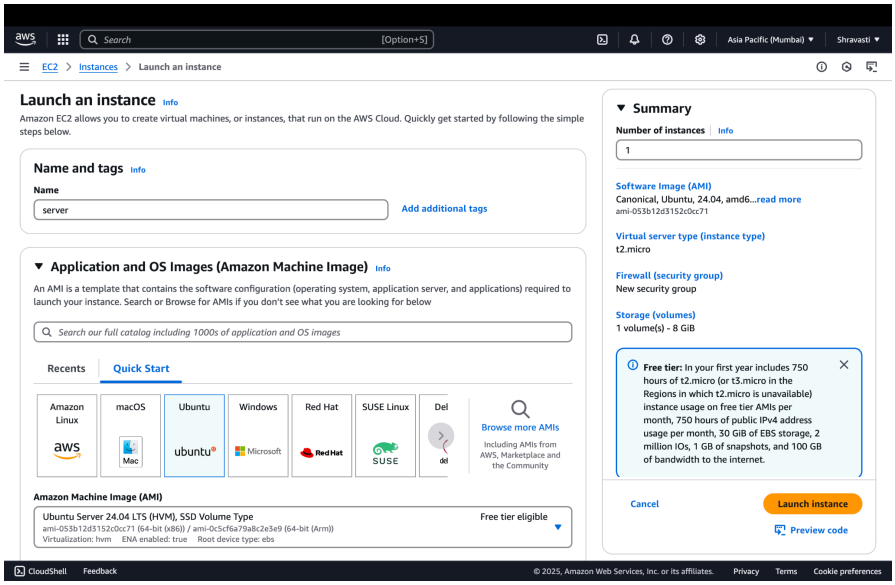
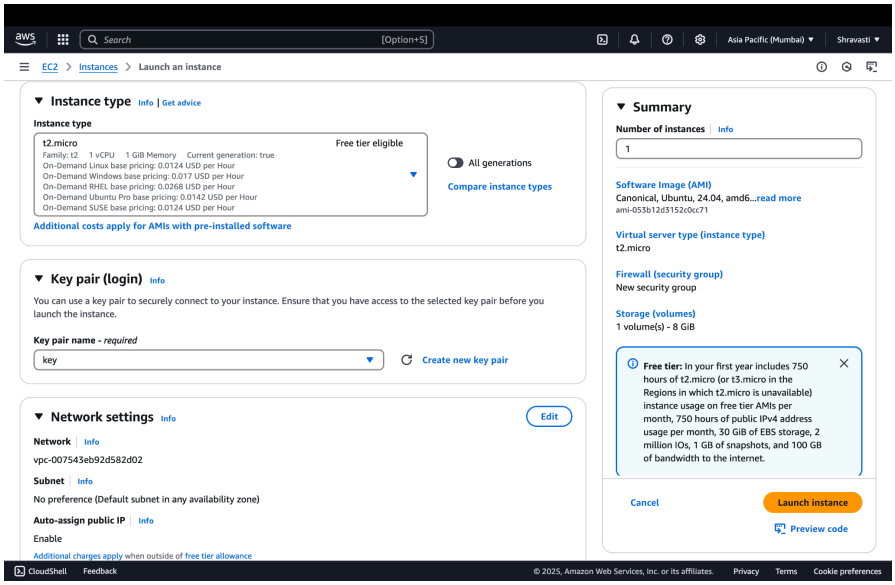
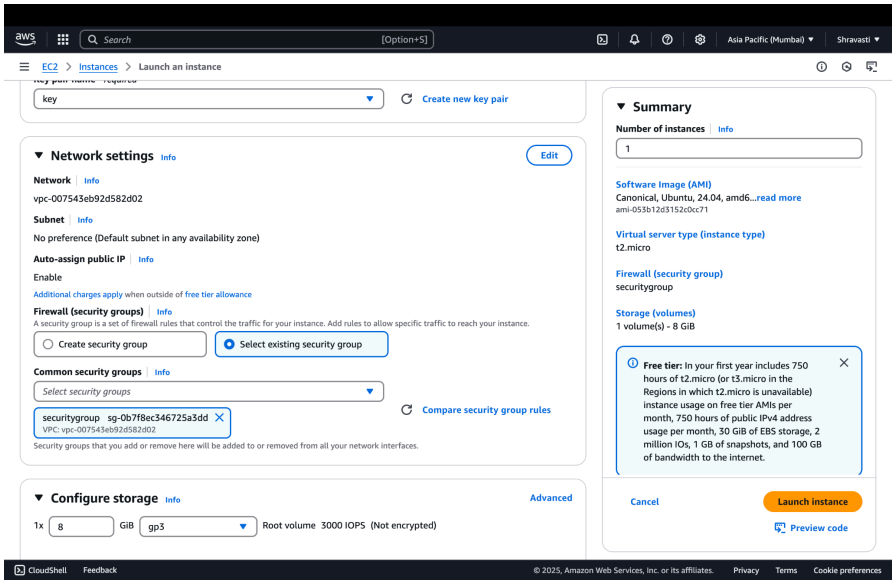
CBE321 Lab 2 2022BCY0012 Shravasti Ohol

