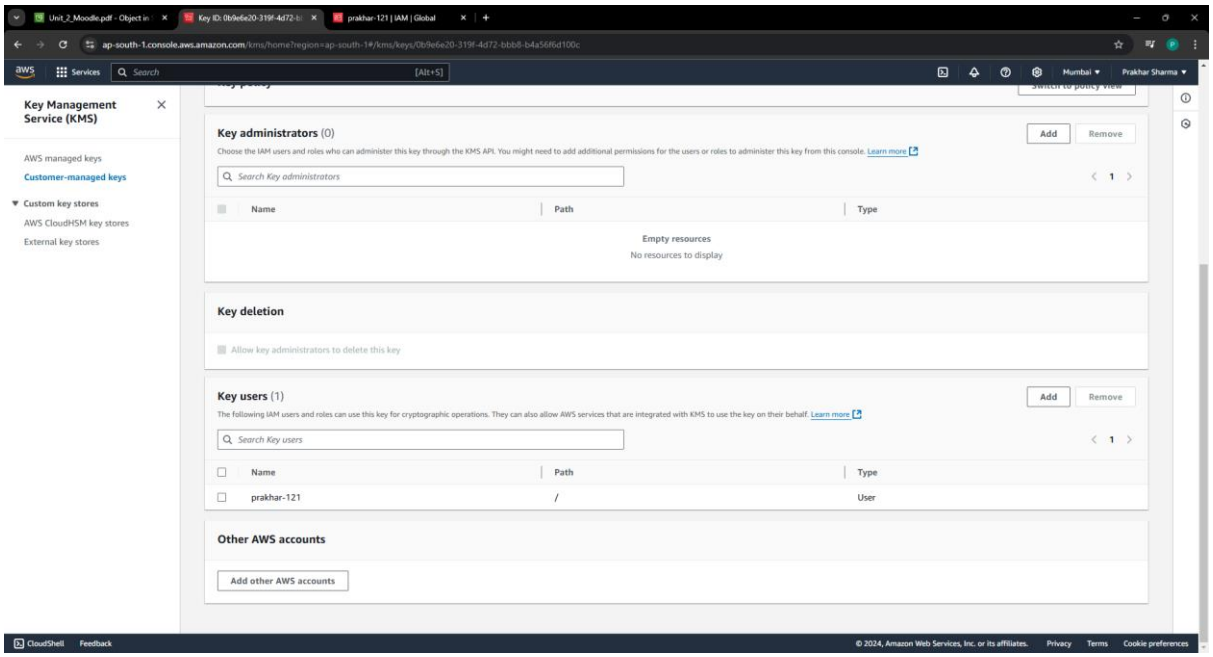

Now again try to open the object file from IAM Logged In Tab which can't be open above.

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You can see now we can see the content of the object file in the s3 bucket.