EXPERIMENT NO. 12 DATE -

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 -

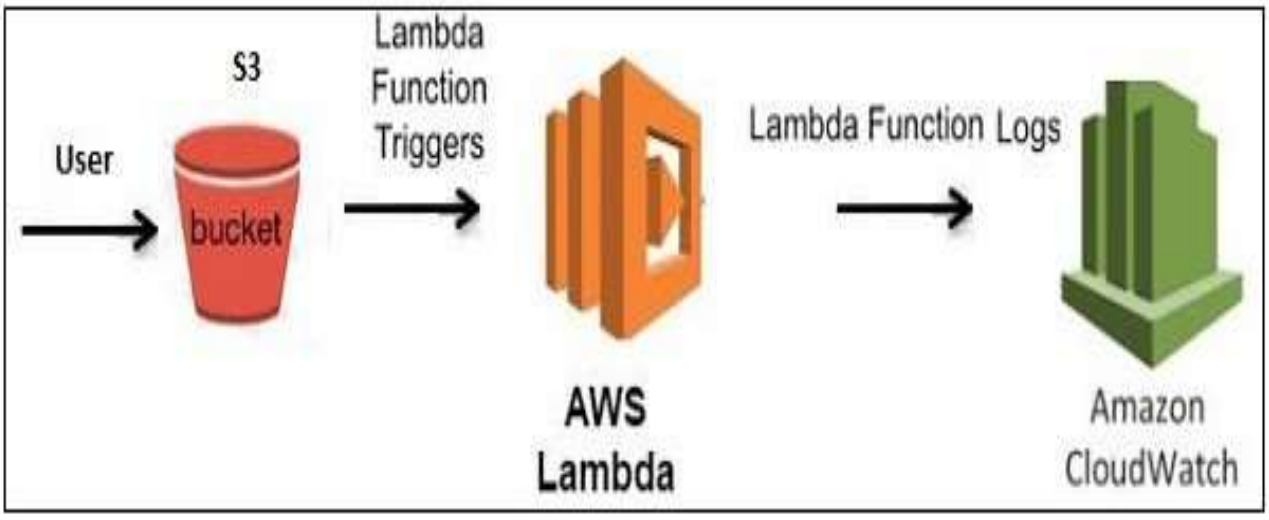
Amazon S3 service is used for file storage, where you can upload or remove files. We can trigger AWS Lambda on S3 when there are any file uploads in S3 buckets. AWS Lambda has a handler function which acts as a start point for AWS Lambda function. The handler has the details of the events. In this chapter, let us see how to use AWS S3 to trigger AWS Lambda function when we upload files in S3 bucket.

Steps for Using AWS Lambda Function with Amazon S3

To start using AWS Lambda with Amazon S3, we need the following −

Create S3 Bucket

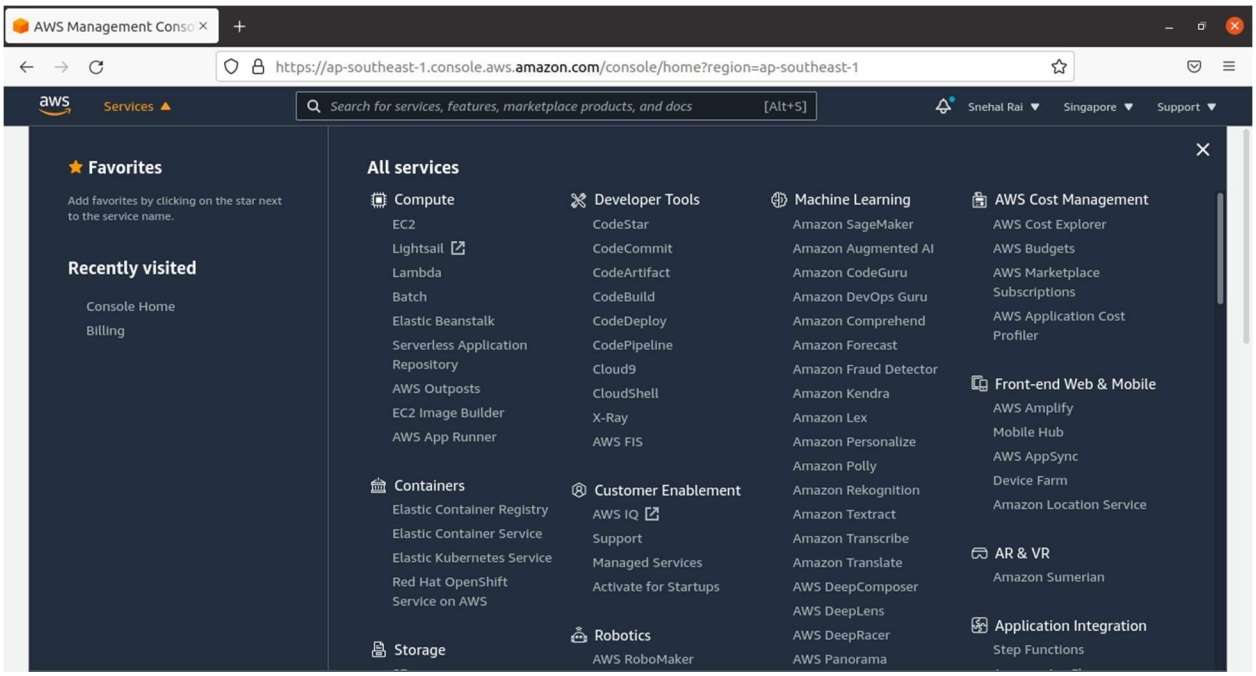
Create role which has permission to work with s3 and lambda Create lambda function and add s3 as the trigger.



Creating S3 Bucket

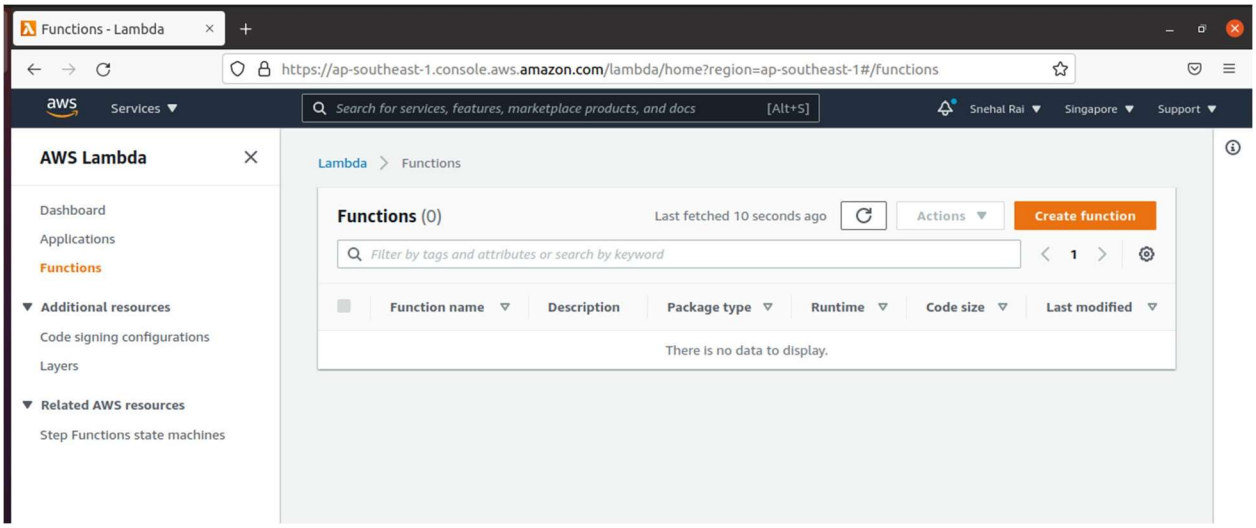
Step 1

Go to Amazon services and click S3 in storage section as highlighted in the image given below –



