

## Module 13 – Guided Lab 2: Implementing a Serverless Architecture on AWS

Lab-09

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Lab session: Friday 4:30-6:30

This lab demonstrates how to trigger a Lambda function when a file is uploaded to Amazon Simple Storage Service (Amazon S3). The file will be loaded into an Amazon DynamoDB table. The data will be available for you to view on a dashboard page that retrieves the data directly from DynamoDB. This solution does not use Amazon Elastic Compute Cloud (Amazon EC2). It is a serverless solution that automatically scales when it is used. It also incurs little cost when it is in use. When it is idle, there is practically no cost because you will only be billed for data storage.

Task 1:: Created a Lambda function to load data

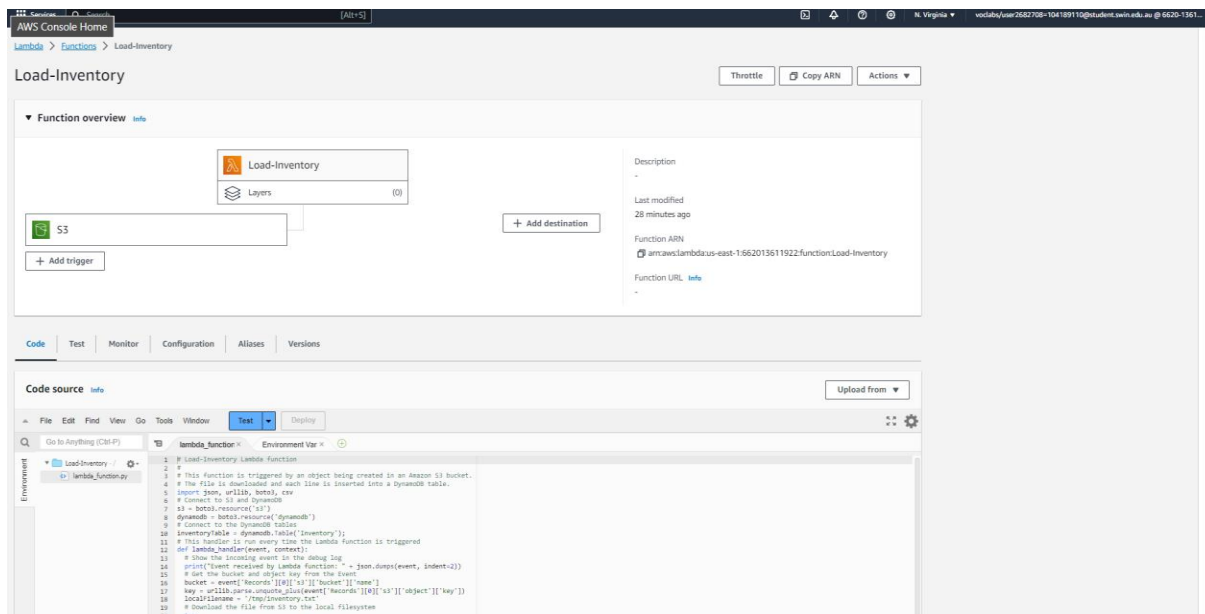
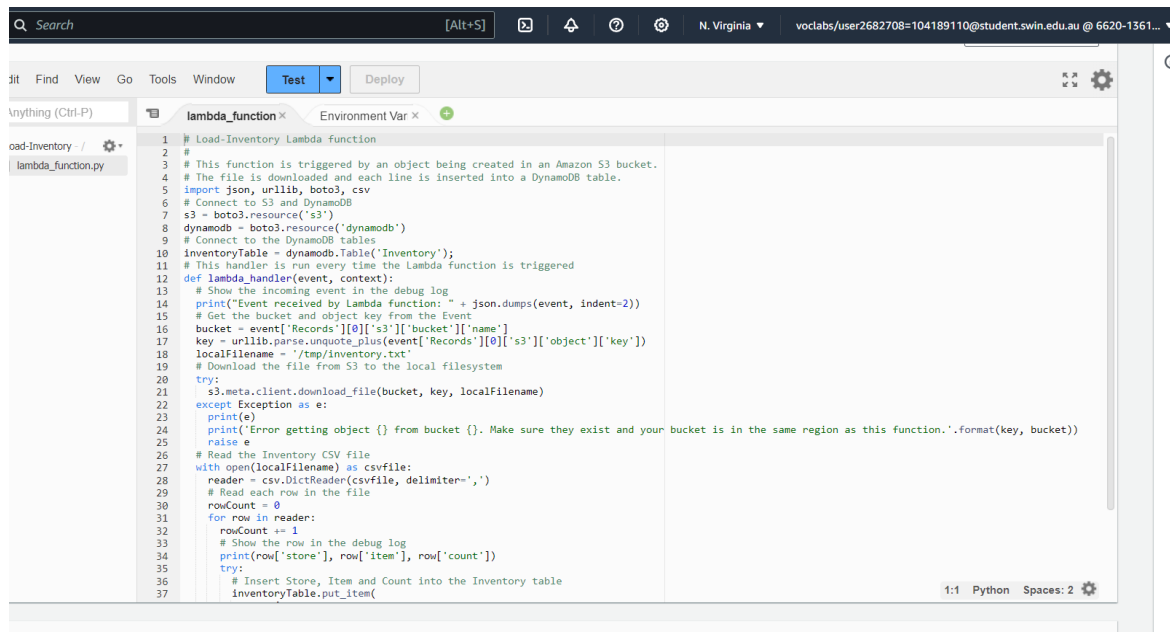


