# Capstone Project

**Name – Vigneshwara Bhat**

## DateBase Migration

**Client Organisation – *Urban Sloth Food Delivery***

*Highlights of the Organisation*

UrbanSloth is an up and coming unicorn in food delivery apps in India due to their ML engines being able to predict on time delivery of food and service quality they were able to penetrate the Indian market in an almost no time. Right now UrbanSloth holds the 3rd position among the top online food delivery apps in India. With the plan in place to expand their presence amongst other market in South Asia with global launch planned for coming years.

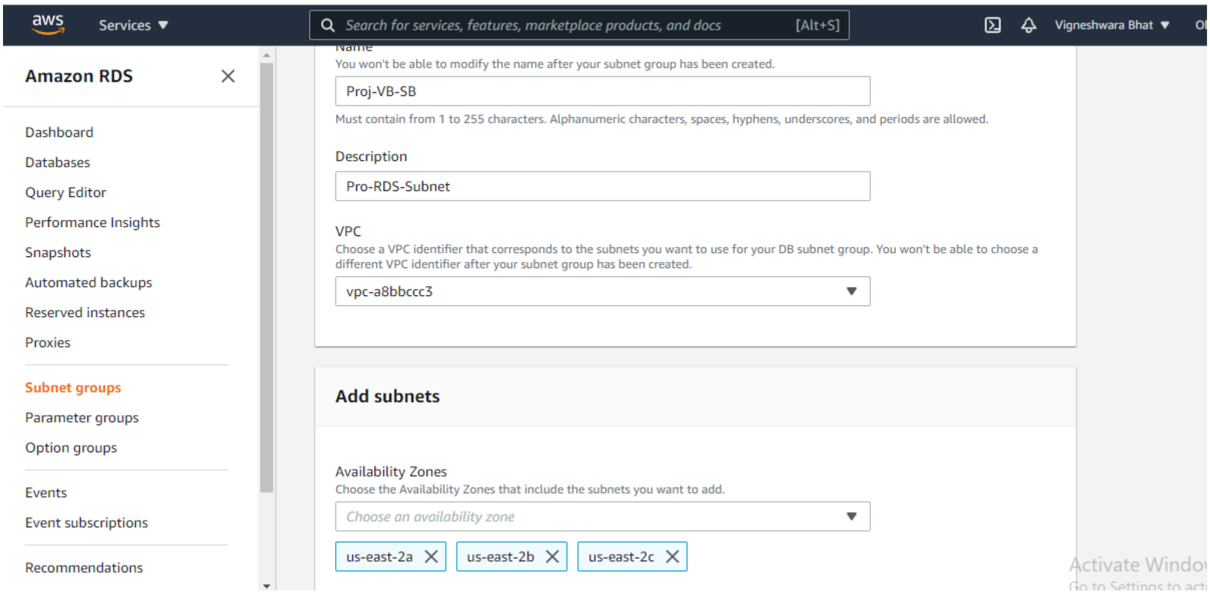
Headed by Aryan Sethi graduate of UOP IT department along with his infrastructure team headed by Damini Pushkar who has been key person in designing infrastructure for hosting the application on the third party rented infrastructure, recently due to unexpected increase in the load on their application team has started exploring the options to migrate their application to the Public Cloud. Damini has been tasked with setting up the POC (Proof of Concept) to convince the management that their application is suitable for the cloud and any application can be easily migrated on the cloud without losing any data.

x

# Steps:

## Task 1:

Creating Subnet group for RDS .



Name

You won't be able to modify the name after your subnet group has been created.

Proj-VB-SB

Must contain from 1 to 255 characters. Alphanumeric characters, spaces, hyphens, underscores, and periods are allowed.

Description

Pro-RDS-Subnet

VPC

Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group has been created.

vpc-a8bbccc3 ▼

Add subnets

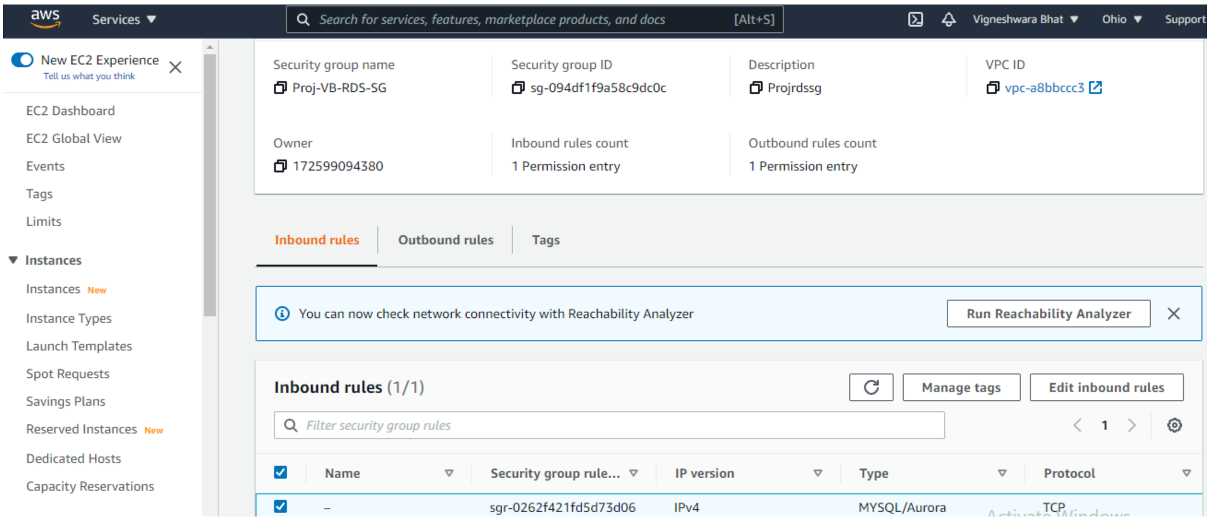
Availability Zones

Choose the Availability Zones that include the subnets you want to add.

Choose an availability zone ▼

us-east-2a ✕ us-east-2b ✕ us-east-2c ✕

Creating Security Group :



| Security group name | Security group ID | Description | VPC ID |
|---|---|---|---|
| Proj-VB-RDS-SG | sg-094df1f9a58c9dc0c | Projrdssg | vpc-a8bbccc3 |

| Owner | Inbound rules count | Outbound rules count |
|---|---|---|
| 172599094380 | 1 Permission entry | 1 Permission entry |

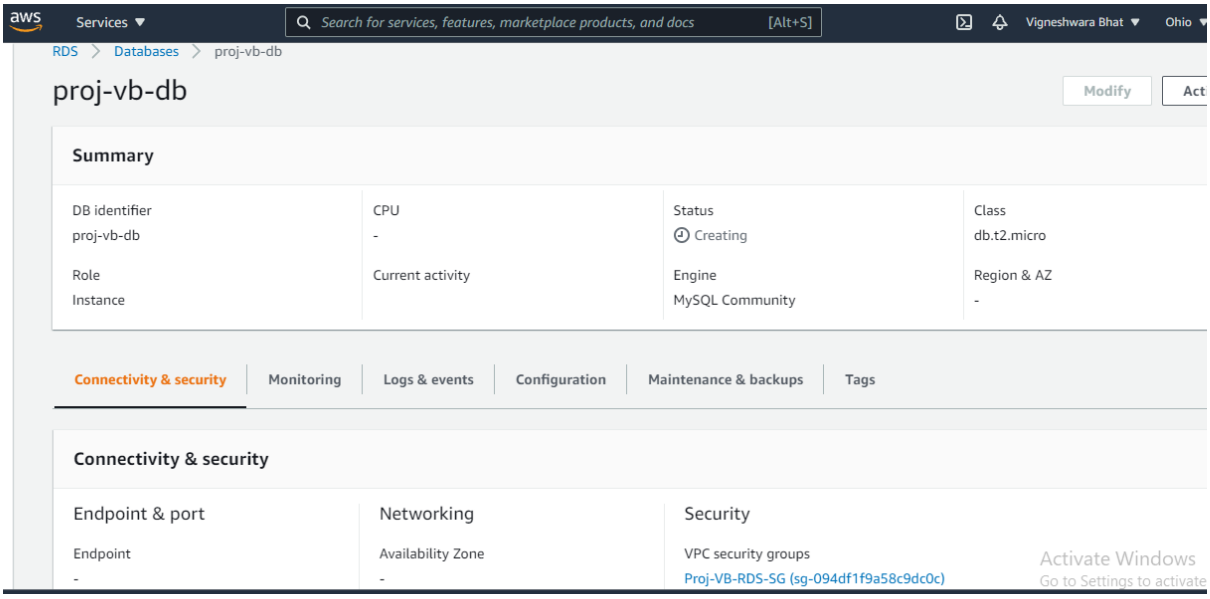
You can now check network connectivity with Reachability Analyzer

Inbound rules (1/1)

Filter security group rules

| ☑ | Name | Security group rule... | IP version | Type | Protocol |
|---|---|---|---|---|---|
| ☑ | – | sgr-0262f421fd5d73d06 | IPv4 | MYSQL/Aurora | TCP |

Creating RDS database :



proj-vb-db

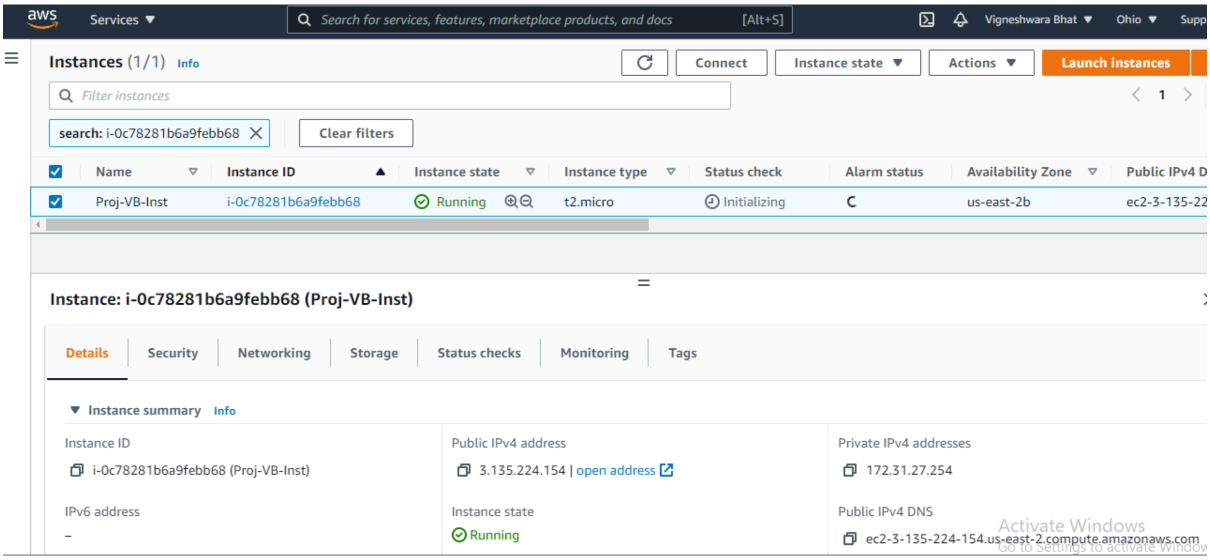
Summary

| | | | |
|---|---|---|---|
| DB identifier<br>proj-vb-db | CPU<br>- | Status<br>Creating | Class<br>db.t2.micro |
| Role<br>Instance | Current activity | Engine<br>MySQL Community | Region & AZ<br>- |

Connectivity & security

| Endpoint & port | Networking | Security |
|---|---|---|
| Endpoint<br>- | Availability Zone<br>- | VPC security groups<br>Proj-VB-RDS-SG (sg-094df1f9a58c9dc0c) |

Creating Instance :