Activity 1 : EC2 Ubuntu Instance Communication

1. Creating two Ubuntu instances
    a. Name - server
    b. AMI - Ubuntu
    c. Key pair - key.pem
    d. Security group - existing





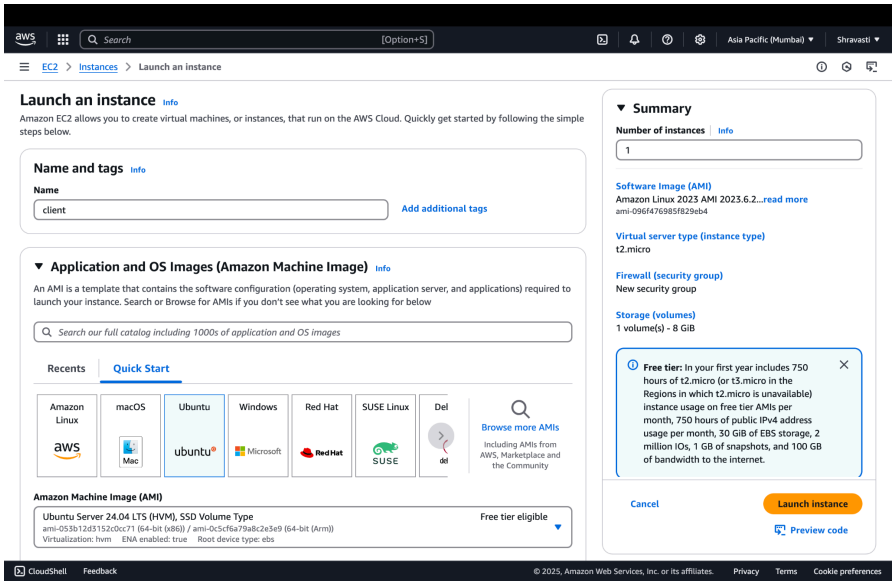


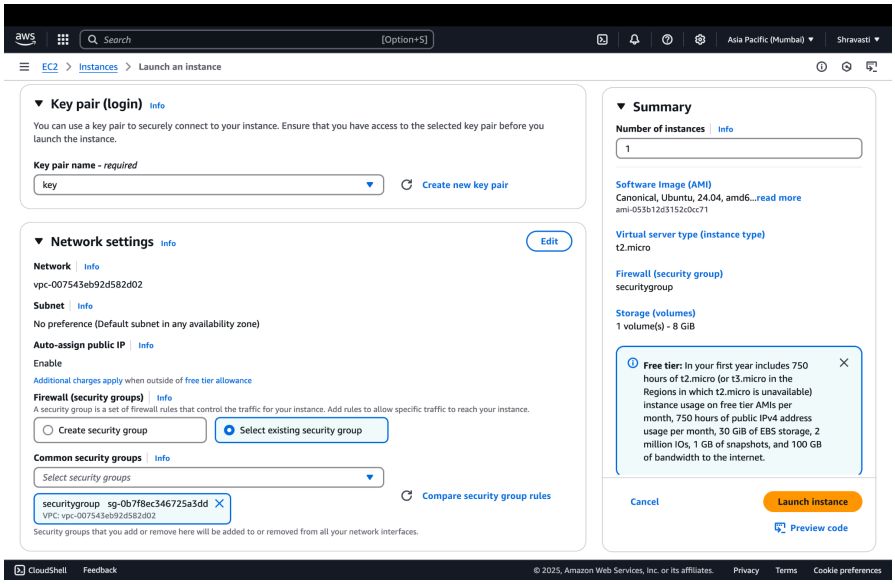
e. Name - client

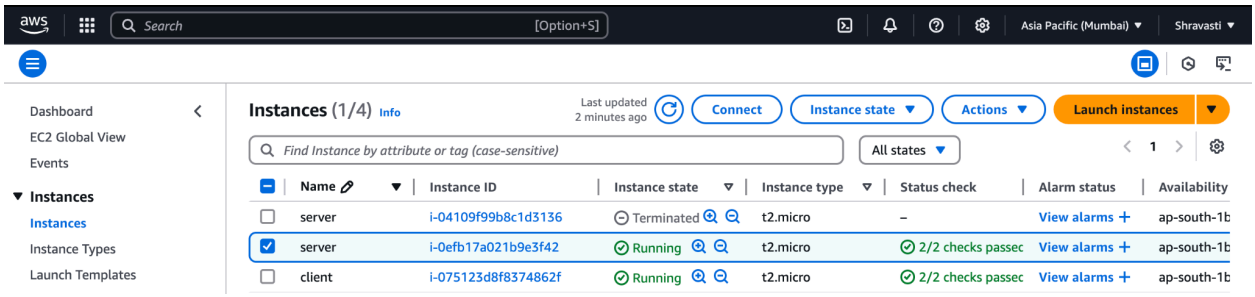
f. AMI - Ubuntu

g. Key pair - key.pem

h. Security group - existing







2. Checking connection between both instances using ping

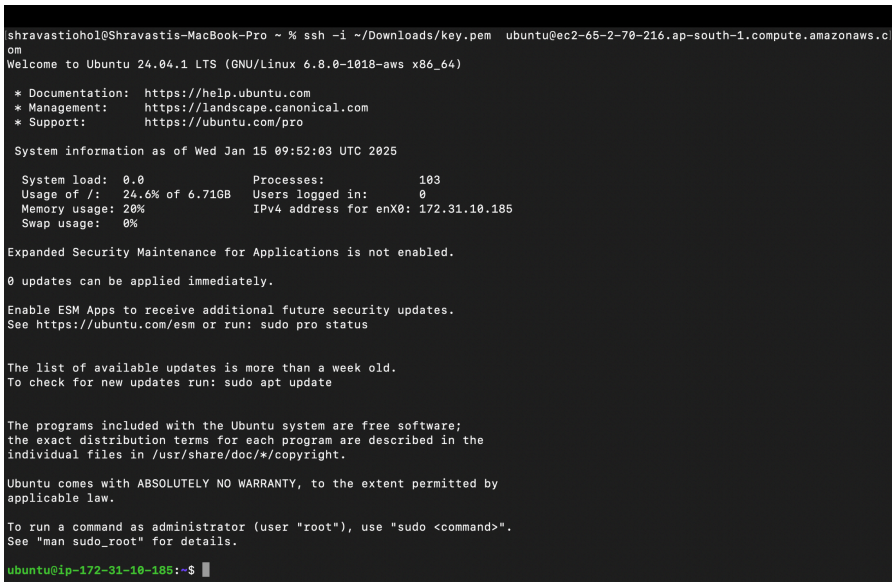
a. Pinging client

```
shravastiohol@Shravastis-MacBook-Pro ~ % ping 3.110.194.59
PING 3.110.194.59 (3.110.194.59): 56 data bytes
64 bytes from 3.110.194.59: icmp_seq=0 ttl=53 time=100.723 ms
64 bytes from 3.110.194.59: icmp_seq=1 ttl=53 time=145.071 ms
64 bytes from 3.110.194.59: icmp_seq=2 ttl=53 time=64.864 ms
64 bytes from 3.110.194.59: icmp_seq=3 ttl=53 time=153.401 ms
^C
--- 3.110.194.59 ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 64.864/116.015/153.401/35.680 ms
shravastiohol@Shravastis-MacBook-Pro ~ %
```

