School of Computer Science, Engineering and Applications (SCSEA)
B. Tech TY (CCSA)
Subject: Cloud Architecture And Protocol

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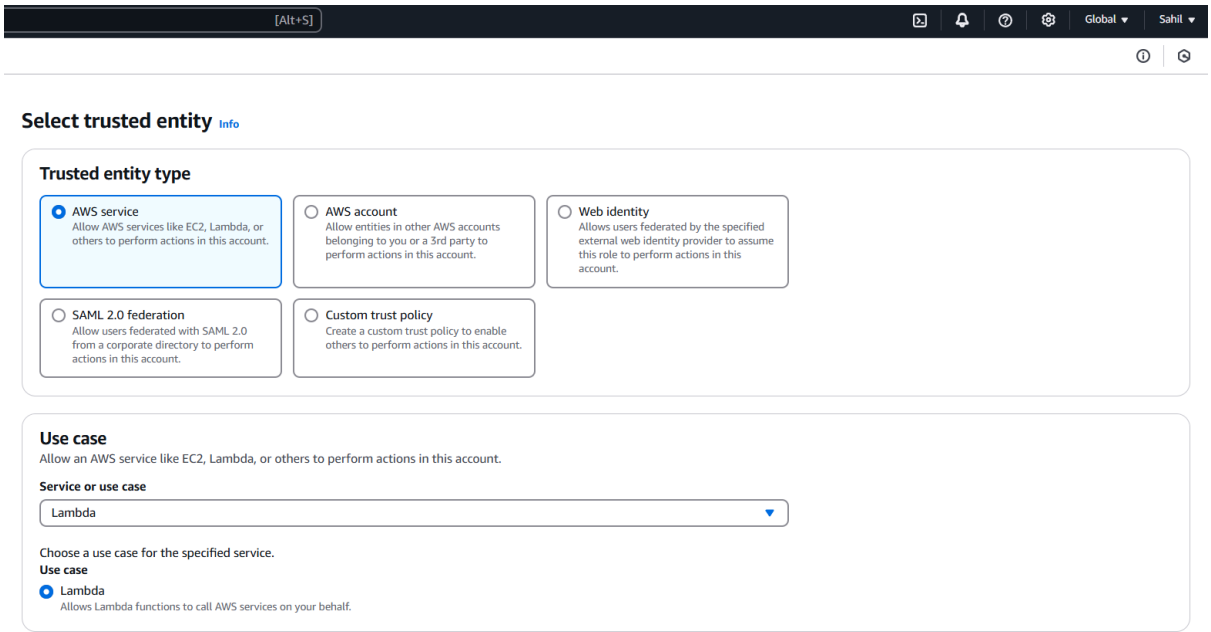
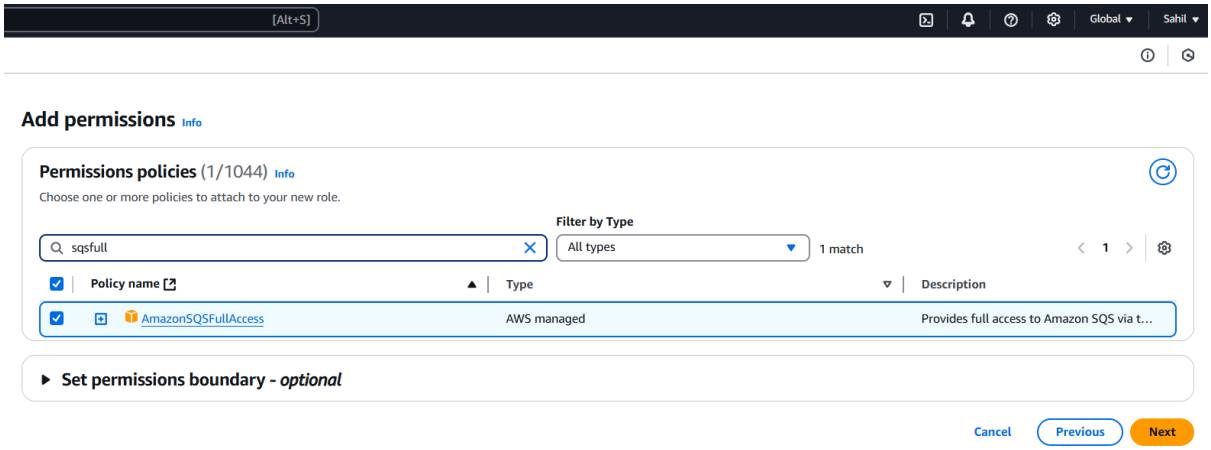
Title of Practical: 11. Serverless Event-Driven Architecture: Amazon SQS Event Processing with AWS Lambda

Step 1: IAM Role Creation for Lambda Function.