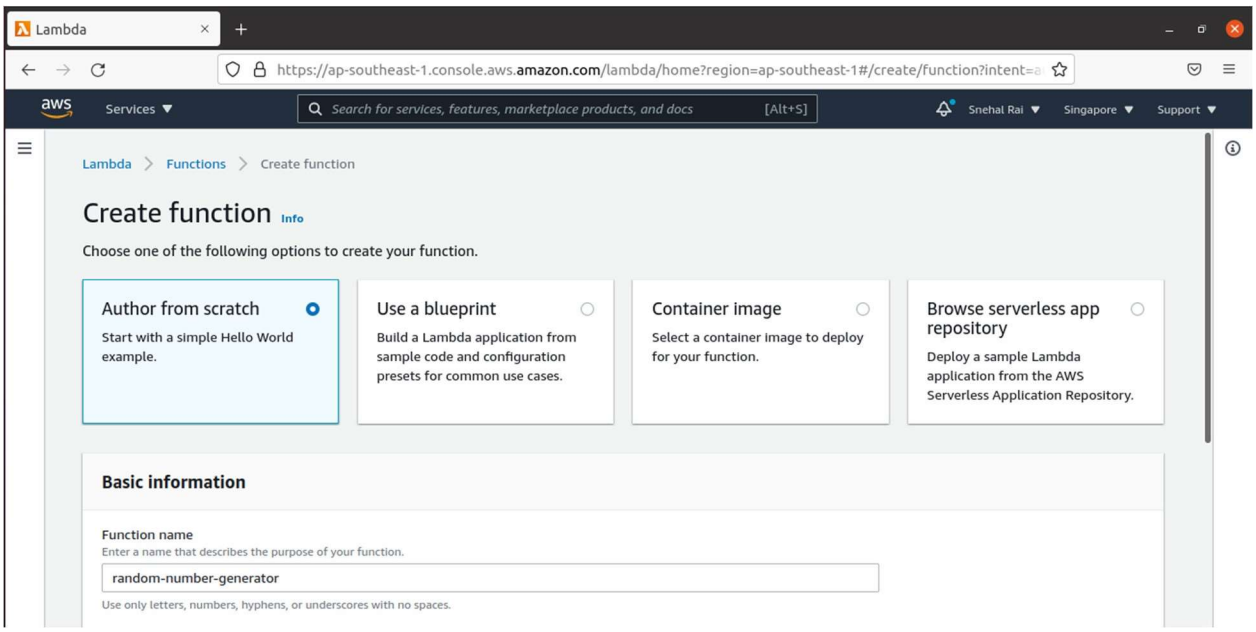
Step 2

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



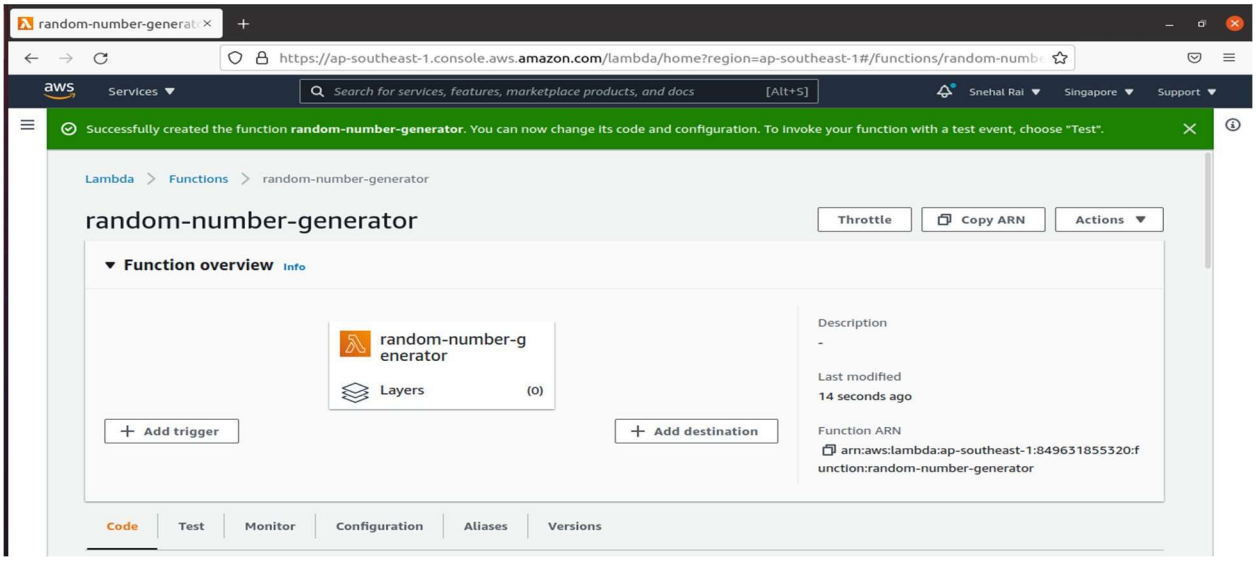
Step 3

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 : working with lambda and s3.



Step 5

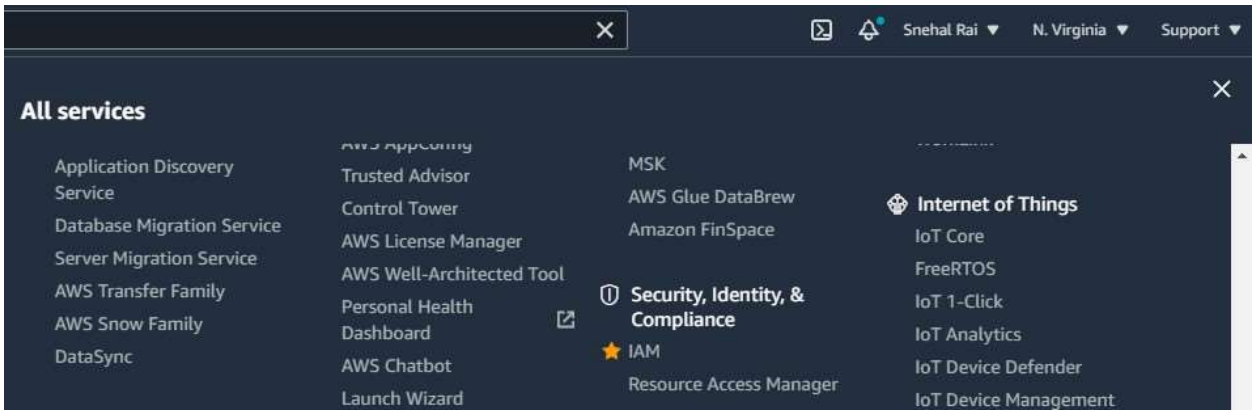
Now, click the bucket name and it will ask you to upload files as shown below –

