Advance Devops Lab 11

Aim: To understand AWS Lambda, its workflow, various functions and create your first Lambda functions using Python / Java / Nodejs

Theory:

AWS Lambda is a serverless computing service offered by Amazon Web Services (AWS). It enables you to run code without provisioning or managing servers. This eliminates the need for upfront infrastructure costs and allows you to focus on building applications.

Workflow:

1. **Event Source:** An event triggers the execution of your Lambda function. This event could originate from various sources, such as:
    - **AWS Services:** S3, DynamoDB, Kinesis, API Gateway, and more.
    - **Third-party Services:** Salesforce, HubSpot, etc.
    - **Custom Events:** Triggered by your own applications or systems.
2. **Lambda Function:** The function is executed in response to the event. It runs within a containerized environment provided by AWS. You write the function's code using a supported programming language (e.g., Node.js, Python, Java, Go).
3. **Execution Environment:** AWS manages the underlying infrastructure, including servers, operating systems, and runtime environments. You don't need to worry about scaling or maintaining these resources.
4. **Output:** The function returns a result or triggers further actions based on its output. This output can be used to update other AWS resources or external systems.

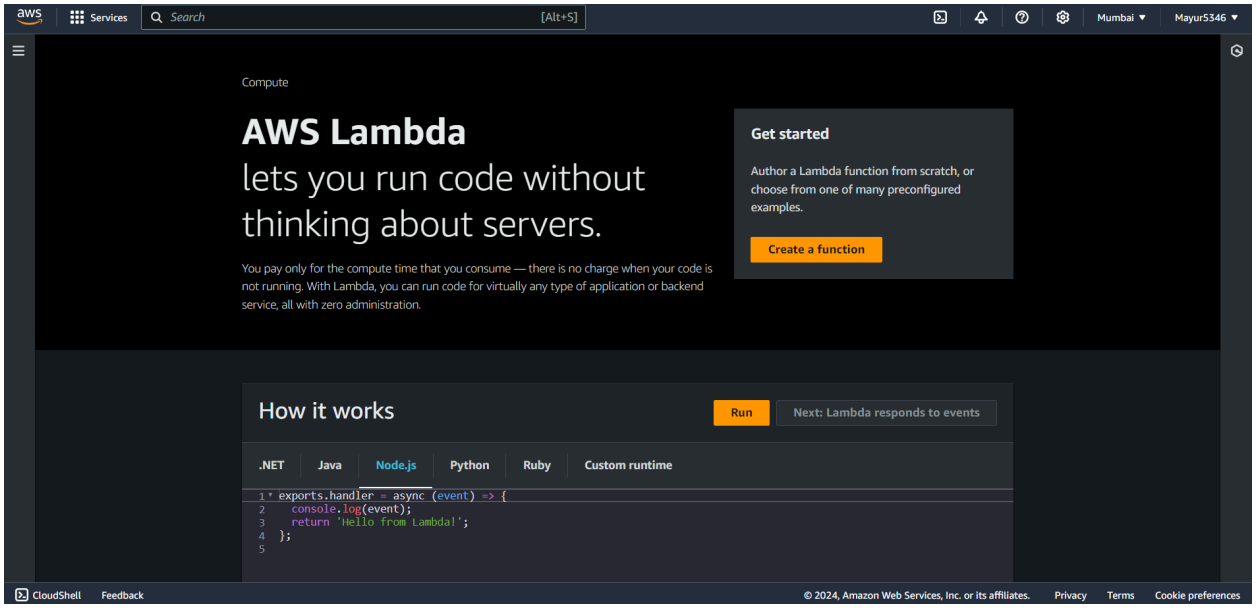
Key Functions and Features:

- **Event-Driven:** Lambda functions are triggered by events, making them highly scalable and efficient.
- **Serverless:** You don't need to manage servers, reducing operational overhead and costs.
- **Pay-as-You-Go:** You only pay for the compute time your functions consume.
- **High Availability:** Lambda functions are distributed across multiple availability zones for redundancy and fault tolerance.
- **Integration with Other AWS Services:** Lambda integrates seamlessly with a wide range of AWS services, enabling you to build complex applications.
- **Custom Runtimes:** You can create custom runtimes to use with Lambda for specific use cases.