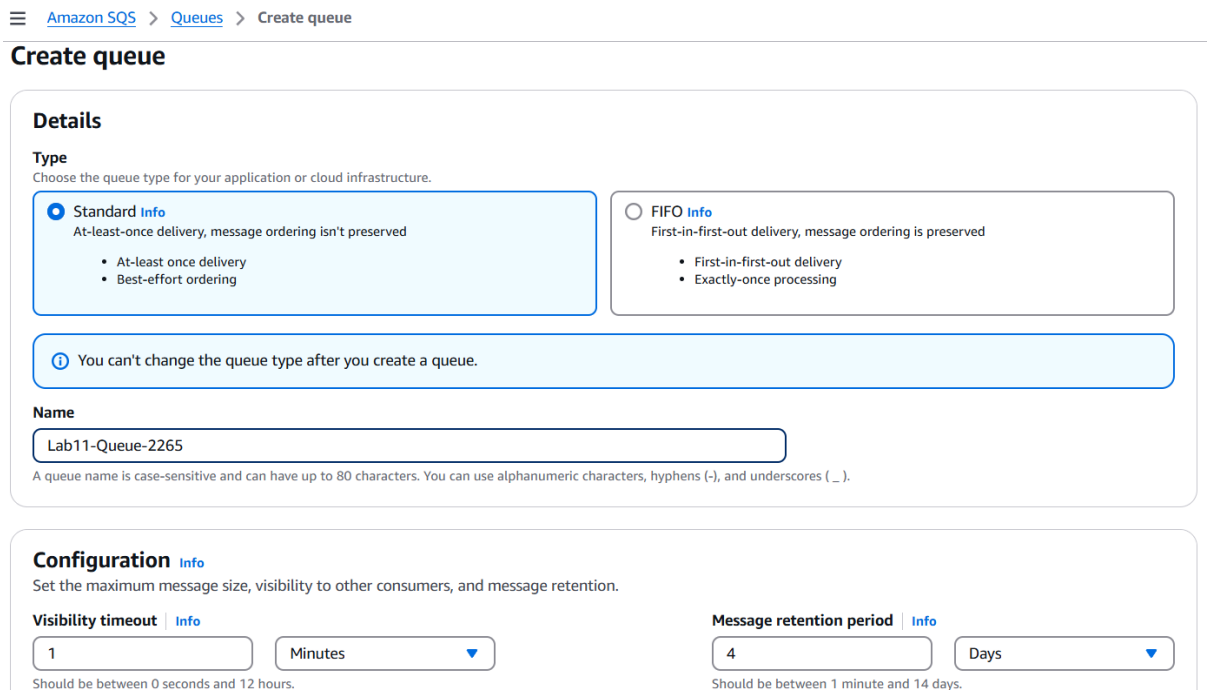
- Go to IAM in AWS Console.
- Create a new IAM Role with proper name.
  - Select 'Trusted Entity Type' as 'AWS Service'.
  - Select 'Use Case' as 'Lambda'.
  - Attach "AmazonSQSFullAccess" policy.
  - Set name of role as 'Role_SQS_2265'.
  - Review and click on 'Create role'.