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 –

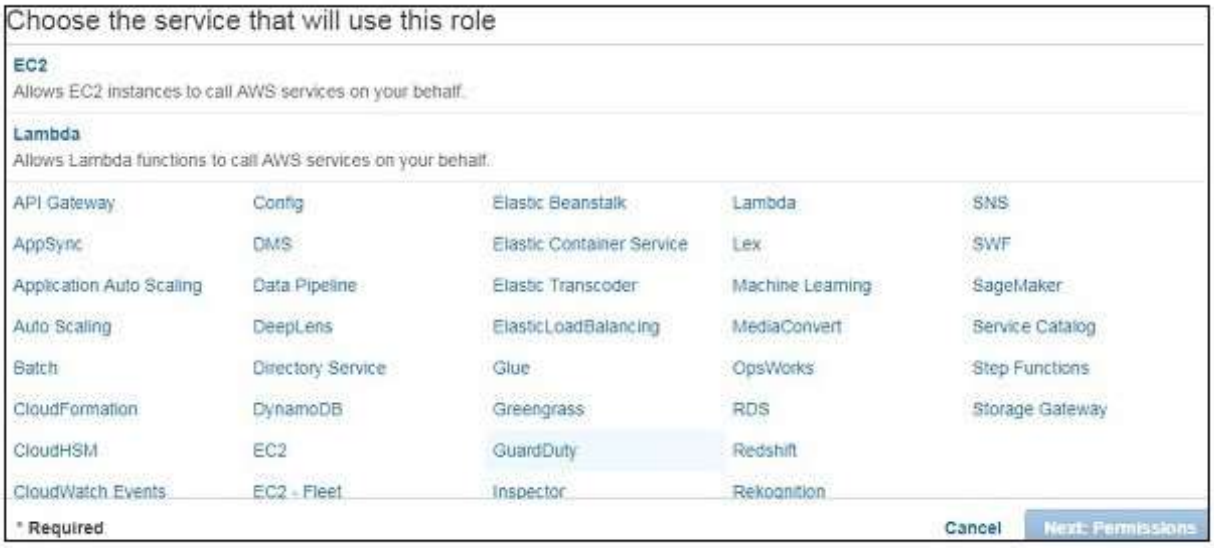


Step 2

Now, click IAM -> Roles as shown below –

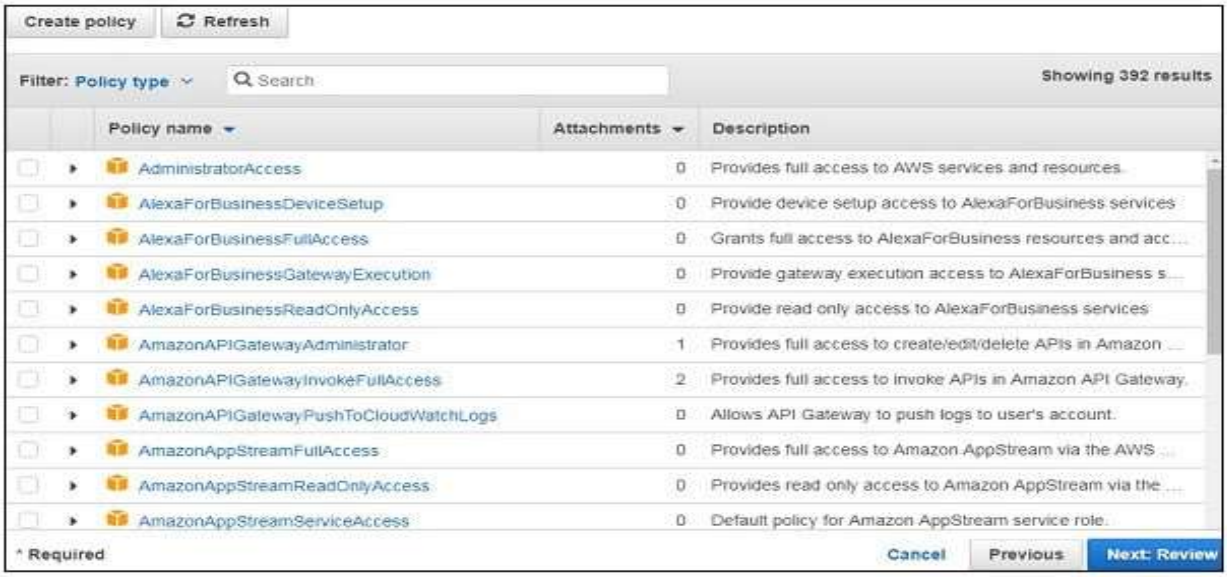
Step 3

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



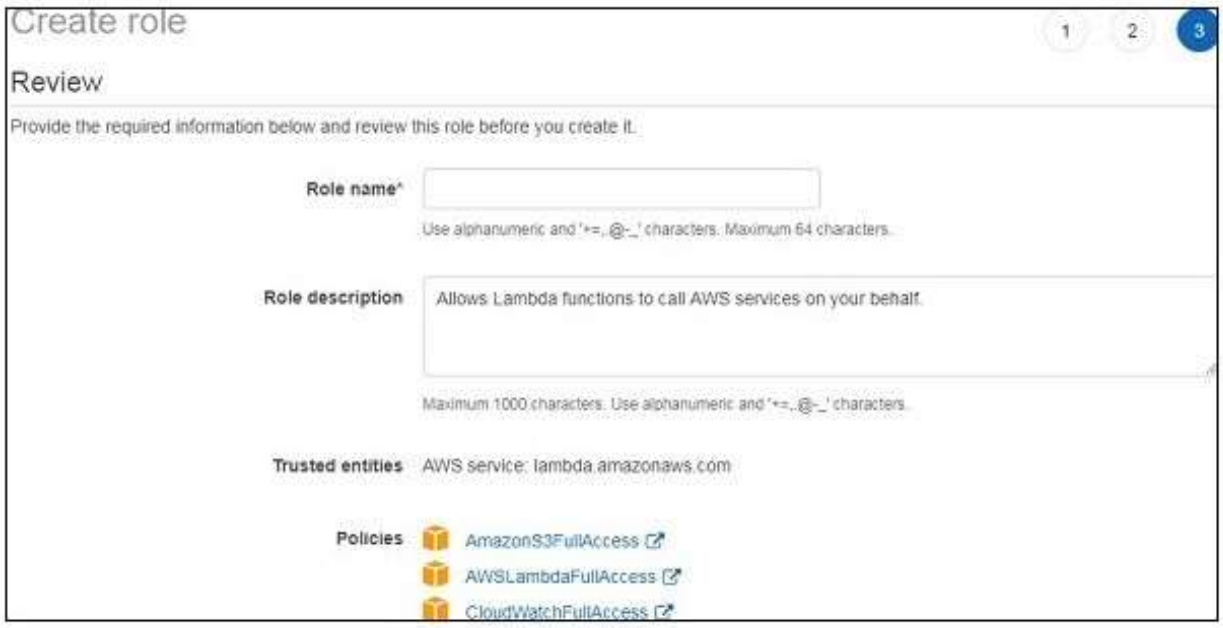
Step 4

Add the permission from below and click Review.



