

Department of Information Technology

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Semester: V

Academic Year: 2022-23

Class / Branch: TE IT Subject: Advanced Dev

Subject: Advanced Devops Lab (ADL) Name of Instructor: Prof. Vishal Badgujar Name of Student:Siddhi Tangsali

Student ID: 23104069

EXPERIMENT NO. 12

Aim: To create a Lambda function which will log "An Image has been added" once you add an object to a specific bucket in S3

Theory:

Creating S3 Bucket

Let us start first by creating a s3 bucket in AWS console using the steps given below -

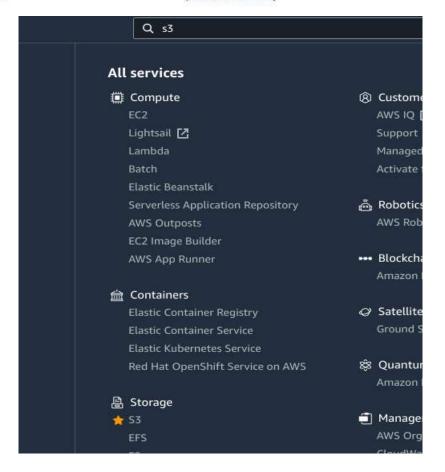
Step 1

Go to Amazon services and click ${\bf S3}$ in storage section as highlighted in the image given below -



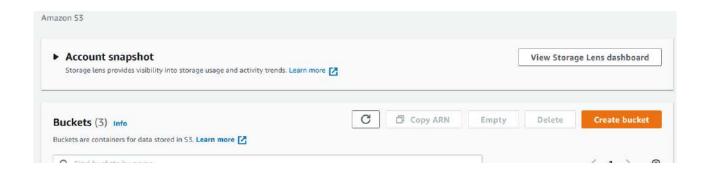
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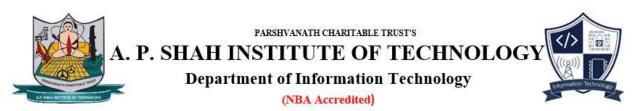
Step 2

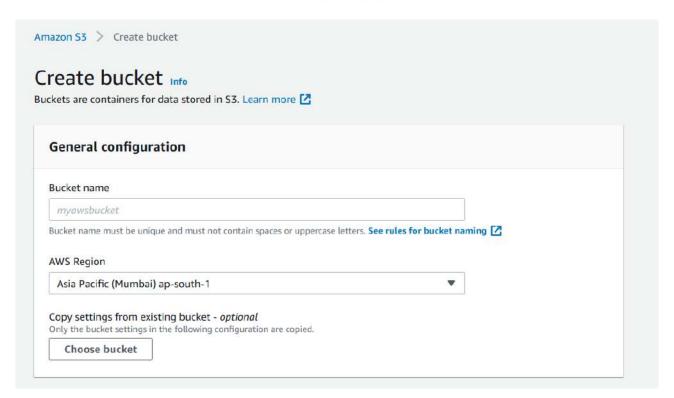
Click S3 storage and Create bucket which will store the files uploaded.



Step 3

Once you click Create bucket button, you can see a screen as follows -





Step 4

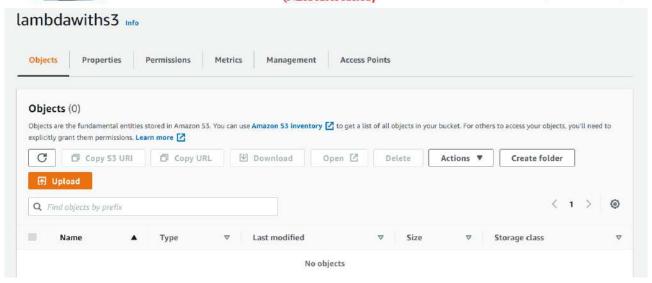
Enter the details Bucket name, Select the Region and click Create button at the bottom left side. Thus, we have created bucket with name:



Step 5

Now, click the bucket name and it will ask you to upload files as shown below -





Thus, we are done with bucket creation in S3.

