

# Lab Assignment-7

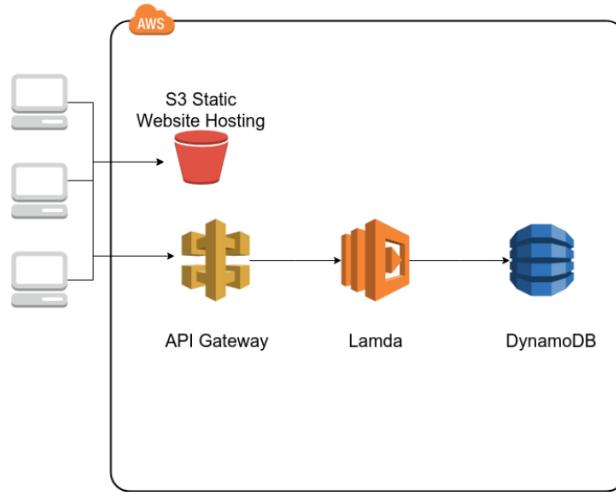
## ECSE304L: Cloud Computing

**Name:** Tanvi Penumudy

**Enroll no:** E18CSE187

**Batch:** EB02

**Lab Objective:** To Create a Dynamic Web Application as per the given AWS Architecture:



### Task 0

#### AWS Free Tier Console Name: Tanvi

### Task 1

The screenshot shows the AWS S3 Management Console with the URL [s3.console.aws.amazon.com/s3/bucket/create?region=us-east-1](https://s3.console.aws.amazon.com/s3/bucket/create?region=us-east-1). The page is titled 'Create bucket'. It contains two main sections: 'General configuration' and 'Block Public Access settings for bucket'.

**General configuration:** This section includes fields for 'Bucket name' (set to 'lab7e18cse187cc'), 'AWS Region' (set to 'US East (N. Virginia) us-east-1'), and a 'Choose bucket' button. A note below states: 'Copy settings from existing bucket - optional. Only the bucket settings in the following configuration are copied.'

**Block Public Access settings for bucket:** This section contains a note: 'Public access is limited to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure no public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases.' It also includes a 'Learn more' link.

S3 Management Console

Services ▾

Search for services, features, marketplace products, and docs [Alt+S]

Block Public Access settings for bucket

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

**Block all public access**  
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

**Block public access to buckets and objects granted through new access control lists (ACLs)**  
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

**Block public access to buckets and objects granted through any access control lists (ACLs)**  
S3 will ignore all ACLs that grant public access to buckets and objects.

**Block public access to buckets and objects granted through new public bucket or access point policies**  
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

**Block public and cross-account access to buckets and objects through any public bucket or access point policies**  
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

**Turning off block all public access might result in this bucket and the objects within becoming public**  
AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.

I acknowledge that the current settings might result in this bucket and the objects within becoming public.

Feedback English (US) ▾

Type here to search

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S3 Management Console

Services ▾

Search for services, features, marketplace products, and docs [Alt+S]

Amazon S3 > lab7e18cse187cc > Upload

## Upload

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose Add files, or Add folders.

**Files and folders (2 Total, 210.0 B)**  
All files and folders in this table will be uploaded.

	Name	Folder	Type	Size
<input type="checkbox"/>	error.html	-	text/html	133.0 B
<input type="checkbox"/>	index.html	-	text/html	77.0 B

**Destination**

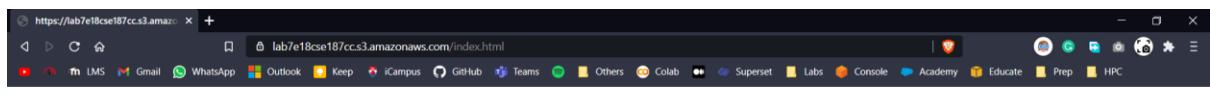
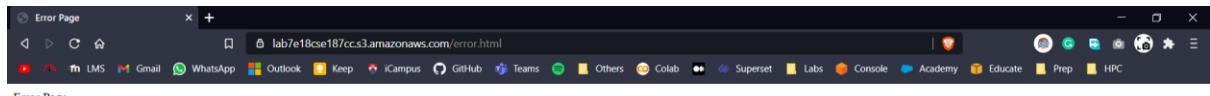
Destination  
s3://lab7e18cse187cc

