shivpratik hande D15C 14 2024-25

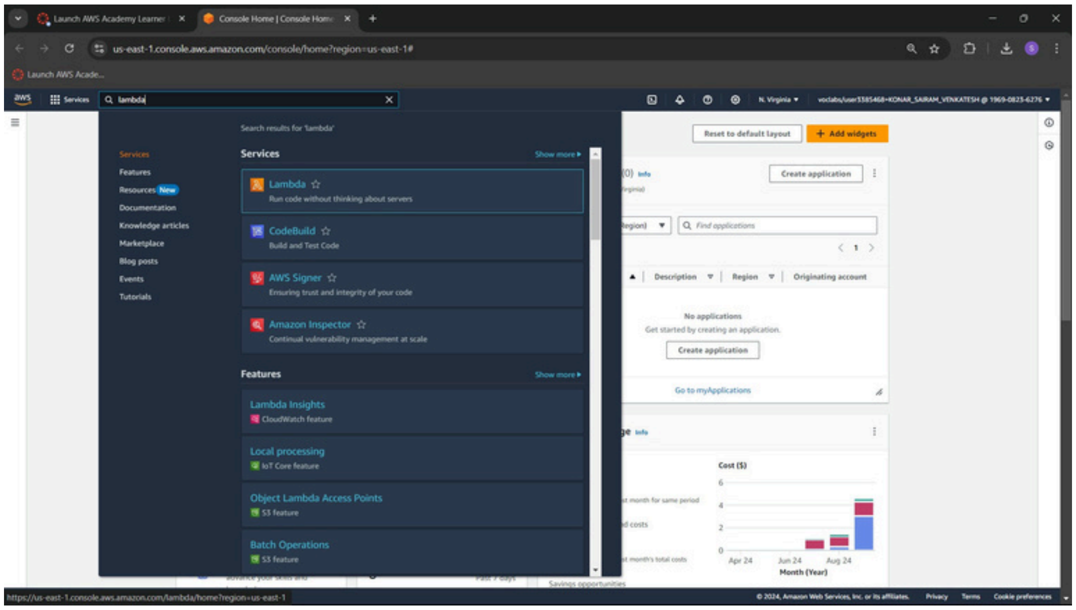
Aim:TounderstandAWSLambda,itsworkflow,variousfunctionsandcreateyourfirst Lambda functions using Python / Java / Nodejs.

Prerequisites:

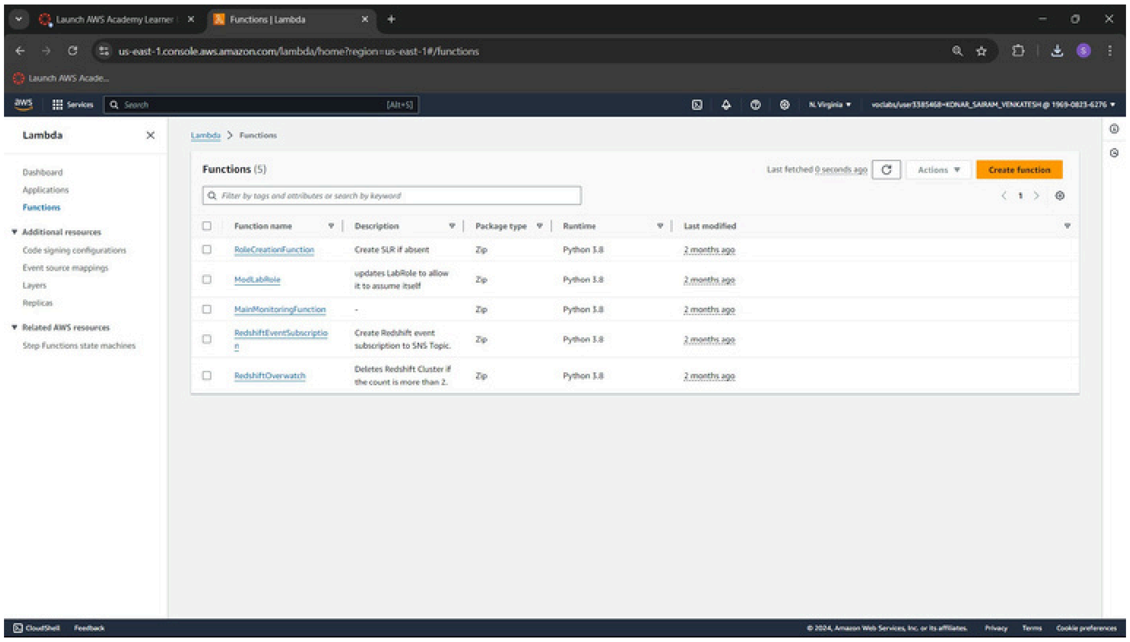
1) AWSaccount(academyrecommended)

Step 1: Set up AWS Lambda Function

1) SearchforLambdaintheservicestab.Clickonitoncefound.