Creating a Lambda Function with Node.js:

1. **Create a Lambda Function:** Log in to the AWS Management Console and navigate to the Lambda service. Click on "Create function".
2. **Choose a Blueprint:** Select a blueprint or start from scratch.
3. **Configure Function:** Provide a name, runtime (Node.js), and handler function.
4. **Write Code:** Write your Node.js code in the editor or upload a ZIP file.
5. **Configure Triggers:** Set up event triggers to invoke your function.
6. **Test:** Test your function using the test event feature.

Steps: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Compute
AWS Lambda
lets you run code without thinking about servers.
You pay only for the compute time that you consume — there is no charge when your code is not running. With Lambda, you can run code for virtually any type of application or backend service, all with zero administration.
Get started
Author a Lambda function from scratch, or choose from one of many preconfigured examples.
Create a function
How it works
Run
Next: Lambda responds to events
.NET
Java
Node.js
Python
Ruby
Custom runtime
exports.handler = async (event) => {
console.log(event);
return 'Hello from Lambda!';
};
CloudShell
Feedback
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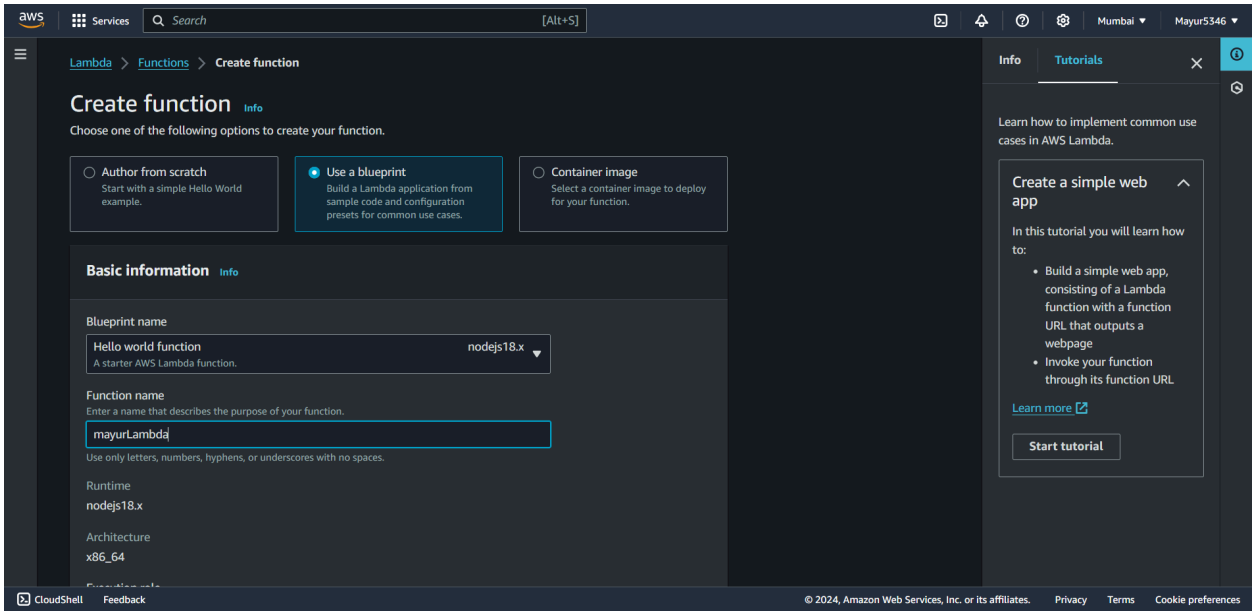
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Lambda
Functions
Create function
Create function
Info
Choose one of the following options to create your function.
Author from scratch
Start with a simple Hello World example.
Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.
Container image
Select a container image to deploy for your function.
Basic information
Info
Blueprint name
Hello world function
A starter AWS Lambda function.
nodejs18.x
Function name
Enter a name that describes the purpose of your function.
mayurLambda
Use only letters, numbers, hyphens, or underscores with no spaces.
Runtime
nodejs18.x
Architecture
x86_64
Info
Tutorials