Instances (1/1)

search: i-0c78281b6a9febb68

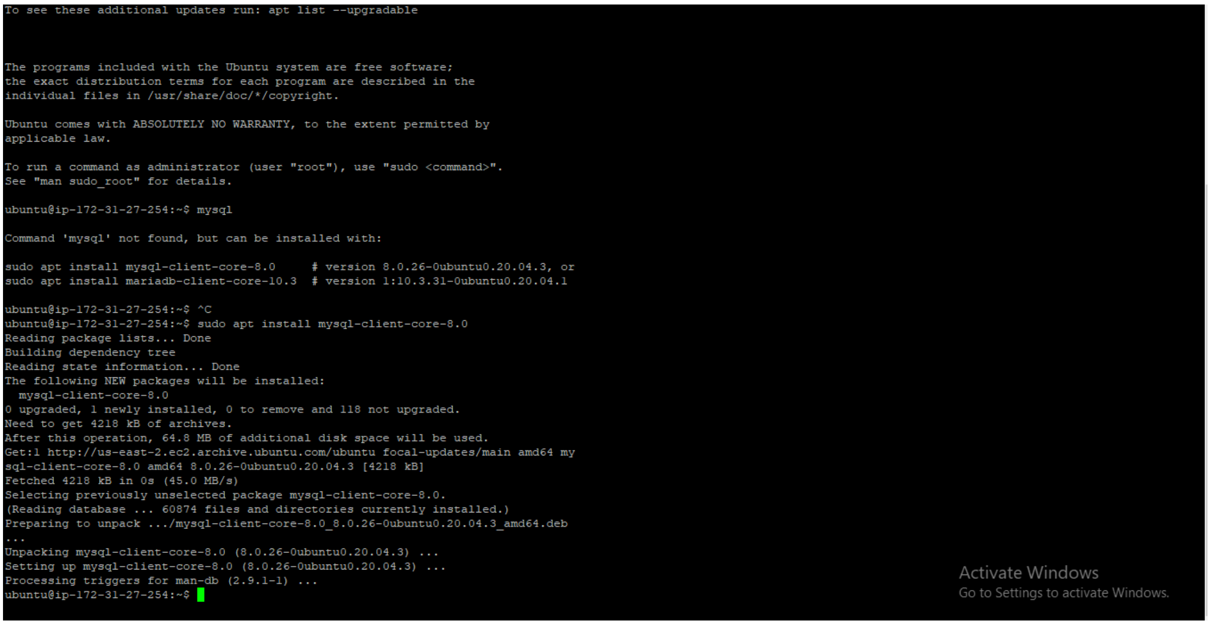
| ☑ | Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv4 D |
|---|---|---|---|---|---|---|---|---|
| ☑ | Proj-VB-Inst | i-0c78281b6a9febb68 | Running | t2.micro | Initializing | | us-east-2b | ec2-3-135-22 |

Instance: i-0c78281b6a9febb68 (Proj-VB-Inst)

▼ Instance summary

| | | |
|---|---|---|
| Instance ID<br>i-0c78281b6a9febb68 (Proj-VB-Inst) | Public IPv4 address<br>3.135.224.154 \| open address | Private IPv4 addresses<br>172.31.27.254 |
| IPv6 address<br>– | Instance state<br>Running | Public IPv4 DNS<br>ec2-3-135-224-154.us-east-2.compute.amazonaws.com |

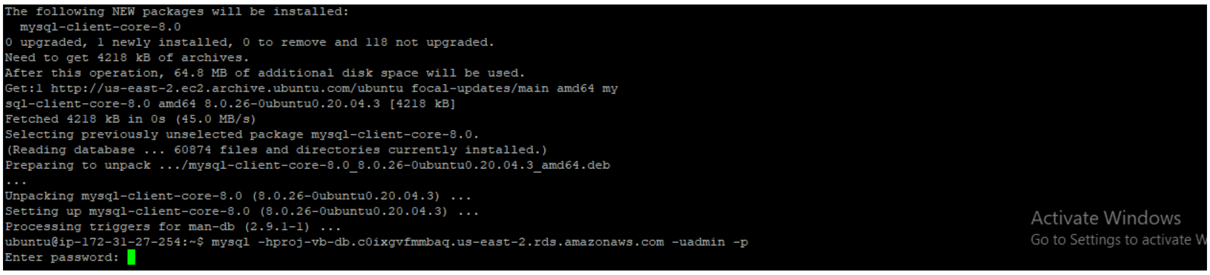
## MySQL installation :



```
To see these additional updates run: apt list --upgradable



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.

ubuntu@ip-172-31-27-254:~$ mysql

Command 'mysql' not found, but can be installed with:

sudo apt install mysql-client-core-8.0     # version 8.0.26-0ubuntu0.20.04.3, or
sudo apt install mariadb-client-core-10.3  # version 1:10.3.31-0ubuntu0.20.04.1

ubuntu@ip-172-31-27-254:~$ ^C
ubuntu@ip-172-31-27-254:~$ sudo apt install mysql-client-core-8.0
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  mysql-client-core-8.0
0 upgraded, 1 newly installed, 0 to remove and 118 not upgraded.
Need to get 4218 kB of archives.
After this operation, 64.8 MB of additional disk space will be used.
Get:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 my
sql-client-core-8.0 amd64 8.0.26-0ubuntu0.20.04.3 [4218 kB]
Fetched 4218 kB in 0s (45.0 MB/s)
Selecting previously unselected package mysql-client-core-8.0.
(Reading database ... 60874 files and directories currently installed.)
Preparing to unpack .../mysql-client-core-8.0_8.0.26-0ubuntu0.20.04.3_amd64.deb
...
Unpacking mysql-client-core-8.0 (8.0.26-0ubuntu0.20.04.3) ...
Setting up mysql-client-core-8.0 (8.0.26-0ubuntu0.20.04.3) ...
Processing triggers for man-db (2.9.1-1) ...
ubuntu@ip-172-31-27-254:~$ 
```

Activate Windows
Go to Settings to activate Windows.

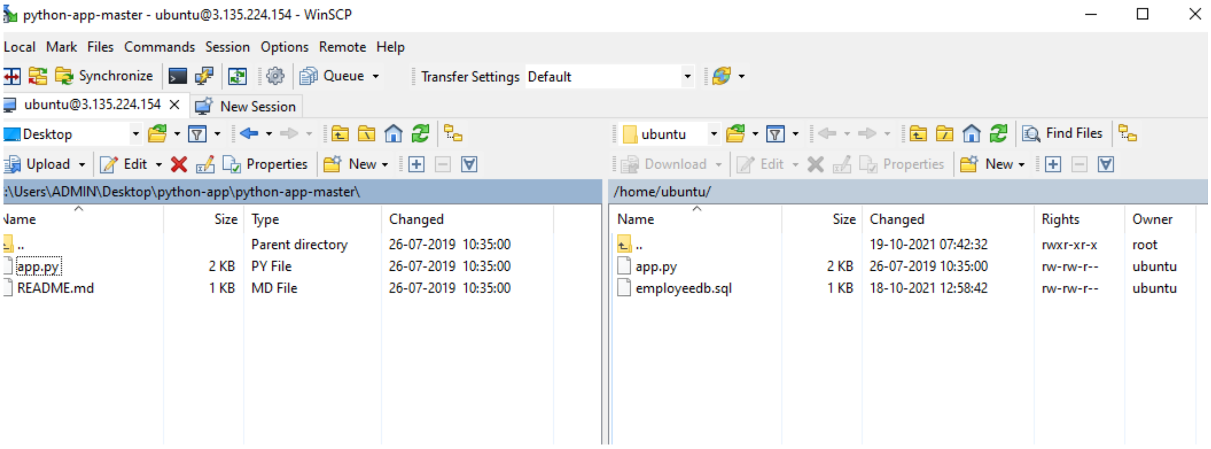
## Connecting RDS MySQL  Database to Ubuntu instance :



```
The following NEW packages will be installed:
  mysql-client-core-8.0
0 upgraded, 1 newly installed, 0 to remove and 118 not upgraded.
Need to get 4218 kB of archives.
After this operation, 64.8 MB of additional disk space will be used.
Get:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 my
sql-client-core-8.0 amd64 8.0.26-0ubuntu0.20.04.3 [4218 kB]
Fetched 4218 kB in 0s (45.0 MB/s)
Selecting previously unselected package mysql-client-core-8.0.
(Reading database ... 60874 files and directories currently installed.)
Preparing to unpack .../mysql-client-core-8.0_8.0.26-0ubuntu0.20.04.3_amd64.deb
...
Unpacking mysql-client-core-8.0 (8.0.26-0ubuntu0.20.04.3) ...
Setting up mysql-client-core-8.0 (8.0.26-0ubuntu0.20.04.3) ...
Processing triggers for man-db (2.9.1-1) ...
ubuntu@ip-172-31-27-254:~$ mysql -hproj-vb-db.c0ixgvfmmbaq.us-east-2.rds.amazonaws.com -uadmin -p
Enter password: 
```

Activate Windows
Go to Settings to activate W

## Coping data from local to Ubuntu instance :


python-app-master - ubuntu@3.135.224.154 - WinSCP
Local Mark Files Commands Session Options Remote Help
Synchronize
Queue
Transfer Settings Default
ubuntu@3.135.224.154
New Session
Desktop
Upload
Edit
Properties
New
ubuntu
Download
Edit
Properties
New
Find Files

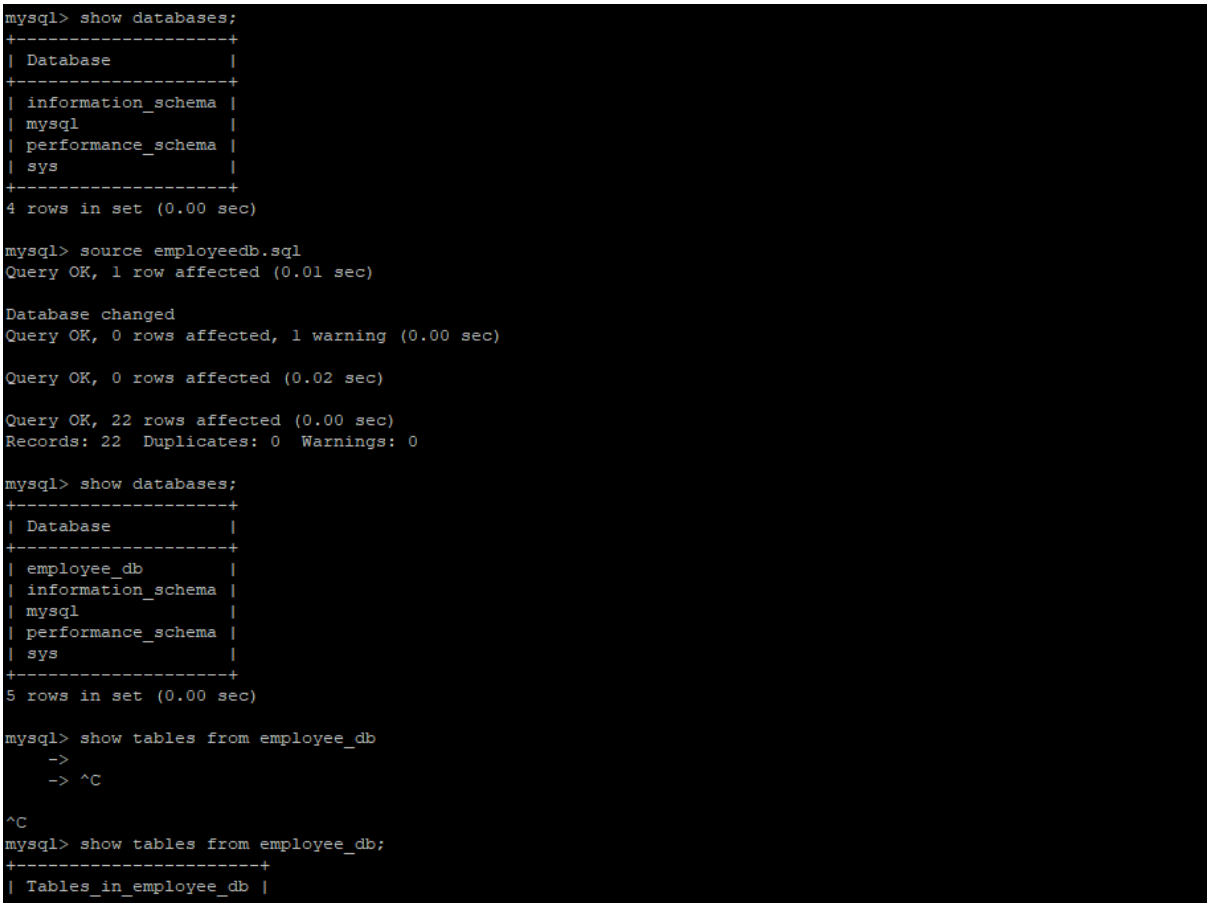
:\Users\ADMIN\Desktop\python-app\python-app-master\

| Name | Size | Type | Changed |
|---|---|---|---|
| .. | | Parent directory | 26-07-2019 10:35:00 |
| app.py | 2 KB | PY File | 26-07-2019 10:35:00 |
| README.md | 1 KB | MD File | 26-07-2019 10:35:00 |

