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Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

School of Computer Science and Engineering
(SCOPE)

Fall Semester 2025-26

CBS3005 - Cloud, Microservices and Applications

LAB ASSESSMENT 1

Submitted by-

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22BBS0183

Q1. Create and manage EC2 instances on AWS. Launch an application on an EC2 instance in one region and then migrate that instance to another region. Additionally, set up another EC2 instance to install MySQL, create a database (e.g., student or employee database), and perform basic SQL operations.

1) Launch Instance

The screenshot displays the AWS Management Console interface for an EC2 instance. The left sidebar shows the navigation menu with categories like EC2, Images, Elastic Block Store, and Network & Security. The main content area shows the 'Instance summary' for the instance **i-09335ce957a4a7fd2 (22BBS0183)**. The instance is in the **Running** state. Key details include:

- Instance ID:** i-09335ce957a4a7fd2
- Public IPv4 address:** 98.86.219.210
- Private IPv4 addresses:** 172.31.39.155
- Public DNS:** ec2-98-86-219-210.compute-1.amazonaws.com
- Instance state:** Running
- Private IP DNS name (IPv4 only):** ip-172-31-39-155.ec2.internal
- Instance type:** t3.micro
- VPC ID:** vpc-092a8cb38c9137b99
- Subnet ID:** subnet-0b2ec1178657d4afe
- Instance ARN:** arn:aws:ec2:us-east-1:533267317559:instance/i-09335ce957a4a7fd2
- Auto-assigned IP address:** 98.86.219.210 [Public IP]
- Answer private resource DNS name (IPv4 (A)):** ip-172-31-39-155.ec2.internal
- IAM Role:** -
- IMDSv2:** Required
- Operator:** -

2) Connecting to the ubuntu server

```
aws [Option+S] United States (N. Virginia) YASH GARG

Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1029-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Wed Aug  6 16:22:57 UTC 2025

System load:  0.31   Temperature:   -273.1 C
Usage of /:   25.4% of 6.71GB   Processes:    118
Memory usage: 24%   Users logged in: 0
Swap usage:   0%     IPv4 address for ens5: 172.31.39.155

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

i-09335ce957a4a7fd2 (22BBS0183)
PublicIPs: 98.86.219.210 PrivateIPs: 172.31.39.155
```

3) Updating command

```
aws [Option+S] United States (N. Virginia) YASH GARG

=====Scanning linux images...

Pending kernel upgrade!
Running kernel version:
 6.8.0-1029-aws
Diagnostics:
 The currently running kernel version is not the expected kernel version 6.14.0-1010-aws.

Restarting the system to load the new kernel will not be handled automatically, so you should consider rebooting.

Restarting services...

Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart getty@tty1.service
systemctl restart networkd-dispatcher.service
systemctl restart serial-getty@ttyS0.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu @ session #1: sshd[1069,1521]
ubuntu @ user manager service: systemd[1416]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-39-155:~$ sudo systemctl start apache2
ubuntu@ip-172-31-39-155:~$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
ubuntu@ip-172-31-39-155:~$ echo "Hello from EC2-Yash Garg" | sudo tee /var/www/html/index.html
Hello from EC2-Yash Garg
ubuntu@ip-172-31-39-155:~$
```

```
i-09335ce957a4a7fd2 (22BBS0183)
PublicIPs: 98.86.219.210 PrivateIPs: 172.31.39.155
```