**Destination details**

Feedback English (US) ▾

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S3 Management Console

Amazon S3

Buckets

Access Points

Batch Operations

Access analyzer for S3

Block Public Access settings for account

Storage Lens

Dashboards

AWS Organizations settings

Feature spotlight

AWS Marketplace for S3

Amazon S3 > lab7e18cse187cc > Edit static website hosting

## Edit static website hosting

**Static website hosting**

Use this bucket to host a website or redirect requests. [Learn more](#)

**Static website hosting**

Disable

Enable

**Hosting type**

Host a static website

Use the bucket endpoint as the web address. [Learn more](#)

Redirect requests for an object

Redirect requests to another bucket or domain. [Learn more](#)

**Index document**

Specify the home or default page of the website.

index.html

Feedback English (US) ▾

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S3 Management Console

Amazon S3

Buckets

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Amazon S3 > lab7e18cse187cc > Edit static website hosting

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Use this bucket to host a website or redirect requests. [Learn more](#)

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Redirect requests to another bucket or domain. [Learn more](#)

**Index document**

Specify the home or default page of the website.

index.html

**Error document - optional**

This is returned when an error occurs.

error.html

**Redirection rules - optional**

Redirection rules, written in JSON, automatically redirect webpage requests for specific content. [Learn more](#)

1

Feedback English (US) ▾

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S3 Management Console

s3.console.aws.amazon.com/s3/buckets/lab7e18cse187cc?region=us-east-1&tab=properties

Amazon S3

Buckets

Access Points

Batch Operations

Access analyzer for S3

Block Public Access settings for account

Storage Lens

Dashboards

AWS Organizations settings

Feature spotlight

AWS Marketplace for S3

Requester pays

When enabled, the requester pays for requests and data transfer costs, and anonymous access to this bucket is disabled. [Learn more](#)

Edit

Requester pays

Disabled

Static website hosting

Use this bucket to host a website or redirect requests. [Learn more](#)

Edit

Static website hosting

Enabled

Hosting type

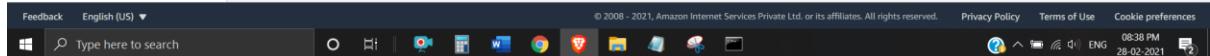
Bucket hosting

Bucket website endpoint

When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket.

[Learn more](#)

<http://lab7e18cse187cc.s3-website-us-east-1.amazonaws.com>



Not secure | lab7e18cse187cc.s3-website-us-east-1.amazonaws.com

Hello World



## Task 2

The screenshot shows the 'Create function' wizard in the AWS Lambda console. The top navigation bar includes links for LMS, Gmail, WhatsApp, Outlook, Keep, iCampus, GitHub, Teams, Others, Colab, Superset, Labs, Console, Academy, Educate, Prep, and HPC. The search bar says 'Search for services, features, marketplace products, and docs'. The region is set to N. Virginia.

**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.
- Browse serverless app repository**  Deploy a sample Lambda application from the AWS Serverless Application Repository.

**Basic information**

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

**Runtime** Info  
Choose the language to use to write your function.

**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.

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The screenshot shows the configuration page for the function 'Lab7E18CSE187'. A green success message at the top states: 'Successfully created the function Lab7E18CSE187. You can now change its code and configuration. To invoke your function with a test event, choose "Test".'