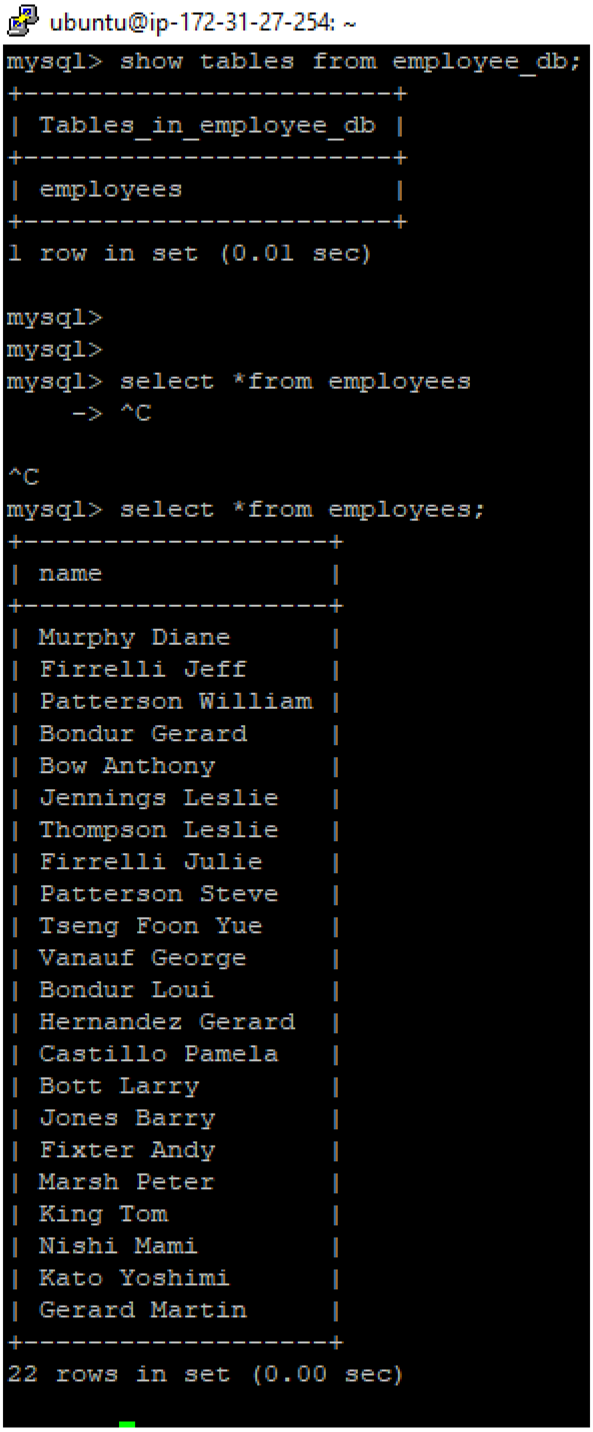
/home/ubuntu/

| Name | Size | Changed | Rights | Owner |
|---|---|---|---|---|
| .. | | 19-10-2021 07:42:32 | rwxr-xr-x | root |
| app.py | 2 KB | 26-07-2019 10:35:00 | rw-rw-r-- | ubuntu |
| employeedb.sql | 1 KB | 18-10-2021 12:58:42 | rw-rw-r-- | ubuntu |

Adding Employee_db folder as source for MySQL database .



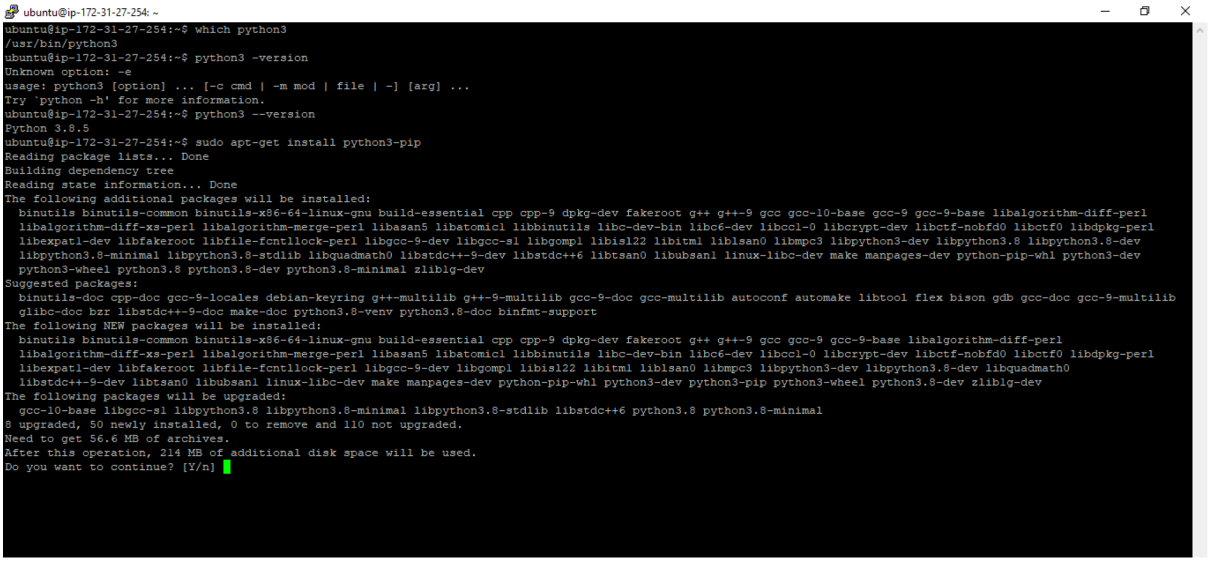
```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
4 rows in set (0.00 sec)

mysql> source employeedb.sql
Query OK, 1 row affected (0.01 sec)

Database changed
Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 0 rows affected (0.02 sec)

Query OK, 22 rows affected (0.00 sec)
Records: 22  Duplicates: 0  Warnings: 0

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| employee_db        |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

mysql> show tables from employee_db
    ->
    -> ^C

^C
mysql> show tables from employee_db;
+-----------------------+
| Tables_in_employee_db |
```



ubuntu@ip-172-31-27-254: ~

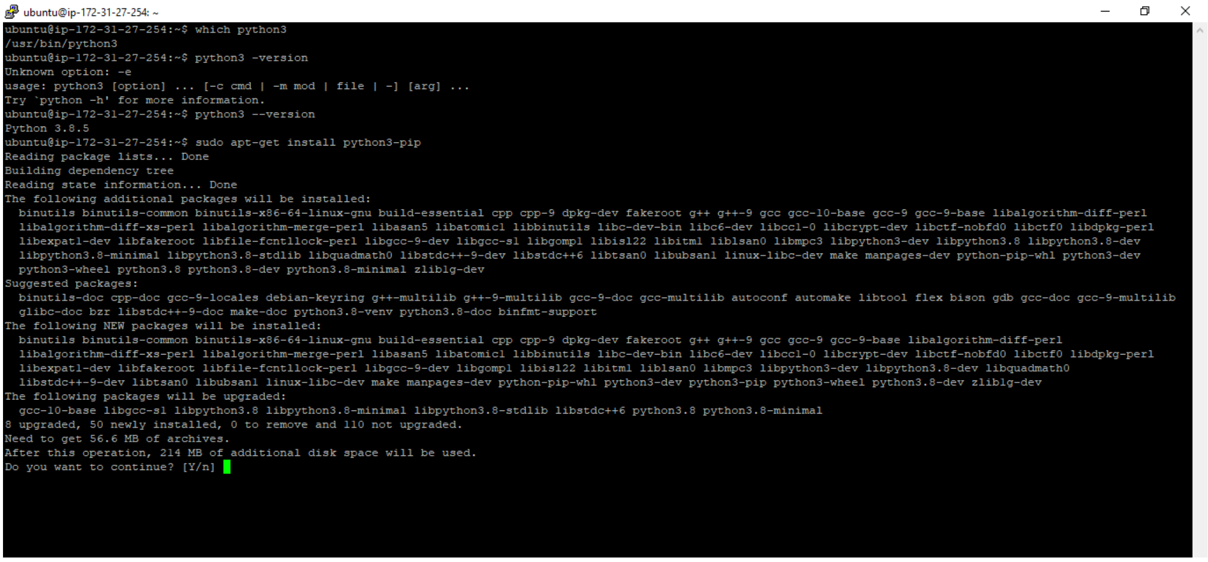
```
mysql> show tables from employee_db;
+------------------------+
| Tables_in_employee_db |
+------------------------+
| employees              |
+------------------------+
1 row in set (0.01 sec)

mysql>
mysql>
mysql> select *from employees
    -> ^C

^C
mysql> select *from employees;
+--------------------+
| name               |
+--------------------+
| Murphy Diane       |
| Firrelli Jeff      |
| Patterson William |
| Bondur Gerard      |
| Bow Anthony        |
| Jennings Leslie    |
| Thompson Leslie    |
| Firrelli Julie     |
| Patterson Steve    |
| Tseng Foon Yue     |
| Vanauf George      |
| Bondur Loui        |
| Hernandez Gerard   |
| Castillo Pamela    |
| Bott Larry         |
| Jones Barry        |
| Fixter Andy        |
| Marsh Peter        |
| King Tom           |
| Nishi Mami         |
| Kato Yoshimi       |
| Gerard Martin      |
+--------------------+
22 rows in set (0.00 sec)
```