Learn how to implement common use cases in AWS Lambda.
Create a simple web app
In this tutorial you will learn how to:
Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
Invoke your function through its function URL
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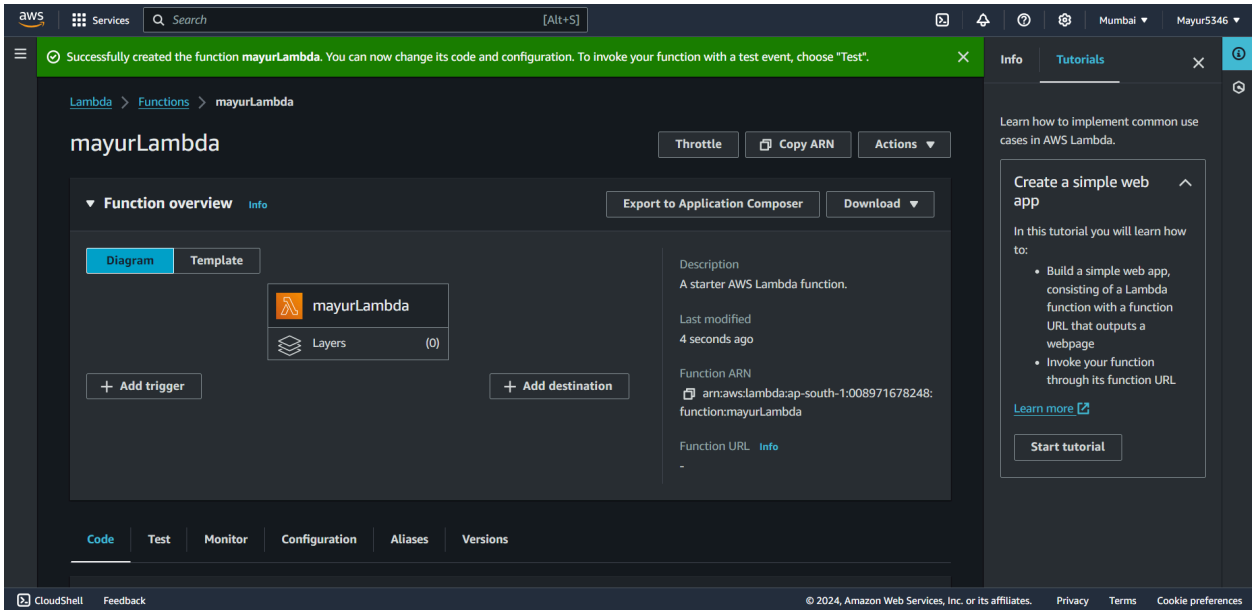
Successfully created the function mayurLambda. You can now change its code and configuration. To invoke your function with a test event, choose "Test".
Lambda > Functions > mayurLambda
mayurLambda
Throttle
Copy ARN
Actions
Function overview
Info
Export to Application Composer
Download
Diagram
Template
mayurLambda
Layers (0)
Add trigger
Add destination
Description
A starter AWS Lambda function.
Last modified
4 seconds ago
Function ARN
arn:aws:lambda:ap-south-1:008971678248:function:mayurLambda
Function URL Info
-
Code
Test
Monitor
Configuration
Aliases
Versions
Info
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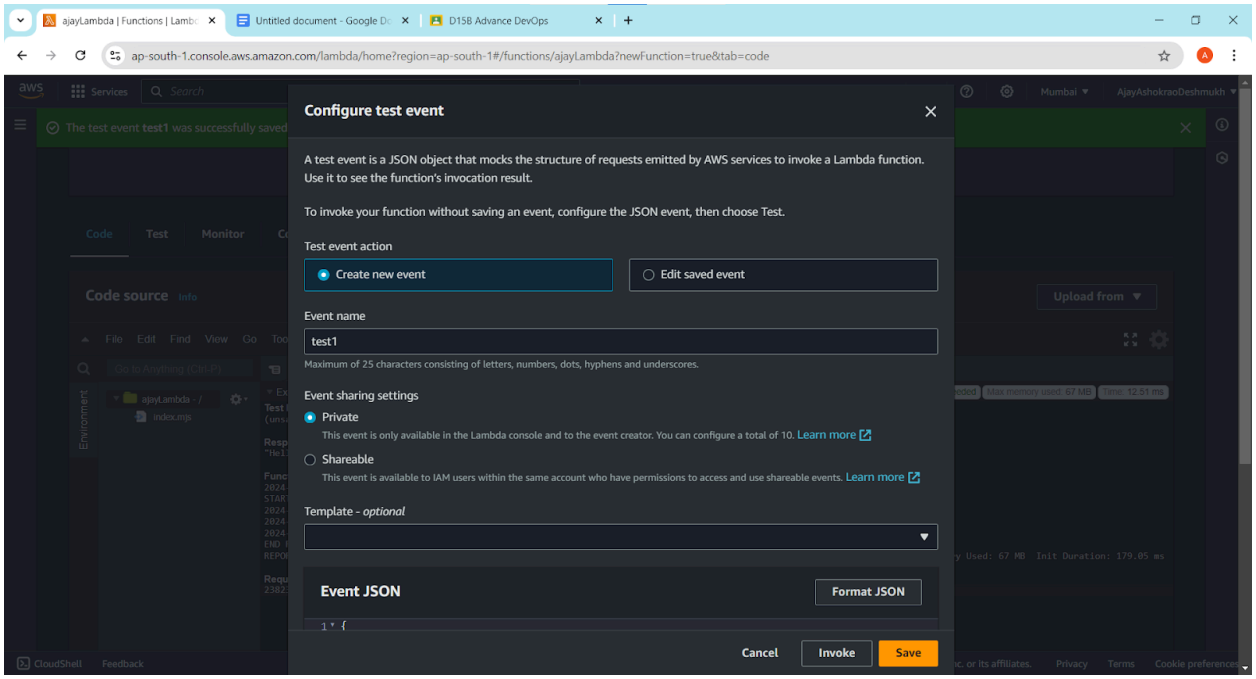
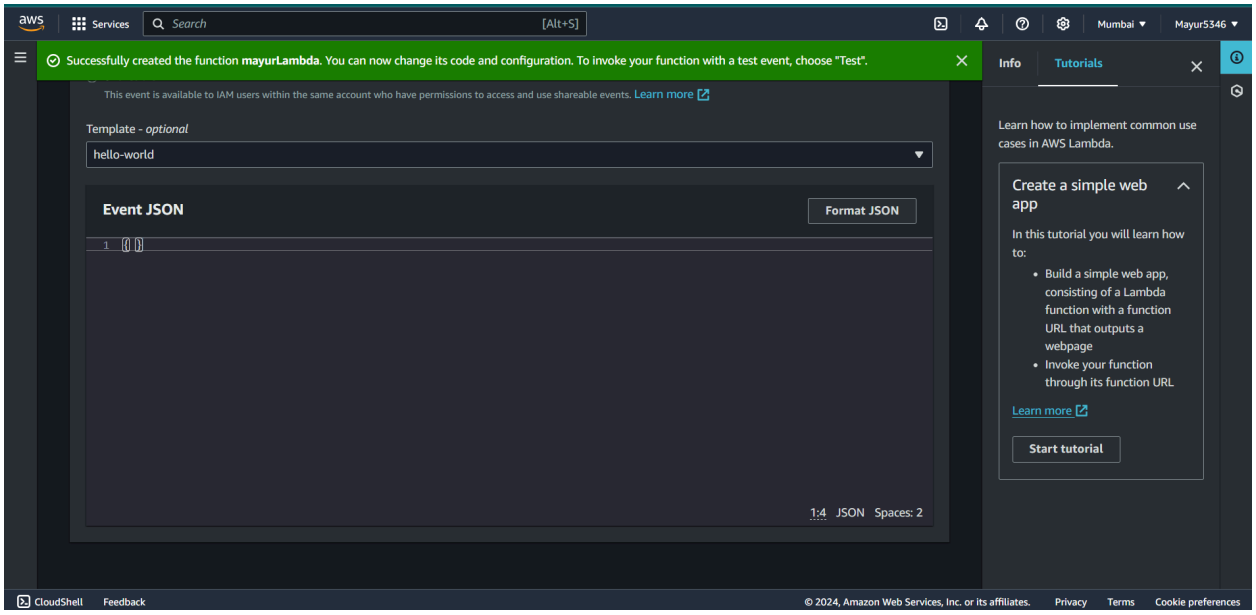