**Lab7E18CSE187**

**Function code** Info

File Edit Find View Go Tools Window Test Deploy Changes not deployed

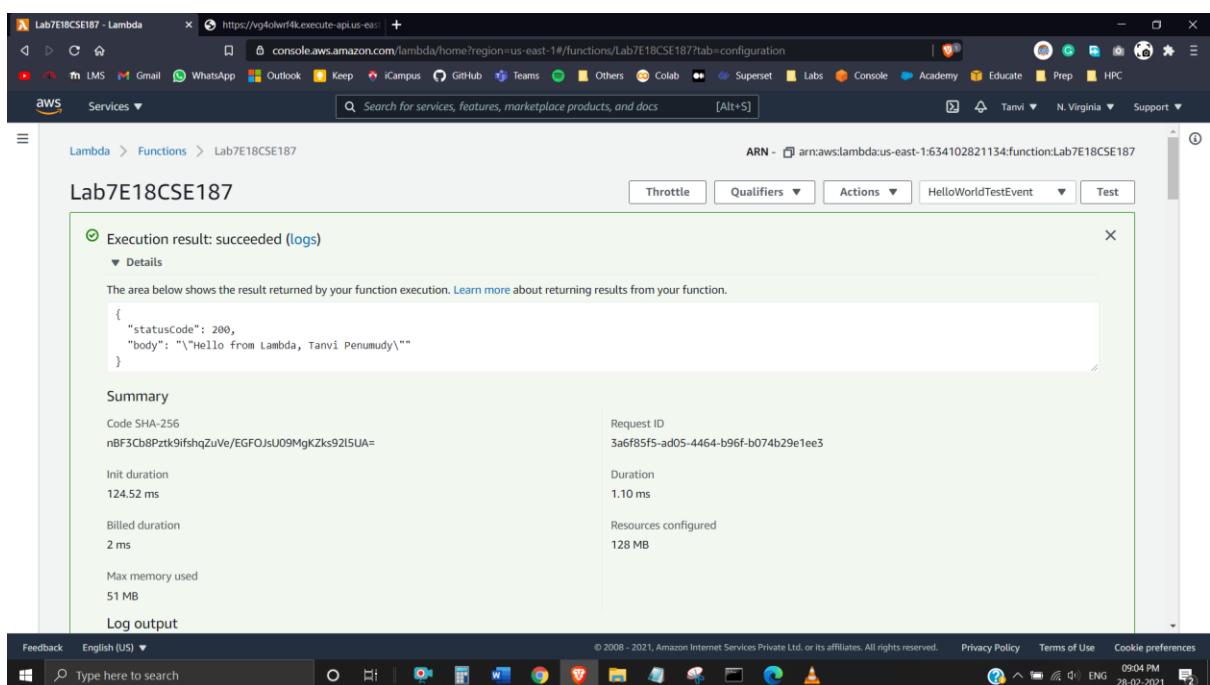
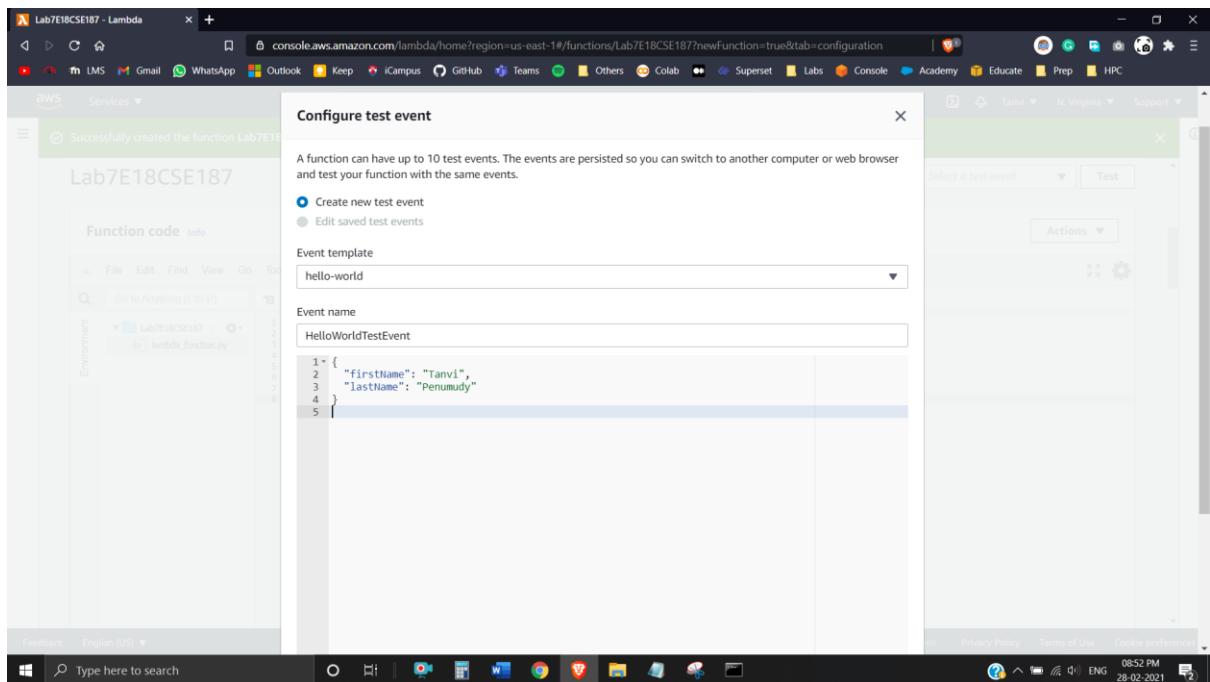
Environment Go to Anything (Ctrl-P)