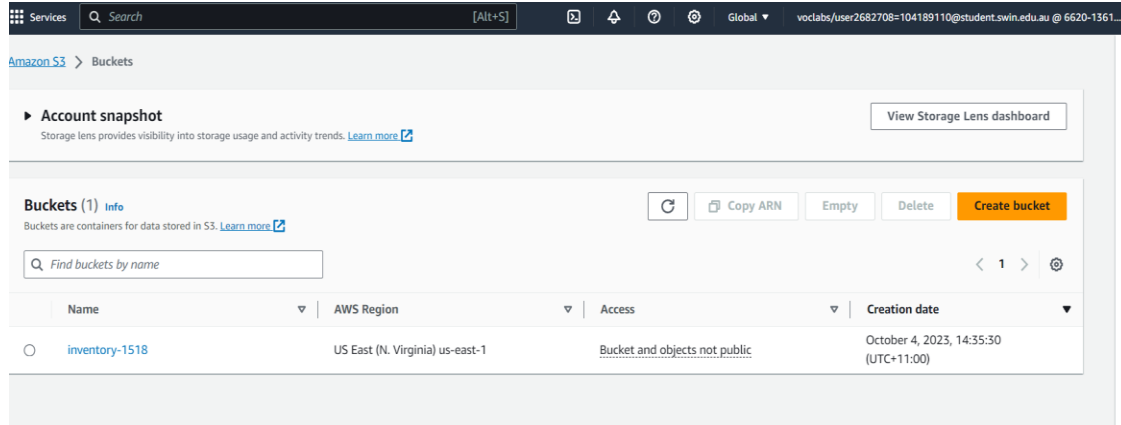
Fig 1.1 created a lambda function to load data to S3 bucket



```
1 # Load-Inventory Lambda function
2 #
3 # This function is triggered by an object being created in an Amazon S3 bucket.
4 # The file is downloaded and each line is inserted into a DynamoDB table.
5 import json, urllib, boto3, csv
6 # Connect to S3 and DynamoDB
7 s3 = boto3.resource('s3')
8 dynamodb = boto3.resource('dynamodb')
9 # Connect to the DynamoDB tables
10 inventoryTable = dynamodb.Table('Inventory')
11 # This handler is run every time the Lambda function is triggered
12 def lambda_handler(event, context):
13     # Show the incoming event in the debug log
14     print("Event received by Lambda function: " + json.dumps(event, indent=2))
15     # Get the bucket and object key from the Event
16     bucket = event['Records'][0]['s3']['bucket']['name']
17     key = urllib.parse.unquote_plus(event['Records'][0]['s3']['object']['key'])
18     localFilename = '/tmp/inventory.txt'
19     # Download the file from S3 to the local filesystem
20     try:
21         s3.meta.client.download_file(bucket, key, localFilename)
22     except Exception as e:
23         print(e)
24         print("Error getting object {} from bucket {}. Make sure they exist and your bucket is in the same region as this function.".format(key, bucket))
25         raise e
26     # Read the Inventory CSV file
27     with open(localFilename) as csvfile:
28         reader = csv.DictReader(csvfile, delimiter=',')
29         # Read each row in the file
30         rowCount = 0
31         for row in reader:
32             rowCount += 1
33             # Show the row in the debug log
34             print(row['store'], row['item'], row['count'])
35             try:
36                 # Insert Store, Item and Count into the Inventory table
37                 inventoryTable.put_item({
```