## Installing Python in Ubuntu instance .



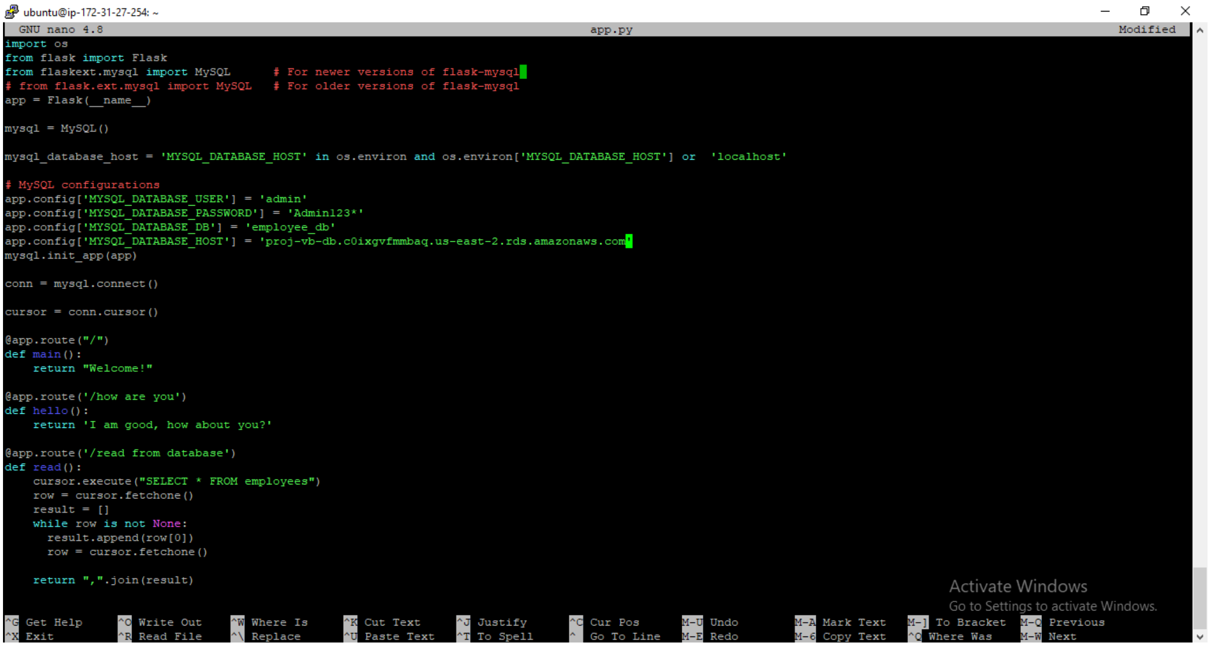
```
ubuntu@ip-172-31-27-254:~$ which python3
/usr/bin/python3
ubuntu@ip-172-31-27-254:~$ python3 -version
Unknown option: -e
usage: python3 [option] ... [-c cmd | -m mod | file | -] [arg] ...
Try `python -h' for more information.
ubuntu@ip-172-31-27-254:~$ python3 --version
Python 3.8.5
ubuntu@ip-172-31-27-254:~$ sudo apt-get install python3-pip
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-10-base gcc-9 gcc-9-base libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan5 libatomic1 libbinutils libc-dev-bin libc6-dev libccl-0 libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl
  libexpatl-dev libfakeroot libfile-fcntllock-perl libgcc-9-dev libgcc-sl libgompl libisl22 libitml liblsan0 libmpc3 libpython3-dev libpython3.8 libpython3.8-dev
  libpython3.8-minimal libpython3.8-stdlib libquadmath0 libstdc++-9-dev libstdc++6 libtsan0 libubsanl linux-libc-dev make manpages-dev python-pip-whl python3-dev
  python3-wheel python3.8 python3.8-dev python3.8-minimal zliblg-dev
Suggested packages:
  binutils-doc cpp-doc gcc-9-locales debian-keyring g++-multilib g++-9-multilib gcc-9-doc gcc-multilib autoconf automake libtool flex bison gdb gcc-doc gcc-9-multilib
  glibc-doc bzr libstdc++-9-doc make-doc python3.8-venv python3.8-doc binfmt-support
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-9 gcc-9-base libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan5 libatomicl libbinutils libc-dev-bin libc6-dev libccl-0 libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl
  libexpatl-dev libfakeroot libfile-fcntllock-perl libgcc-9-dev libgompl libisl22 libitml liblsan0 libmpc3 libpython3-dev libpython3.8-dev libquadmath0
  libstdc++-9-dev libtsan0 libubsanl linux-libc-dev make manpages-dev python-pip-whl python3-dev python3-pip python3-wheel python3.8-dev zliblg-dev
The following packages will be upgraded:
  gcc-10-base libgcc-sl libpython3.8 libpython3.8-minimal libpython3.8-stdlib libstdc++6 python3.8 python3.8-minimal
8 upgraded, 50 newly installed, 0 to remove and 110 not upgraded.
Need to get 56.6 MB of archives.
After this operation, 214 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

## Installing pip and flask :



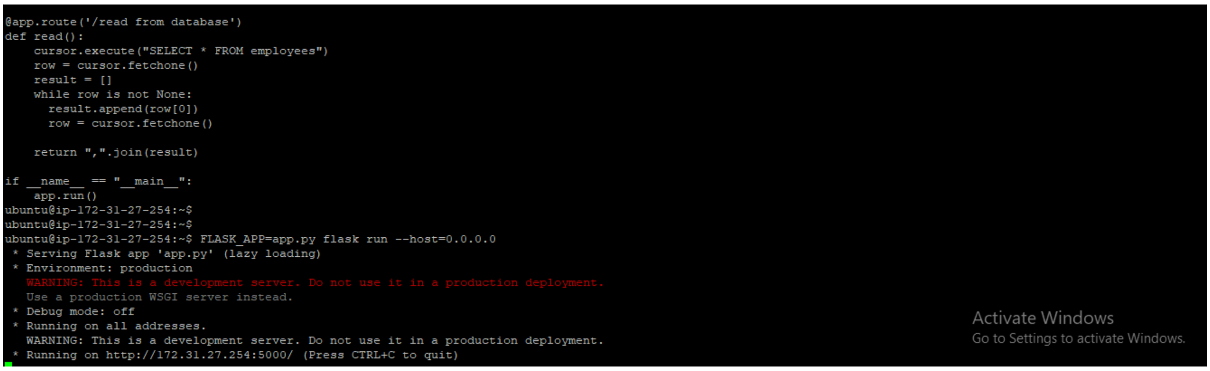
```
ubuntu@ip-172-31-27-254:~$ which python3
/usr/bin/python3
ubuntu@ip-172-31-27-254:~$ python3 -version
Unknown option: -e
usage: python3 [option] ... [-c cmd | -m mod | file | -] [arg] ...
Try `python -h' for more information.
ubuntu@ip-172-31-27-254:~$ python3 --version
Python 3.8.5
ubuntu@ip-172-31-27-254:~$ sudo apt-get install python3-pip
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-10-base gcc-9 gcc-9-base libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan5 libatomic1 libbinutils libc-dev-bin libc6-dev libccl-0 libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl
  libexpatl-dev libfakeroot libfile-fcntllock-perl libgcc-9-dev libgcc-sl libgompl libisl22 libitml liblsan0 libmpc3 libpython3-dev libpython3.8 libpython3.8-dev
  libpython3.8-minimal libpython3.8-stdlib libquadmath0 libstdc++-9-dev libstdc++6 libtsan0 libubsanl linux-libc-dev make manpages-dev python-pip-whl python3-dev
  python3-wheel python3.8 python3.8-dev python3.8-minimal zliblg-dev
Suggested packages:
  binutils-doc cpp-doc gcc-9-locales debian-keyring g++-multilib g++-9-multilib gcc-9-doc gcc-multilib autoconf automake libtool flex bison gdb gcc-doc gcc-9-multilib
  glibc-doc bzr libstdc++-9-doc make-doc python3.8-venv python3.8-doc binfmt-support
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-9 gcc-9-base libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan5 libatomicl libbinutils libc-dev-bin libc6-dev libccl-0 libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl
  libexpatl-dev libfakeroot libfile-fcntllock-perl libgcc-9-dev libgompl libisl22 libitml liblsan0 libmpc3 libpython3-dev libpython3.8-dev libquadmath0
  libstdc++-9-dev libtsan0 libubsanl linux-libc-dev make manpages-dev python-pip-whl python3-dev python3-pip python3-wheel python3.8-dev zliblg-dev
The following packages will be upgraded:
  gcc-10-base libgcc-sl libpython3.8 libpython3.8-minimal libpython3.8-stdlib libstdc++6 python3.8 python3.8-minimal
8 upgraded, 50 newly installed, 0 to remove and 110 not upgraded.
Need to get 56.6 MB of archives.
After this operation, 214 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

## Editing App.py :



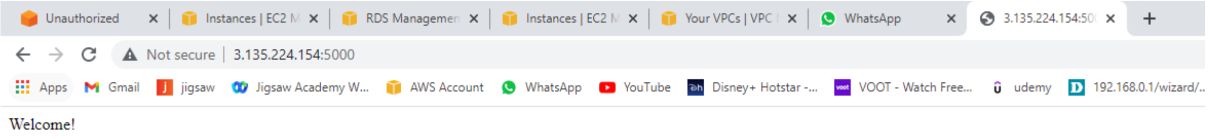
```
import os
from flask import Flask
from flaskext.mysql import MySQL      # For newer versions of flask-mysql
# from flask.ext.mysql import MySQL   # For older versions of flask-mysql
app = Flask(__name__)

mysql = MySQL()

mysql_database_host = 'MYSQL_DATABASE_HOST' in os.environ and os.environ['MYSQL_DATABASE_HOST'] or  'localhost'

# MySQL configurations
app.config['MYSQL_DATABASE_USER'] = 'admin'
app.config['MYSQL_DATABASE_PASSWORD'] = 'Admin123*'
app.config['MYSQL_DATABASE_DB'] = 'employee_db'
app.config['MYSQL_DATABASE_HOST'] = 'proj-vb-db.c0ixgvfmmbaq.us-east-2.rds.amazonaws.com'
mysql.init_app(app)

conn = mysql.connect()

cursor = conn.cursor()

@app.route("/")
def main():
    return "Welcome!"

@app.route('/how are you')
def hello():
    return 'I am good, how about you?'

@app.route('/read from database')
def read():
    cursor.execute("SELECT * FROM employees")
    row = cursor.fetchone()
    result = []
    while row is not None:
      result.append(row[0])
      row = cursor.fetchone()

    return ",".join(result)
```

## Running Flask app as host :

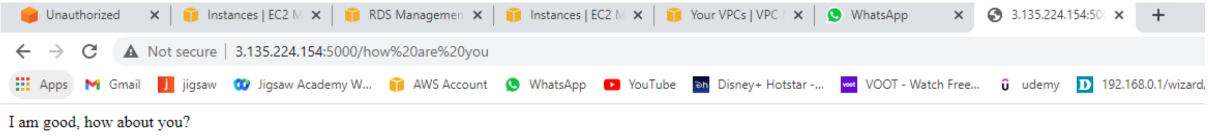


```
@app.route('/read from database')
def read():
    cursor.execute("SELECT * FROM employees")
    row = cursor.fetchone()
    result = []
    while row is not None:
      result.append(row[0])
      row = cursor.fetchone()

    return ",".join(result)

if __name__ == "__main__":
    app.run()
ubuntu@ip-172-31-27-254:~$
ubuntu@ip-172-31-27-254:~$
ubuntu@ip-172-31-27-254:~$ FLASK_APP=app.py flask run --host=0.0.0.0
 * Serving Flask app 'app.py' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: off
 * Running on all addresses.
   WARNING: This is a development server. Do not use it in a production deployment.
 * Running on http://172.31.27.254:5000/ (Press CTRL+C to quit)
```

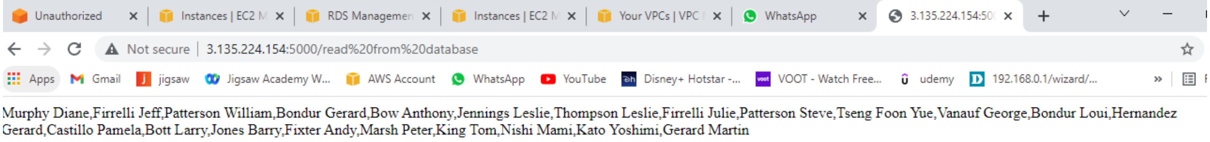
Output of Task 1 :



Welcome!



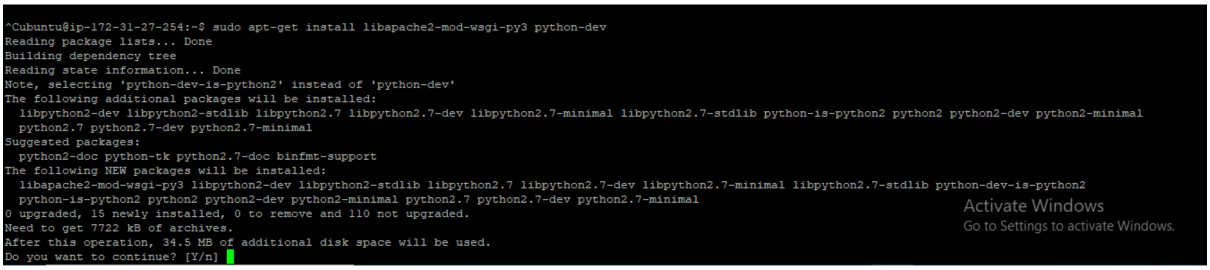
I am good, how about you?



