AWS PROJECT -1

Description: Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

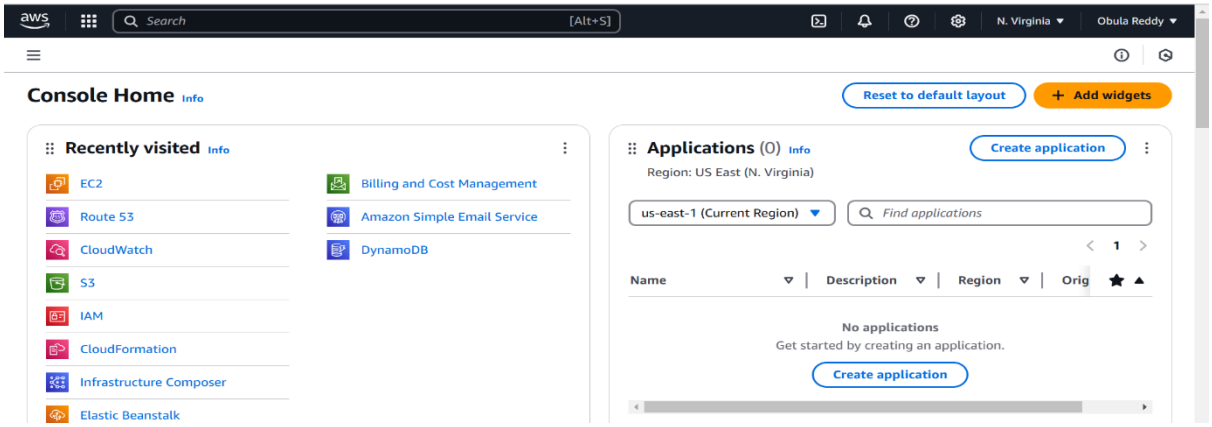
Problem Statement:

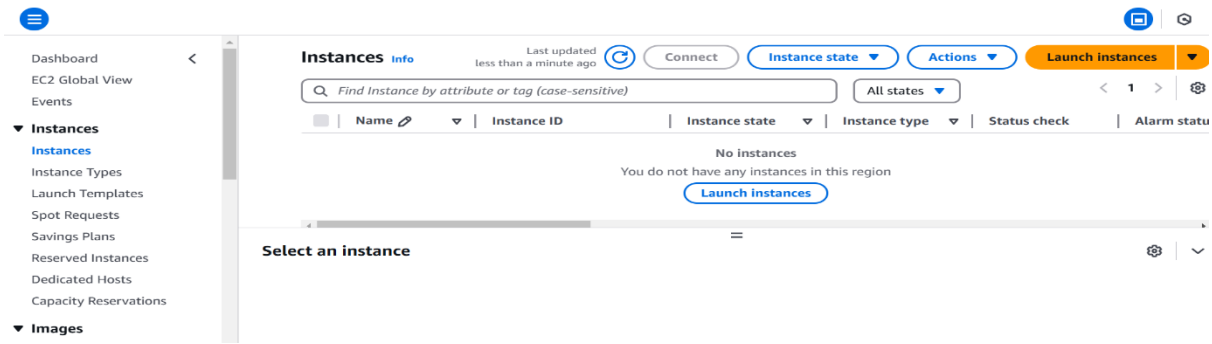
Company ABC wants to move their product to AWS. They have the following things set up right now: 1. MySQL DB 2. Website (PHP)

The company wants high availability on this product, therefore wants Auto Scaling to be enabled on this website.

Solution:

Step-1: Login into AWS account. Go to dashboard and search for EC2 and click on instance and launch instance.





Step-2: Create a instance with ubuntu OS and choose instance type, key-pair, networking settings like VPC, subnets and security groups and storage volume and click on launch instance**.**

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name

project-1

Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Quick Start

Amazon Linux | macOS | Ubuntu | Windows | Red Hat | SUSE Linux

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Instance type Info | Get advice