Fig 1.2 Deployed changed to code source

## Task 2:: Configuring an Amazon S3 event



Amazon S3 > Buckets

Account snapshot  
Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

View Storage Lens dashboard

Buckets (1) Info  
Buckets are containers for data stored in S3. [Learn more](#)

Find buckets by name

Name	AWS Region	Access	Creation date
inventory-1518	US East (N. Virginia) us-east-1	Bucket and objects not public	October 4, 2023, 14:35:30 (UTC+11:00)

Fig 2.1 Bucket created

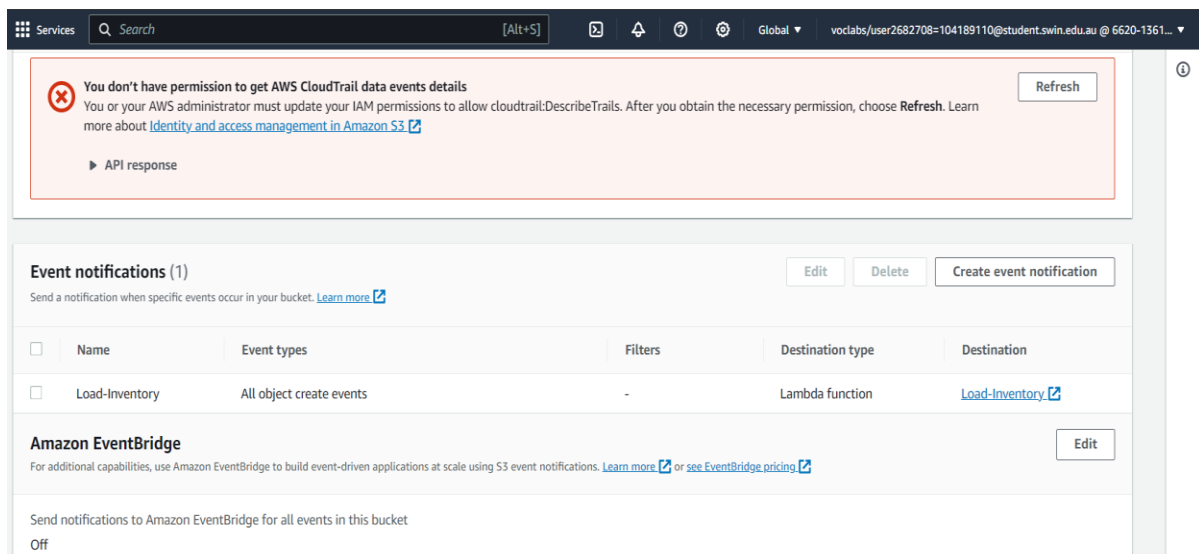


Fig 2.2 event notification created for object creation in S3 bucket

### Task 3:: Testing the loading process

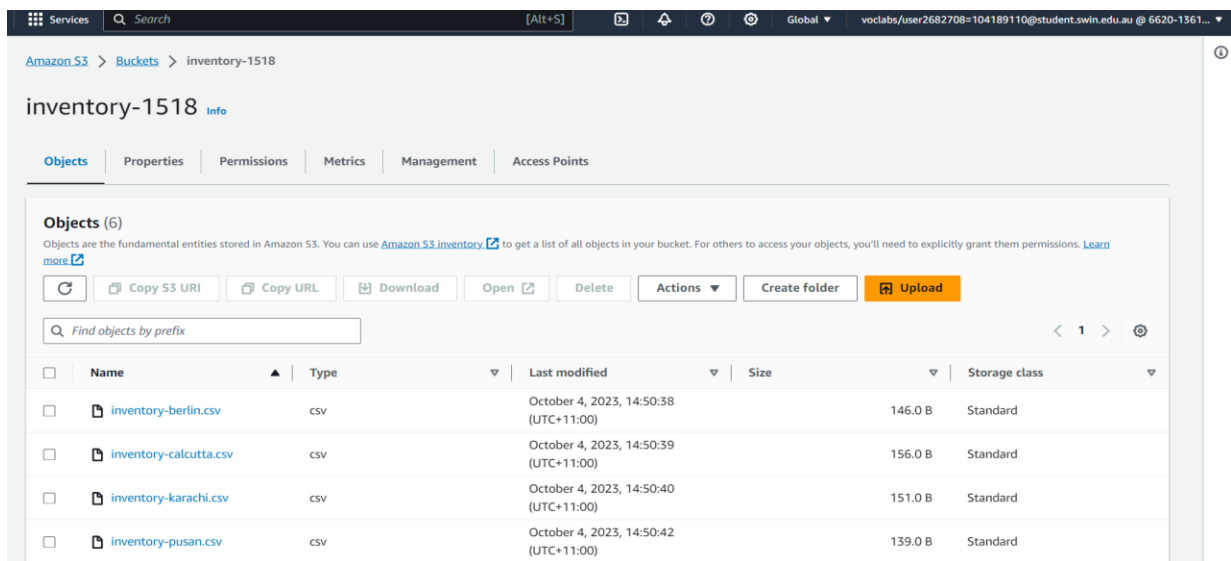