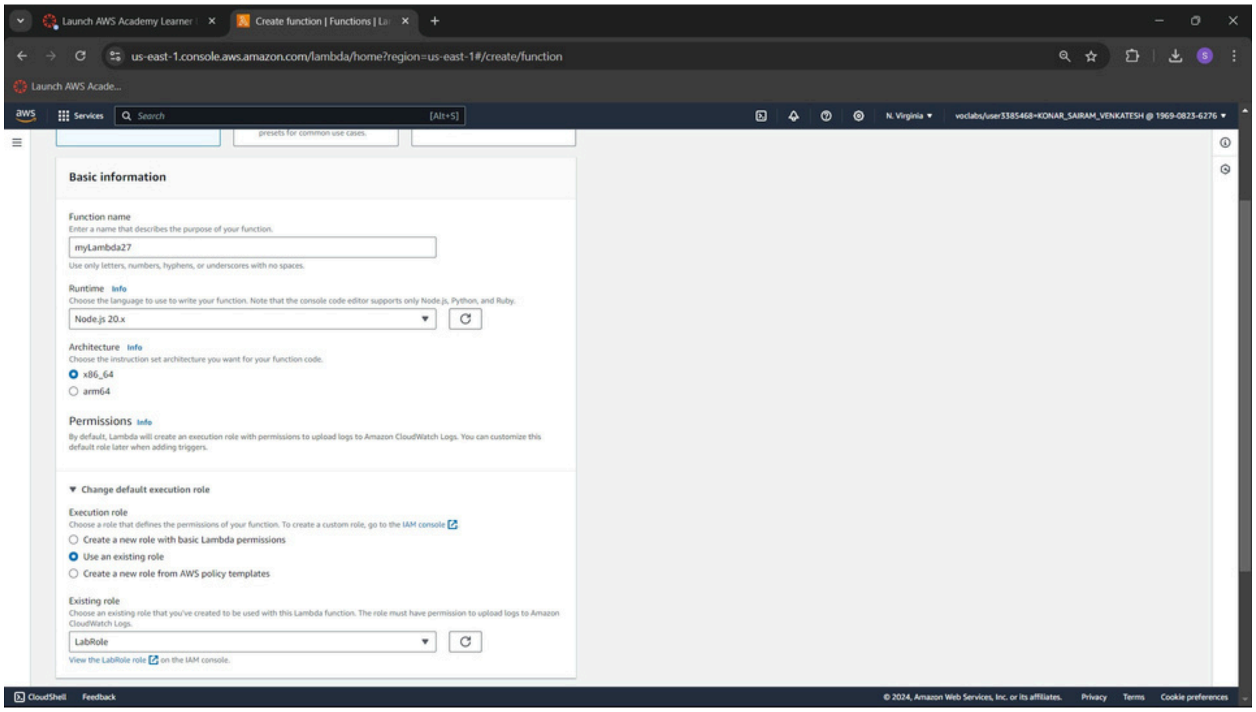
2) Clickoncreatefunctions.



Functions (5)

Function name	Description	Package type	Runtime	Last modified
RoleCreationFunction	Create SLR if absent	Zip	Python 3.8	2 months ago
ModLabRole	updates LabRole to allow it to assume itself	Zip	Python 3.8	2 months ago
MainMonitoringFunction	-	Zip	Python 3.8	2 months ago
RedshiftEventSubscription	Create Redshift event subscription to SNS Topic.	Zip	Python 3.8	2 months ago
RedshiftOverwatch	Deletes Redshift Cluster if the count is more than 2.	Zip	Python 3.8	2 months ago

3) GiveanametoyourLambdafunction.SelecttheruntimeasNode.js20.x(Youcanalso use python). Select the architecture as x86_64. Set the default execution role as LabRole if you are doing this on your academy account. (Use an existing role → LabRole)



us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/create/function

Basic information

Function name
Enter a name that describes the purpose of your function.
myLambda27
Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
Node.js 20.x

Architecture Info
Choose the instruction set architecture you want for your function code.
[✓ x86_64]
arm64

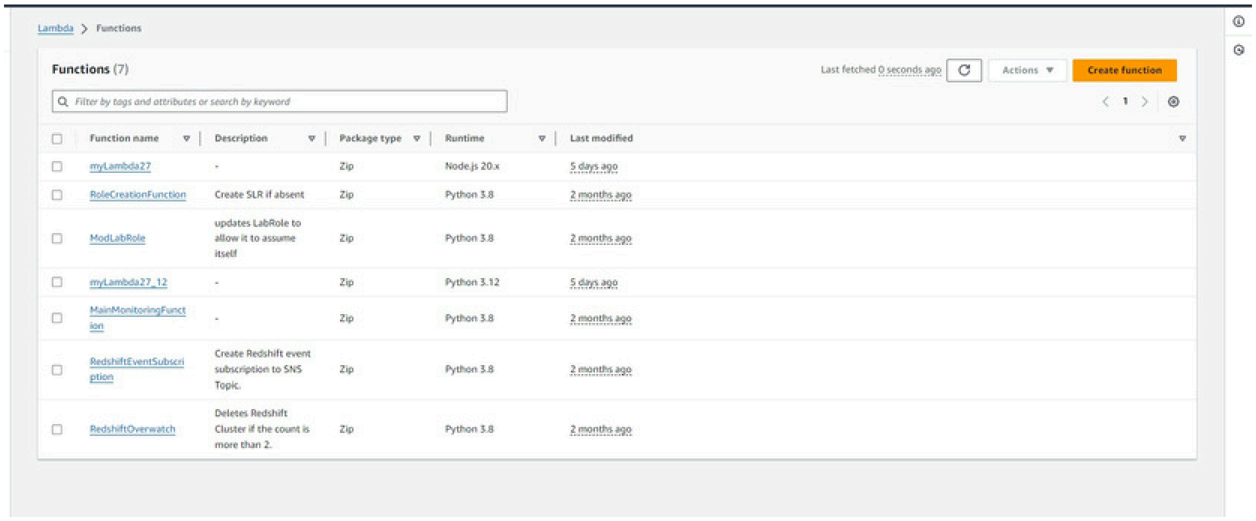
Permissions Info
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ Change default execution role

Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console
Create a new role with basic Lambda permissions
[✓ Use an existing role]
Create a new role from AWS policy templates

Existing role
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.
LabRole
View the LabRole role on the IAM console.

4) Oncethefunctioniscreated,clickonthenameofthefunction(myLambda27inmy case).