Step 5

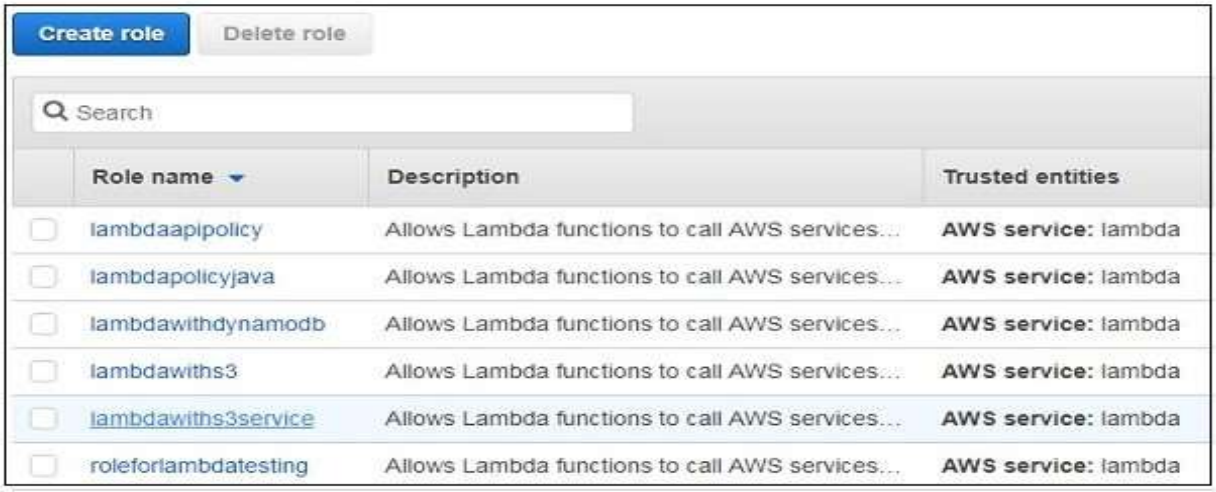
Observe that we have chosen the following permissions –



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.



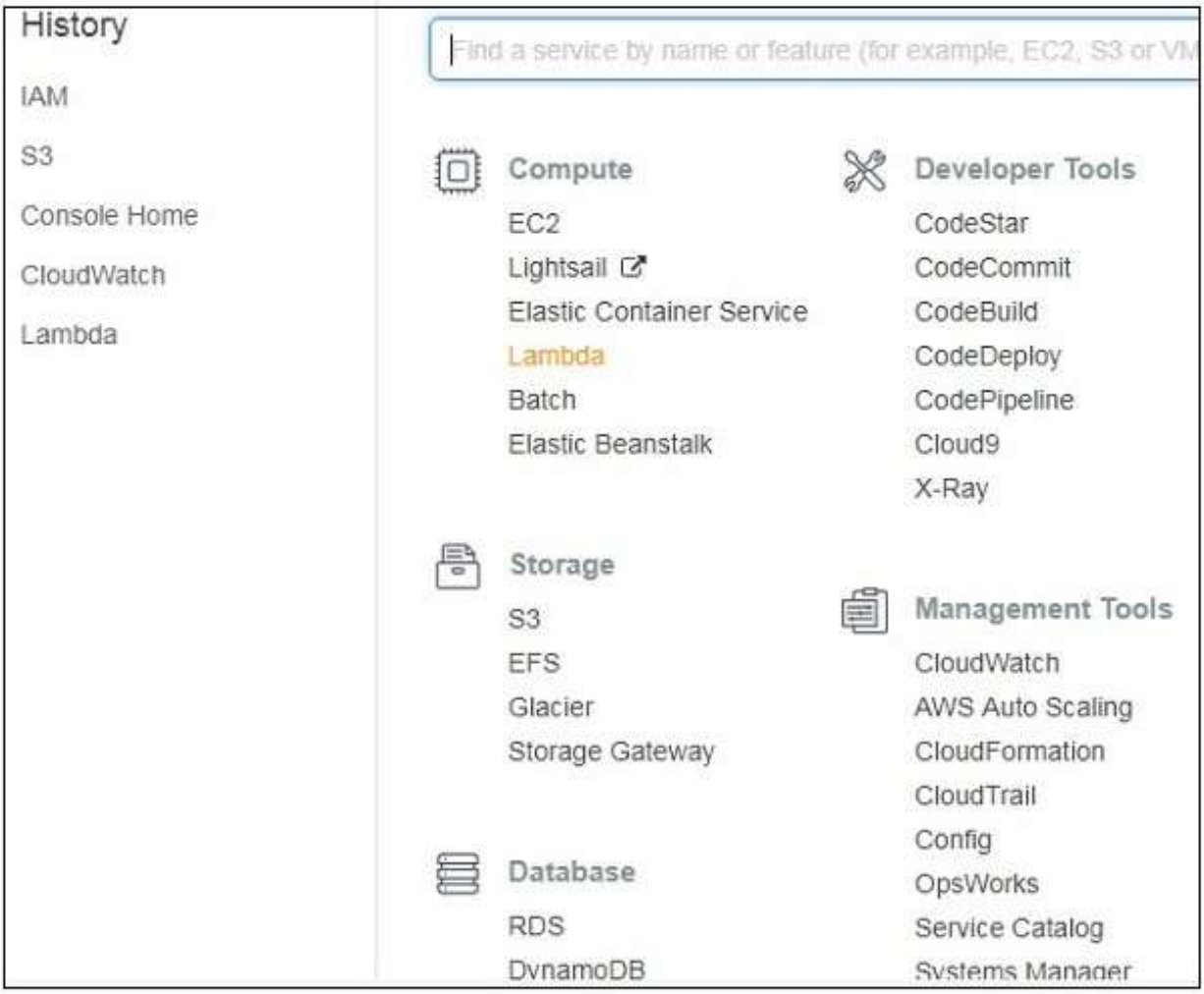
Thus, our role named lambdawiths3service is created.