Instance type

t2.micro — Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

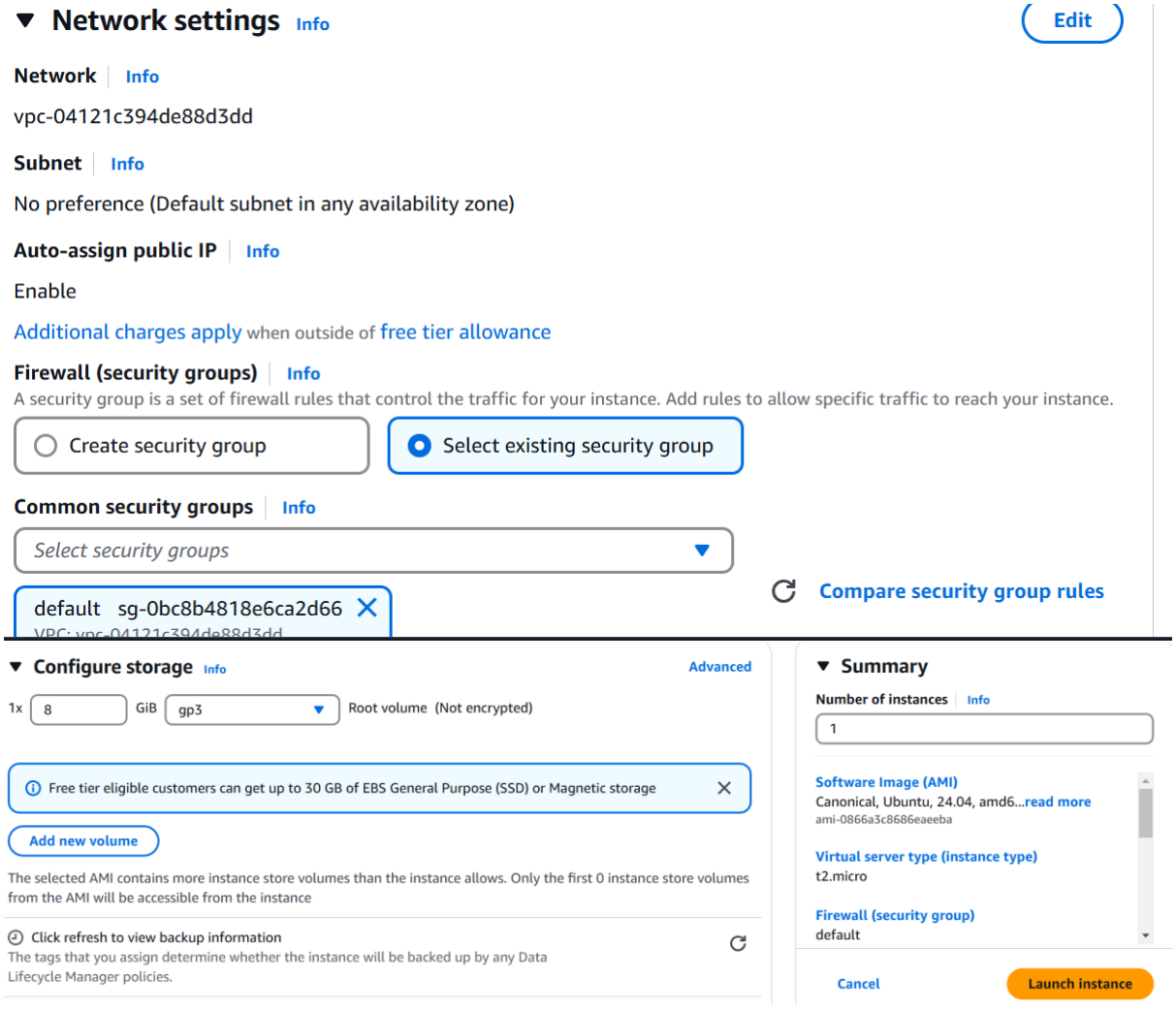
Key pair (login) Info

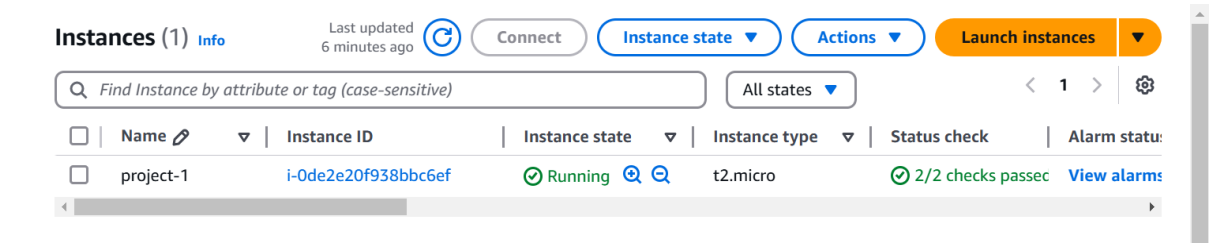
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