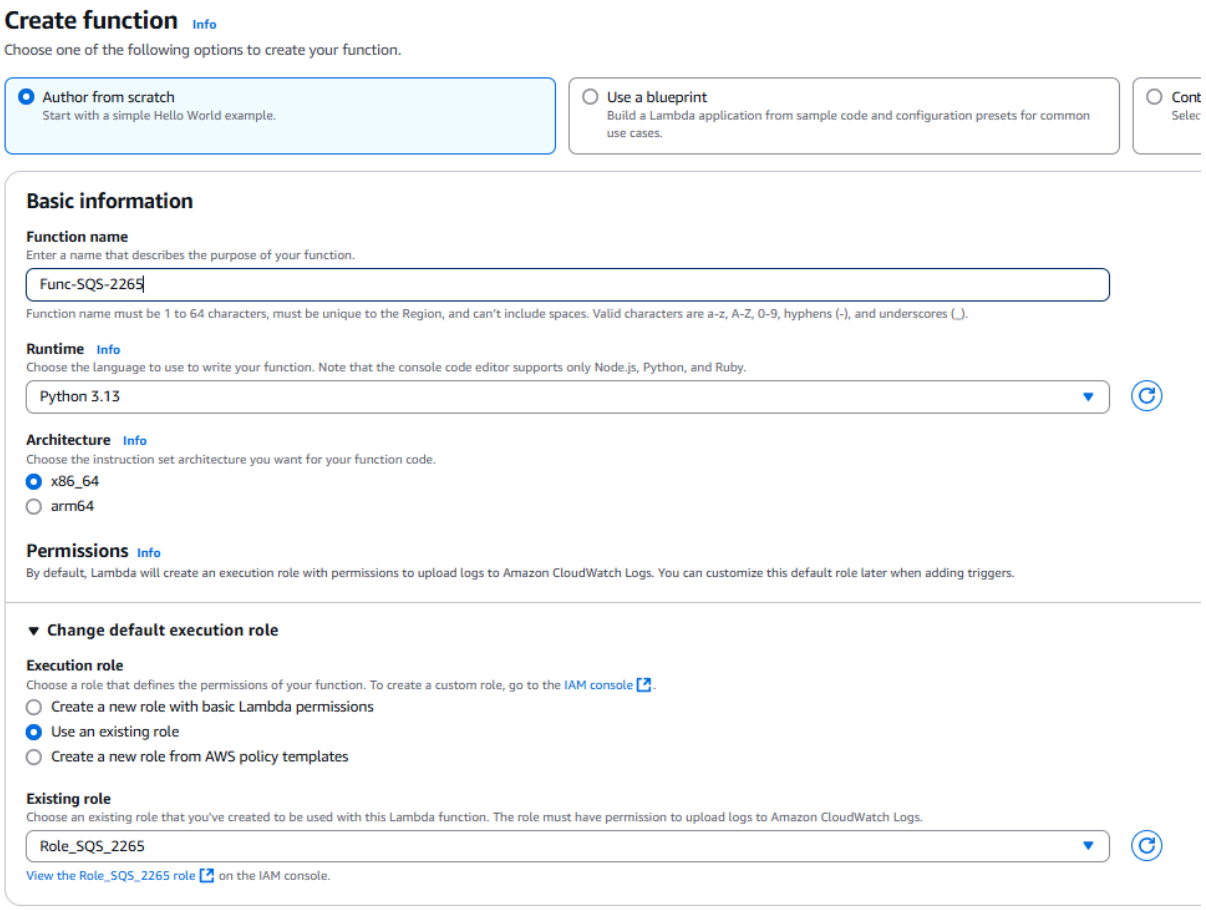
Step 2: Create an SQS Queue

- Go to SQS in AWS Console.
- Select "Standard" queue.
- Set name as 'Lab11-Queue-2265'.
- Set the visibility timeout to 1 minute.
- Create the queue.



Step 3: Create AWS Lambda Function

- Go to Lambda in AWS Console.
- Click on 'Create function'
- Select 'Author from scratch'.
- Set name as 'Func-SQS-2265'.
- Set Runtime as 'Python'.
- Under 'Change default execution role':
  - Use existing execution role created in Step 1 i.e. 'Role_SQS_2265'.
- Click on 'Create function'.