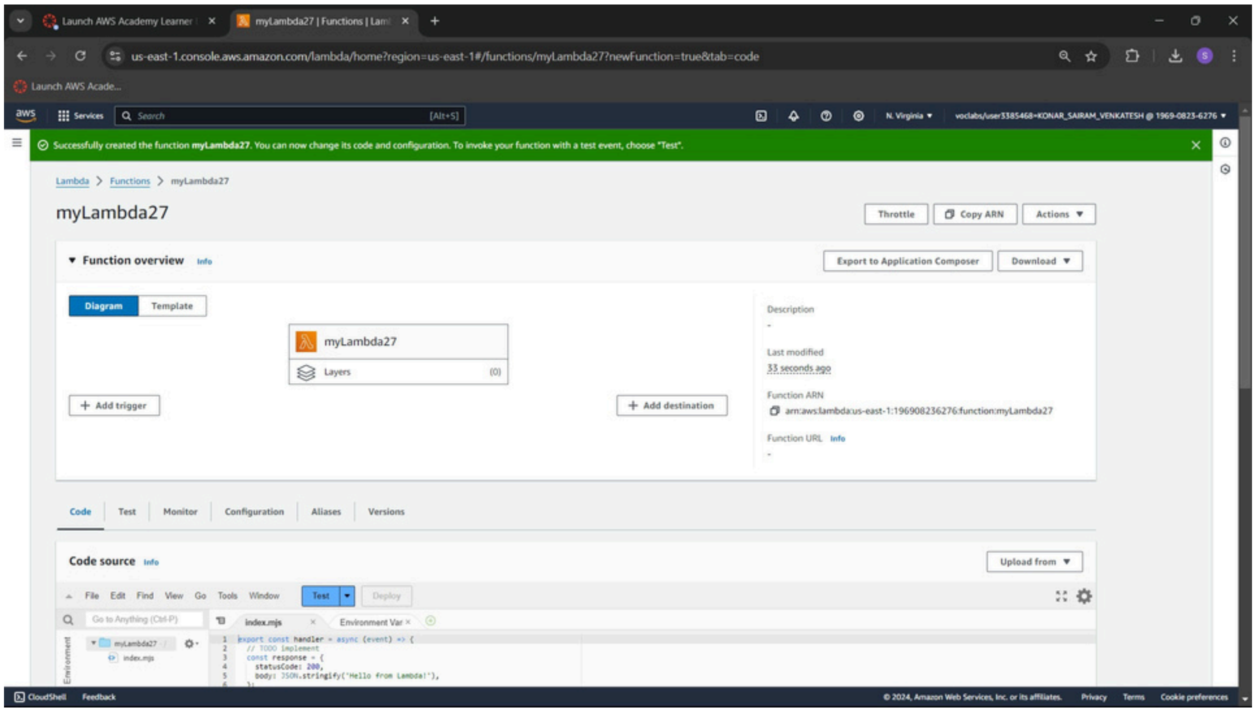
Lambda > Functions

Functions (7)

Last fetched 0 seconds ago

Function name	Description	Package type	Runtime	Last modified
myLambda27	-	Zip	Node.js 20.x	5 days ago
RoleCreationFunction	Create SLR if absent	Zip	Python 3.8	2 months ago
ModLabRole	updates LabRole to allow it to assume itself	Zip	Python 3.8	2 months ago
myLambda27_12	-	Zip	Python 3.12	5 days ago
MainMonitoringFunction	-	Zip	Python 3.8	2 months ago
RedshiftEventSubscription	Create Redshift event subscription to SNS Topic.	Zip	Python 3.8	2 months ago
RedshiftOverwatch	Deletes Redshift Cluster if the count is more than 2.	Zip	Python 3.8	2 months ago

5) Thisisthedashboardofourlambdafunction.



Successfully created the function **myLambda27**. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

Lambda > Functions > myLambda27

myLambda27

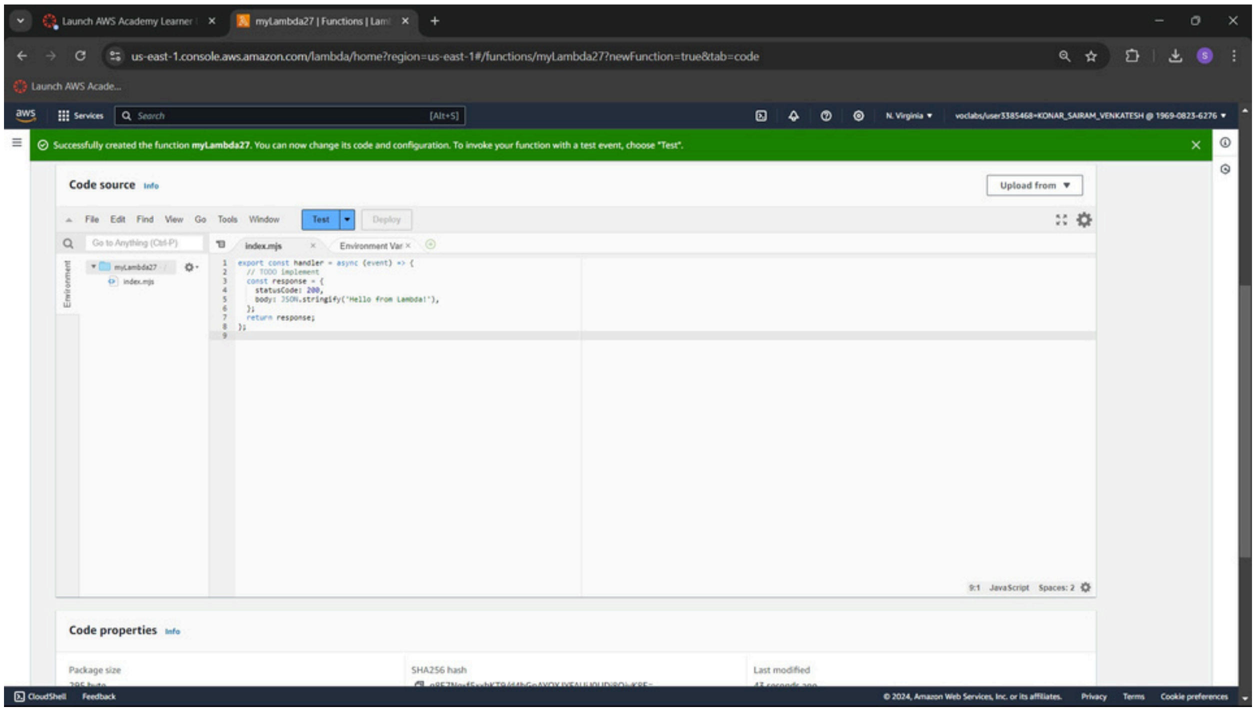
Description
-

Last modified
33 seconds ago

Function ARN
arn:aws:lambda:us-east-1:196908236276:function:myLambda27

Function URL
-

6) Thisfunctionhasthefollowingdefaultcode,whichisusedtoprint“HelloformLambda!”.