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 the Steps given below −

Step 1

Go to AWS Services and select Lambda as shown below –



Step 2

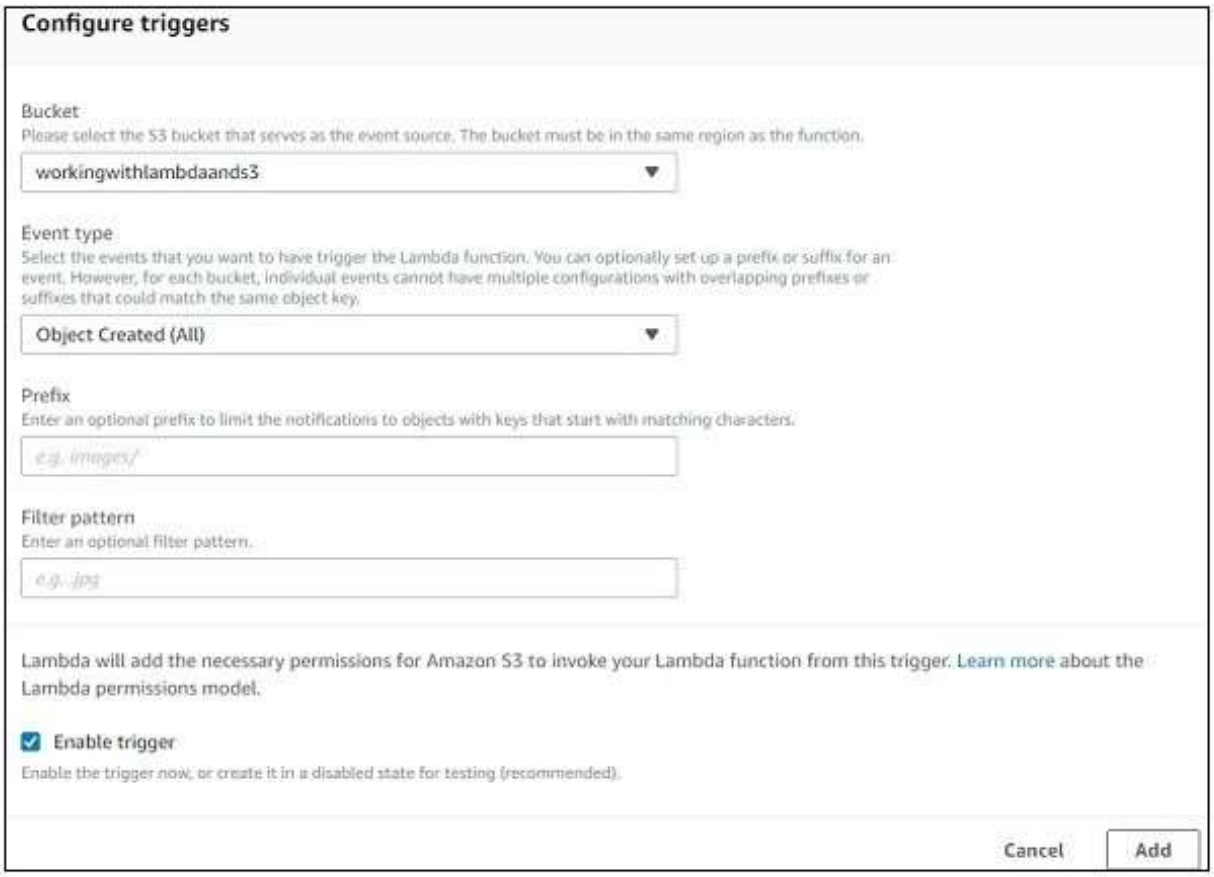
Click Lambda and follow the process for adding Name. Choose the Runtime, Role etc. and create the function. The Lambda function that we have created is shown in the screenshot below –

Step 3

Now let us add the S3 trigger.

Step 4

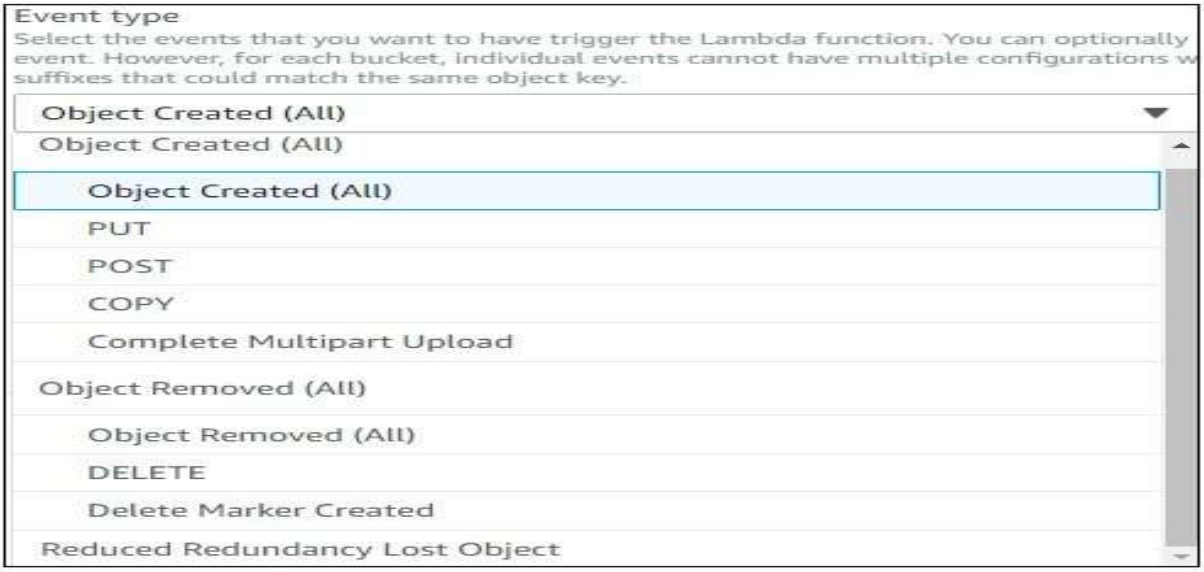
Choose the trigger from above and add the details as shown below –



Step 5

Select the bucket created from bucket dropdown. The event type has following details