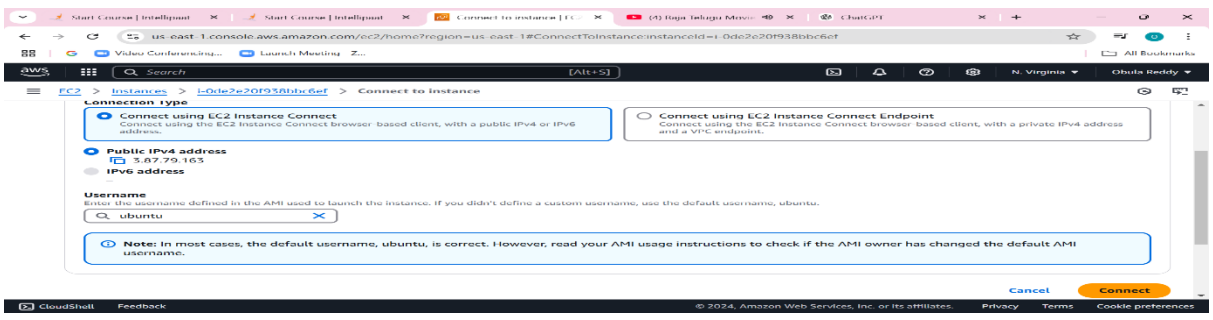
north

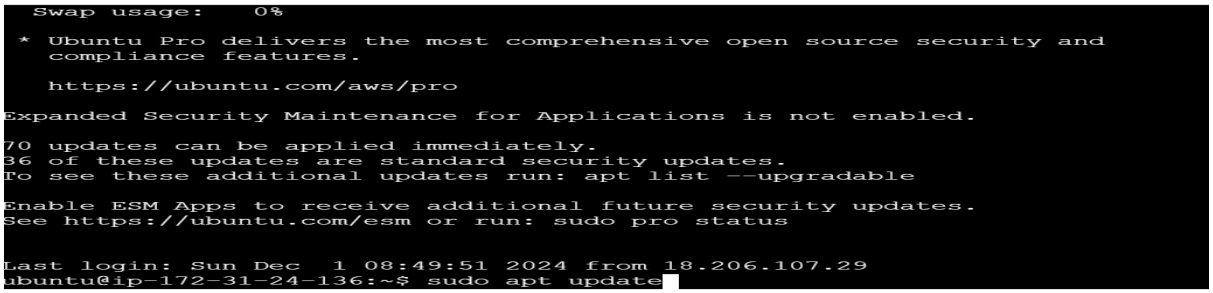
Create new key pair

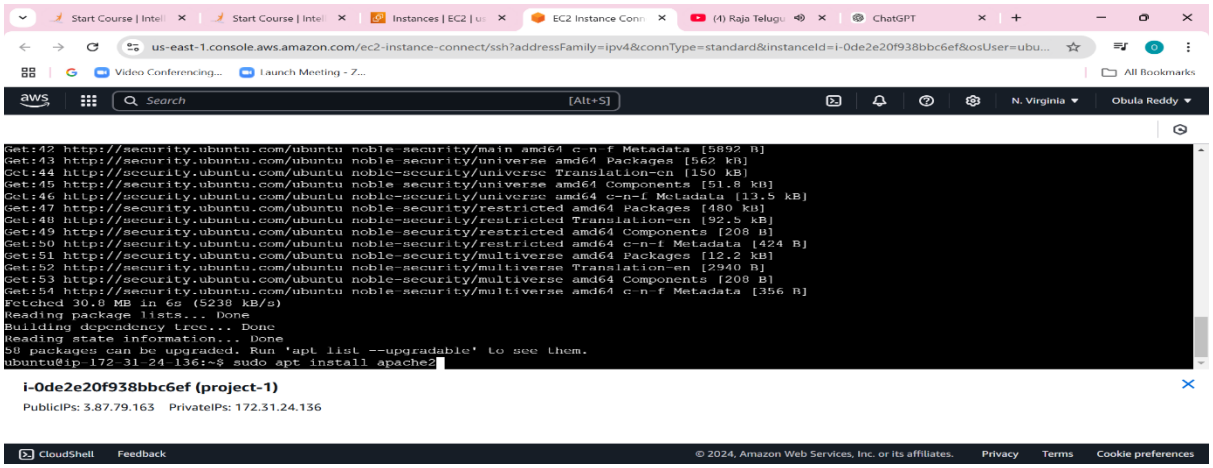




Step-3: Select the instance and connect to machine and update the machine and install the apache2 server on machine.

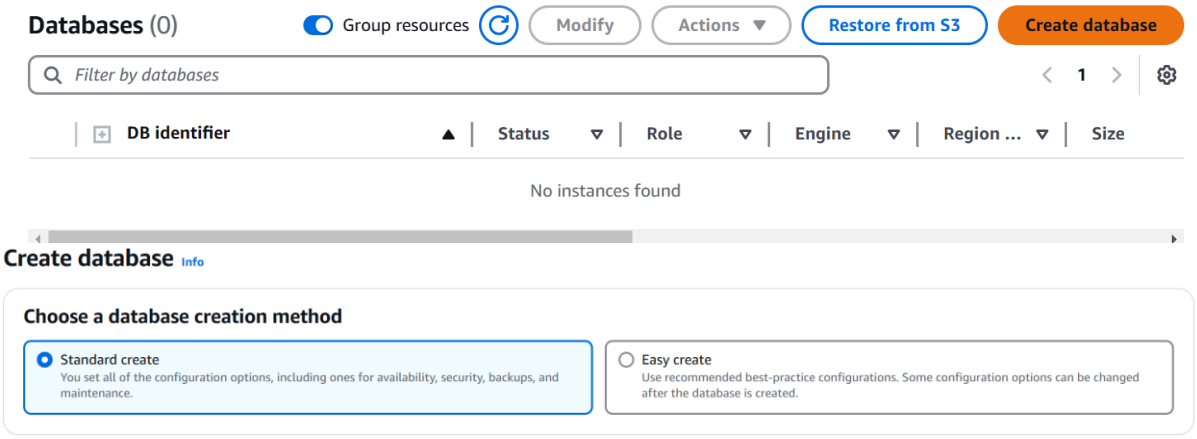


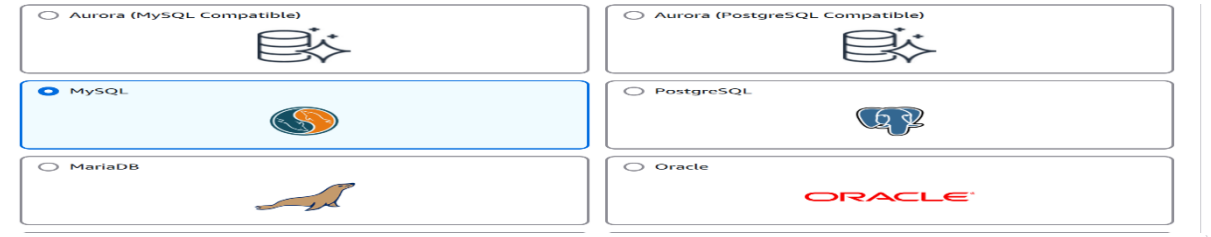




RDS

Step-4: Go to AWS console, select RDS and click on database and create database by selecting the mode of creation, the engine, template, creating credentials or automatic password creation, enable autoscaling and VPC settings and click on create database.