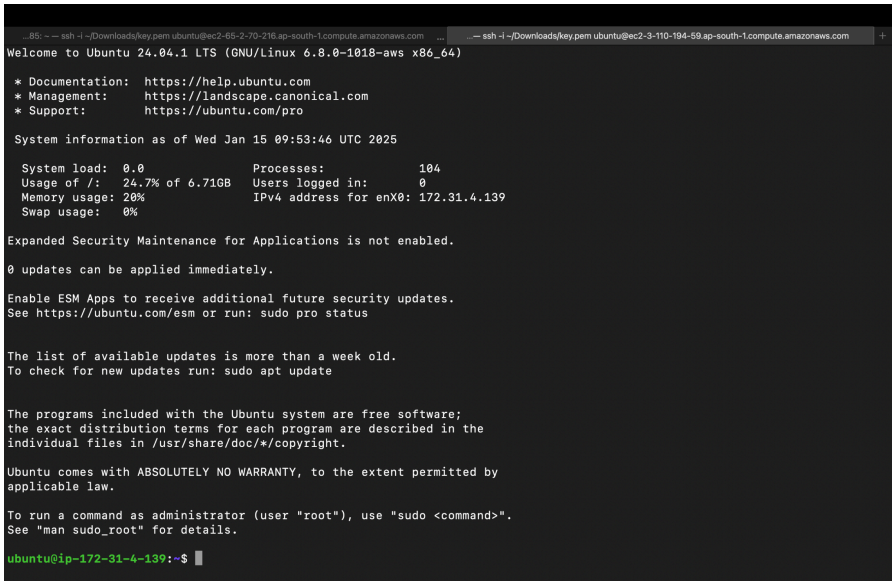
b. Pinging server

```
shravastiohol@Shravastis-MacBook-Pro ~ % ping 65.2.70.216
PING 65.2.70.216 (65.2.70.216): 56 data bytes
64 bytes from 65.2.70.216: icmp_seq=0 ttl=53 time=146.340 ms
64 bytes from 65.2.70.216: icmp_seq=1 ttl=53 time=177.984 ms
64 bytes from 65.2.70.216: icmp_seq=2 ttl=53 time=302.265 ms
64 bytes from 65.2.70.216: icmp_seq=3 ttl=53 time=487.233 ms
^C
--- 65.2.70.216 ping statistics ---
5 packets transmitted, 4 packets received, 20.0% packet loss
round-trip min/avg/max/stddev = 146.340/278.455/487.233/133.888 ms
shravastiohol@Shravastis-MacBook-Pro ~ %
```

3. Connecting to the server instance



4. Connecting to the client instance



5. Installing python package on server

```
ubuntu@ip-172-31-10-185:~$ sudo apt install python3 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
python3 is already the newest version (3.12.3-0ubuntu2).
python3 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

6. Installing python package on client