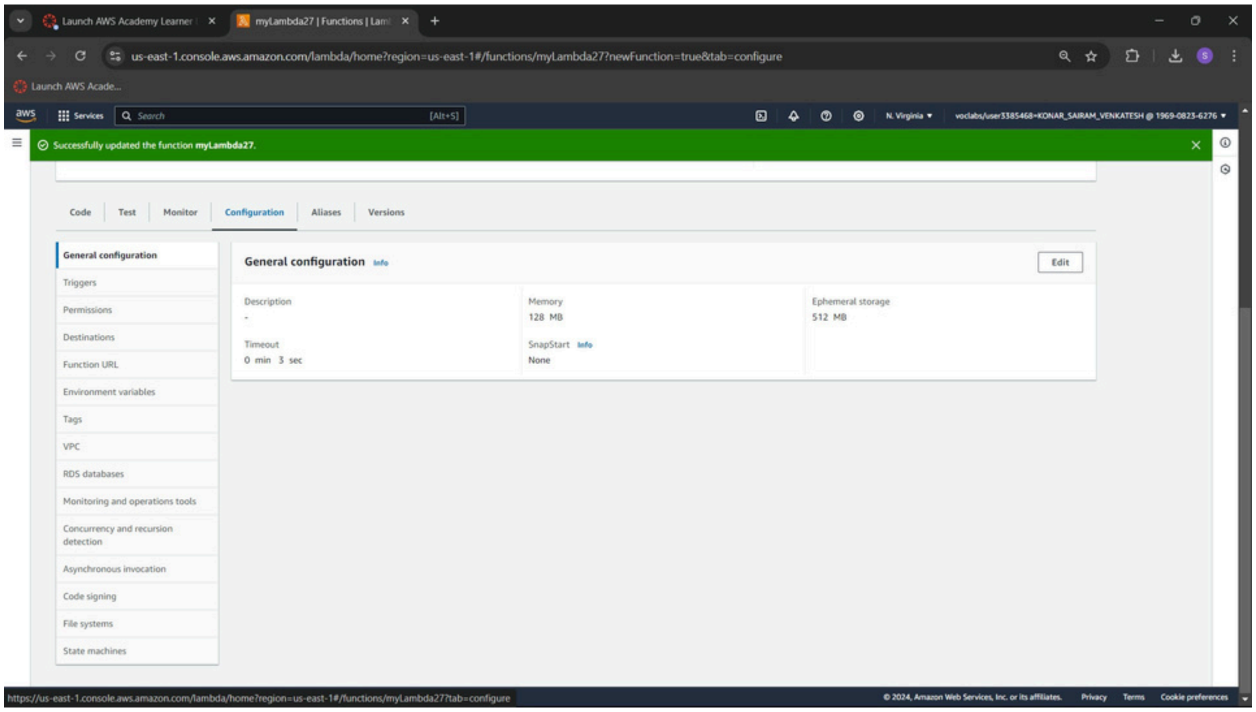


Successfully created the function **myLambda27**. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

```
export const handler = async (event) => {
  // TODO implement
  const response = {
    statusCode: 200,
    body: JSON.stringify('Hello from Lambda!'),
  };
  return response;
};
```

Step 3: Set up configurations and test events

1) Just above the test code, you would find Configuration, click on it. Then click on Edit.

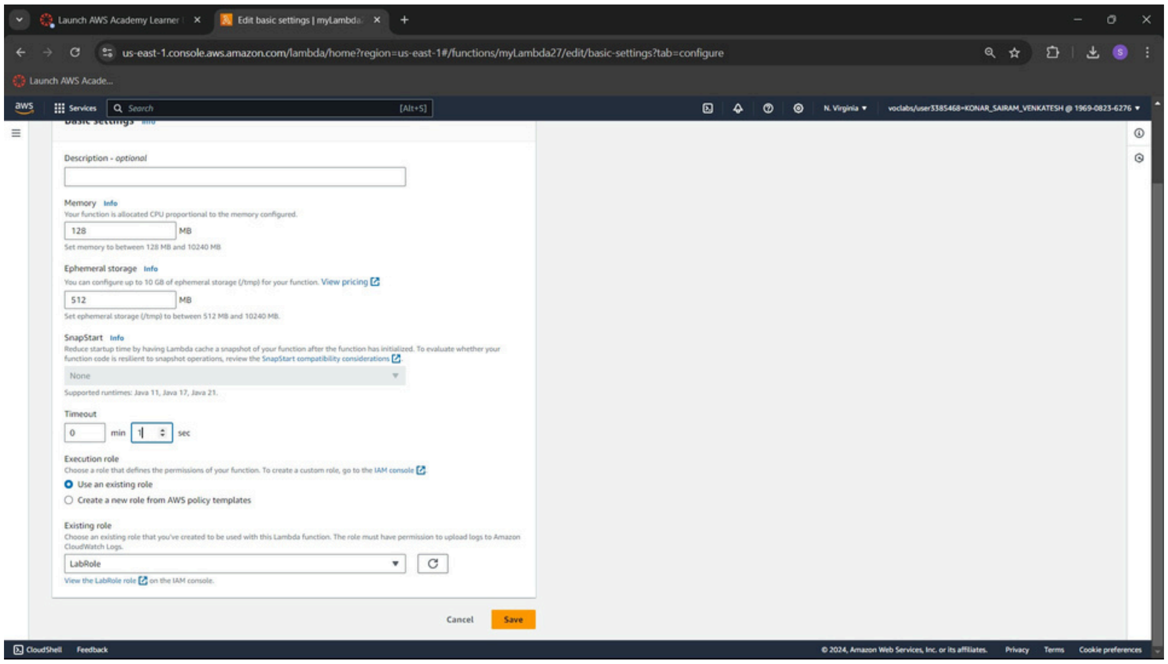


Successfully updated the function **myLambda27**.

General configuration Info

Description	Memory	Ephemeral storage
-	128 MB	512 MB
Timeout	SnapStart Info	
0 min 3 sec	None	

2) Here,changetheTimeoutto1sec.Thisisthetimeforwhichthefunctioncanberunning before it is forcibly terminated.



Launch AWS Academy Learner
Edit basic settings | myLambda
us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/myLambda27/edit/basic-settings?tab=configure
Services
Search [Alt+S]
N. Virginia
Cancel
Save
CloudShell
Feedback

Description - *optional*

Memory Info
Your function is allocated CPU proportional to the memory configured.
128 MB
Set memory to between 128 MB and 10240 MB

Ephemeral storage Info
You can configure up to 10 GB of ephemeral storage (/tmp) for your function. View pricing
512 MB
Set ephemeral storage (/tmp) to between 512 MB and 10240 MB.