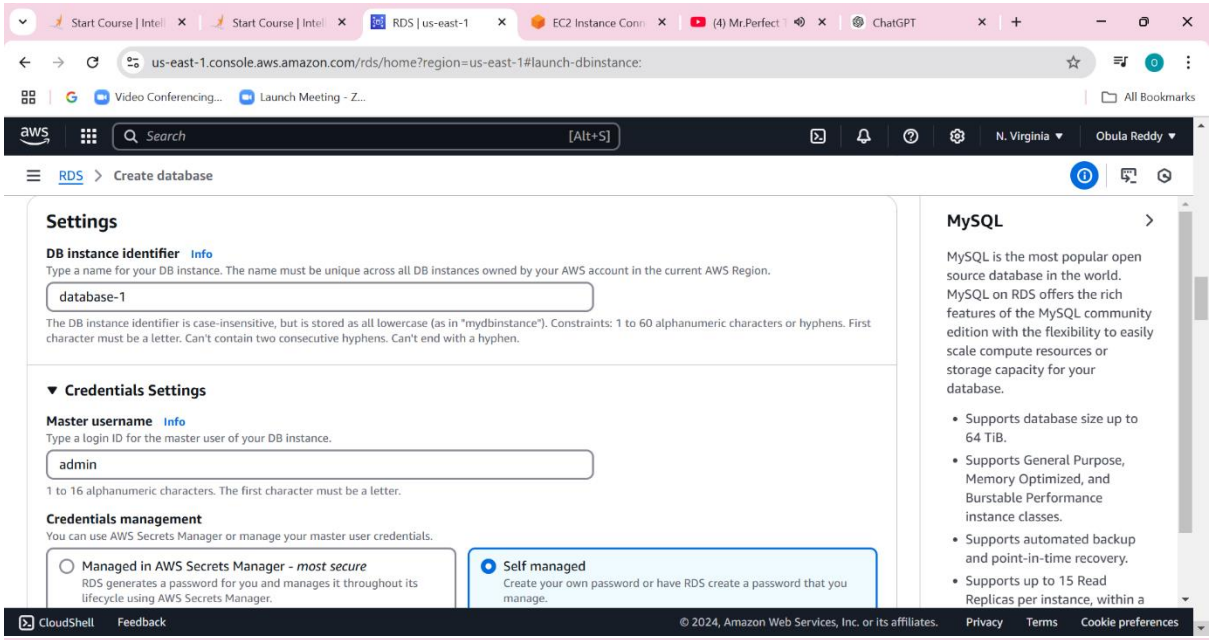


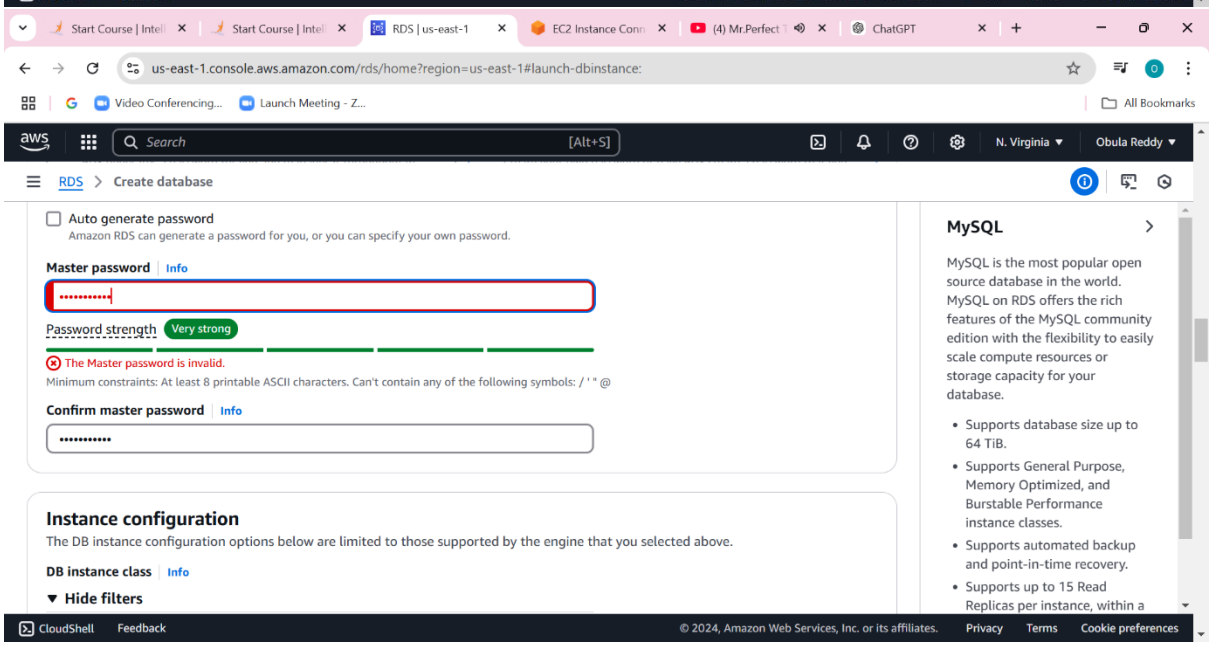


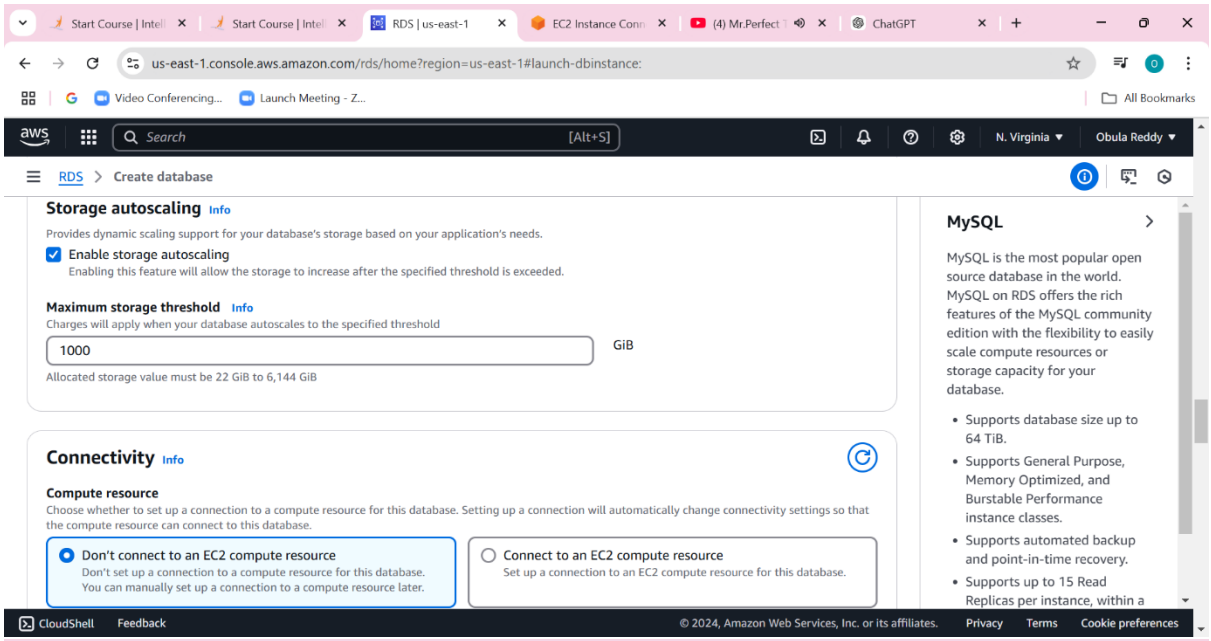
Templates

Choose a sample template to meet your use case.