```
ubuntu@ip-172-31-4-139:~$ sudo apt install python3 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
python3 is already the newest version (3.12.3-0ubuntu2).
python3 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-4-139:~$
```

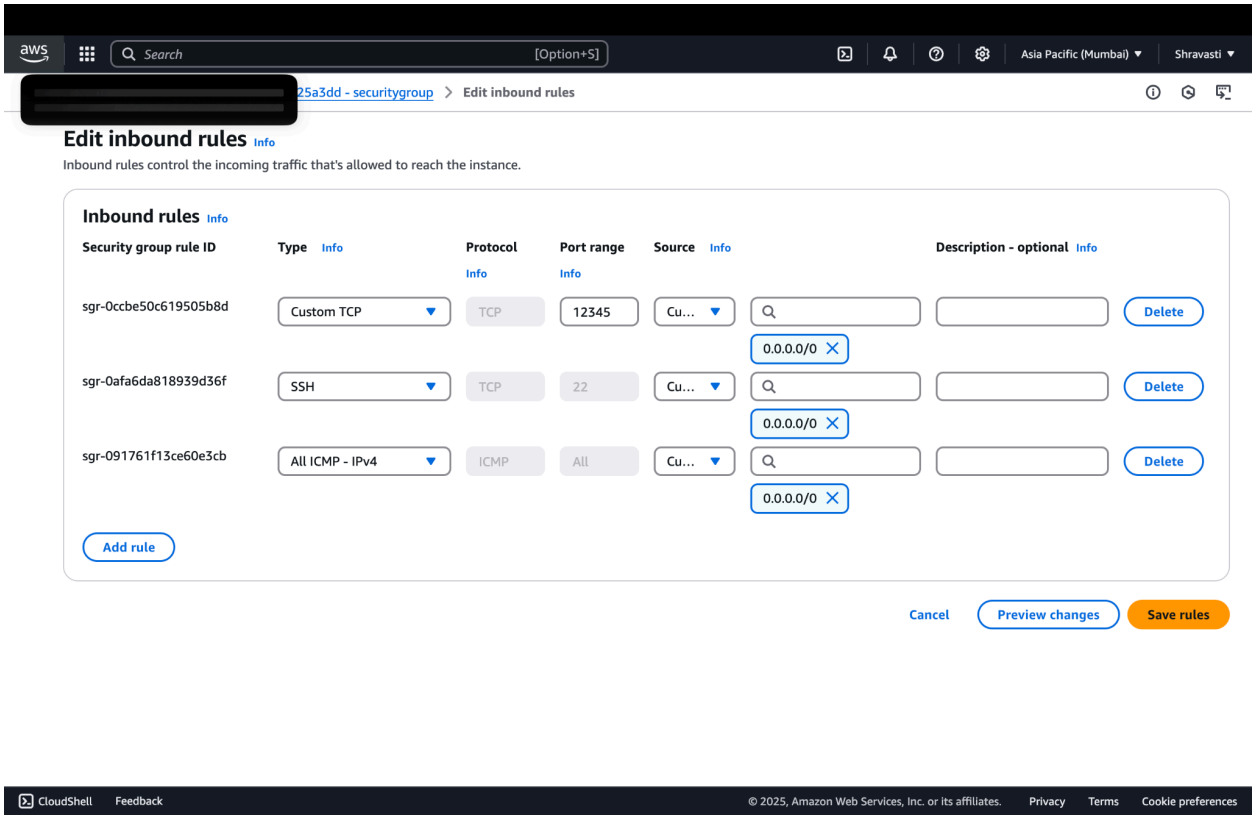
7. Server side code for connection

```
ubuntu@ip-172-31-10-185:~$ nano server.py
ubuntu@ip-172-31-10-185:~$ cat server.py
import socket

server_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
server_socket.bind(('0.0.0.0', 12345))  # Bind to all network interfaces on port 12345
server_socket.listen(1)

print("Server is listening...")
connection, address = server_socket.accept()
print(f"Connection established with {address}")

while True:
    message = connection.recv(1024).decode()
    if not message:
        break
    print(f"Client: {message}")
    connection.send(input("Server: ").encode())

connection.close()
server_socket.close()
ubuntu@ip-172-31-10-185:~$
```

8. Client side code for connection

```
ubuntu@ip-172-31-4-139:~$ nano client.py
ubuntu@ip-172-31-4-139:~$ cat client.py
import socket

client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
server_ip = '<server_public_ip>'
server_port = 12345

client_socket.connect((server_ip, server_port))
print("Connected to the server.")