Murphy Diane,Firrelli Jeff,Patterson William,Bondur Gerard,Bow Anthony,Jennings Leslie,Thompson Leslie,Firrelli Julie,Patterson Steve,Tseng Foon Yue,Vanauf George,Bondur Loui,Hernandez Gerard,Castillo Pamela,Bott Larry,Jones Barry,Fixter Andy,Marsh Peter,King Tom,Nishi Mami,Kato Yoshimi,Gerard Martin

# Task 2:

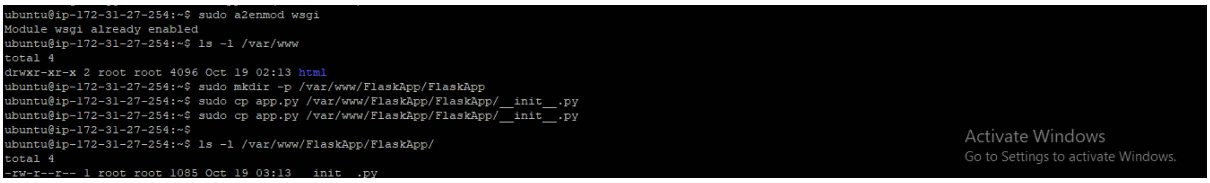
## Creating WSGI :



```
^Cubuntu@ip-172-31-27-254:~$ sudo apt-get install libapache2-mod-wsgi-py3 python-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'python-dev-is-python2' instead of 'python-dev'
The following additional packages will be installed:
  libpython2-dev libpython2-stdlib libpython2.7 libpython2.7-dev libpython2.7-minimal libpython2.7-stdlib python-is-python2 python2 python2-dev python2-minimal
  python2.7 python2.7-dev python2.7-minimal
Suggested packages:
  python2-doc python-tk python2.7-doc binfmt-support
The following NEW packages will be installed:
  libapache2-mod-wsgi-py3 libpython2-dev libpython2-stdlib libpython2.7 libpython2.7-dev libpython2.7-minimal libpython2.7-stdlib python-dev-is-python2
  python-is-python2 python2 python2-dev python2-minimal python2.7 python2.7-dev python2.7-minimal
0 upgraded, 15 newly installed, 0 to remove and 110 not upgraded.
Need to get 7722 kB of archives.
After this operation, 34.5 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Activate Windows
Go to Settings to activate Windows.

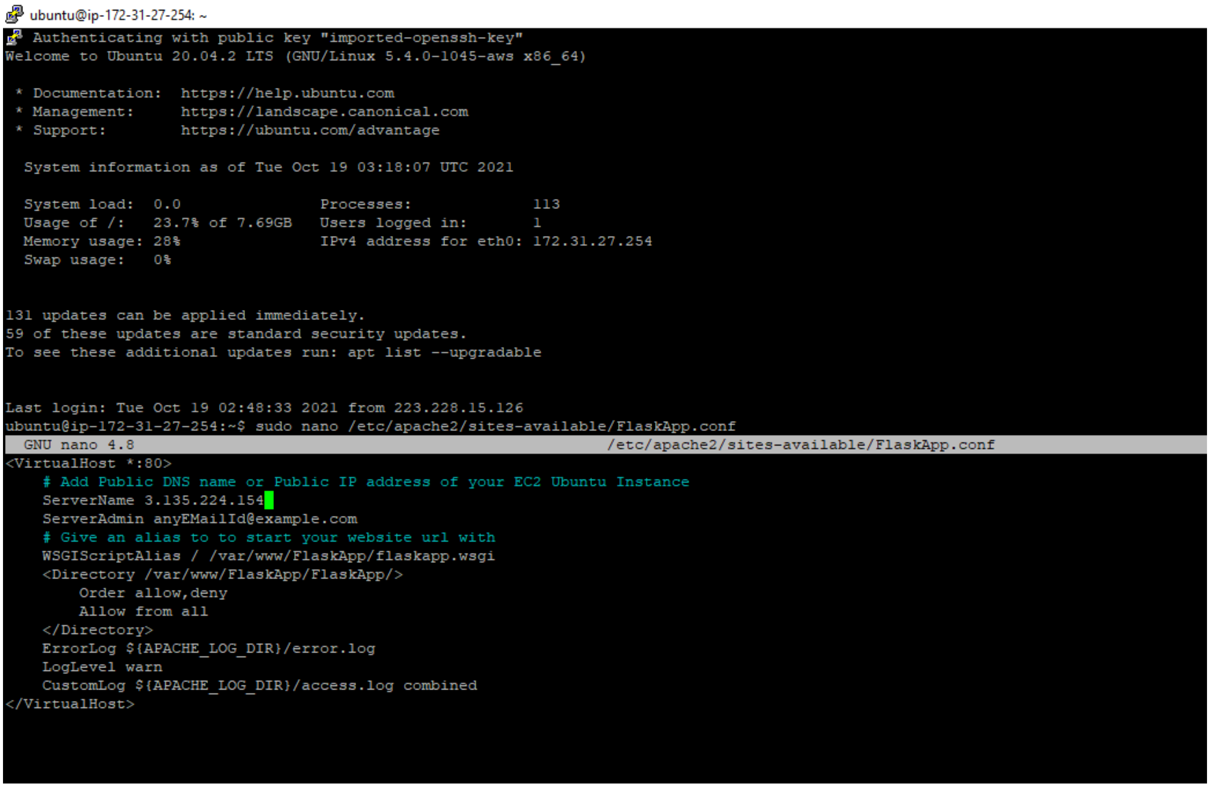
## Creating directory and coping App.py :



```
ubuntu@ip-172-31-27-254:~$ sudo a2enmod wsgi
Module wsgi already enabled
ubuntu@ip-172-31-27-254:~$ ls -l /var/www
total 4
drwxr-xr-x 2 root root 4096 Oct 19 02:13 html
ubuntu@ip-172-31-27-254:~$ sudo mkdir -p /var/www/FlaskApp/FlaskApp
ubuntu@ip-172-31-27-254:~$ sudo cp app.py /var/www/FlaskApp/FlaskApp/__init__.py
ubuntu@ip-172-31-27-254:~$ sudo cp app.py /var/www/FlaskApp/FlaskApp/__init__.py
ubuntu@ip-172-31-27-254:~$
ubuntu@ip-172-31-27-254:~$ ls -l /var/www/FlaskApp/FlaskApp/
total 4
-rw-r--r-- 1 root root 1085 Oct 19 03:13 __init__.py
```

Activate Windows
Go to Settings to activate Windows.

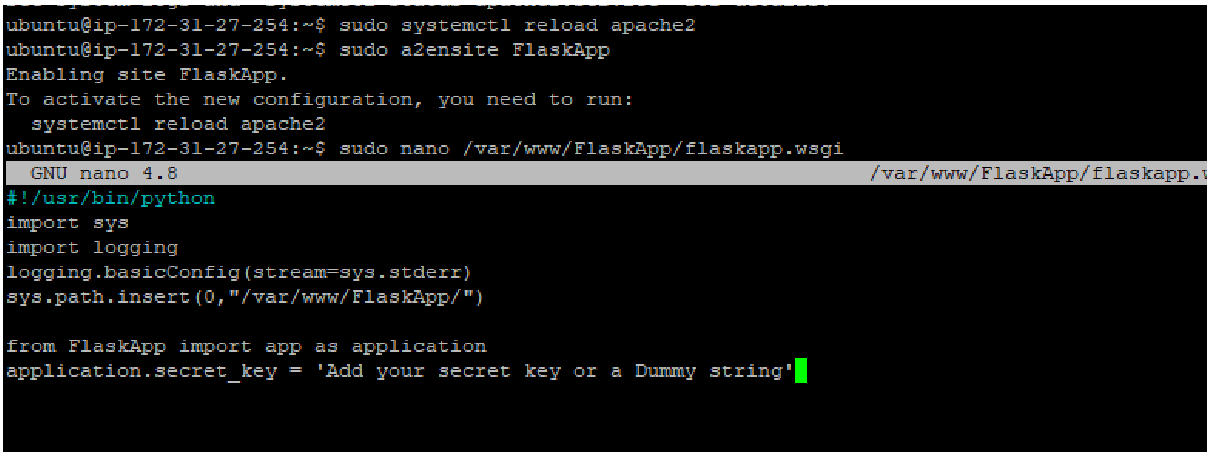
## Creating Configuration file :



ubuntu@ip-172-31-27-254: ~

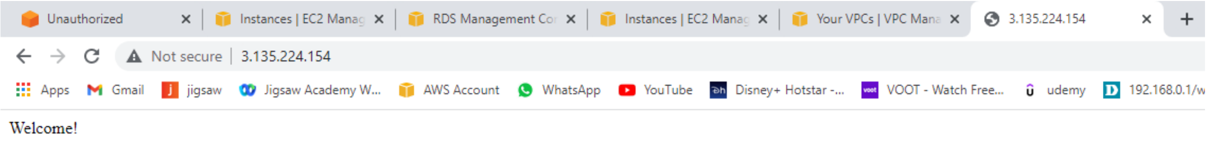
```
Authenticating with public key "imported-openssh-key"
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-1045-aws x86_64)

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

  System information as of Tue Oct 19 03:18:07 UTC 2021

  System load:  0.0               Processes:             113
  Usage of /:   23.7% of 7.69GB   Users logged in:       1
  Memory usage: 28%               IPv4 address for eth0: 172.31.27.254
  Swap usage:   0%


131 updates can be applied immediately.
59 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable


Last login: Tue Oct 19 02:48:33 2021 from 223.228.15.126
ubuntu@ip-172-31-27-254:~$ sudo nano /etc/apache2/sites-available/FlaskApp.conf
  GNU nano 4.8                                                    /etc/apache2/sites-available/FlaskApp.conf
<VirtualHost *:80>
    # Add Public DNS name or Public IP address of your EC2 Ubuntu Instance
    ServerName 3.135.224.154
    ServerAdmin anyEMailId@example.com
    # Give an alias to to start your website url with
    WSGIScriptAlias / /var/www/FlaskApp/flaskapp.wsgi
    <Directory /var/www/FlaskApp/FlaskApp/>
        Order allow,deny
        Allow from all
    </Directory>
    ErrorLog ${APACHE_LOG_DIR}/error.log
    LogLevel warn
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

## Creating WSGI :



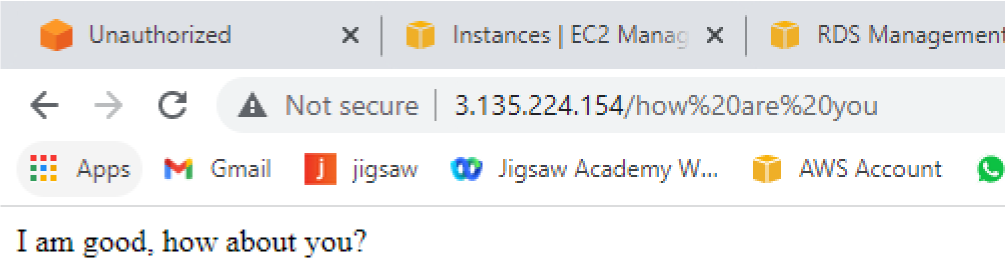
```
ubuntu@ip-172-31-27-254:~$ sudo systemctl reload apache2
ubuntu@ip-172-31-27-254:~$ sudo a2ensite FlaskApp
Enabling site FlaskApp.
To activate the new configuration, you need to run:
  systemctl reload apache2
ubuntu@ip-172-31-27-254:~$ sudo nano /var/www/FlaskApp/flaskapp.wsgi
  GNU nano 4.8                                           /var/www/FlaskApp/flaskapp.
#!/usr/bin/python
import sys
import logging
logging.basicConfig(stream=sys.stderr)
sys.path.insert(0,"/var/www/FlaskApp/")

from FlaskApp import app as application
application.secret_key = 'Add your secret key or a Dummy string'
```

Output of Task 2:



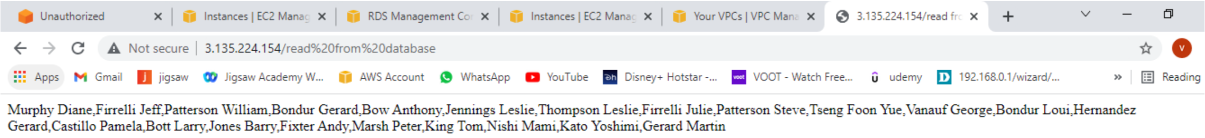
3.135.224.154

Welcome!



3.135.224.154/how%20are%20you

I am good, how about you?