- **Production** — Use defaults for high availability and fast, consistent performance.
- **Dev/Test** — This instance is intended for development use outside of a production environment.
- **Free tier** — Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. **Info**



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RDS | us-east-1
EC2 Instance Conn
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ChatGPT
us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance:
Video Conferencing...
Launch Meeting - Z...
All Bookmarks
aws
Search
[Alt+S]
N. Virginia
Obula Reddy
RDS > Create database
Storage autoscaling Info
Provides dynamic scaling support for your database's storage based on your application's needs.
Enable storage autoscaling
Enabling this feature will allow the storage to increase after the specified threshold is exceeded.
Maximum storage threshold Info
Charges will apply when your database autoscales to the specified threshold
1000
GiB
Allocated storage value must be 22 GiB to 6,144 GiB
Connectivity Info
Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.
Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.
Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.
MySQL
MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.
Supports database size up to 64 TiB.
Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
Supports automated backup and point-in-time recovery.
Supports up to 15 Read Replicas per instance, within a
CloudShell
Feedback
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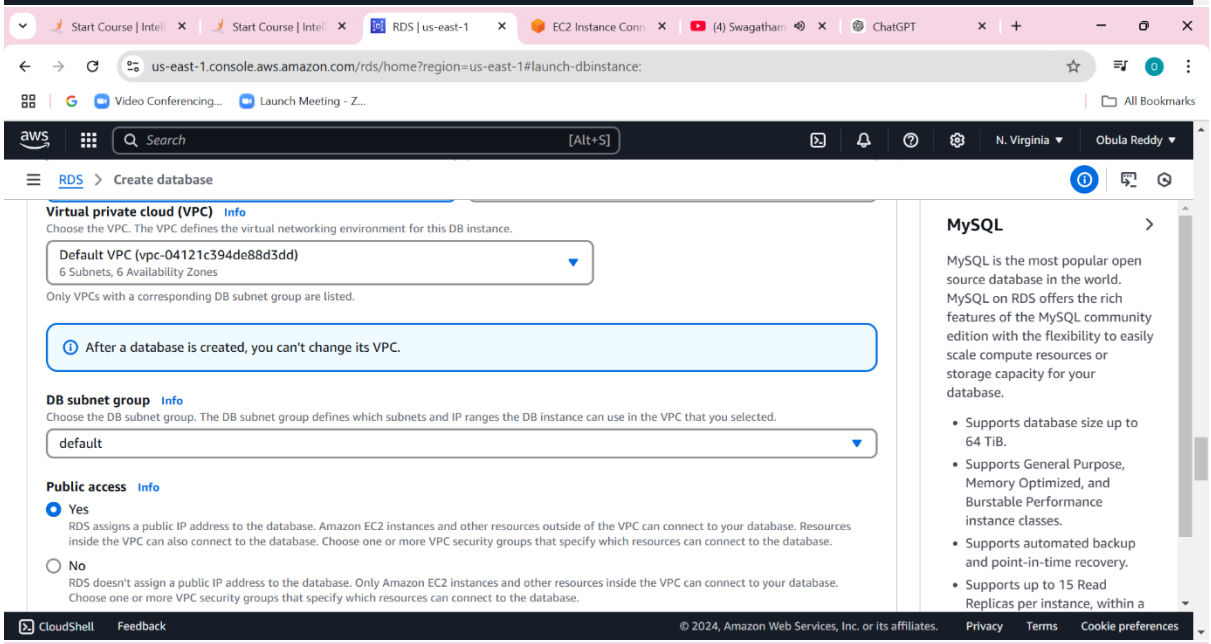
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EC2 Instance Conn
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us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance:
Video Conferencing...
Launch Meeting - Z...
All Bookmarks
aws
Search
[Alt+S]
N. Virginia
Obula Reddy
RDS > Create database
Virtual private cloud (VPC) Info
Choose the VPC. The VPC defines the virtual networking environment for this DB instance.
Default VPC (vpc-04121c394de88d3dd)
6 Subnets, 6 Availability Zones
Only VPCs with a corresponding DB subnet group are listed.
After a database is created, you can't change its VPC.
DB subnet group Info
Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.
default
Public access Info
Yes
RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.
No
RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.
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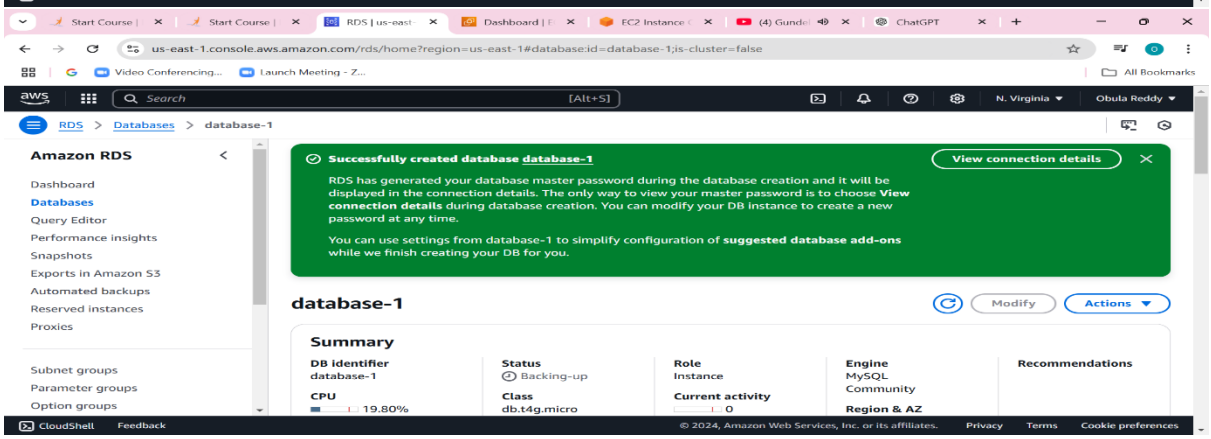
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Video Conferencing...
Launch Meeting - Z...
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Obula Reddy
RDS > Databases > database-1
Amazon RDS
Dashboard
Databases
Query Editor
Performance insights
Snapshots
Exports in Amazon S3
Automated backups
Reserved instances
Proxies
Subnet groups
Parameter groups
Option groups
Successfully created database database-1
View connection details
RDS has generated your database master password during the database creation and it will be displayed in the connection details. The only way to view your master password is to choose View connection details during database creation. You can modify your DB instance to create a new password at any time.
You can use settings from database-1 to simplify configuration of suggested database add-ons while we finish creating your DB for you.
database-1
Modify
Actions
Summary
DB identifier
database-1
Status
Backing-up
Role
Instance
Engine
MySQL Community
Recommendations
CPU
19.80%
Class
db.t4g.micro
Current activity
0
Region & AZ
CloudShell
Feedback
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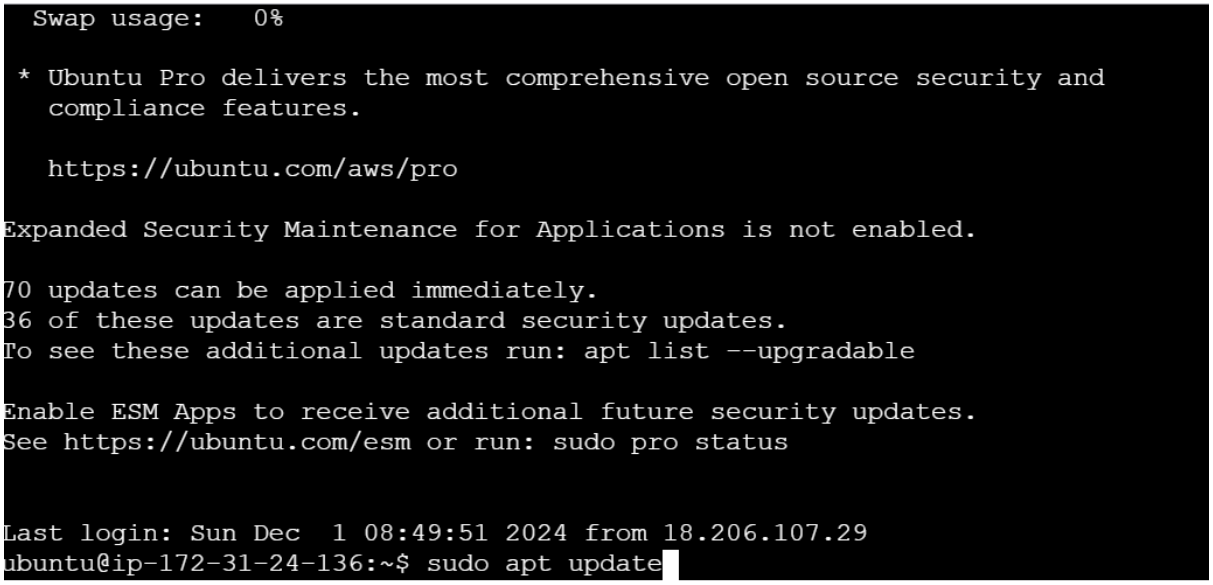
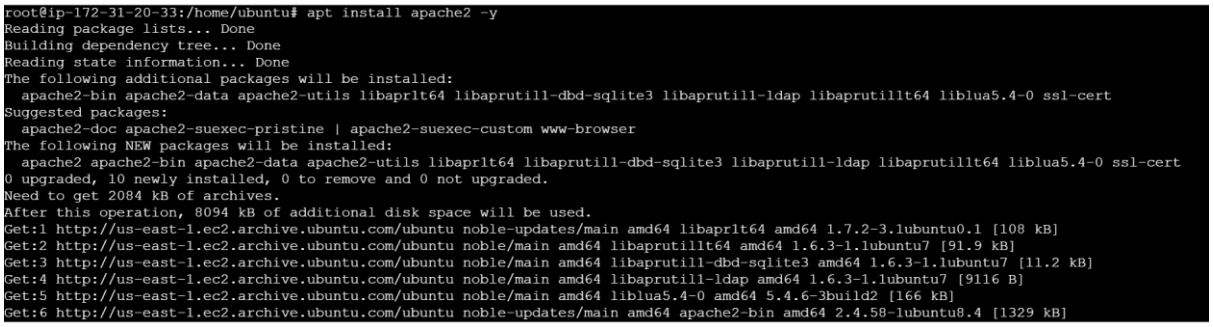
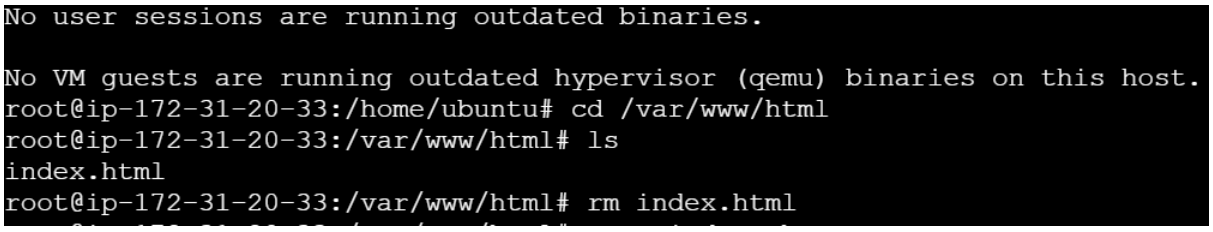
Step-5: Once connected to terminal, type " **sudo su -** " to become root user. After then after update the machine by using "**apt-get update**" command and install the apache2 web server by entering "**apt install apache2 -y**" and enter into the folder and remove index.html by entering **rm index.html** command.