Fig 3.1 S3 bucket with the added files as provided to us

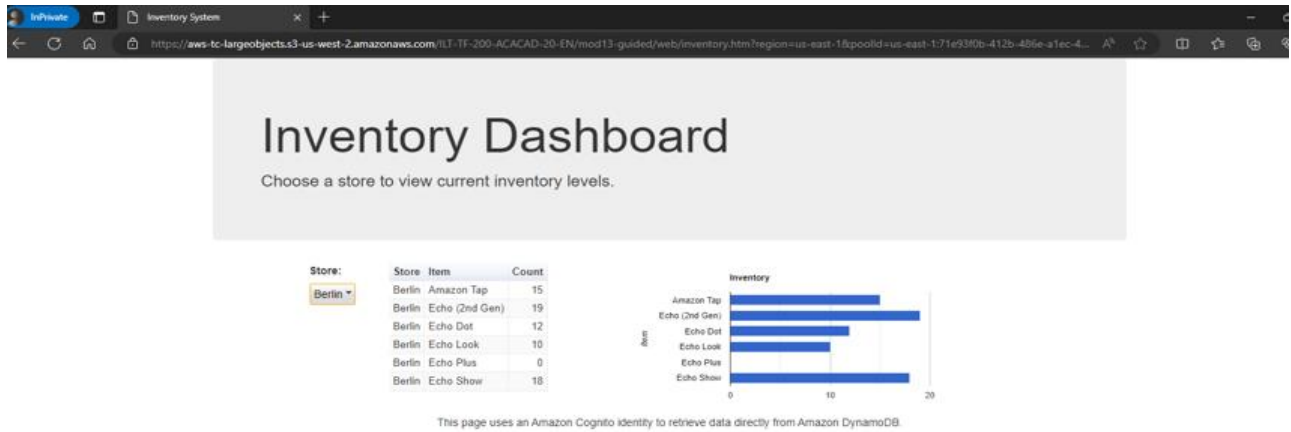


Fig 3.2 Display the inventory data that was loaded into the bucket

#### Task 4: Configuring notifications

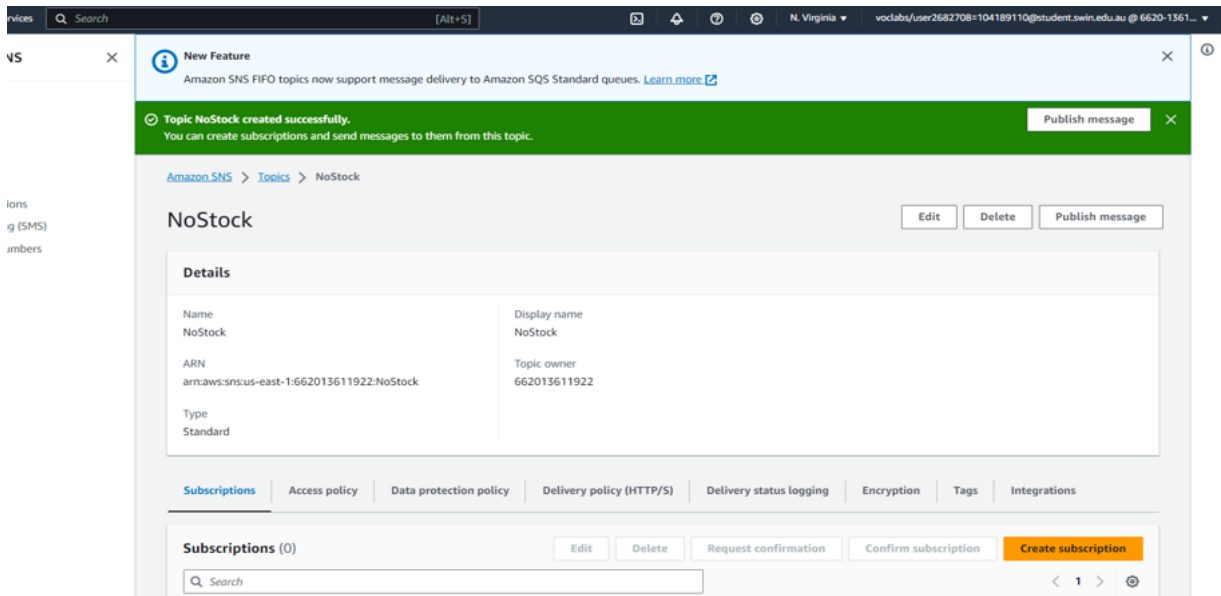


Fig 4.1 Simple notification created subscription created