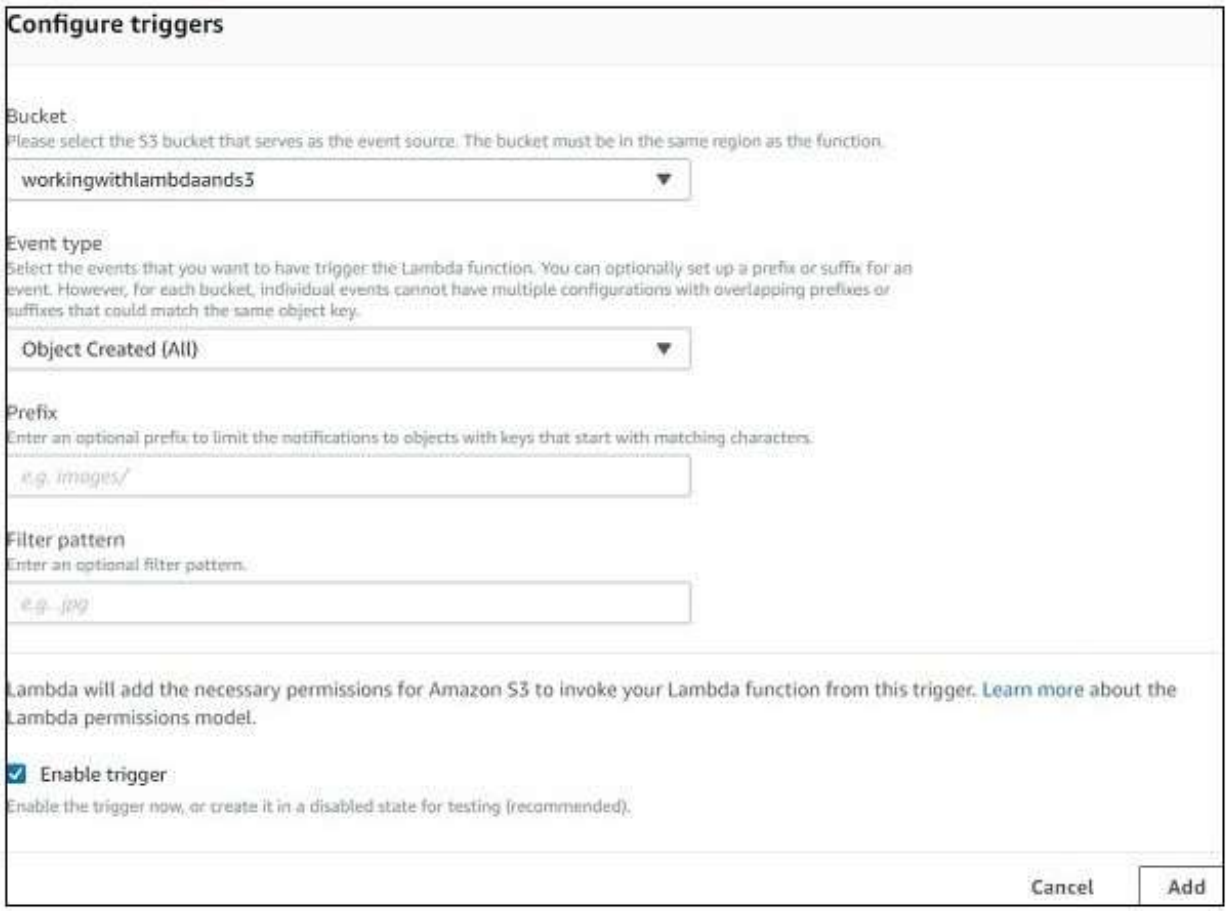
–



Select Object Created (All), as we need AWS Lambda trigger when file is uploaded, removed etc.

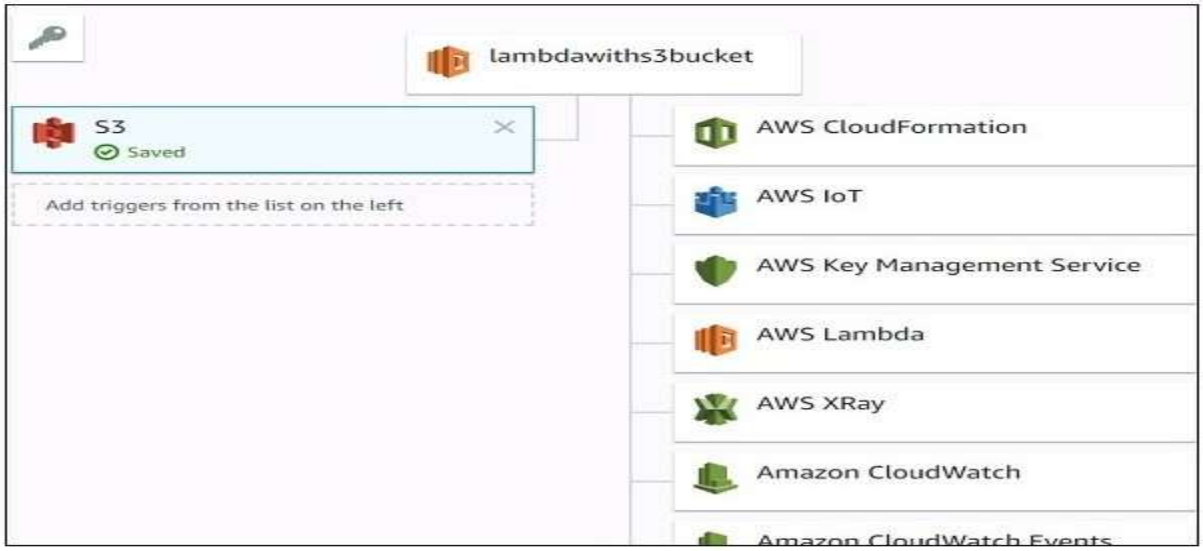
Step 6

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



Step 7

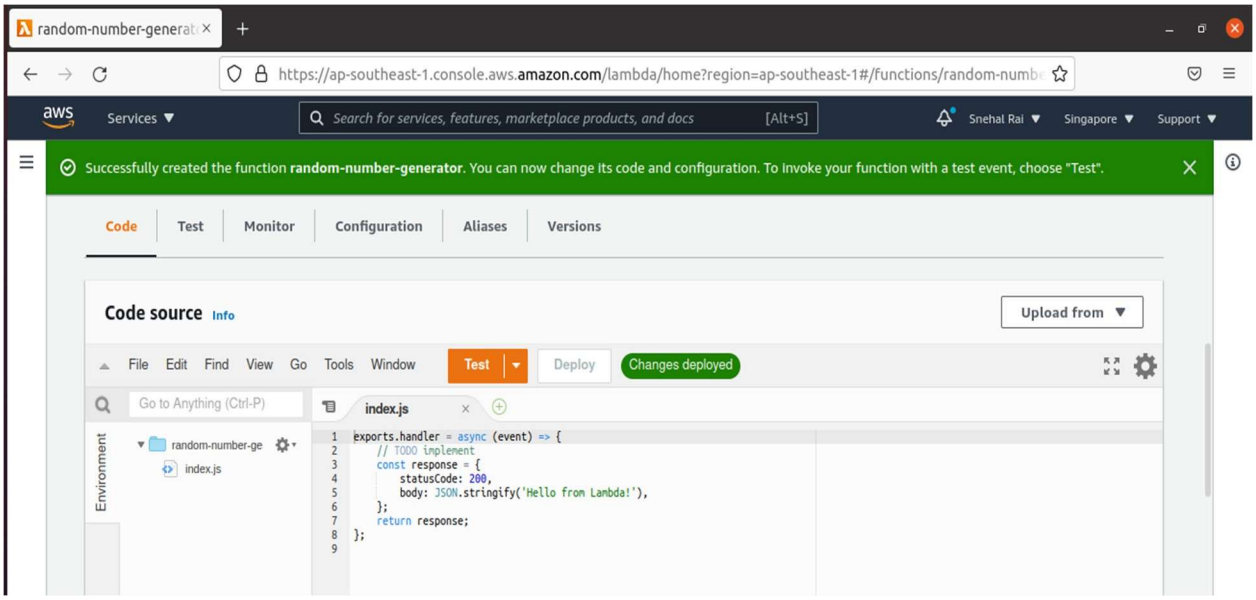
You can find the the trigger display for the Lambda function as shown below −



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.