Step-6: Create a new file named index.php file by entering **nano index.php.** Enter the php code, save it and exit. Add the repository into ubuntu instance which enables us to install the requrired php version by entering **apt-add-repository -y ppa:ondrej/php.** Install the required packages by entering **apt install php5.6 mysql-client php5.6-mysqli -y.**

```
root@ip-172-31-20-33:/var/www/html# apt-add-repository -y ppa:ondrej/php
PPA publishes dbgsym, you may need to include 'main/debug' component
Repository: 'Types: deb
URIs: https://ppa.launchpadcontent.net/ondrej/php/ubuntu/
Suites: noble
Components: main
'
Description:
Co-installable PHP versions: PHP 5.6, PHP 7.x, PHP 8.x and most requested extensions are included. Only Supported Ubuntu Releases
iki.ubuntu.com/Releases) are provided.

Debian oldstable and stable packages are provided as well: https://deb.sury.org/#debian-dpa

You can get more information about the packages at https://deb.sury.org

BUGS&FEATURES: This PPA now has a issue tracker:
https://deb.sury.org/#bug-reporting
```

```
root@ip-172-31-20-33:/var/www/html# apt install php5.6 mysql-client php5.6-mysqli -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'php5.6-mysql' instead of 'php5.6-mysqli'
The following additional packages will be installed:
  debsuryorg-archive-keyring libapache2-mod-php5.6 libpcre3 mysql-client-8.0 mysql-client-core-8.0 mysql-common php-comm
  php5.6-common php5.6-json php5.6-opcache php5.6-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  debsuryorg-archive-keyring libapache2-mod-php5.6 libpcre3 mysql-client mysql-client-8.0 mysql-client-core-8.0 mysql-co
  php5.6 php5.6-cli php5.6-common php5.6-json php5.6-mysql php5.6-opcache php5.6-readline
0 upgraded, 15 newly installed, 0 to remove and 62 not upgraded.
Need to get 6928 kB of archives.
After this operation, 76.9 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 libpcre3 amd64 2:8.39-15build1 [248 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 mysql-client-core-8.0 amd64 8.0.40-0ubuntu
```