while True:
    message = input("Client: ")
    client_socket.send(message.encode())
    response = client_socket.recv(1024).decode()
    if not response:
        break
    print(f"Server: {response}")

client_socket.close()
ubuntu@ip-172-31-4-139:~$
```

9. Configuring inbound rules for security group to allow TCP connections from the specified port



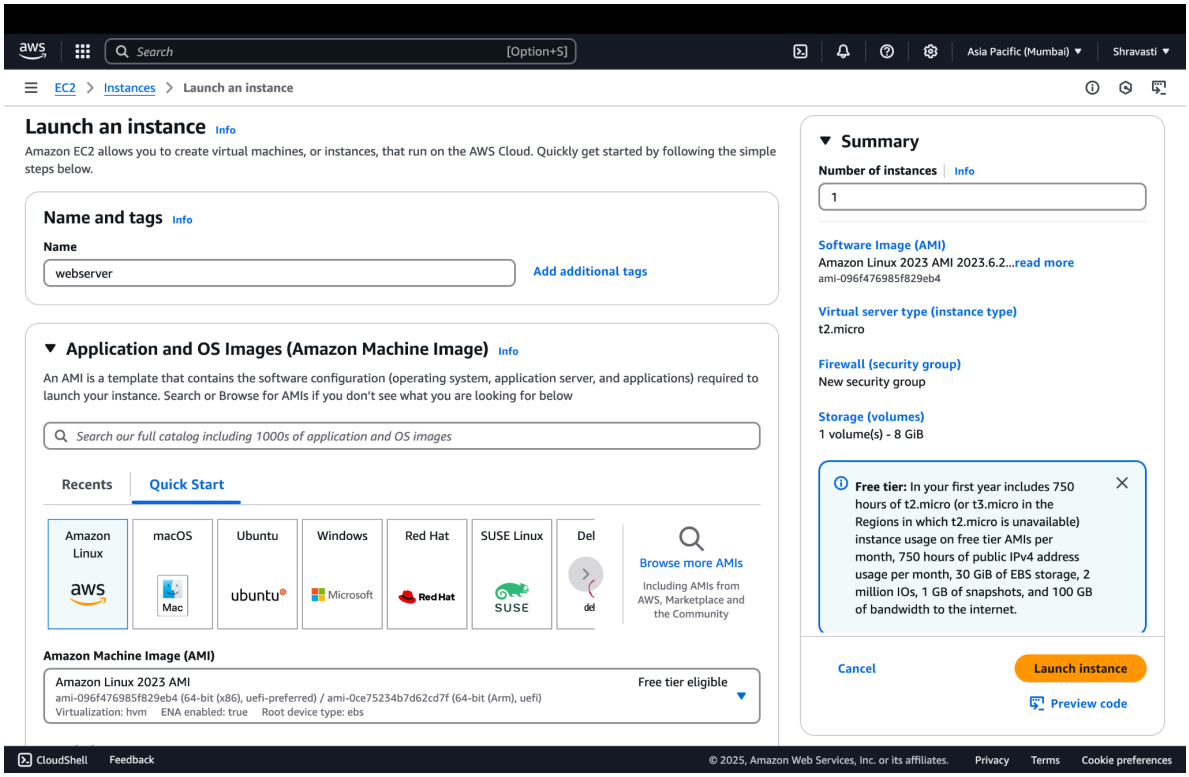