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4) Setting up mysql and performing crud operations

```
aws [Option+S] Search United States (N. Virginia) YASH GARG
```

```
mysql> CREATE DATABASE students;
Query OK, 1 row affected (0.03 sec)

mysql> USE students;
Database changed
mysql> CREATE TABLE student_info (
  ->   id INT AUTO INCREMENT PRIMARY KEY,
  ->   name VARCHAR(50),
  ->   age INT
  -> );
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO student_info (name, age) VALUES ('Alice', 21), ('Bob', 22);
Query OK, 2 rows affected (0.01 sec)
Records: 2 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM student_info;
+----+-----+-----+
| id | name | age |
+----+-----+-----+
| 1  | Alice | 21  |
| 2  | Bob  | 22  |
+----+-----+-----+
2 rows in set (0.00 sec)

mysql> INSERT INTO student_info (name, age) VALUES
  -> ('Cathy', 20),
  -> ('David', 23),
  -> ('Emma', 24),
  -> ('Frank', 22),
  -> ('Grace', 21),
  -> ('Hannah', 25),
  -> ('Isaac', 23),
  -> ('Julia', 22),
  -> ('Kevin', 21),
  -> ('Liam', 24);
Query OK, 10 rows affected (0.00 sec)
Records: 10 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM student_info;
+----+-----+-----+
| id | name | age |
+----+-----+-----+
| 1  | Alice | 21  |
| 2  | Bob  | 22  |
| 3  | Cathy | 20  |
| 4  | David | 23  |
| 5  | Emma  | 24  |
| 6  | Frank | 22  |
| 7  | Grace | 21  |
| 8  | Hannah | 25  |
| 9  | Isaac | 23  |
| 10 | Julia | 22  |
| 11 | Kevin | 21  |
| 12 | Liam  | 24  |
+----+-----+-----+
12 rows in set (0.00 sec)

mysql> UPDATE student_info SET age = 25 WHERE name = 'Emma';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> DELETE FROM student_info WHERE name = 'Frank';
Query OK, 1 row affected (0.01 sec)

mysql>
```

i-09335ce957a4a7fd2 (22BBS0183) [X](#)

PublicIPs: 98.86.219.210 PrivateIPs: 172.31.39.155

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```
aws [Option+S] Search United States (N. Virginia) YASH GARG
```

```
-> ('Hannah', 25),
-> ('Isaac', 23),
-> ('Julia', 22),
-> ('Kevin', 21),
-> ('Liam', 24);
Query OK, 10 rows affected (0.00 sec)
Records: 10 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM student_info;
+----+-----+-----+
| id | name | age |
+----+-----+-----+
| 1  | Alice | 21  |
| 2  | Bob  | 22  |
| 3  | Cathy | 20  |
| 4  | David | 23  |
| 5  | Emma  | 24  |
| 6  | Frank | 22  |
| 7  | Grace | 21  |
| 8  | Hannah | 25  |
| 9  | Isaac | 23  |
| 10 | Julia | 22  |
| 11 | Kevin | 21  |
| 12 | Liam  | 24  |
+----+-----+-----+
12 rows in set (0.00 sec)

mysql> UPDATE student_info SET age = 25 WHERE name = 'Emma';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> DELETE FROM student_info WHERE name = 'Frank';
Query OK, 1 row affected (0.01 sec)