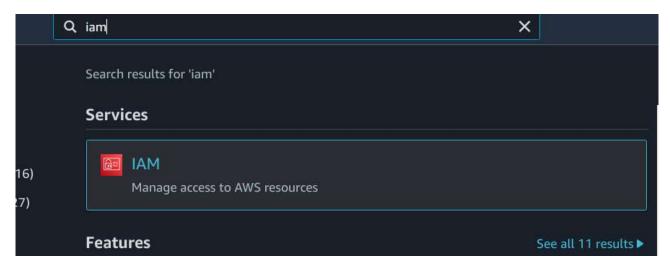
Create Role that Works with S3 and Lambda

To create role that works with S3 and Lambda, please follow the Steps given below -

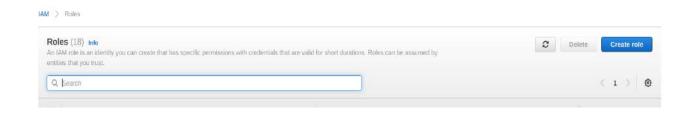
Step 1

Go to AWS services and select IAM as shown below -





Step 2 Now, click IAM -> Roles as shown below -



Step 3

Now, click **Create role** and choose the services that will use this role. Select Lambda and click **Permission** button.



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AWS service EC2, Lambda and off			b identity nito or any OpenID ider	SAML 2.0 federation Your corporate directory		
Allows AWS services to perfe	orm actions on your behalf. Lea	arn more				
Choose a use cas	e					
Common use cases EC2 Allows EC2 instances to call	AWS services on your behalf.					
_ambda Allows Lambda functions to	call AWS services on your beha	alf.				
Or select a service to view	its use cases					
API Galeway	CodeBuild	EMR Containers	IoT SiteWise	RDS		
AWS Backup	CodeDeploy	ElastiCache	IoT Things Graph	Redshift		
AWS Chatbot	CodeGuru	Elastic Beanstalk	KMS	Rekognition		
AWS Marketplace	CodeStar Notifications	Elastic Container Registry	Kinesis	RoboMaker		
AWS Support	Comprehend	Elastic Container Service	Lake Formation	S3		
Amplify	Config	Elastic Transcoder	Lambda	SMS		
AppStream 2.0	Connect	ElasticLoadBalancing	Lex	SNS		
AppSync	DMS	EventBridge	License Manager	SWF		
Application Auto Confine	Data Lifecycle Manager	Forecast	MQ	SageMaker		
Application Auto Scaling						

Step 4

Add the permission from below and click Review.

AmazonS3FullAccess, AWSLambdaFullAccess and CloudWatchFullAccess.

Step 5

Observe that we have chosen the following permissions -

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Observe that the Policies that we have selected are AmazonS3FullAccess, AWSLambdaFullAccess and CloudWatchFullAccess.

Step 6

Now, enter the Role name, Role description and click Create Role button at the bottom.

lambdawiths3service	AWS Service: lambda
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Thus, our role named lambdawiths3service is created.

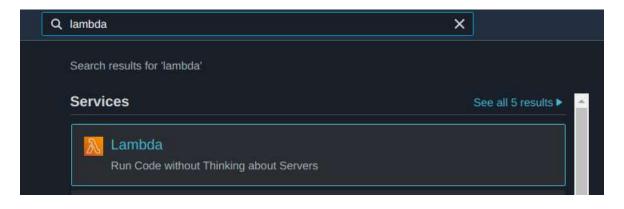
Create Lambda function and Add S3 Trigger



In this section, let us see how to create a Lambda function and add a S3 trigger to it. For this purpose, you will have to follow th Steps given below -