lambda\_function

```
1 import json
2 def lambda_handler(event, context):
3     name = event['firstName'] + '-' + event['lastName']
4     return {
5         'statusCode': 200,
6         'body': json.dumps('Hello from Lambda, ' + name)
7     }
```

Actions Throttle Qualifiers Actions Select a test event Test

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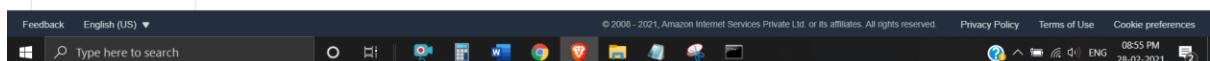


## Task 3

The screenshot shows the 'Create new API' page in the AWS API Gateway console. The 'API name\*' field is filled with 'HelloWorldE18CSE187'. The 'Endpoint Type' is set to 'Edge optimized'. A 'Create API' button is visible at the bottom right.



The screenshot shows the 'POST - Setup' configuration page for a Lambda function integration. The 'Integration type' is set to 'Lambda Function'. The 'Lambda Region' is 'us-east-1' and the 'Lambda Function' is 'Lab7E18CSE187'. The 'Save' button is visible at the bottom right.



The screenshot shows the AWS API Gateway console. The URL is <https://console.aws.amazon.com/apigateway/home?region=us-east-1#/apis/vg4olwrflk/resources/n9121jrcv4/enable-cors>. The page title is "Enable CORS". On the left, there's a sidebar with "Resources" and "Actions" tabs, and a dropdown menu showing "OPTIONS" and "POST". The main content area displays a list of successful steps: "Create OPTIONS method", "Add 200 Method Response with Empty Response Model to OPTIONS method", "Add Mock Integration to OPTIONS method", "Add 200 Integration Response to OPTIONS method", "Add Access-Control-Allow-Headers, Access-Control-Allow-Methods, Access-Control-Allow-Origin Method Response Headers to OPTIONS method", "Add Access-Control-Allow-Headers, Access-Control-Allow-Methods, Access-Control-Allow-Origin Integration Response Header Mappings to OPTIONS method", "Add Access-Control-Allow-Origin Method Response Header to POST method", and "Add Access-Control-Allow-Origin Integration Response Header Mapping to POST method". A note at the bottom says, "Your resource has been configured for CORS. If you see any errors in the resulting output above please check the error message and if necessary attempt to execute the failed step manually via the Method Editor." The status bar at the bottom shows "Feedback English (US)" and a timestamp "08:56 PM 28-02-2021".

The screenshot shows the AWS API Gateway console with a "Deploy API" dialog box overlaid. The dialog box title is "Deploy API". It asks to choose a stage where the API will be deployed, with an example of a test version named "beta". The "Deployment stage" dropdown is set to "[New Stage]". The "Stage name\*" input field contains "Lab7E18CSE187". The "Stage description" and "Deployment description" fields are empty. To the right of the dialog, there's a note: "Choose a stage where your API will be deployed. For example, a test version of your API could be deployed to a stage named beta." Below the dialog, the status bar shows "Feedback English (US)" and a timestamp "08:57 PM 28-02-2021".