10. Running script on client side

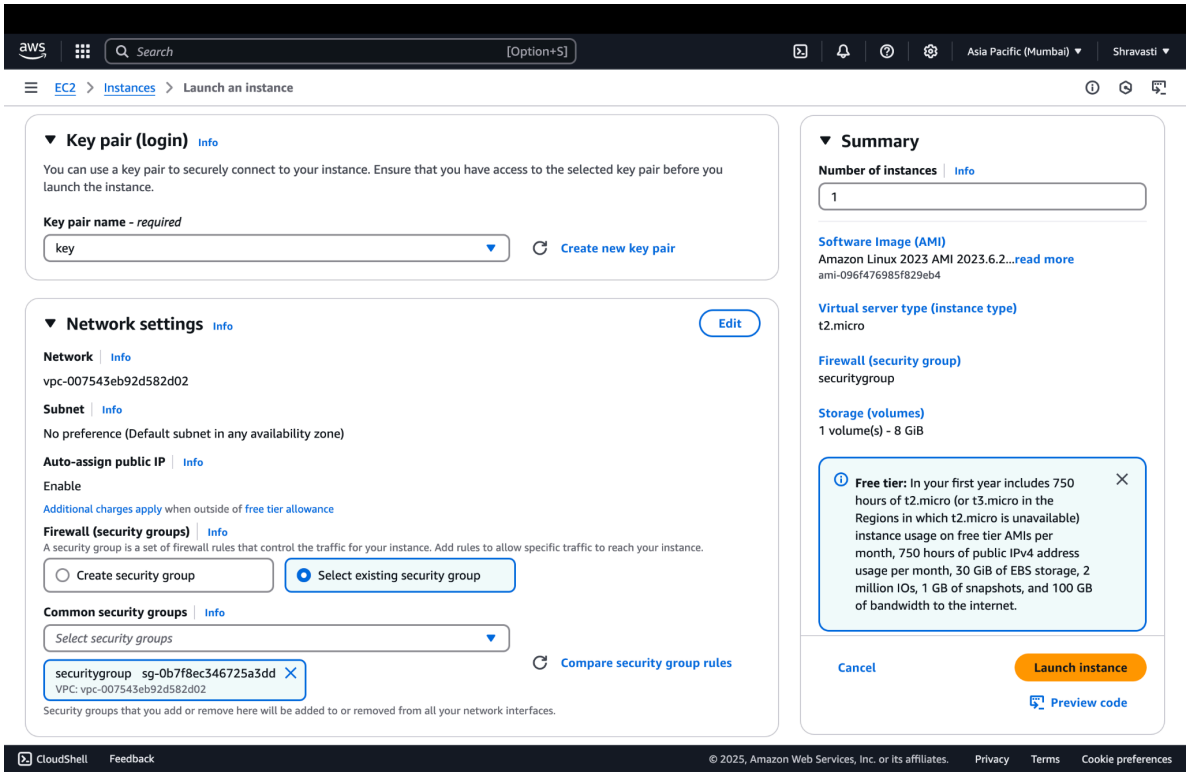
11. Running script on server side

CBE321 Lab 2 2022BCY0012 Shravasti Ohol

Activity 2 : Static website hosting EC2 Amazon Linux Instance

1. Creating an Amazon Linux Instance
    a. Name - webserver
    b. AMI - Amazon Linux
    c. Key - key.pem
    d. Security Group - existing





2. Changing key permissions and connecting to the instance