Step 4: Paste and Deploy Lambda Code

- Go to Code Section of the Function.
- Paste your Python code into the 'lambda_function.py'.
- The Code:

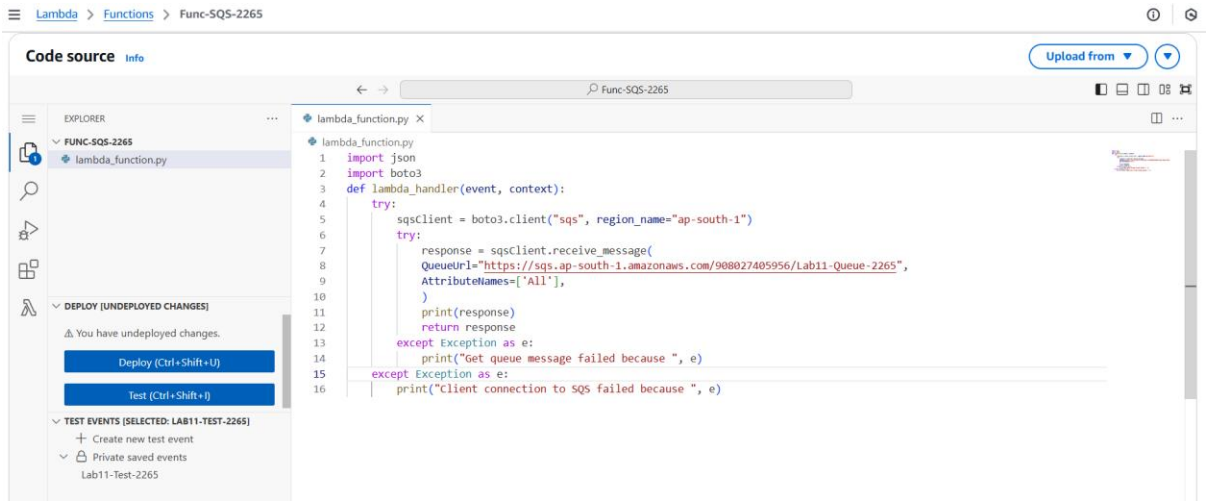
```
import json

import boto3

def lambda_handler(event, context):
```

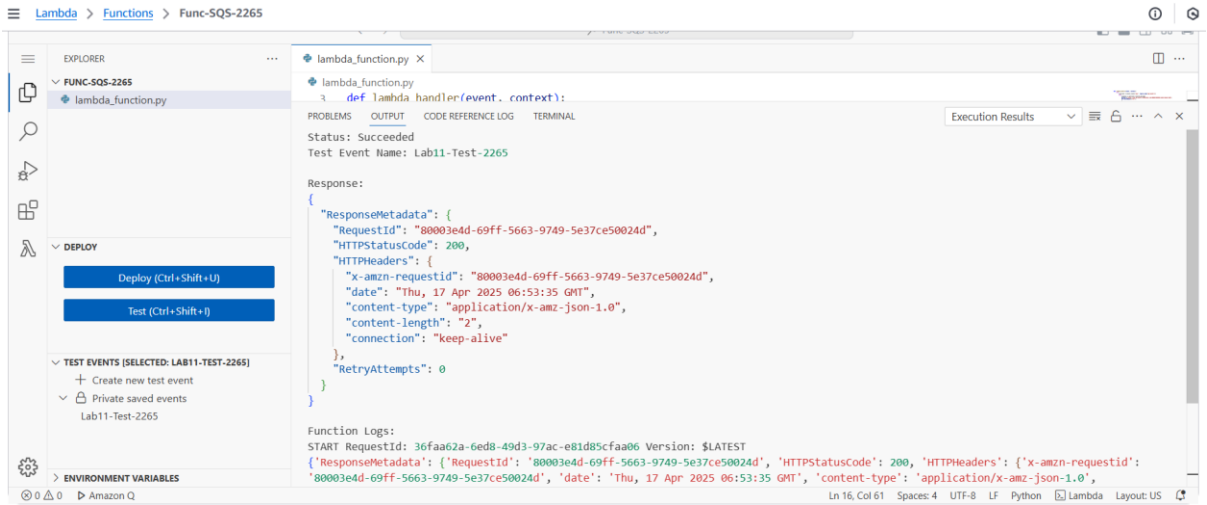
```
try:
    sqsClient = boto3.client("sqs", region_name="us-east-1")
    try:
        response = sqsClient.receive_message(
        QueueUrl="<your Queue URL>",
        AttributeNames=['All'],
        )
        print(response)
        return response
    except Exception as e:
        print("Get queue message failed because ", e)
except Exception as e:
    print("Client connection to SQS failed because ", e)
```

- In our custom code change our working region (here it is "**ap-south-1**").
- Also **add** the **SQS queue URL** in our code.
- Save and Deploy the Lambda function.