Step 1

Go to AWS Services and select Lambda as shown below -

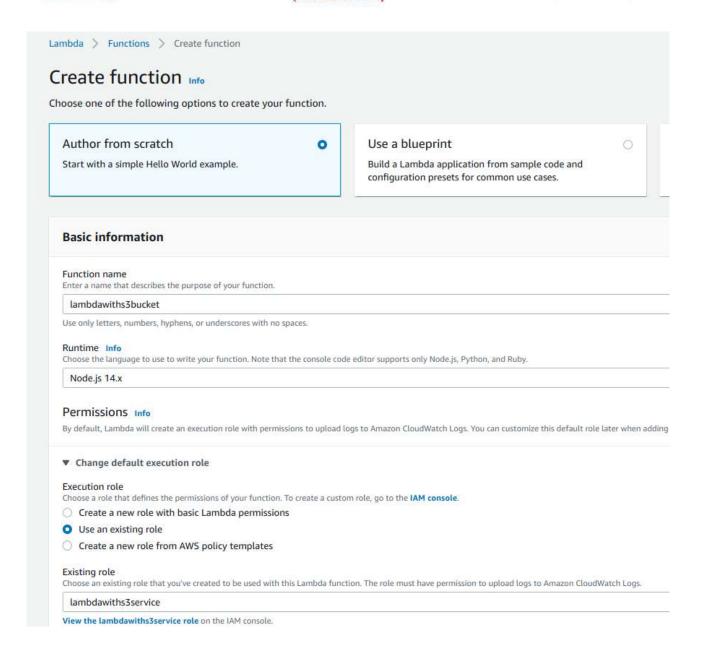


Step 2

Click **Lambda** and follow the process for adding **Name**. Choose the **Runtime**, **Role** etc. and create the function. The Lambda function that we have created is shown in the screenshot below —



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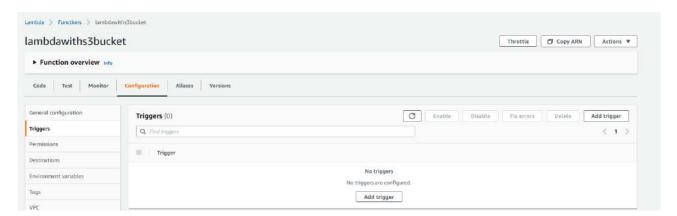


Step 3

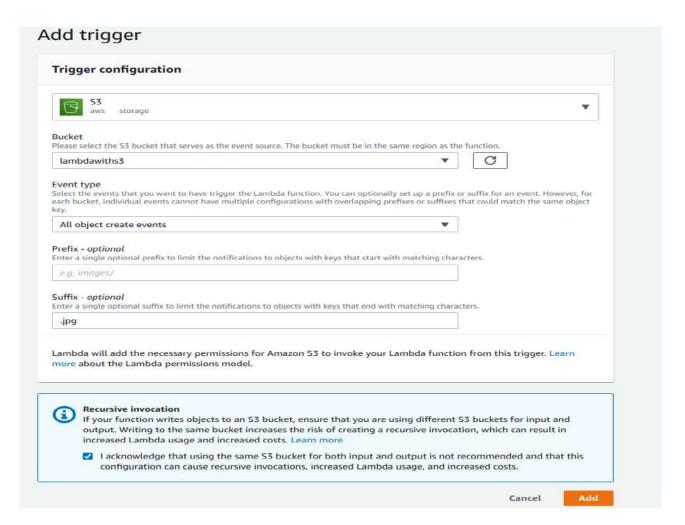
Now let us add the S3 trigger.

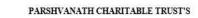


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Step 4 Choose the trigger from above and add the details as shown below -





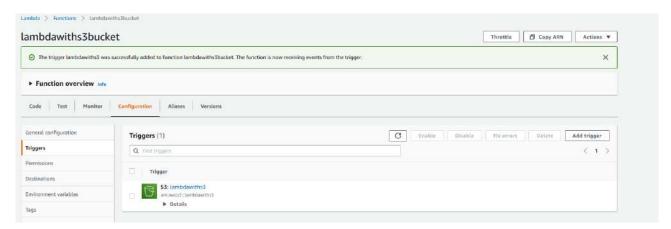


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You can add Prefix and File pattern which are used to filter the files added. For Example, to trigger lambda only for .jpg images. as we need to trigger Lambda for all jpg image files uploaded. Click Add button to add the trigger.