mysql>
```

i-09335ce957a4a7fd2 (22BBS0183) [X](#)

PublicIPs: 98.86.219.210 PrivateIPs: 172.31.39.155

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5) Migrating from one region to another using AMI

EC2 > AMIs

EC2

Dashboard

EC2 Global View

Events

▼ Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

▼ Images

AMIs

AMI Catalog

▼ Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

▼ Network & Security

Security Groups

Elastic IPs

Amazon Machine Images (AMIs) (1)

Owned by me

Find AMI by attribute or tag

	Name	AMI name	AMI ID	Source	Owner	Visibi
<input type="checkbox"/>	yash	22BBS0183	ami-0931e6b6f3928bb74	533267317559/22BBS0183	533267317559	Privat

Select an AMI

EC2 > Instances

EC2

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EC2 Global View

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Volumes

Snapshots

Lifecycle Manager

▼ Network & Security

Security Groups

Elastic IPs

Instances (1)

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IP
<input checked="" type="checkbox"/>	t3.micro	Initializing	View alarms +	ap-south-1b	ec2-3-109-211-196.ap-...	3.109.211.196	-	-

Select an instance

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EC2 > Instances

EC2

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Instances

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AMIs

AMI Catalog

▼ Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

▼ Network & Security

Security Groups

Elastic IPs

Instances (1)

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IP
<input checked="" type="checkbox"/>	t3.micro	Initializing	View alarms +	ap-south-1b	ec2-3-109-211-196.ap-...	3.109.211.196	-	-

Select an instance

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Q2. Set up an S3 bucket in AWS, ensuring the name is globally unique. Upload your

static website files (HTML, CSS, JavaScript, etc.) to this bucket. Enable static website hosting in the S3 bucket properties and configure the documents. Apply the

necessary bucket policy to make your site publicly accessible. Also, enable versioning on the bucket to maintain previous versions of your website files.

creating s3 bucket

The screenshot displays the AWS Management Console interface for creating and managing S3 buckets. The top navigation bar shows the AWS logo, a search bar, and the user's account information (United States (N. Virginia), Account ID: 5332-6751-7559, YASH GARG).

Create bucket wizard:

- General configuration:** The 'AWS Region' is set to 'US East (N. Virginia) us-east-1'. The 'Bucket type' is 'General purpose' (recommended for most use cases). The 'Bucket name' is '22BBS0183'. A 'Choose bucket' button is available.
- Object Ownership:** 'ACLs disabled (recommended)' is selected, indicating that objects in the bucket are owned by this account.

Buckets page:

- A green notification banner states: 'Successfully created bucket "22bbs0183"'. To upload files and folders, or to configure additional bucket settings, choose 'View details'.
- The 'General purpose buckets' tab is active, showing a list of buckets. The table below lists the created bucket:

Name	AWS Region	Creation date
22bbs0183	US East (N. Virginia) us-east-1	August 6, 2025, 22:21:24 (UTC+05:30)

Additional features on the page include 'Account snapshot' (Storage Lens) and 'External access summary' (new info).

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Uploading files to the bucket

Upload succeeded

For more information, see the Files and folders table.

Upload: status

Close

After you navigate away from this page, the following information is no longer available.

Summary

Destination

s3://22bbs0183

Succeeded

3 files, 2.0 KB (100.00%)

Failed

0 files, 0 B (0%)

Files and folders

Configuration

Files and folders (3 total, 2.0 KB)

Find by name

Name	Folder	Type	Size	Status	Error
error.html	-	text/html	250.0 B	Succeeded	-
index.html	-	text/html	761.0 B	Succeeded	-
style.css	-	text/css	1.0 KB	Succeeded	-

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Updating bucket policy

Amazon S3

Buckets

22bbs0183

Successfully edited bucket policy.

Bucket policy

Edit

Delete

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PublicReadGetObject",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::22bbs0183/*"
    }
  ]
}
```

Copy

Object Ownership

Info

Edit

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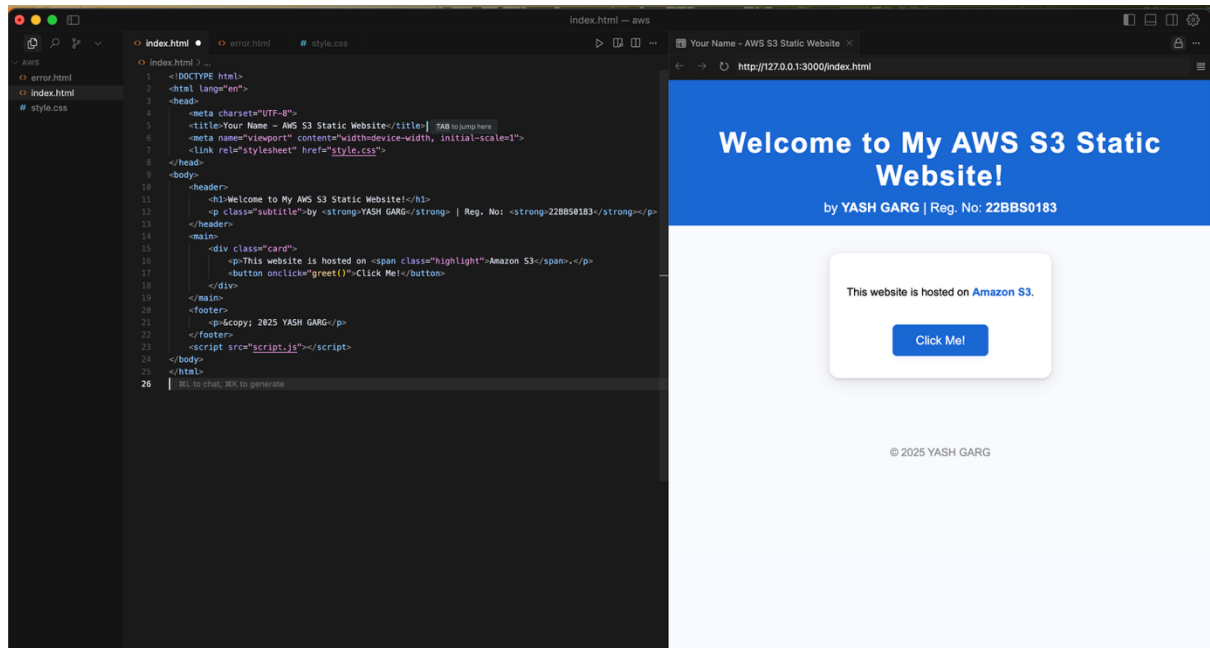
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Privacy