The screenshot shows the AWS API Gateway Stage Editor interface. At the top, the URL is <https://console.aws.amazon.com/apigateway/home?region=us-east-1#/apis/vg4olwrf4k/stages/Lab7E18CSE187>. The main title is "Lab7E18CSE187 Stage Editor". Below it, there's a "Cache Settings" section with an "Enable API cache" checkbox. Under "Default Method Throttling", it says "Choose the default throttling level for the methods in this stage. Each method in this stage will respect these rate and burst settings. Your current account level throttling rate is 10000 requests per second with a burst of 5000 requests. Read more about API Gateway throttling". There are fields for "Rate" (10000) and "Burst" (5000). A "Web Application Firewall (WAF)" section follows, with a link to "Learn more". Below that, it says "Select the Web ACL to be applied to this stage." and shows a dropdown menu with "Web ACL" and "None". The bottom of the window includes a "Feedback" section, a language selector for "English (US)", and a status bar with "© 2008 - 2021, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved." and "Privacy Policy Terms of Use Cookie preferences". The taskbar at the bottom shows various icons for Windows 10.

The screenshot shows the Postman application interface. The address bar has two tabs: "https://vg4olwrf4k.execute-api.us-east-1.amazonaws.com" and "https://vg4olwrf4k.execute-api.us-east-1.amazonaws.com/request/create?requestId=27badabf-bab4-4db3-bedd-a233...". The main view shows a "My Workspace" sidebar with sections for Collections, APIs, Environments, Mock Servers, Monitors, and History. The central area is titled "https://vg4olwrf4k.execute-api.us-east-1.amazonaws.com/Lab7E18CSE187/" and shows a "POST" request to "https://vg4olwrf4k.execute-api.us-east-1.amazonaws.com/Lab7E18CSE187/". The "Body" tab is selected, showing a JSON payload: { "firstName": "Tanvi", "lastName": "Penumudy"}. Below the body, the response status is "Status: 200 OK Time: 1411 ms Size: 588 B". The bottom of the window includes a "Console" section, a "Feedback" section, a language selector for "English (US)", and a status bar with "© 2008 - 2021, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved." and "Privacy Policy Terms of Use Cookie preferences". The taskbar at the bottom shows various icons for Windows 10.

## Task 4

The screenshot shows the 'Create DynamoDB table' wizard. The table name is set to 'Lab7E18CSE187'. The primary key is defined as a 'Partition key' named 'ID' of type 'String'. Under 'Table settings', the 'Use default settings' checkbox is checked, and a list of default configurations is shown:

- No secondary indexes.
- Provisioned capacity set to 5 reads and 5 writes.
- Basic alarms with 80% upper threshold using SNS topic "dynamodb".
- Encryption at Rest with DEFAULT encryption type.

At the bottom right of the wizard, there are two buttons: 'Next Step' and 'Cancel'.

## Task 5

The screenshot shows the 'Create policy' wizard. The policy document is displayed in JSON format:

```
1 - {
2 -   "Version": "2012-10-17",
3 -   "Statement": [
4 -     {
5 -       "Sid": "VisualEditor0",
6 -       "Effect": "Allow",
7 -       "Action": [
8 -         "dynamodb:PutItem",
9 -         "dynamodb:DeleteItem",
10 -        "dynamodb:GetItem",
11 -        "dynamodb:Scan",
12 -        "dynamodb:Query",
13 -        "dynamodb:UpdateItem"
14 -      ],
15 -      "Resource": "arn:aws:dynamodb:us-east-1:634102821134:table/Lab7E18CSE187"
16 -    }
17 -  ]
```

At the bottom right of the wizard, there are two buttons: 'Next Step' and 'Cancel'.

Screenshot of the AWS IAM Management Console showing the creation of a new policy named "HelloWorldDynamoPolicy". The policy allows the "DynamoDB" service to perform "Read, Write" operations on any DynamoDB table named "Lab7E18CSE187".

**Create policy**

**Review policy**

Name\*  Maximum 128 characters. Use alphanumeric and '+-, @-, \_' characters.

**Summary**

Service	Access level	Resource	Request condition
DynamoDB	Limited: Read, Write	TableName   string like   Lab7E18CSE187	None

\* Required

Cancel Previous Create policy

Screenshot of the AWS IAM Management Console showing the summary of a role named "Lab7E18CSE187-role-40lx531r". The role has a maximum session duration of 1 hour and is attached to two policies: "AWSLambdaBasicExecutionRole" (Managed policy) and "HelloWorldDynamoPolicy" (Inline policy).