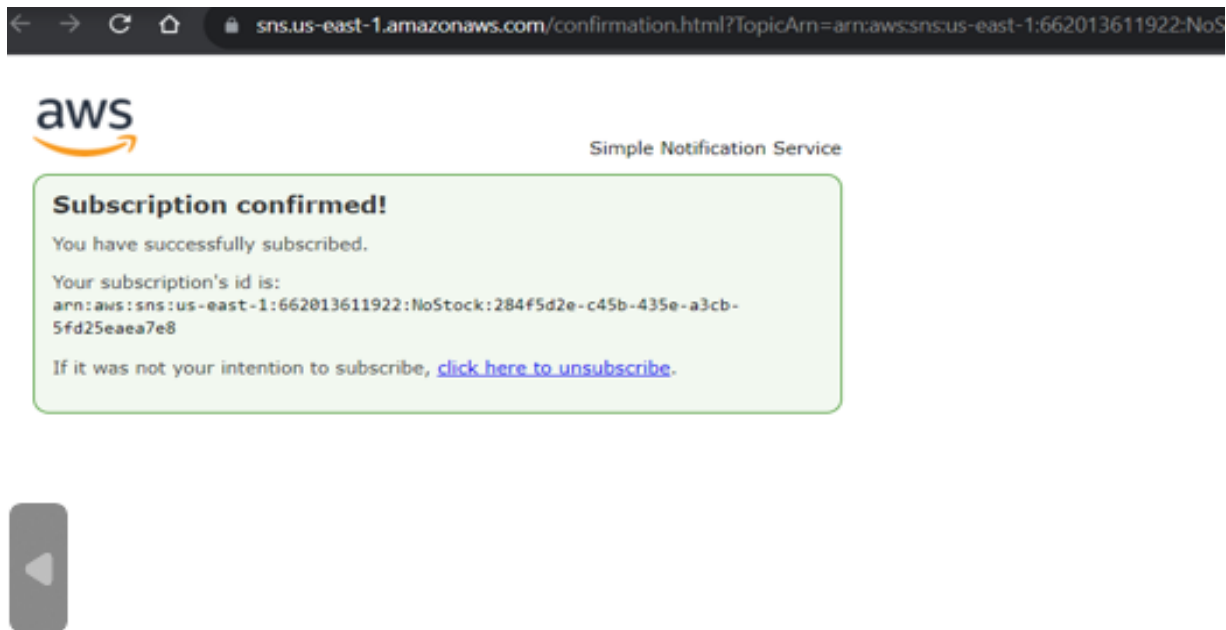


Fig 4.2 Notifications for email subscription to confirm subscription link

## Task 5: Creating a Lambda function to send notifications

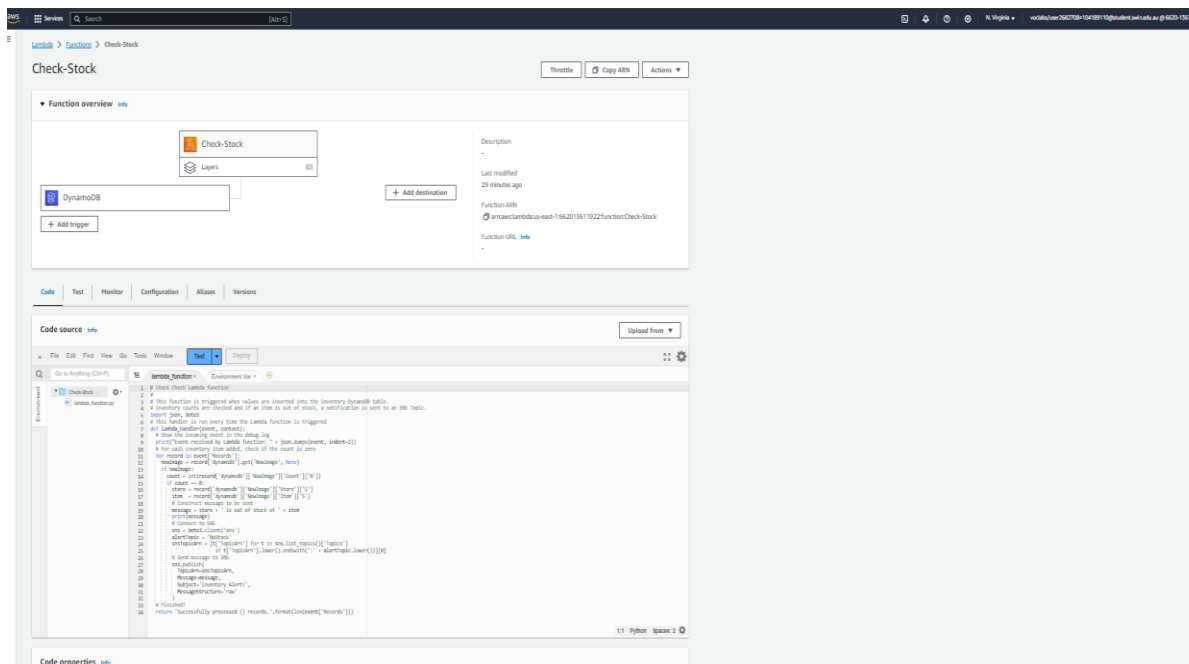


Fig 5.1 Created Lambda function that is triggered when data is loaded into the DynamoDB table