Step-7: Go to RDS and copy the endpoint of created database. Then type **mysql -h database-1.cxs6486eynpe.us-east-1.rds.amazonaws.com -u admin -**p and hit enter and type password and use the sql commands**.**

```
ERROR 1045 (28000): Access denied for user 'admin'@'172.31.20.33' (using password: YES)
root@ip-172-31-20-33:/var/www/html# mysql -h database-1.cxs6486eynpe.us-east-1.rds.amazonaws.com -u admin -pj7I5x7YYe2EqsFtbfet9
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 30
Server version: 8.0.39 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```
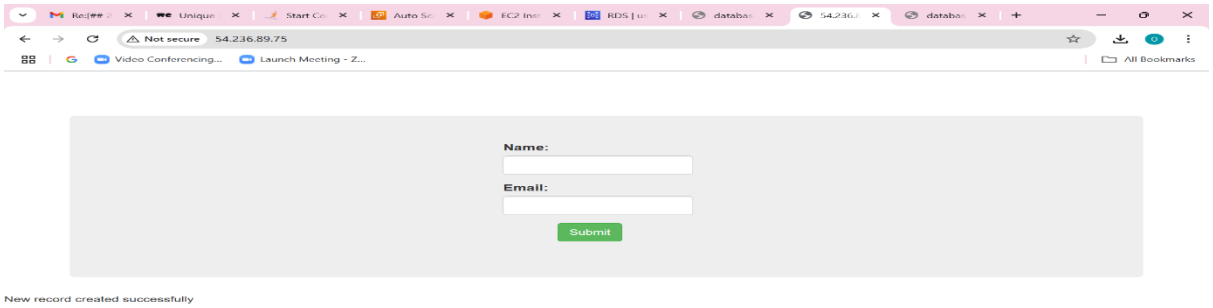
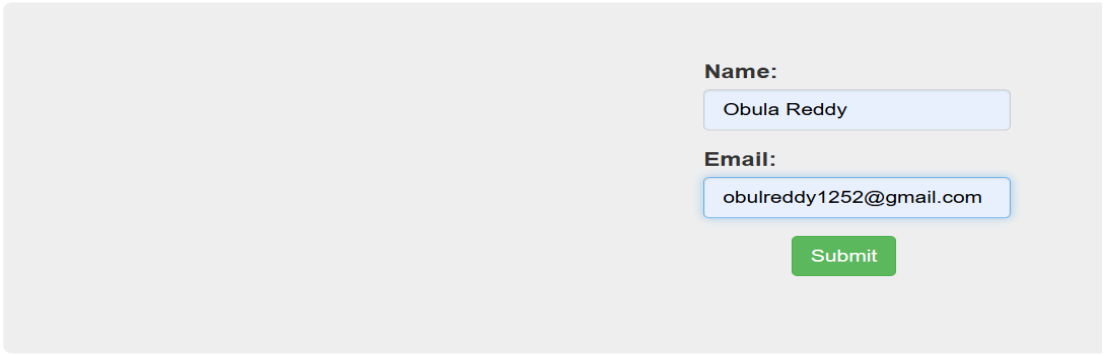

```
mysql> show databases ;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
4 rows in set (0.01 sec)

mysql> create database intel;
Query OK, 1 row affected (0.02 sec)