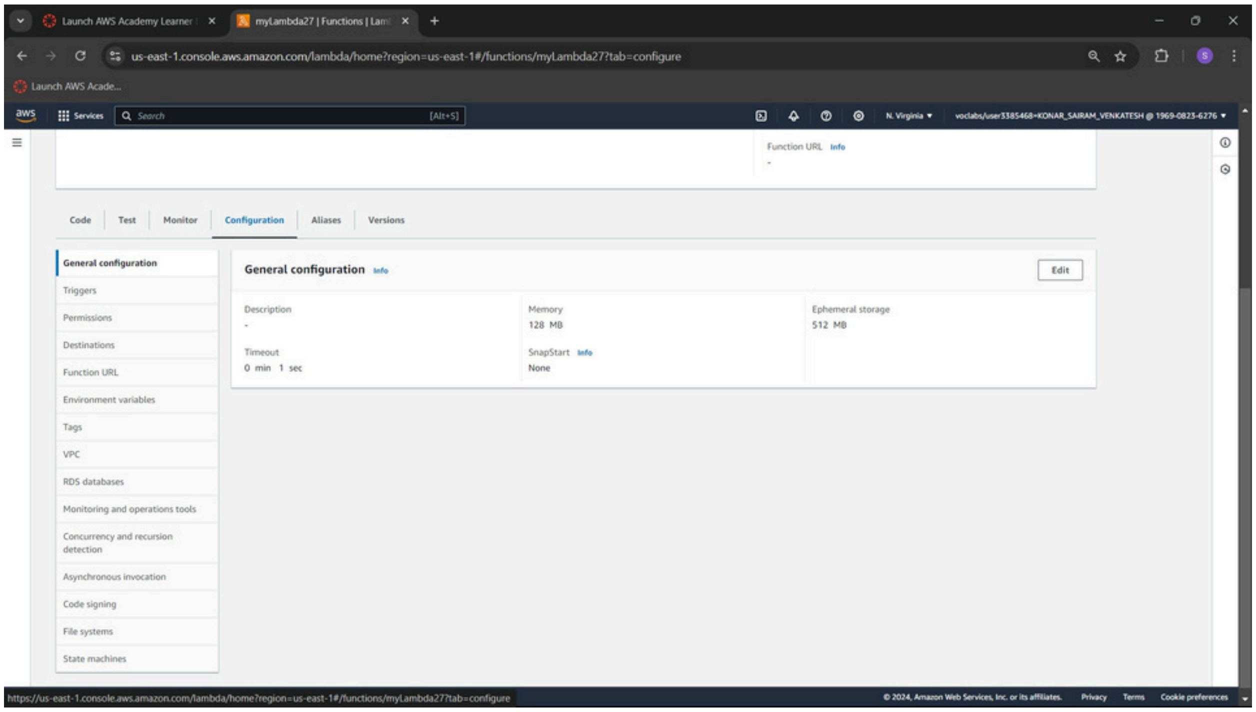
SnapStart Info
Reduce startup time by having Lambda cache a snapshot of your function after the function has initialized. To evaluate whether your function code is resilient to snapshot operations, review the SnapStart compatibility considerations.
None
Supported runtimes: Java 11, Java 17, Java 21.

Timeout
0 min 1 sec

Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console.
[✓ Use an existing role]
Create a new role from AWS policy templates

Existing role
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.
LabRole
View the LabRole role on the IAM console.

3) Wecanseetheexecutedchanges.

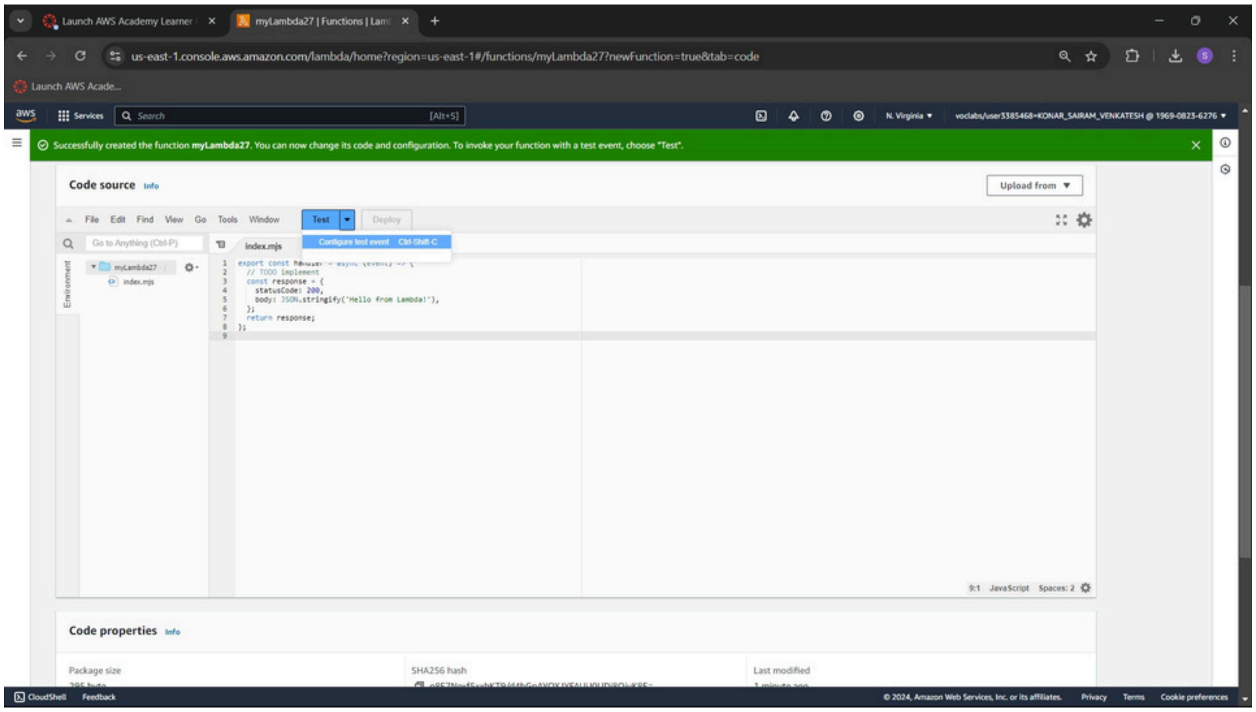


us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/myLambda27?tab=configure

General configuration

Description	Memory	Ephemeral storage
-	128 MB	512 MB
Timeout	SnapStart	
0 min 1 sec	None	

4) Switchbacktothecodetab.Clickonthedropdownarrowneartest.Thenselect
configure test event.