**Identity and Access Management (IAM)**

**Summary**

Role ARN	arn:aws:iam::634102821134:role/service-role/Lab7E18CSE187-role-40lx531r
Role description	Edit
Instance Profile ARNs	
Path	/service-role/
Creation time	2021-02-28 20:45 UTC+0530
Last activity	Not accessed in the tracking period
Maximum session duration	1 hour Edit

Permissions Trust relationships Tags Access Advisor Revoke sessions

Permissions policies (2 policies applied)

Attach policies Add inline policy

Policy name	Policy type
AWSLambdaBasicExecutionRole-4075525d-d10e-445c-af6b-b3fa61e0b18a	Managed policy
HelloWorldDynamoPolicy	Inline policy

Permissions boundary (not set)

## Task 6

The screenshot shows the AWS Lambda function configuration page. The URL is <https://v94olwrf4k.execute-api.us-east-1.amazonaws.com/lambda/home?region=us-east-1#/functions/Lab7E18CSE187?tab=configuration>. The code editor contains the following Python script:

```
# import the json utility package since we will be working with a JSON object
import json
# import the AWS SDK (for Python the package name is boto3)
import boto3
# import the package to help us with dates and date formatting
from time import gettime, strftime
# create a DynamoDB object using the AWS SDK
dynamodb = boto3.resource('dynamodb')
# use the DynamoDB object to select our table
table = dynamodb.Table('Lab7E18CSE187')
# store the current time in a human readable format in a variable
now = strftime("%a, %d %b %Y %H:%M:%S +0000", gettime())
# define the handler function that the Lambda service will use as an entry point
def lambda_handler(event, context):
    # extract values from the event object we got from the Lambda service and store in a variable
    name = event['queryStringParameters']['name']
    # write a record time in the DynamodDB table using the object we instantiated and save response in a variable
    response = table.put_item(
        Item={
            'ID': name,
            'LatestGreetingTime': now
        })
    # return a properly formatted JSON object
    return {
        'statusCode': 200,
        'body': json.dumps('Hello from Lambda, ' + name)
    }
```

The screenshot shows the AWS Lambda execution results page. The URL is <https://v94olwrf4k.execute-api.us-east-1.amazonaws.com/lambda/home?region=us-east-1#/functions/Lab7E18CSE187?tab=executionResults>. The log output section shows the following JSON response:

```
{"statusCode": 200, "body": "\"Hello from Lambda, Tanvi Penumudy\""}

The summary table includes the following data:



| Code SHA-256                                 | Request ID                           |
|----------------------------------------------|--------------------------------------|
| QODrzfIgOua+YGVzKbp7+r+yPrVVooZfgqZ0/S0Qbx0= | 87696c2e-77b8-440c-aa22-a0550728853e |
| Init duration                                | Duration                             |
| 341.24 ms                                    | 221.08 ms                            |
| Billed duration                              | Resources configured                 |
| 222 ms                                       | 128 MB                               |
| Max memory used                              |                                      |
| 74 MB                                        |                                      |
| Log output                                   |                                      |


```

DynamoDB - AWS Console

Search for services, features, marketplace products, and docs [Alt+S]

aws Services ▾

DynamoDB

Tables

Backups

Reserved capacity

Preferences

DAX

Dashboard

Clusters

Subnet groups

Parameter groups

Events

Try the preview of the new console

Lab7E18CSE187

Overview Items Metrics Alarms Capacity Indexes Global Tables Backups Contributor Insights Triggers More

Create item Actions

Scan: [Table] Lab7E18CSE187: ID ▾ Viewing 1 to 1 items

Scan [Table] Lab7E18CSE187: ID Add filter Start search

ID LatestGreetingTime

Tanvi Penumudy Sun, 28 Feb 2021 15:49:28 +0000

## Task 7

S3 Management Console

Feedback English (US) ▾

s3.console.aws.amazon.com/s3/upload/lab7e18cse187cc?region=us-east-1

Search for services, features, marketplace products, and docs [Alt+S]

aws Services ▾

Upload succeeded

View details below.

Upload: status

The information below will no longer be available after you navigate away from this page.