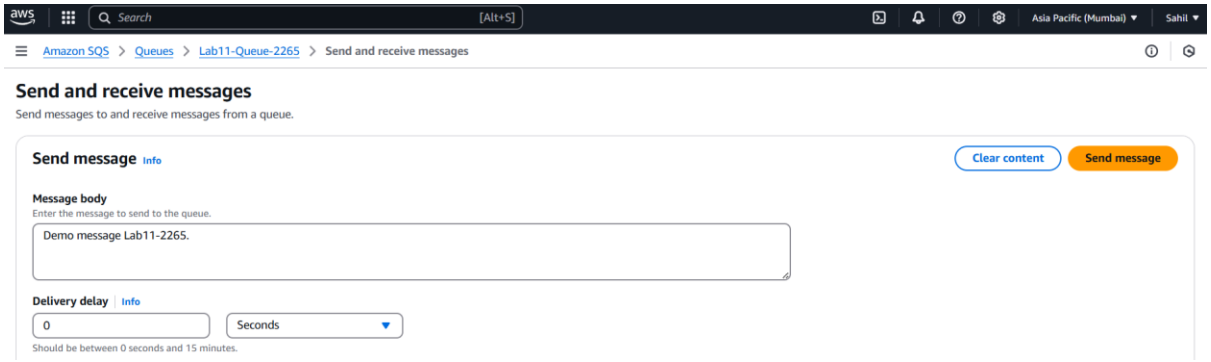
Step 5: Test Lambda Function Without Trigger

- In the Code section, Click on 'Test'.
- Create a new test event 'Lab11-Test-2265'.
- Save the test event.
- Verify the output.

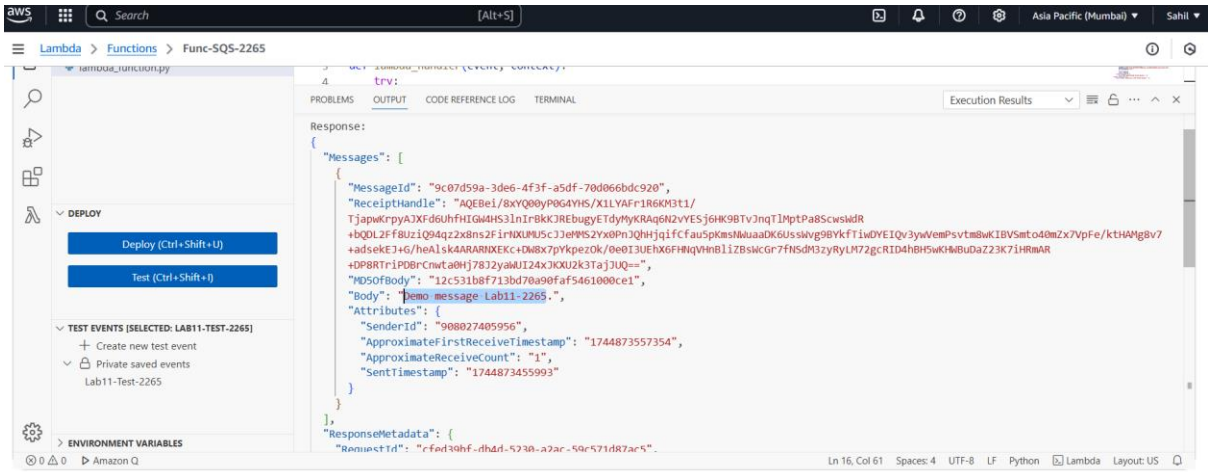


Step 6: Send Message to SQS and Test it.

- Go to your SQS queue.
- Click on "Send and receive messages".
- In the 'Message body', enter a message like " Demo message Lab11-2265.".
- In the first message, set 'Delivery delay' as '0 seconds'.
- Click on 'Send Message'.



- In Lambda, after we click on 'Test' we can see that our message has arrived.



Deletion : 'Purge' the Queue and delete the Function.