Step 5

You can find the trigger display for the Lambda function as shown below -



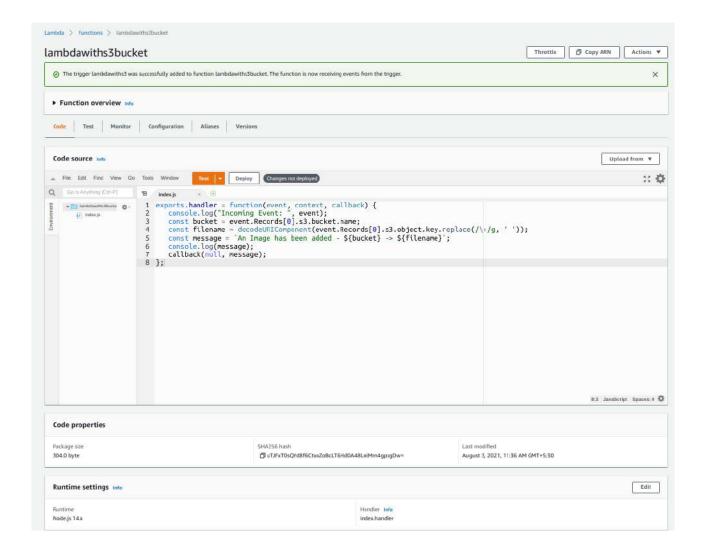
Step 6

Let's add the details for the aws lambda function. Here, we will use the online editor to add our code and use nodejs as the runtime environment.

To trigger S3 with AWS Lambda, we will have to use S3 event in the code as shown below -



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Step 7:

let us save the changes and test the lambda function with S3upload.

Step 8:

Now, save the Lambda function. Open S3 from Amazon services and open the bucket we created earlier namely lambdawiths3.

Upload the image in it as shown below -

Click Add files to add files. You can also drag and drop the files. Now, click Upload button.

pload Info							
d the files and folders you want t REST API. Learn more	o upload to S3. To up	load a file large	er than 160GB, u	se the AWS C	LI, AW	S SDK o	er Amazo
Drag and drop files	and folders you want	to upload here	2, or choose Add	files, or Add	folder	s.	
Files and folders (1 Total, 44.0 KB) All files and folders in this table will be uploaded.		[Remove	Add files		Add folder	
Q Find by name						<	1 >
Name	Folder	⊽	Туре	▽	Size		▽
apsit_logo.jpg	-		image/jpeg		44.0	КВ	

Thus, we have uploaded one image in our S3 bucket.

Step 9

To see the trigger details, go to AWS service and select CloudWatch. Open the logs for the Lambda AWS Lambda function gets triggered when file is uploaded in S3 bucket and the details are logged in Cloudwatch as shown below —



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An image has been Added -> apsit logo.jpg you can see in cloudwatch logs.



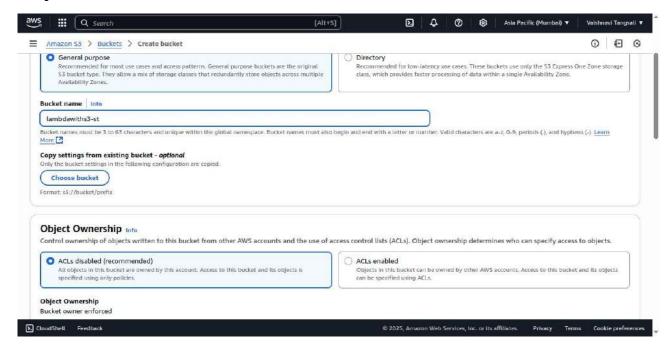
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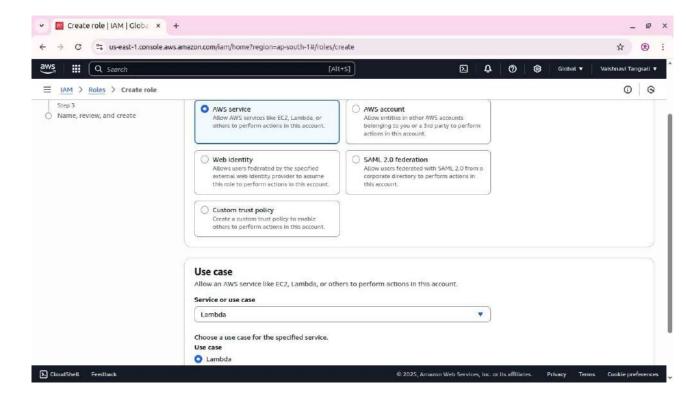
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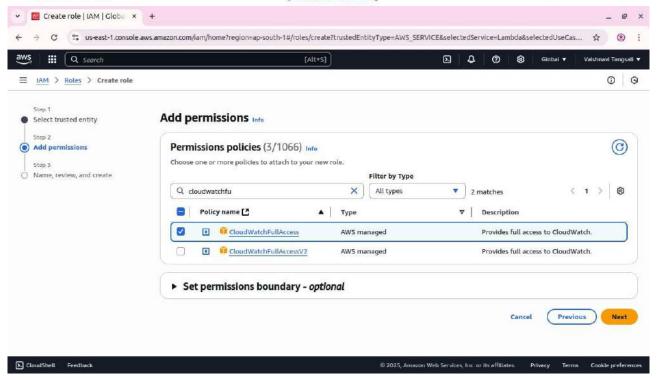
Output Screenshots:

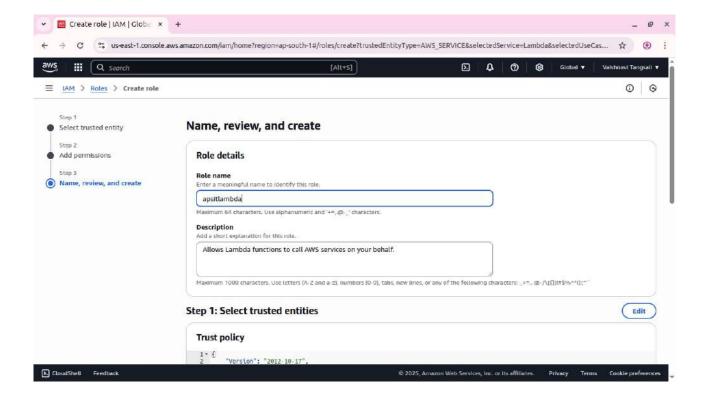






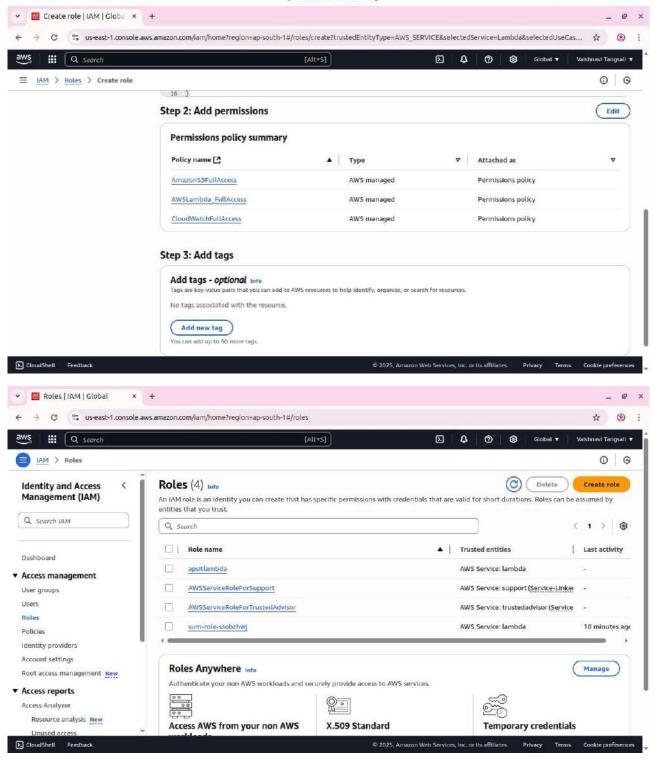
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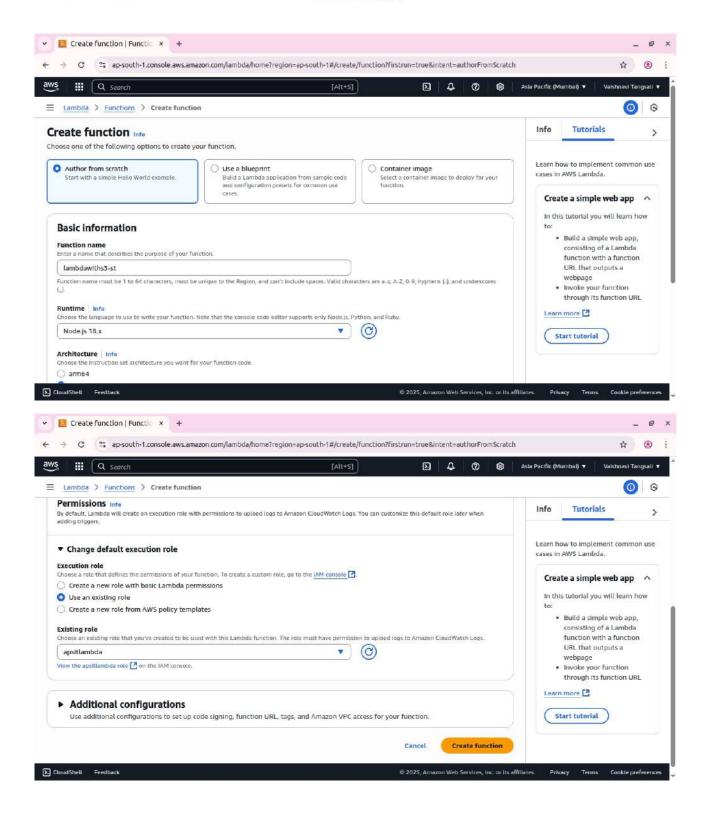