```
shravastiohol@Shravastis-MacBook-Pro ~ % chmod 400 ~/Downloads/key.pem
shravastiohol@Shravastis-MacBook-Pro ~ % ssh -i ~/Downloads/key.pem ec2-user@ec2-3-109-154-100.ap-south-1.compute.amazonaw
s.com
The authenticity of host 'ec2-3-109-154-100.ap-south-1.compute.amazonaws.com (3.109.154.100)' can't be established.
ED25519 key fingerprint is SHA256:uEQ4zmzUH3cC+Km143PPc90RoZyeUHbZwmQFl2+wbUc.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-109-154-100.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[ec2-user@ip-172-31-0-128 ~]$
```

3. Installing and updating packages

```
[ec2-user@ip-172-31-0-128 ~]$ sudo yum update -y
Last metadata expiration check: 0:06:50 ago on Wed Jan 15 10:22:43 2025.
Dependencies resolved.
Nothing to do.
Complete!
```

```
[ec2-user@ip-172-31-0-128 ~]$ sudo yum install httpd -y
Last metadata expiration check: 0:07:05 ago on Wed Jan 15 10:22:43 2025.
Dependencies resolved.
==========================================================================================================================
 Package                          Architecture        Version                              Repository             Size
==========================================================================================================================
Installing:
 httpd                            x86_64              2.4.62-1.amzn2023                    amazonlinux            48 k
Installing dependencies:
 apr                              x86_64              1.7.5-1.amzn2023.0.2                 amazonlinux           130 k
 apr-util                         x86_64              1.6.3-1.amzn2023.0.1                 amazonlinux            98 k
 generic-logos-httpd              noarch              18.0.0-12.amzn2023.0.3               amazonlinux            19 k
 httpd-core                       x86_64              2.4.62-1.amzn2023                    amazonlinux           1.4 M
 httpd-filesystem                 noarch              2.4.62-1.amzn2023                    amazonlinux            14 k
 httpd-tools                      x86_64              2.4.62-1.amzn2023                    amazonlinux            81 k
 libbrotli                        x86_64              1.0.9-4.amzn2023.0.2                 amazonlinux           315 k
 mailcap                          noarch              2.1.49-3.amzn2023.0.3                amazonlinux            33 k
Installing weak dependencies:
 apr-util-openssl                 x86_64              1.6.3-1.amzn2023.0.1                 amazonlinux            17 k
 mod_http2                        x86_64              2.0.27-1.amzn2023.0.3                amazonlinux           166 k
 mod_lua                          x86_64              2.4.62-1.amzn2023                    amazonlinux            61 k

Transaction Summary
==========================================================================================================================
Install  12 Packages

Total download size: 2.3 M
Installed size: 6.9 M
Downloading Packages:
(1/12): apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64.rpm                          480 kB/s |  17 kB     00:00
(2/12): apr-util-1.6.3-1.amzn2023.0.1.x86_64.rpm                                  2.4 MB/s |  98 kB     00:00
(3/12): apr-1.7.5-1.amzn2023.0.2.x86_64.rpm                                       2.3 MB/s | 130 kB     00:00
(4/12): generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch.rpm                     825 kB/s |  19 kB     00:00
(5/12): httpd-2.4.62-1.amzn2023.x86_64.rpm                                        2.0 MB/s |  48 kB     00:00
(6/12): httpd-filesystem-2.4.62-1.amzn2023.noarch.rpm                             760 kB/s |  14 kB     00:00
(7/12): httpd-tools-2.4.62-1.amzn2023.x86_64.rpm                                  3.2 MB/s |  81 kB     00:00
(8/12): httpd-core-2.4.62-1.amzn2023.x86_64.rpm                                    30 MB/s | 1.4 MB     00:00
(9/12): libbrotli-1.0.9-4.amzn2023.0.2.x86_64.rpm                                 9.8 MB/s | 315 kB     00:00
```

```
Installed:
  apr-1.7.5-1.amzn2023.0.2.x86_64                          apr-util-1.6.3-1.amzn2023.0.1.x86_64
  apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64             generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
  httpd-2.4.62-1.amzn2023.x86_64                           httpd-core-2.4.62-1.amzn2023.x86_64
  httpd-filesystem-2.4.62-1.amzn2023.noarch                httpd-tools-2.4.62-1.amzn2023.x86_64
  libbrotli-1.0.9-4.amzn2023.0.2.x86_64                    mailcap-2.1.49-3.amzn2023.0.3.noarch
  mod_http2-2.0.27-1.amzn2023.0.3.x86_64                   mod_lua-2.4.62-1.amzn2023.x86_64

Complete!
[ec2-user@ip-172-31-0-128 ~]$
```

4. Start and enable httpd

```
[ec2-user@ip-172-31-0-128 ~]$ sudo systemctl start httpd
[ec2-user@ip-172-31-0-128 ~]$ sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-0-128 ~]$
```

5. Create index.html

```
[ec2-user@ip-172-31-0-128 ~]$ cd /var/www/html
[ec2-user@ip-172-31-0-128 html]$ nano index.html
[ec2-user@ip-172-31-0-128 html]$ sudo nano index.html
[ec2-user@ip-172-31-0-128 html]$ cat index.html
<html>
<head>
    <title>My Static Website</title>
</head>
<body>
    <h1>Welcome to My Website!</h1>
    <p>Hosted on an EC2 instance.</p>
</body>
</html>
[ec2-user@ip-172-31-0-128 html]$
```

6. Hosting the website and viewing using public IP address