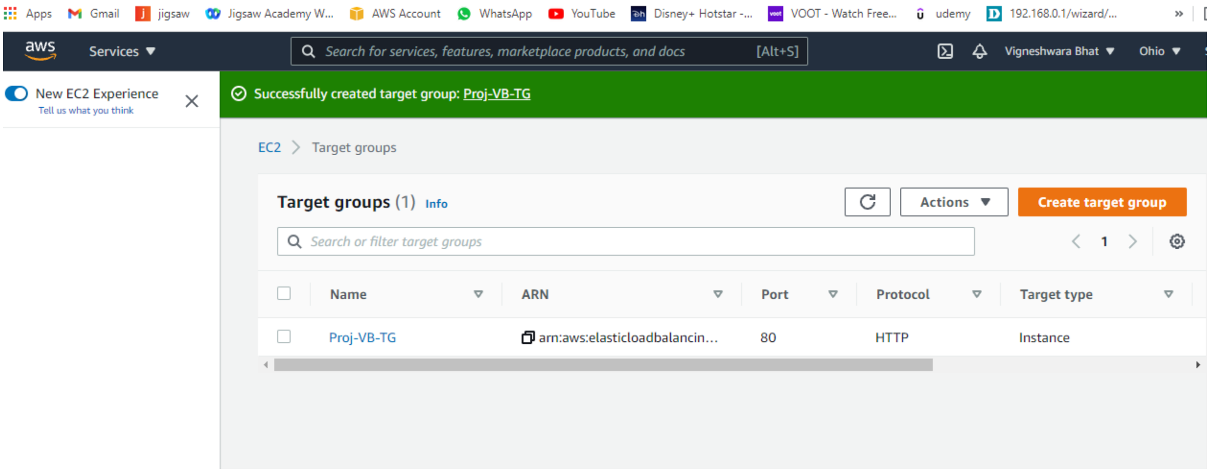


3.135.224.154/read%20from%20database

Murphy Diane,Firrelli Jeff,Patterson William,Bondur Gerard,Bow Anthony,Jennings Leslie,Thompson Leslie,Firrelli Julie,Patterson Steve,Tseng Foon Yue,Vanauf George,Bondur Loui,Hernandez Gerard,Castillo Pamela,Bott Larry,Jones Barry,Fixter Andy,Marsh Peter,King Tom,Nishi Mami,Kato Yoshimi,Gerard Martin

# Task 3:

## Creating Target group :



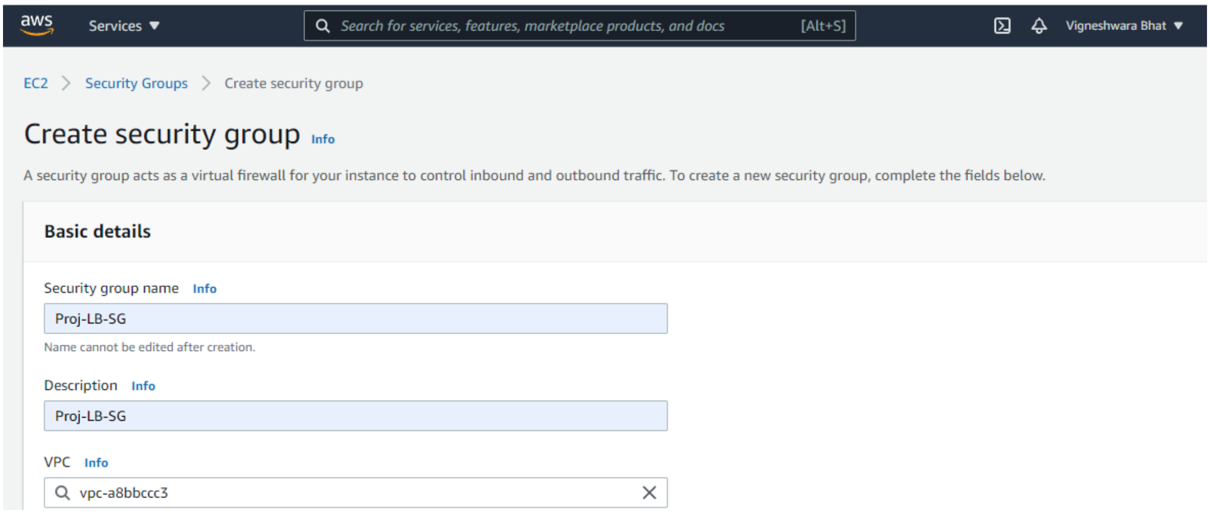
Successfully created target group: Proj-VB-TG

EC2 > Target groups

Target groups (1) Info

| Name | ARN | Port | Protocol | Target type |
|---|---|---|---|---|
| Proj-VB-TG | arn:aws:elasticloadbalancin… | 80 | HTTP | Instance |

## Creating Security Group :



EC2 > Security Groups > Create security group

Create security group Info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Info

Proj-LB-SG

Name cannot be edited after creation.

Description Info

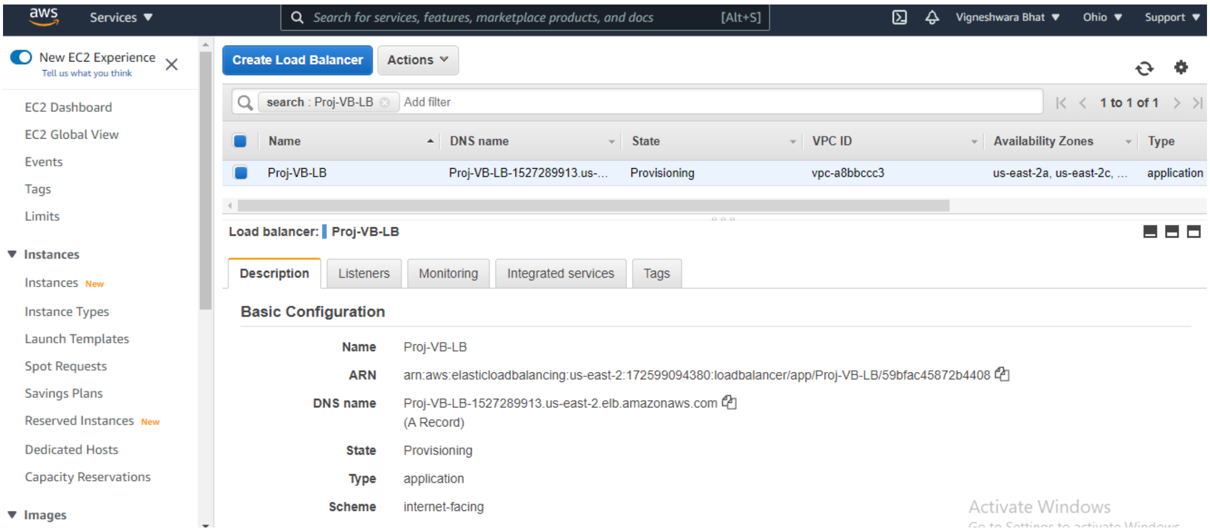
Proj-LB-SG

VPC Info

vpc-a8bbccc3

aws
Services
Search for services, features, marketplace products, and docs
[Alt+S]
Vigneshwara Bhat

Creating Application Load Balancer :



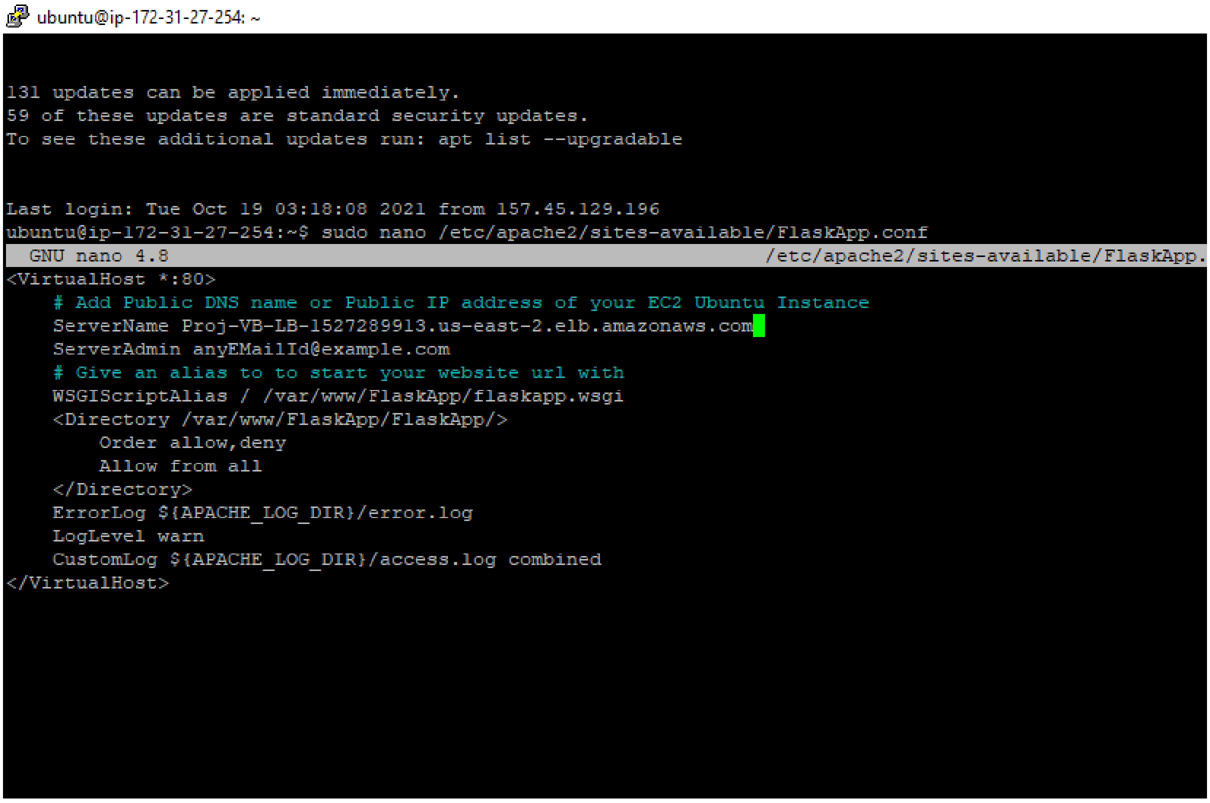
| Name | DNS name | State | VPC ID | Availability Zones | Type |
|---|---|---|---|---|---|
| Proj-VB-LB | Proj-VB-LB-1527289913.us-... | Provisioning | vpc-a8bbccc3 | us-east-2a, us-east-2c, ... | application |

Load balancer: Proj-VB-LB

Basic Configuration

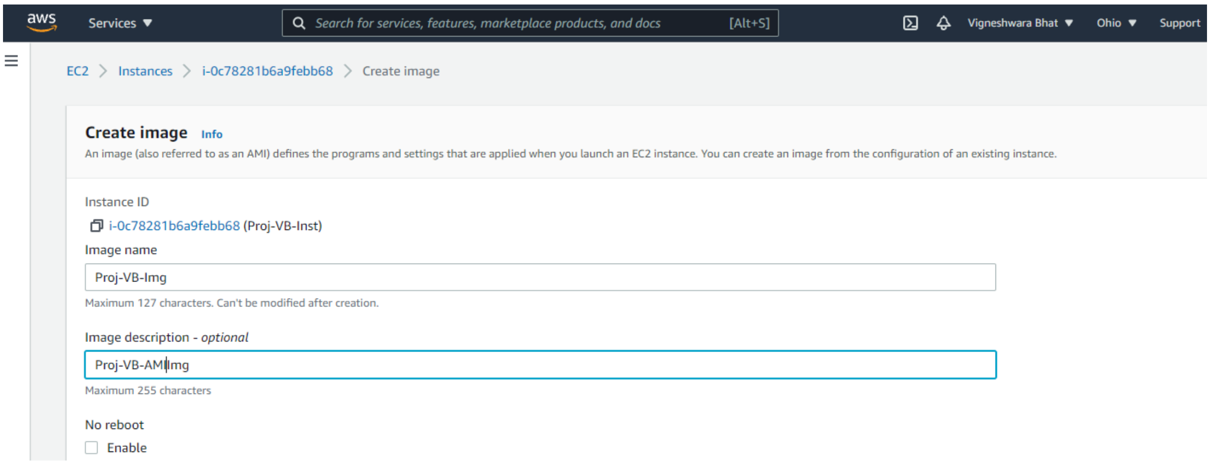
| | |
|---|---|
| Name | Proj-VB-LB |
| ARN | arn:aws:elasticloadbalancing:us-east-2:172599094380:loadbalancer/app/Proj-VB-LB/59bfac45872b4408 |
| DNS name | Proj-VB-LB-1527289913.us-east-2.elb.amazonaws.com<br>(A Record) |
| State | Provisioning |
| Type | application |
| Scheme | internet-facing |