Summary

Destination	Succeeded	Failed
s3://lab7e18cse187cc	1 file, 2.1 KB (100.00%)	0 files, 0 B (0%)

Files and folders Configuration

Files and folders (1 Total, 2.1 KB)

Name	Folder	Type	Size	Status	Error
index.html	-	text/html	2.1 KB	Succeeded	-

Feedback English (US) ▾

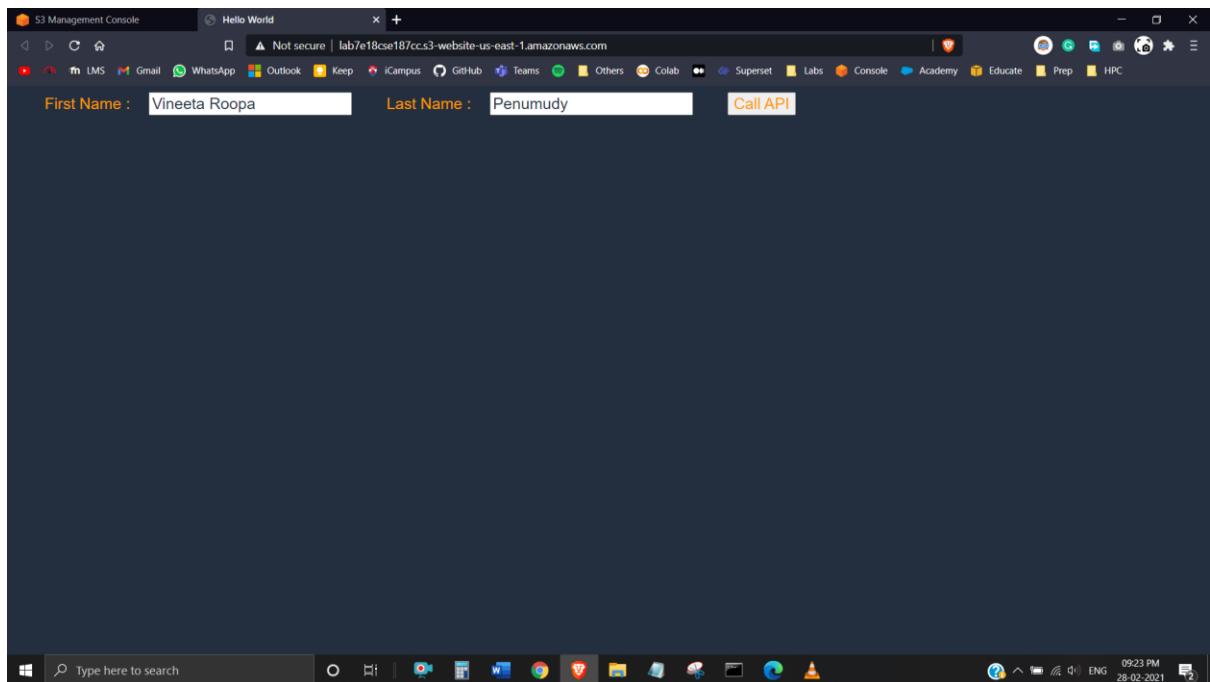
Type here to search

09:22 PM 28-02-2021

The screenshot shows the AWS S3 Management Console with a dialog box titled 'Make public'. The dialog contains a message stating: 'Public access is blocked because Block Public Access settings are turned on for this bucket.' It also includes a note about Block Public Access settings and a warning about public read access being enabled. Below the dialog, a table lists the specified object 'index.html' with details like type (html), last modified (February 28, 2021, 21:21:53 (UTC+05:30)), and size (2.1 KB). At the bottom right of the dialog are 'Cancel' and 'Make public' buttons.

## Task 8

The screenshot shows the AWS Lambda function 'Hello World' in the AWS Management Console. The interface includes input fields for 'First Name' and 'Last Name', and a button labeled 'Call API'. The browser status bar indicates the URL is 'Not secure | lab7e18cse187cc.s3-website-us-east-1.amazonaws.com'. The task title 'Task 8' is displayed prominently at the top center.



The screenshot shows the AWS DynamoDB console for the table "Lab7E18CSE187". The left sidebar shows the "Tables" section. The main panel shows a "Scan" operation for the "ID" attribute, resulting in two items:

ID	LatestGreetingTime
Tanvi Penumudy	Sun, 28 Feb 2021 15:49:29 +0000
Vineeta Roopa Penumudy	Sun, 28 Feb 2021 15:49:29 +0000

The browser's status bar at the bottom shows "09:25 PM 28-02-2021".