ap-south-1.console.aws.amazon.com/lambda/home?region=ap-south-1#/functions/ajayLambda?newFunction=true&tab=code
Configure test event
A test event is a JSON object that mocks the structure of requests emitted by AWS services to invoke a Lambda function. Use it to see the function's invocation result.
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
test1
Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.
Event sharing settings
Private
This event is only available in the Lambda console and to the event creator. You can configure a total of 10. Learn more
Shareable
This event is available to IAM users within the same account who have permissions to access and use shareable events. Learn more
Template - optional
Event JSON
Format JSON
Cancel
Invoke
Save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Successfully created the function mayurLambda. You can now change its code and configuration. To invoke your function with a test event, choose "Test".
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
Format JSON
1 {}
1:4 JSON Spaces: 2
Info
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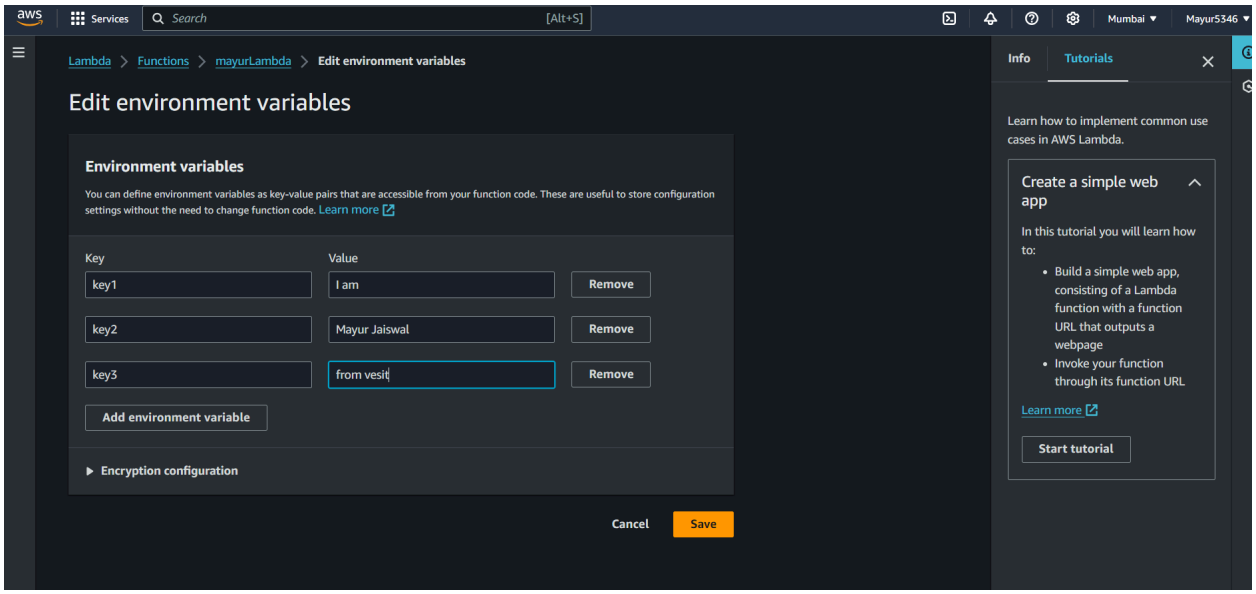
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Lambda
Functions
mayurLambda
Edit environment variables
Edit environment variables
Environment variables