Editing DNS name in WSGI conf. file in Ubuntu instance :


ubuntu@ip-172-31-27-254: ~

```
131 updates can be applied immediately.
59 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable


Last login: Tue Oct 19 03:18:08 2021 from 157.45.129.196
ubuntu@ip-172-31-27-254:~$ sudo nano /etc/apache2/sites-available/FlaskApp.conf
  GNU nano 4.8                                                 /etc/apache2/sites-available/FlaskApp.
<VirtualHost *:80>
    # Add Public DNS name or Public IP address of your EC2 Ubuntu Instance
    ServerName Proj-VB-LB-1527289913.us-east-2.elb.amazonaws.com
    ServerAdmin anyEMailId@example.com
    # Give an alias to to start your website url with
    WSGIScriptAlias / /var/www/FlaskApp/flaskapp.wsgi
    <Directory /var/www/FlaskApp/FlaskApp/>
        Order allow,deny
        Allow from all
    </Directory>
    ErrorLog ${APACHE_LOG_DIR}/error.log
    LogLevel warn
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

## Creating AMI of Ubuntu instance :


aws
Services
Search for services, features, marketplace products, and docs [Alt+S]
Vigneshwara Bhat
Ohio
Support
EC2 > Instances > i-0c78281b6a9febb68 > Create image

Create image Info

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID

i-0c78281b6a9febb68 (Proj-VB-Inst)

Image name

Proj-VB-Img

Maximum 127 characters. Can't be modified after creation.

Image description - *optional*

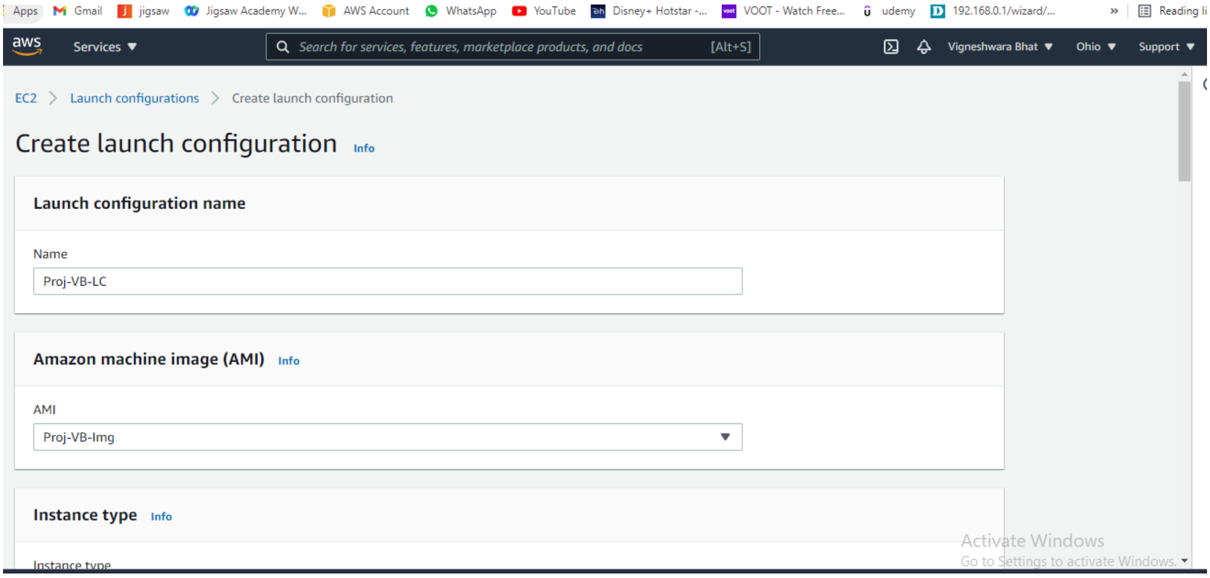
Proj-VB-AMIImg

Maximum 255 characters

No reboot

□ Enable

## Creating Launch configuration :



Create launch configuration Info

Launch configuration name

Name

Proj-VB-LC

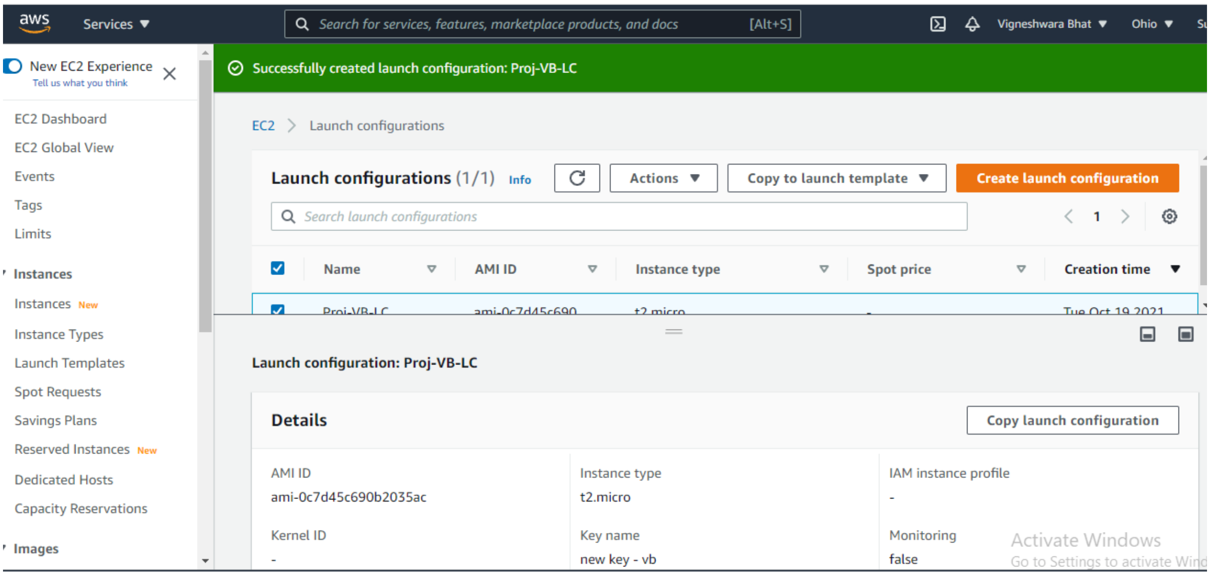
Amazon machine image (AMI) Info

AMI

Proj-VB-Img

Instance type Info

Instance type



Successfully created launch configuration: Proj-VB-LC

EC2 > Launch configurations

Launch configurations (1/1) Info

Actions ▼
Copy to launch template ▼
Create launch configuration
Search launch configurations

| ☑ | Name | AMI ID | Instance type | Spot price | Creation time |
|---|---|---|---|---|---|
| ☑ | Proj-VB-LC | ami-0c7d45c690 | t2.micro | - | Tue Oct 19 2021 |

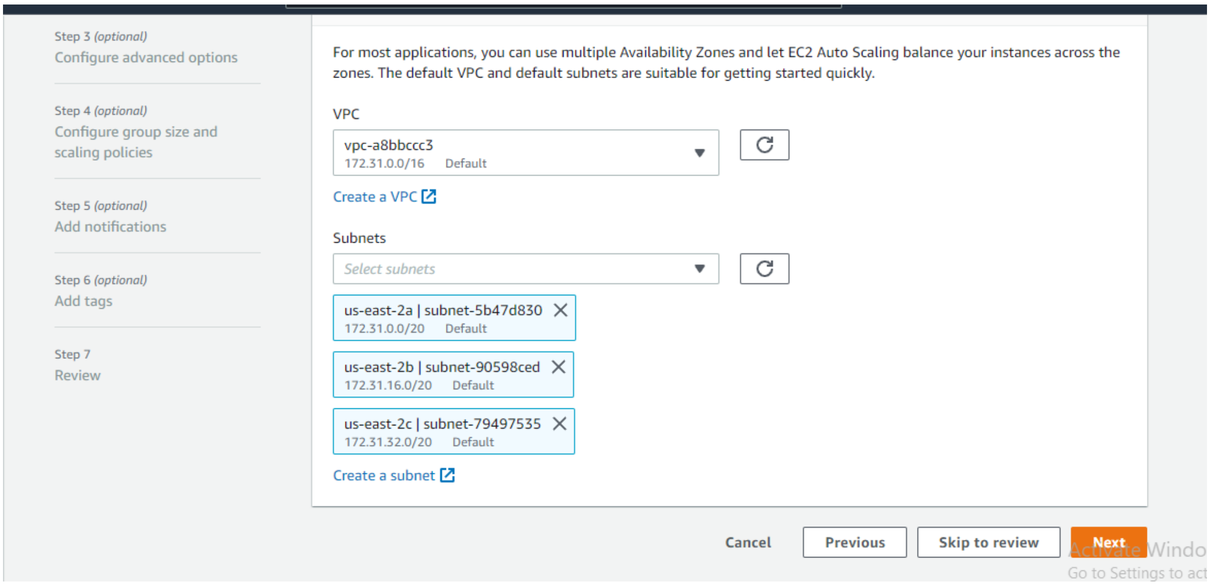
Launch configuration: Proj-VB-LC

**Details**

| | | |
|---|---|---|
| AMI ID<br>ami-0c7d45c690b2035ac | Instance type<br>t2.micro | IAM instance profile<br>- |
| Kernel ID<br>- | Key name<br>new key - vb | Monitoring<br>false |

Activate Windows
Go to Settings to activate Wind

## Creating Auto scaling Group :



For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC

vpc-a8bbccc3
172.31.0.0/16 Default

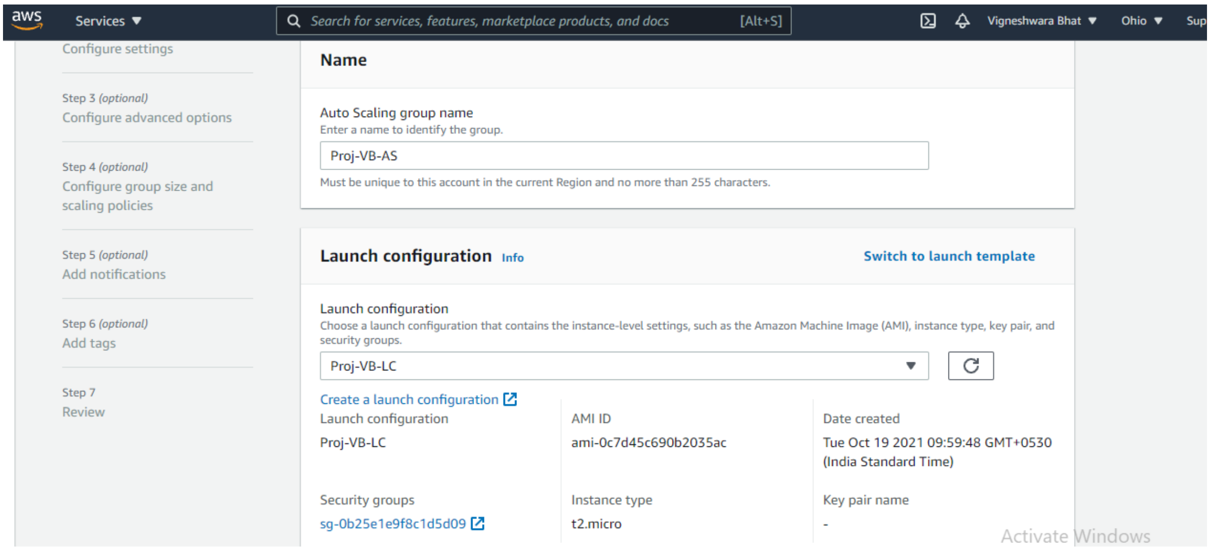
Subnets

us-east-2a | subnet-5b47d830
172.31.0.0/20 Default

us-east-2b | subnet-90598ced
172.31.16.0/20 Default

us-east-2c | subnet-79497535
172.31.32.0/20 Default

Activate Windo
Go to Settings to act


aws
Services ▼
Search for services, features, marketplace products, and docs [Alt+S]
Vigneshwara Bhat ▼
Ohio ▼
Sup
Activate Windows

Configure settings

Step 3 *(optional)*
Configure advanced options

Step 4 *(optional)*
Configure group size and scaling policies

Step 5 *(optional)*
Add notifications

Step 6 *(optional)*
Add tags

Step 7
Review

**Name**

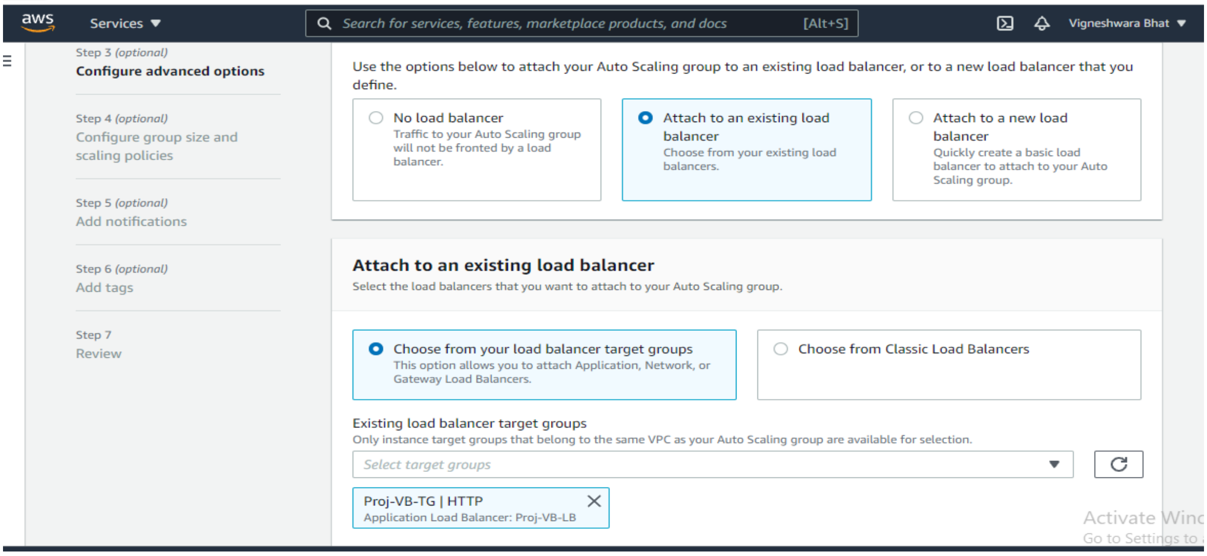
Auto Scaling group name