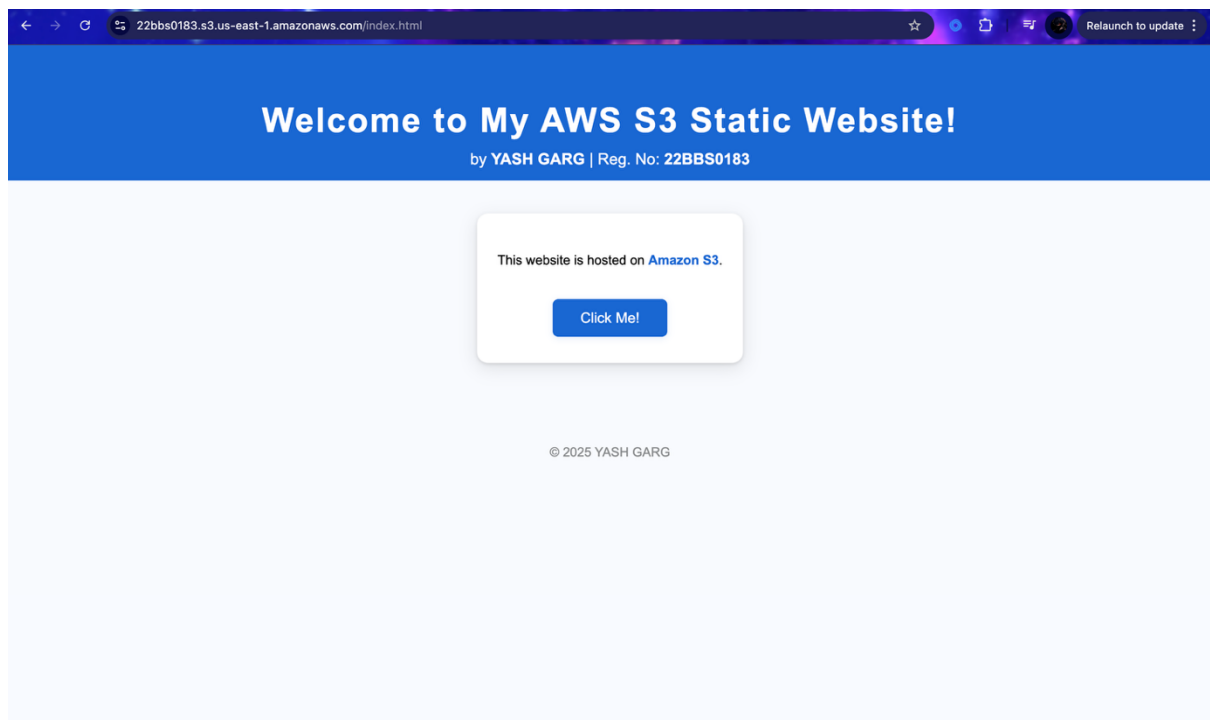
Terms

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Website preview with code



Hosted on aws server



Thank You