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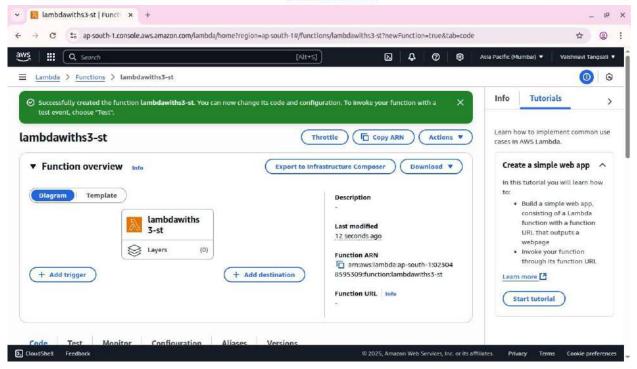
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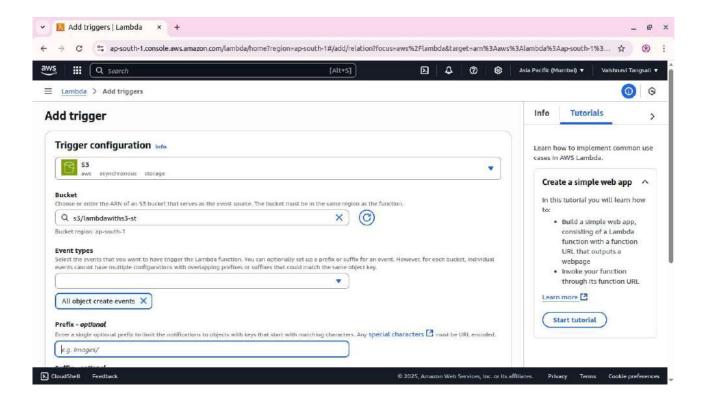
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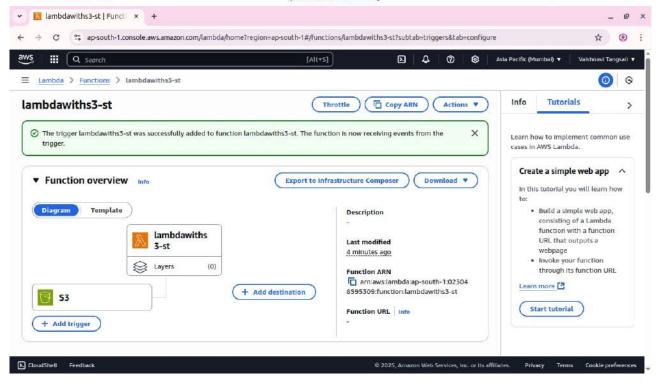
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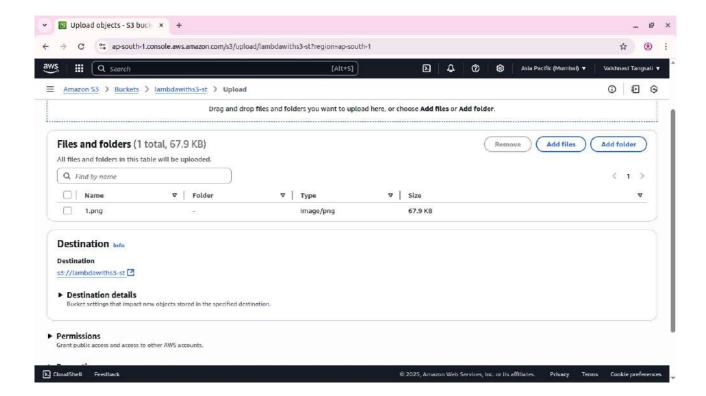