Enter a name to identify the group.
Proj-VB-AS
Must be unique to this account in the current Region and no more than 255 characters.

**Launch configuration** Info — Switch to launch template

Launch configuration
Choose a launch configuration that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.
Proj-VB-LC ▼

Create a launch configuration

| Launch configuration | AMI ID | Date created |
|---|---|---|
| Proj-VB-LC | ami-0c7d45c690b2035ac | Tue Oct 19 2021 09:59:48 GMT+0530 (India Standard Time) |
| **Security groups** | **Instance type** | **Key pair name** |
| sg-0b25e1e9f8c1d5d09 | t2.micro | - |


aws
Services ▼
Search for services, features, marketplace products, and docs [Alt+S]
Vigneshwara Bhat ▼
Activate Winc
Go to Settings to

Step 3 *(optional)*
**Configure advanced options**

Step 4 *(optional)*
Configure group size and scaling policies

Step 5 *(optional)*
Add notifications

Step 6 *(optional)*
Add tags

Step 7
Review

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

○ No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.

● Attach to an existing load balancer
Choose from your existing load balancers.

○ Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

**Attach to an existing load balancer**

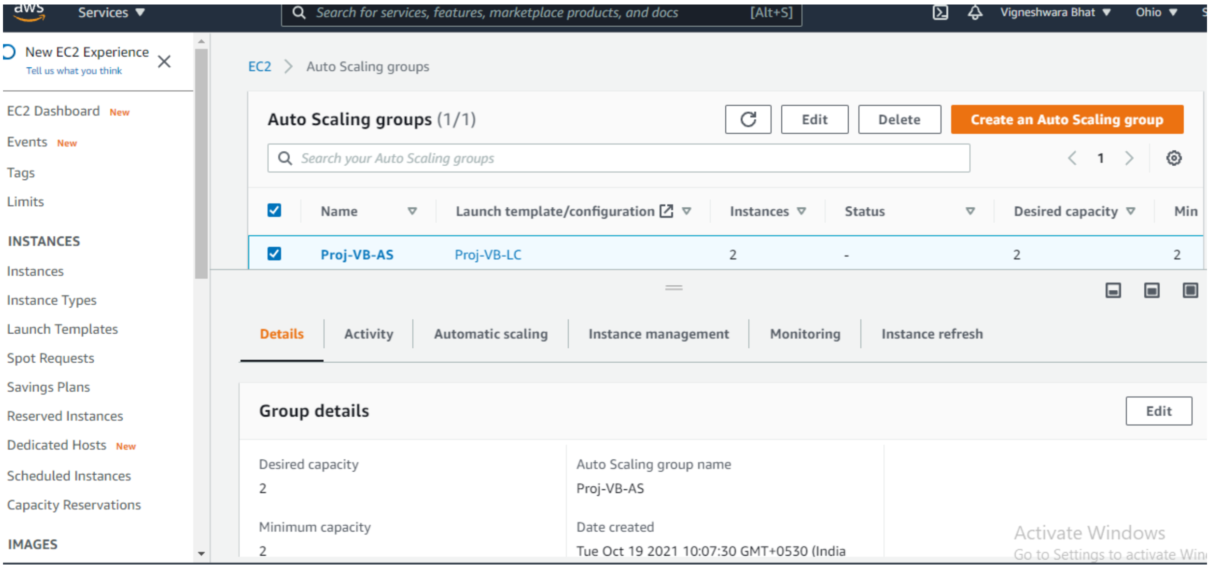
Select the load balancers that you want to attach to your Auto Scaling group.

● Choose from your load balancer target groups
This option allows you to attach Application, Network, or Gateway Load Balancers.

○ Choose from Classic Load Balancers

Existing load balancer target groups
Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.
Select target groups ▼

Proj-VB-TG | HTTP ✕
Application Load Balancer: Proj-VB-LB



Auto Scaling groups (1/1)

| ☑ | Name | Launch template/configuration | Instances | Status | Desired capacity | Min |
|---|---|---|---|---|---|---|
| ☑ | Proj-VB-AS | Proj-VB-LC | 2 | - | 2 | 2 |

Group details

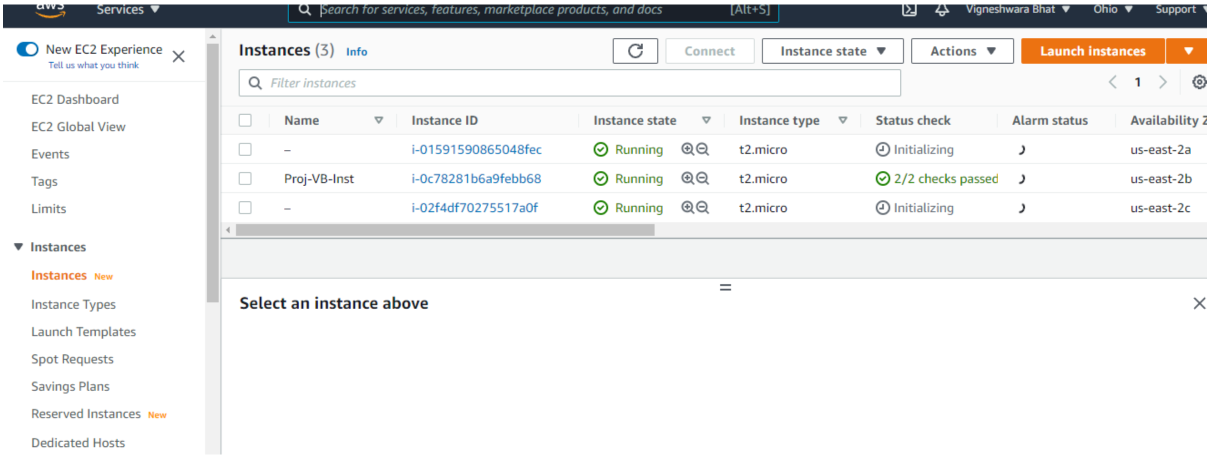
Desired capacity
2

Auto Scaling group name
Proj-VB-AS

Minimum capacity
2

Date created
Tue Oct 19 2021 10:07:30 GMT+0530 (India

Instances are created by AutoScale :

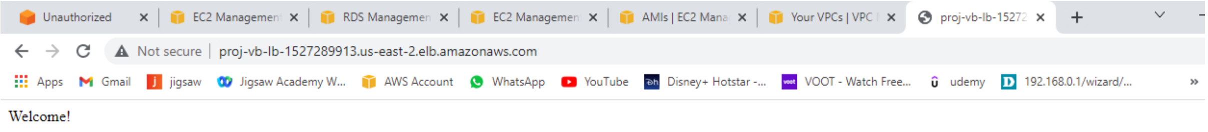


Instances (3)

| □ | Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Z |
|---|---|---|---|---|---|---|---|
| □ | – | i-01591590865048fec | Running | t2.micro | Initializing | | us-east-2a |
| □ | Proj-VB-Inst | i-0c78281b6a9febb68 | Running | t2.micro | 2/2 checks passed | | us-east-2b |
| □ | – | i-02f4df70275517a0f | Running | t2.micro | Initializing | | us-east-2c |

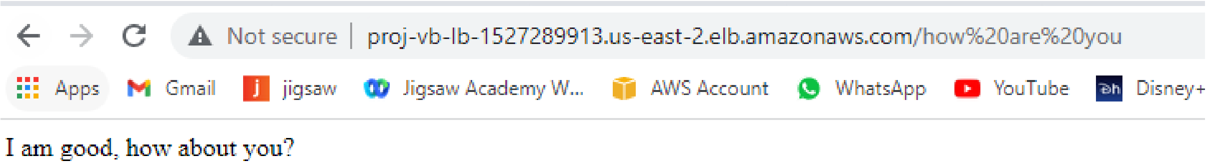
Select an instance above

Output from LoadBalancer :



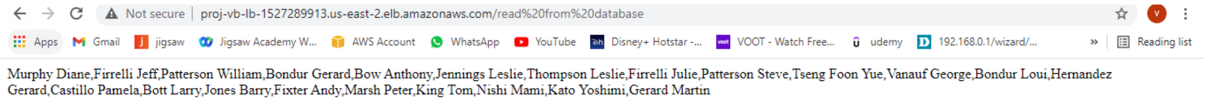
Not secure | proj-vb-lb-1527289913.us-east-2.elb.amazonaws.com

Welcome!



Not secure | proj-vb-lb-1527289913.us-east-2.elb.amazonaws.com/how%20are%20you

I am good, how about you?



Not secure | proj-vb-lb-1527289913.us-east-2.elb.amazonaws.com/read%20from%20database

Murphy Diane,Firrelli Jeff,Patterson William,Bondur Gerard,Bow Anthony,Jennings Leslie,Thompson Leslie,Firrelli Julie,Patterson Steve,Tseng Foon Yue,Vanauf George,Bondur Loui,Hernandez Gerard,Castillo Pamela,Bott Larry,Jones Barry,Fixter Andy,Marsh Peter,King Tom,Nishi Mami,Kato Yoshimi,Gerard Martin