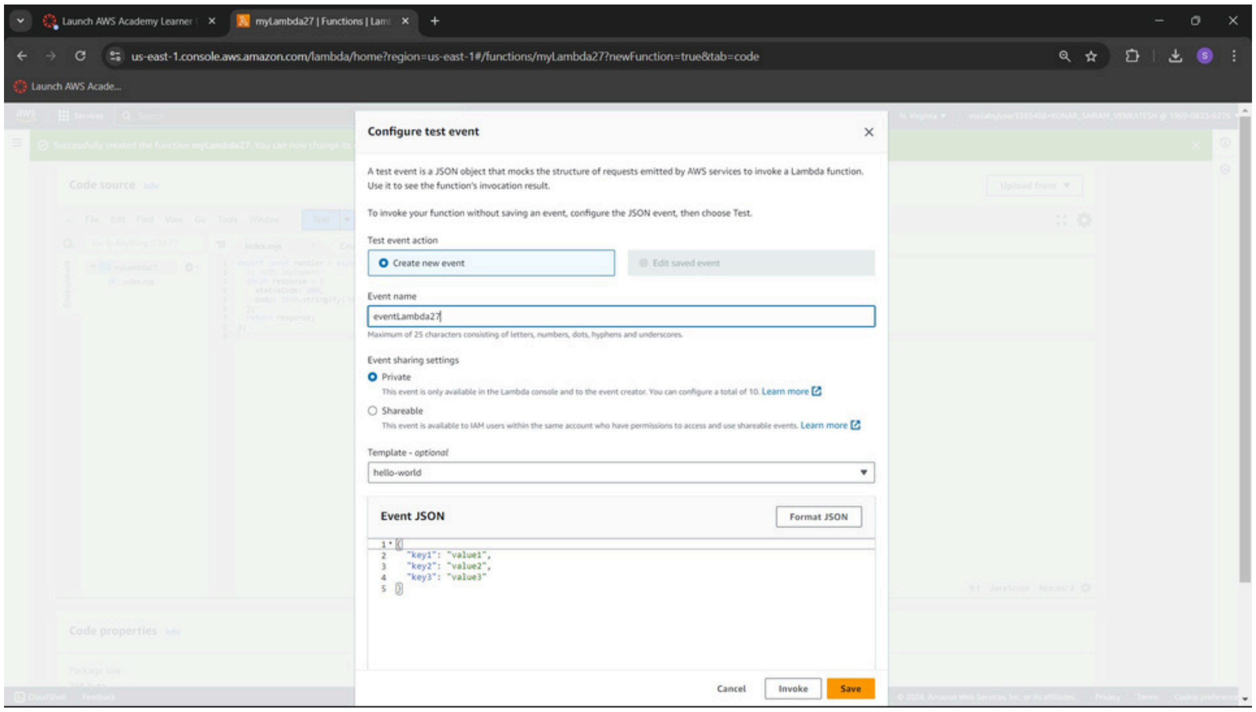
us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/myLambda27?newFunction=true&tab=code

Successfully created the function **myLambda27**. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

Configure test event Ctrl-Shift-C

```
export const handler = async (event) => {
  // TODO implement
  const response = {
    statusCode: 200,
    body: JSON.stringify('Hello from Lambda!'),
  };
  return response;
};
```

5) Here,createanewevent,keeptheotheroptionsdefaultandsavetheevent.



us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/myLambda27?newFunction=true&tab=code

Configure test event

A test event is a JSON object that mocks the structure of requests emitted by AWS services to invoke a Lambda function. Use it to see the function's invocation result.

To invoke your function without saving an event, configure the JSON event, then choose Test.

Test event action: [✓ Create new event] Edit saved event

Event name: eventLambda27

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings: [✓ Private] Shareable

This event is only available in the Lambda console and to the event creator. You can configure a total of 10. Learn more

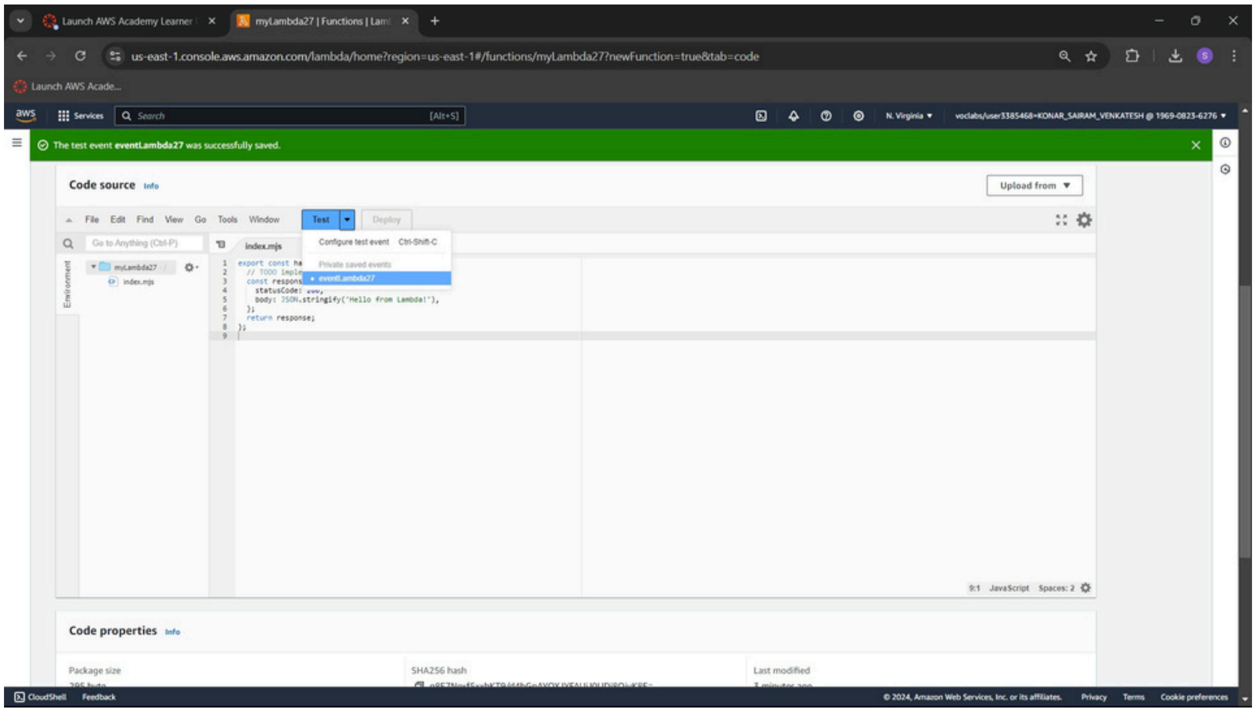
This event is available to IAM users within the same account who have permissions to access and use shareable events. Learn more