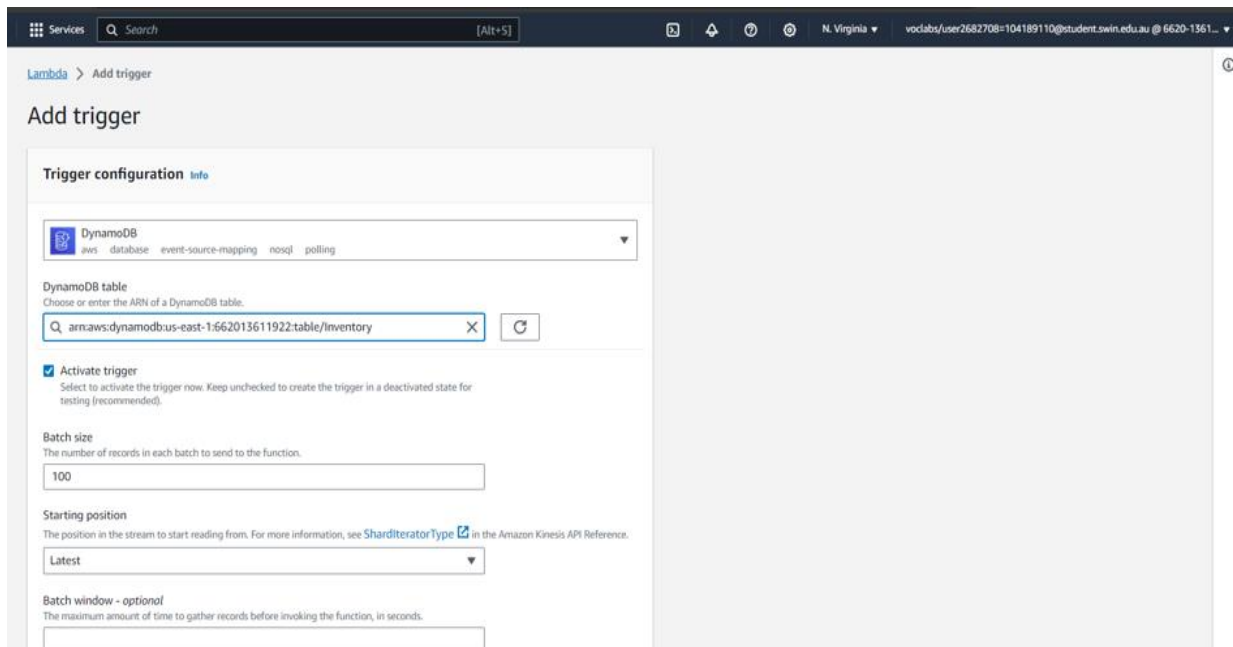


Fig 5.2 Trigger configured settings

## Task 6: Testing the System

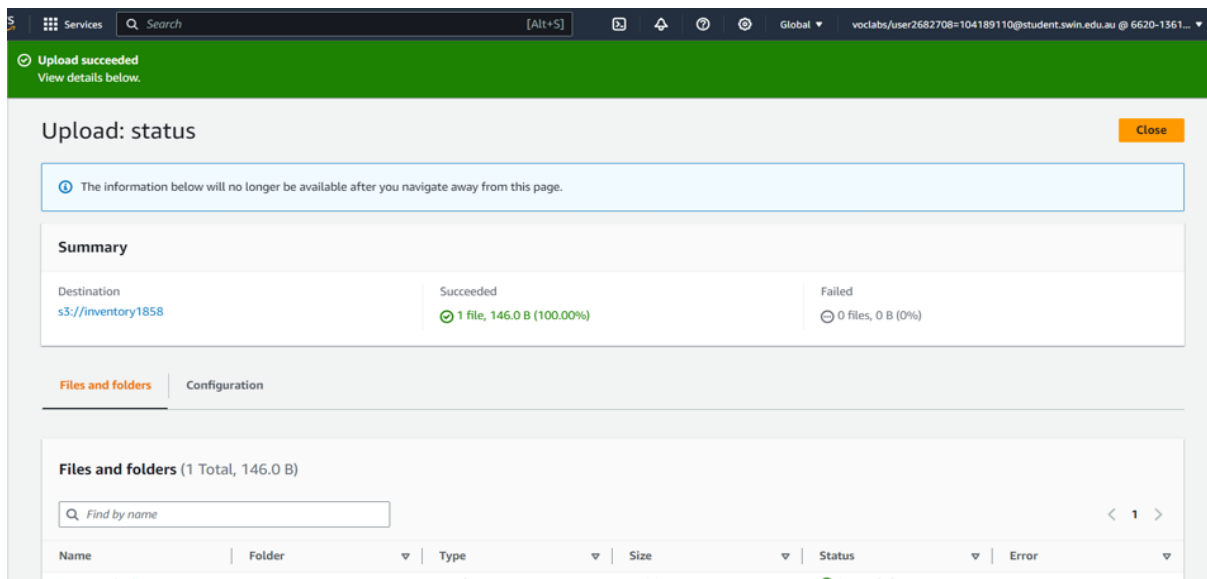


Fig 6.1 uploading excess file to receive