Step 8

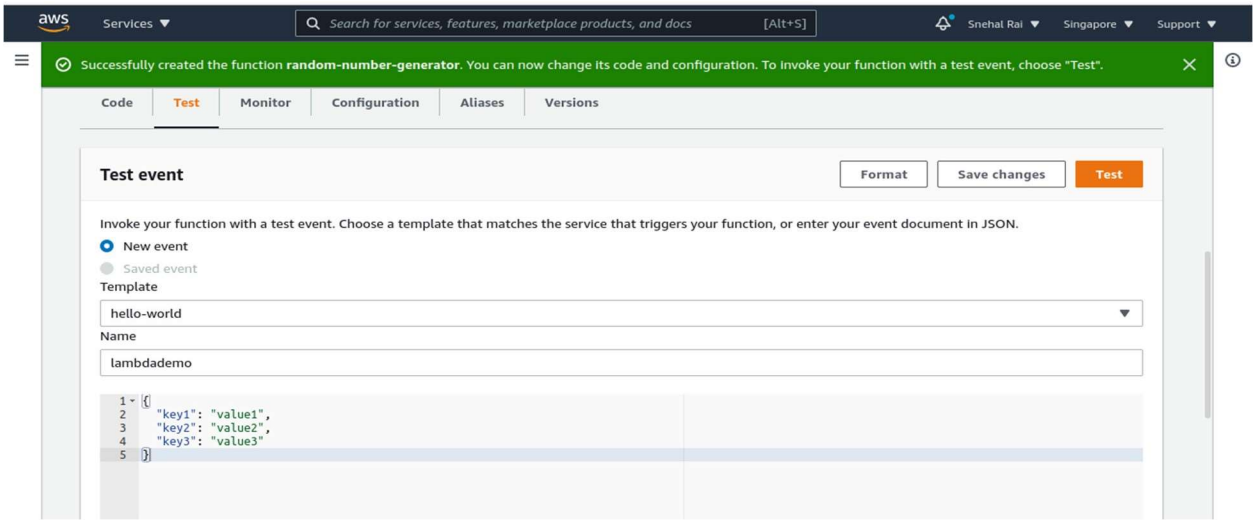
To trigger S3 with AWS Lambda, we will have to use S3 event in the code as shown below −



Note that the event param has the details of the S3event. We have consoled the bucket name and the file name which will get logged when you upload image in S3bucket.

Step 9

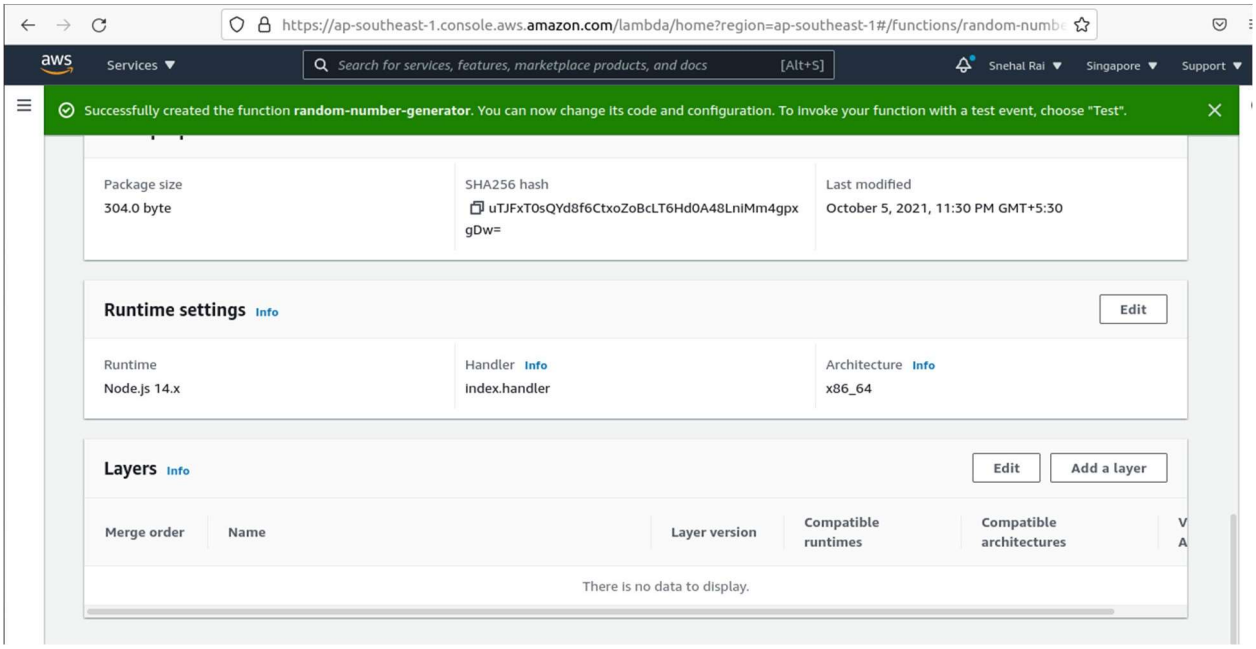
Now, let us save the changes and test the lambda function with S3upload. The following are the code details added in AWS Lambda –



Step 10

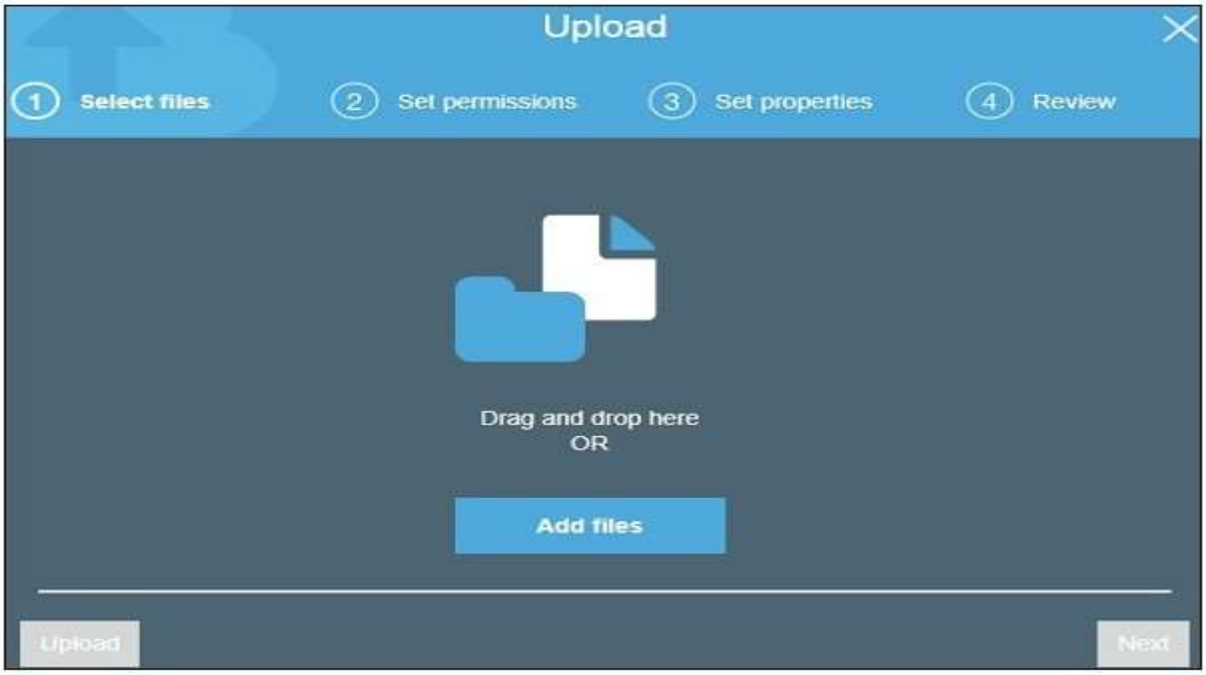
Now, save the Lambda function. Open S3 from Amazon services and open the bucket we created earlier namely workingwithlambdaands3.