mysql> use intel;
Database changed
mysql> create table data(firstname varchar(50),email varchar(50));
Query OK, 0 rows affected (0.07 sec)
```

Step-8: After copying this IP to your browser, you will observe that your website is working on it. Enter the some data to insert into database.



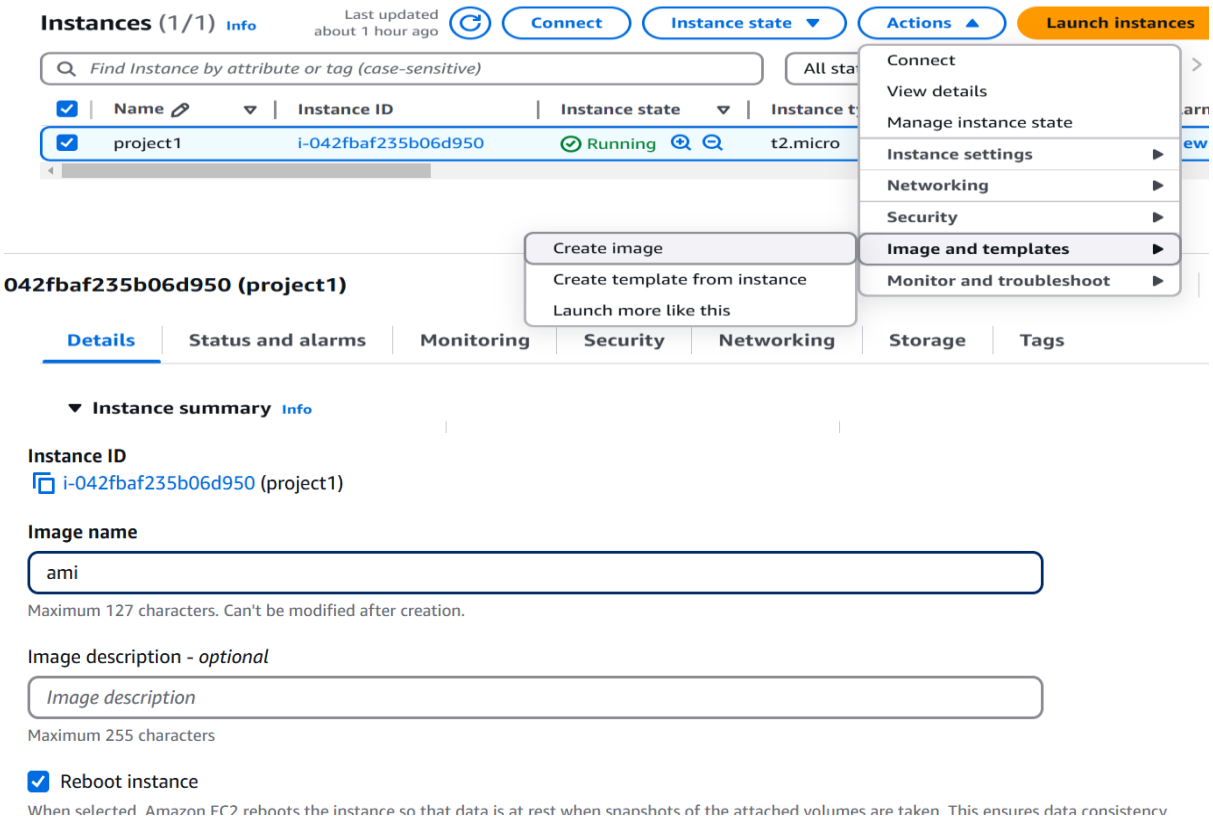
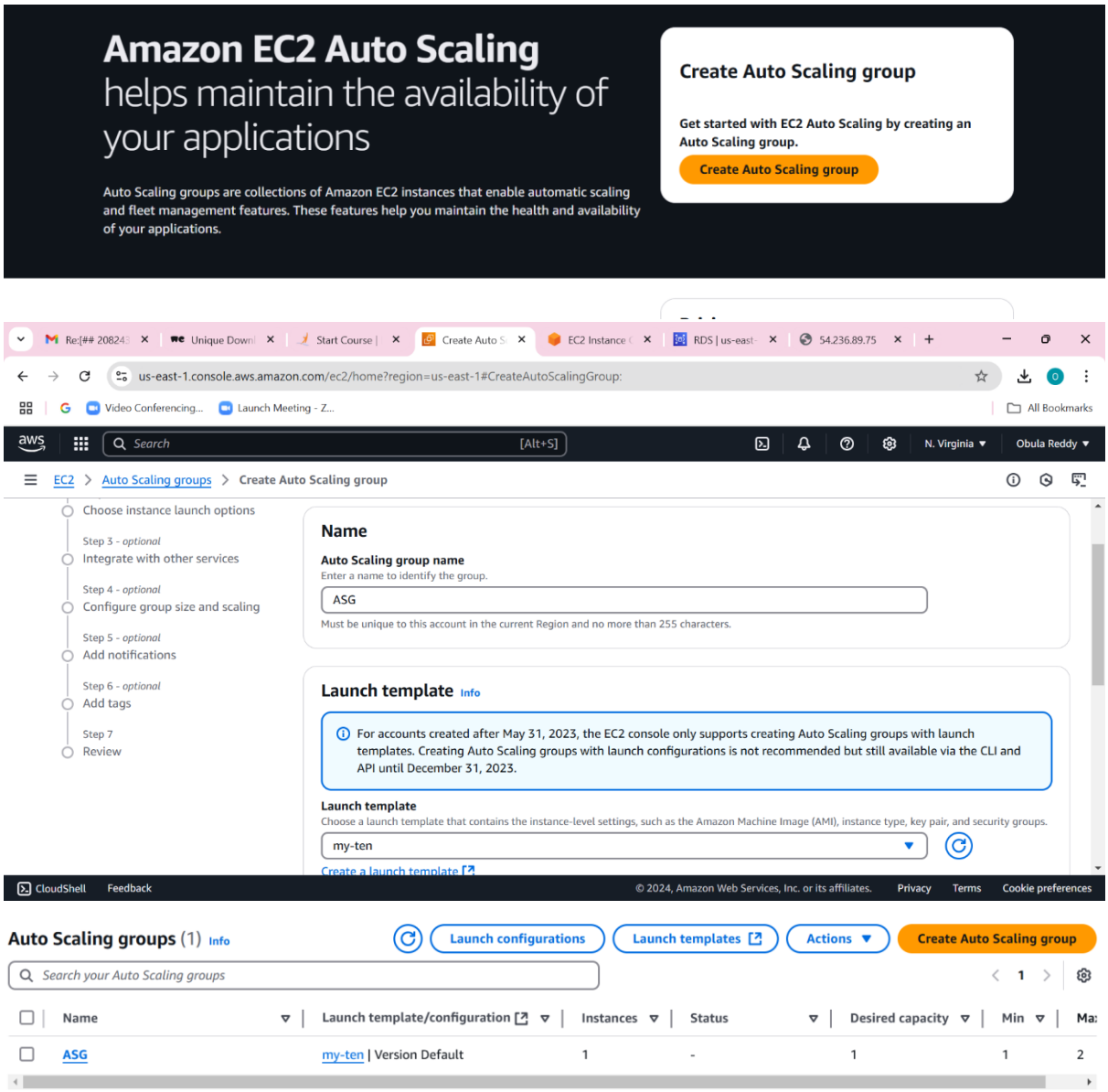
New record created successfully



New record created successfully

Auto-Scaling

Step-9: By going to our EC2 Instance and then click on Actions and Create Image



Step-10: After the ami is in available state**.** Now, we'll do the autoscaling of our website.