the notification for file upload on S3

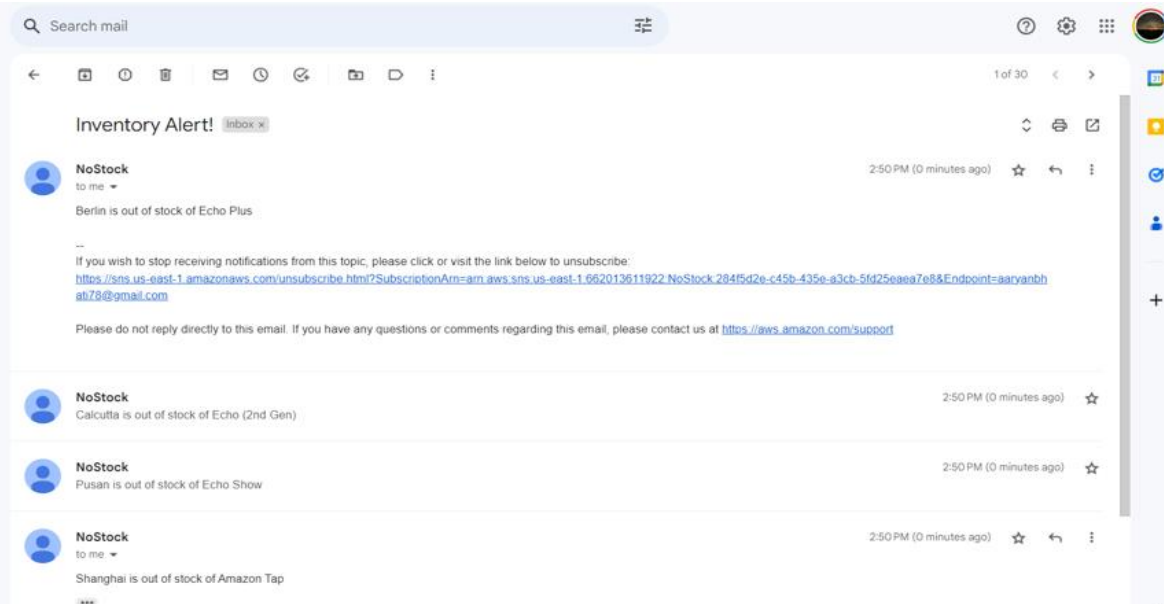


Fig 6.2 Trigger received on my email

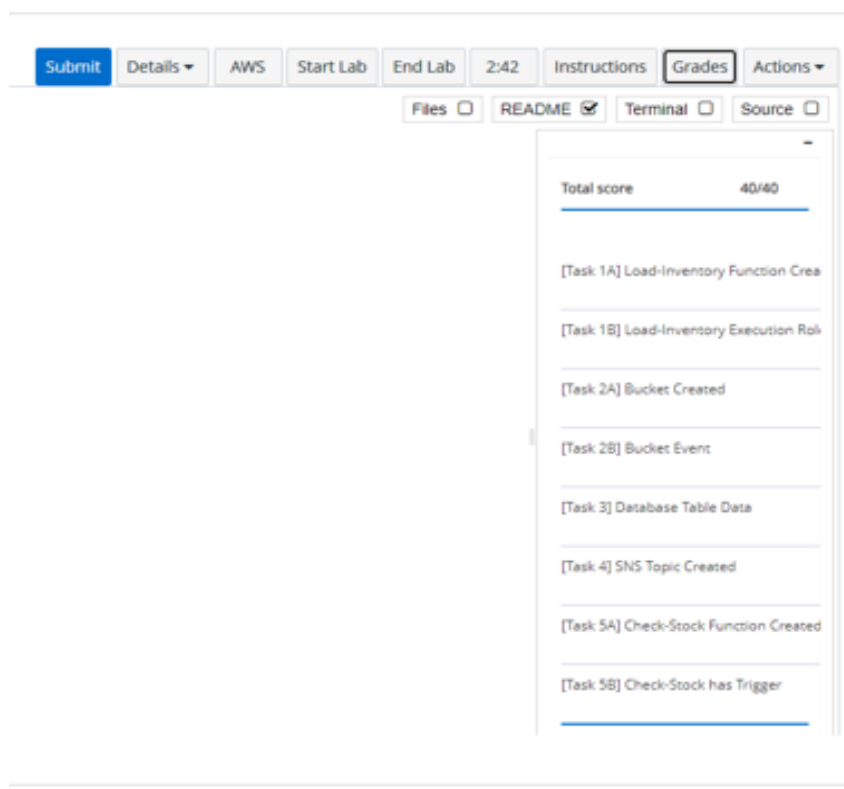


Fig 6.3 test pass as per aws