Upload the image in it as shown below −



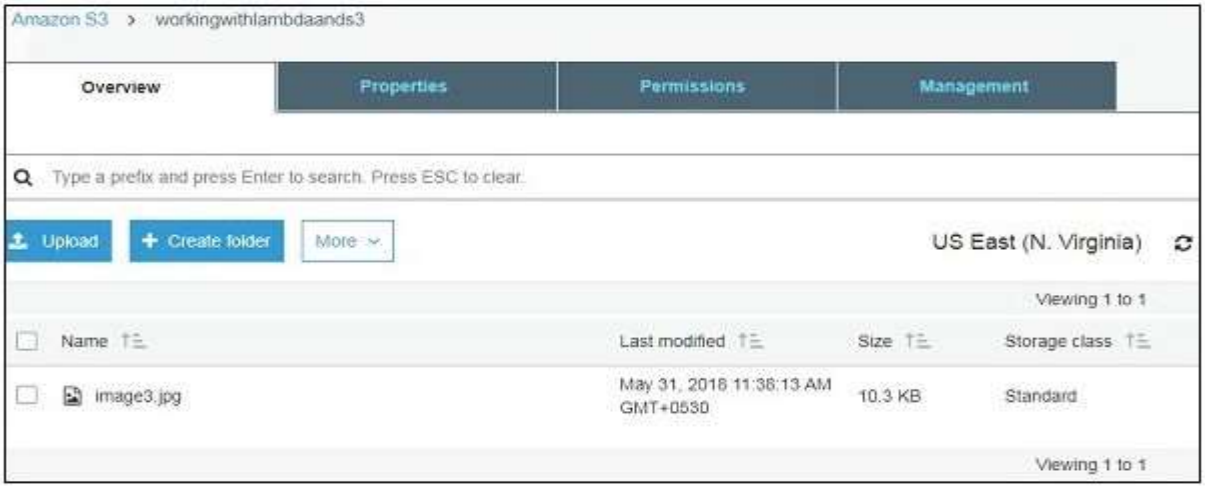
Step 11

Click Upload button to add files as shown –



Step 12

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



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

Step 13

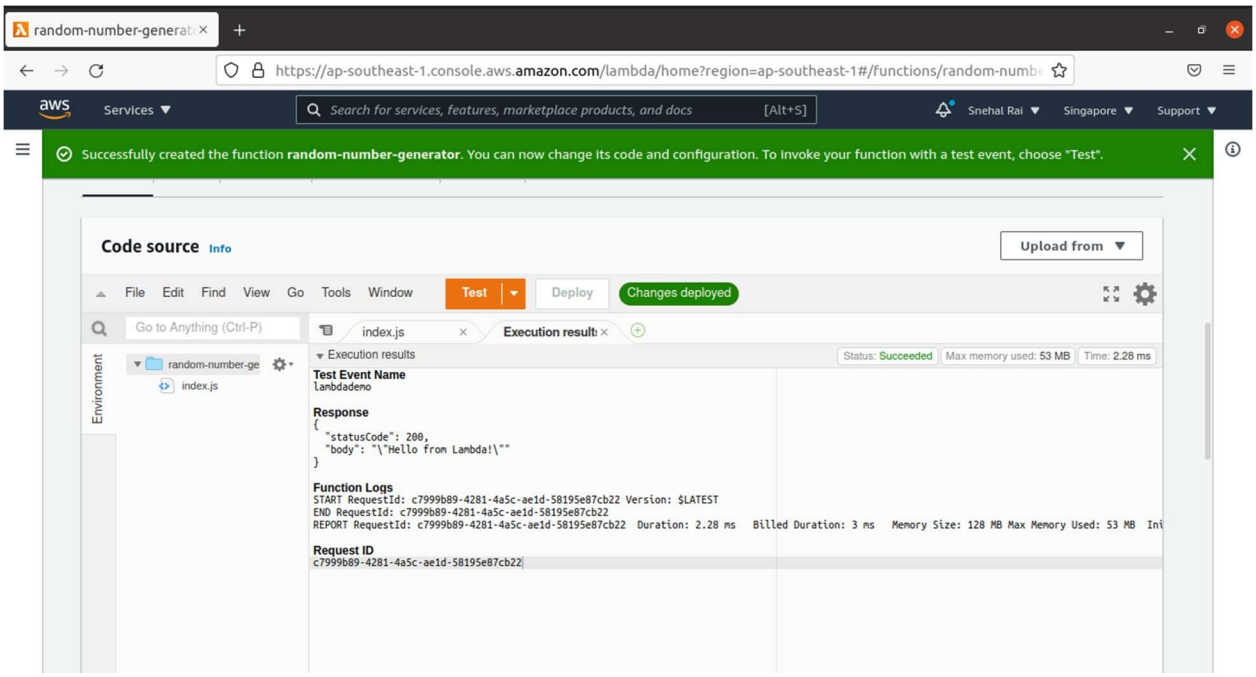
To see the trigger details, go to AWS service and select CloudWatch. Open the logs for the Lambda function and use the following code –

```
exports.handler = function(event, context, callback) {
   console.log("Incoming Event: ", event);
   const bucket = event.Records[0].s3.bucket.name;
   const filename = decodeURIComponent(event.Records[0].s3.object.key.replace(/\
   const message = `File is uploaded in - ${bucket} -> ${filename}`;
   console.log(message);
   callback(null, message);
};
```

The output you can observe in Cloudwatch is as shown –

AWS Lambda function gets triggered when file is uploaded in S3 bucket and the details are logged in

Cloudwatch as shown below −



Conclusion -

AWS Lambda is a service which takes care of computing your code without any server. It is said to be serverless compute. The code is executed based on the response of events in AWS services like adding /removing files in S3 bucket.