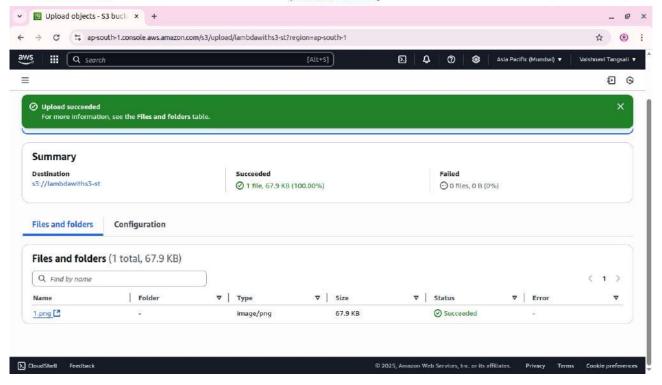
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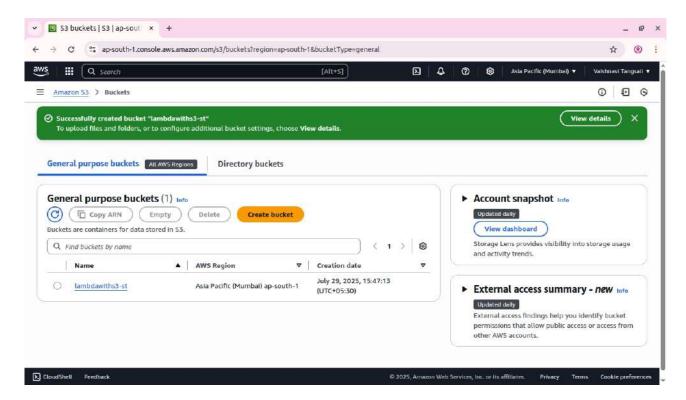




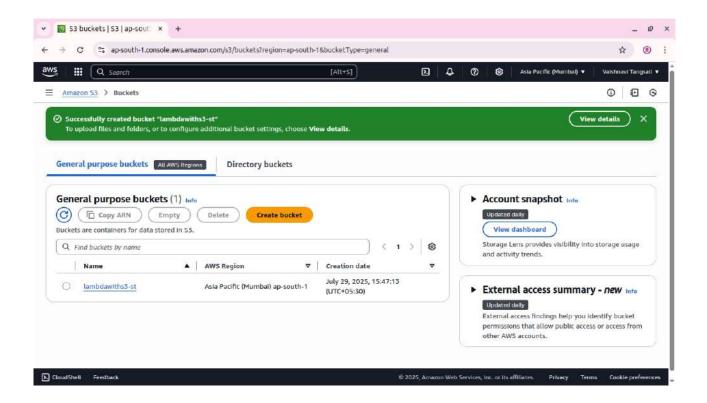


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Conclusion: : Hence created a Lambda function which will log "An Image has been added" once you add an object to a specific bucket in S3.