Template - *optional*: hello-world

Event JSON

```
{
  "key1": "value1",
  "key2": "value2",
  "key3": "value3"
}
```

6) Now, again click on the dropdown. This time, select the event you have created. Then, click on TEST.



us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/myLambda27?newFunction=true&tab=code

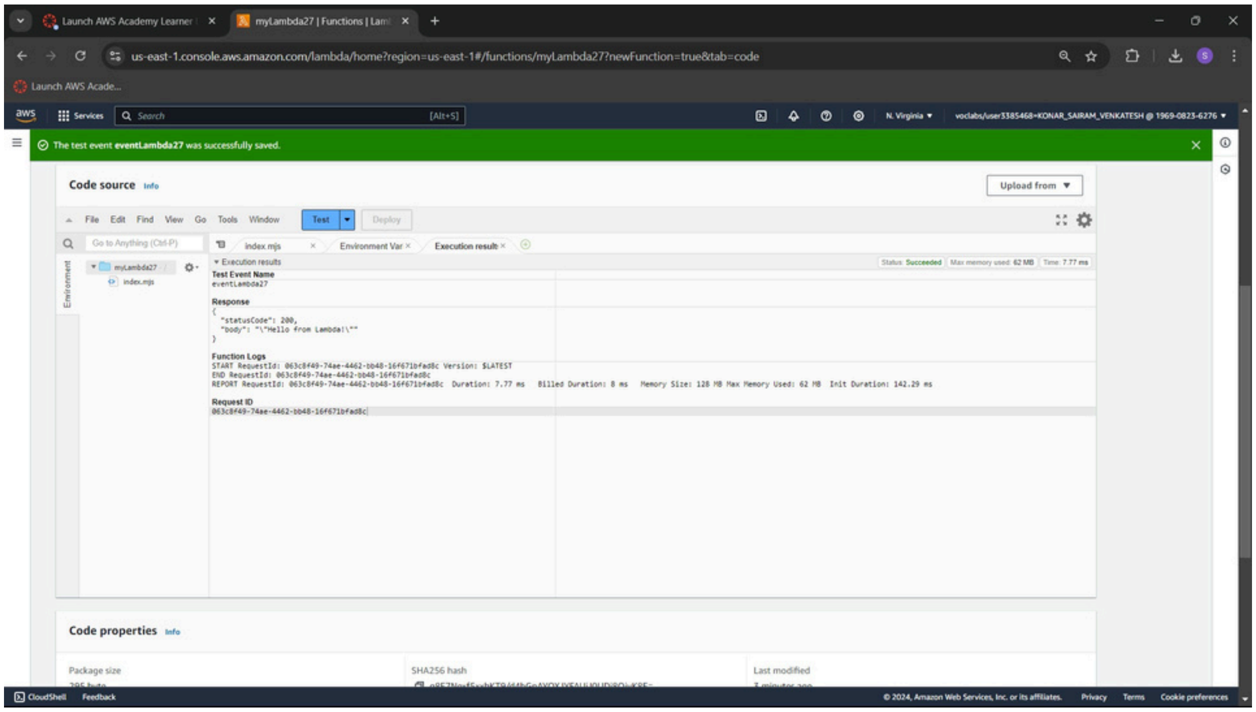
N. Virginia voclabs/user3385468=KONAR_SAIRAM_VENKATESH @ 1969-0823-6276

The test event **eventLambda27** was successfully saved.

Code source

```
export const ha
  // TODO imple
  const respons
    statusCode: 200,
    body: JSON.stringify('Hello from Lambda!'),
  };
  return response;
};
```

7) Wecanseetheexpectedoutputforthesamplecode.



The test event **eventLambda27** was successfully saved.