You can define environment variables as key-value pairs that are accessible from your function code. These are useful to store configuration settings without the need to change function code. Learn more
Key
Value
key1
I am
Remove
key2
Mayur Jaiswal
Remove
key3
from vesit
Remove
Add environment variable
Encryption configuration
Cancel
Save
Info
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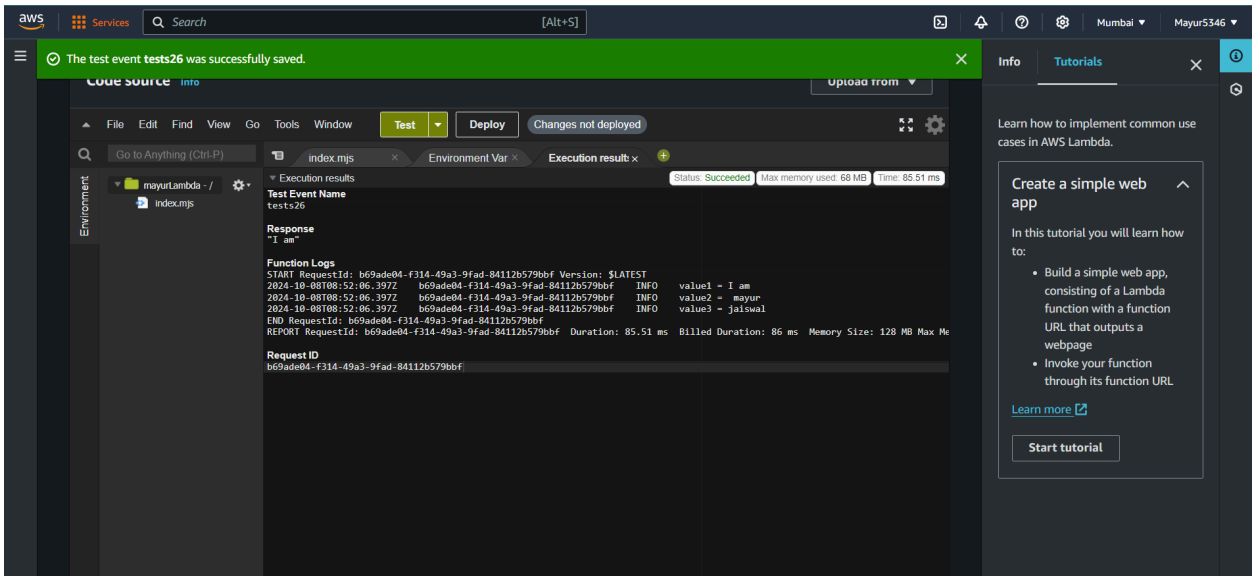
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The test event tests26 was successfully saved.
Code source info
Upload from
File Edit Find View Go Tools Window
Test
Deploy
Changes not deployed
Go to Anything (Ctrl-P)
Environment
mayurLambda - /
index.mjs
index.mjs
Environment Var
Execution result
Execution results
Status: Succeeded
Max memory used: 68 MB
Time: 85.51 ms
Test Event Name
tests26
Response
"I am"
Function Logs
START RequestId: b69ade04-f314-49a3-9fad-84112b579bbf Version: $LATEST
2024-10-08T08:52:06.397Z b69ade04-f314-49a3-9fad-84112b579bbf INFO value1 = I am
2024-10-08T08:52:06.397Z b69ade04-f314-49a3-9fad-84112b579bbf INFO value2 = mayur
2024-10-08T08:52:06.397Z b69ade04-f314-49a3-9fad-84112b579bbf INFO value3 = jaiswal
END RequestId: b69ade04-f314-49a3-9fad-84112b579bbf
REPORT RequestId: b69ade04-f314-49a3-9fad-84112b579bbf Duration: 85.51 ms Billed Duration: 86 ms Memory Size: 128 MB Max Me
Request ID
b69ade04-f314-49a3-9fad-84112b579bbf
Info
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