Status: Succeeded | Max memory used: 62 MB | Time: 7.77 ms

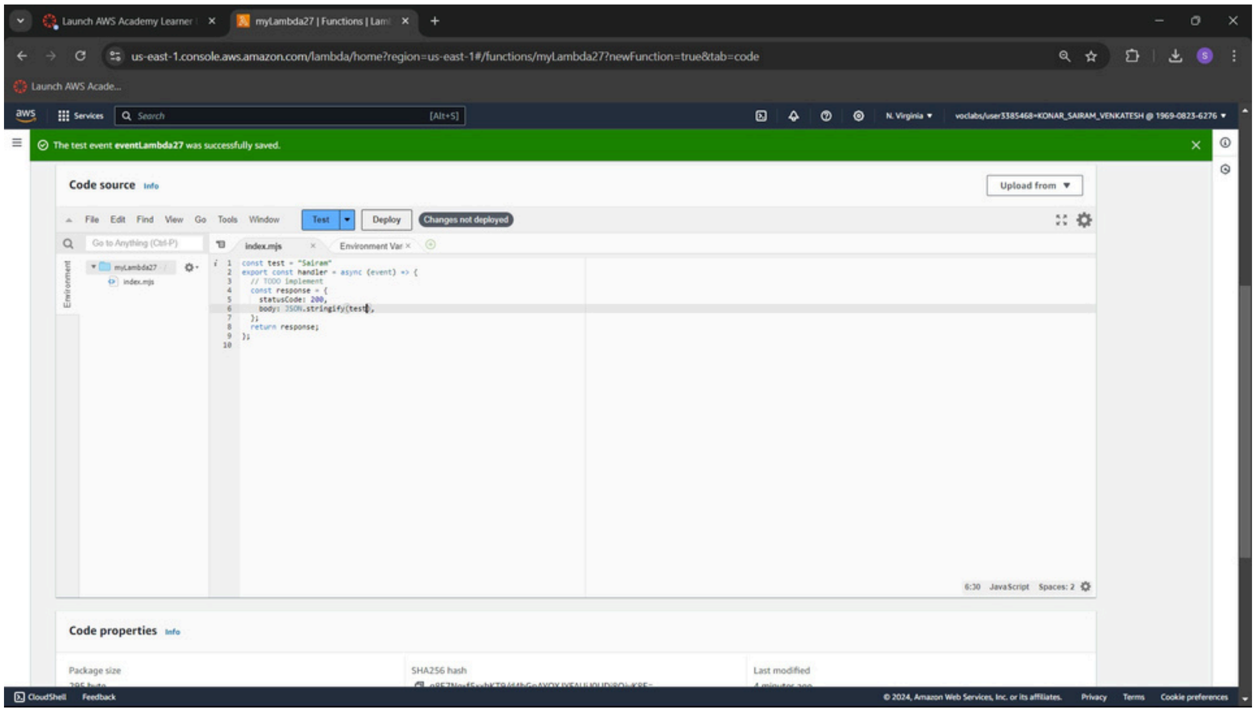
```
Test Event Name
eventLambda27

Response
{
  "statusCode": 200,
  "body": "\"Hello from Lambda!\""
}

Function Logs
START RequestId: 063c8f49-74ae-4462-bb48-16f671bfad8c Version: $LATEST
END RequestId: 063c8f49-74ae-4462-bb48-16f671bfad8c
REPORT RequestId: 063c8f49-74ae-4462-bb48-16f671bfad8c  Duration: 7.77 ms   Billed Duration: 8 ms   Memory Size: 128 MB Max Memory Used: 62 MB  Init Duration: 142.29 ms

Request ID
063c8f49-74ae-4462-bb48-16f671bfad8c
```

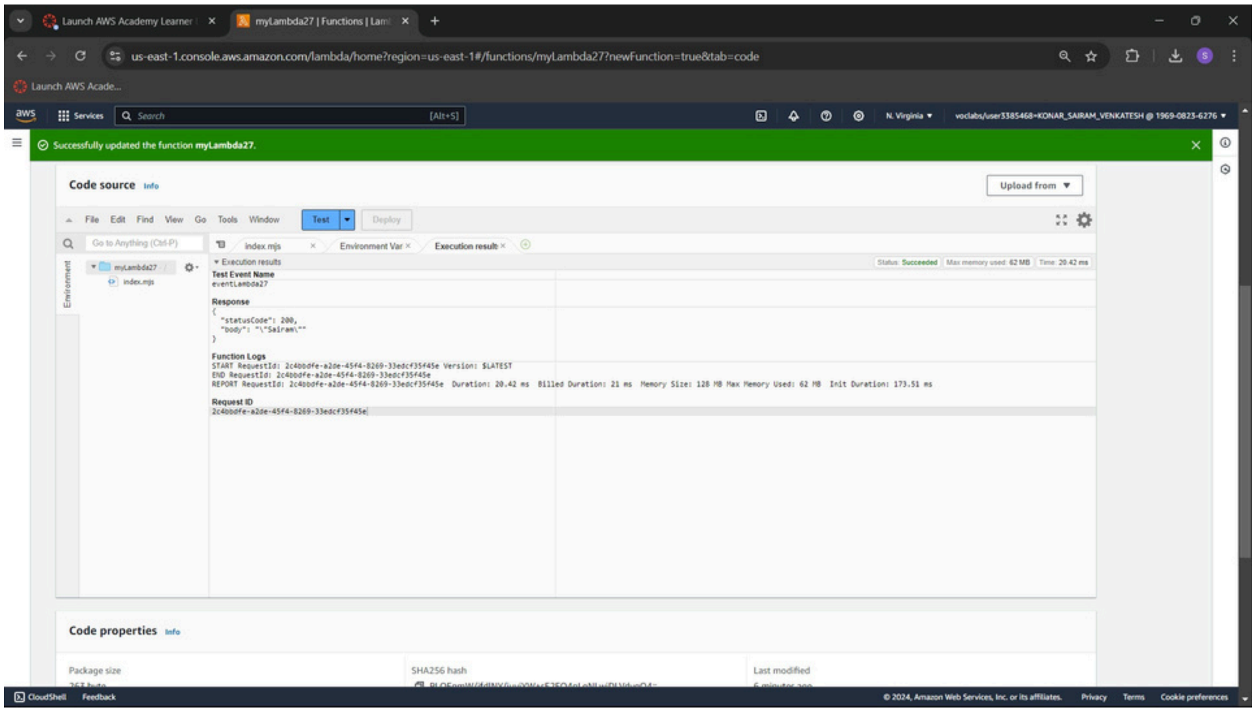
8) Foratest,declareastringandcallitinline6.Aftermakingthechangesclickon
deplpoy.



The test event **eventLambda27** was successfully saved.

```
1  const test = "Sairam"
2  export const handler = async (event) => {
3    // TODO implement
4    const response = {
5      statusCode: 200,
6      body: JSON.stringify(test),
7    };
8    return response;
9  };
10
```

9) Runthetest.Wecanseethatthestringwedeclaredhascomeintheoutput.



```
Execution results
Test Event Name
eventLambda27

Response
{
  "statusCode": 200,
  "body": "\"Sairam\""
}

Function Logs
START RequestId: 2c4bbdfe-a2de-45f4-8269-33edcf35f45e Version: $LATEST
END RequestId: 2c4bbdfe-a2de-45f4-8269-33edcf35f45e
REPORT RequestId: 2c4bbdfe-a2de-45f4-8269-33edcf35f45e  Duration: 20.42 ms  Billed Duration: 21 ms  Memory Size: 128 MB Max Memory Used: 62 MB  Init Duration: 173.51 ms

Request ID
2c4bbdfe-a2de-45f4-8269-33edcf35f45e
```

Conclusion:

In this experiment, we successfully explored the AWS Lambda service by creating and configuring Lambda functions using Python, Java, or Node.js. We learned how to set up a Lambda function, modify its configuration (such as adjusting the timeout), and test the function with custom events. Through this process, we observed how Lambda handles executions, including managing timeouts and returning expected outputs based on the code changes.