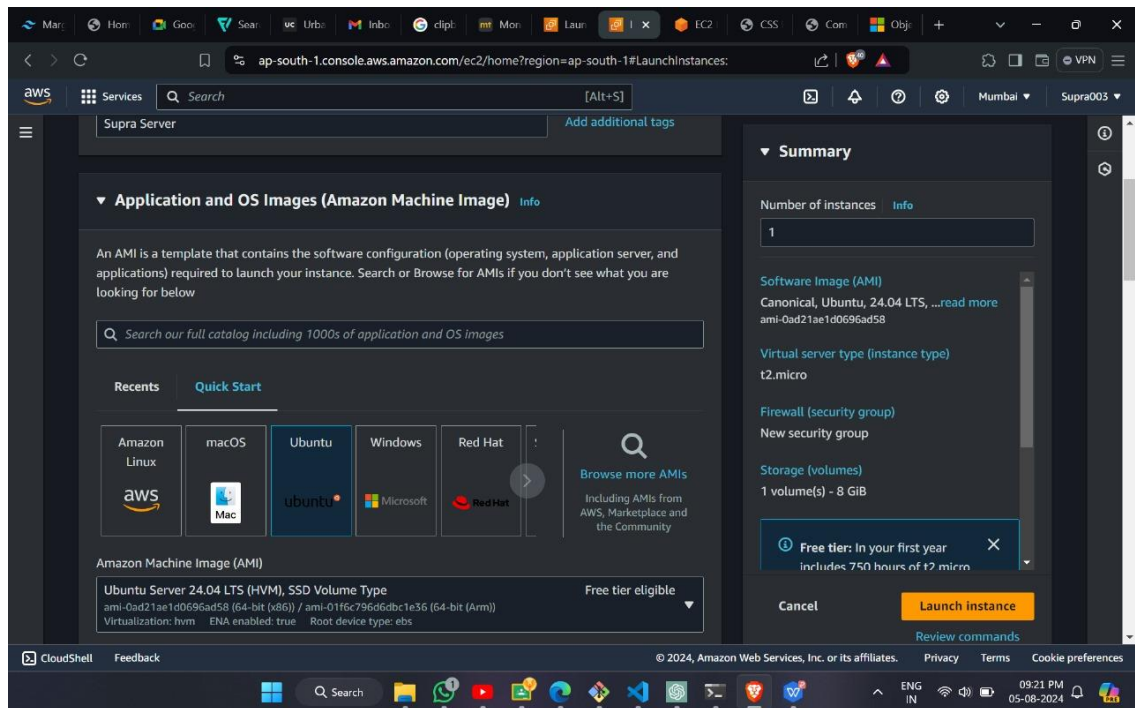


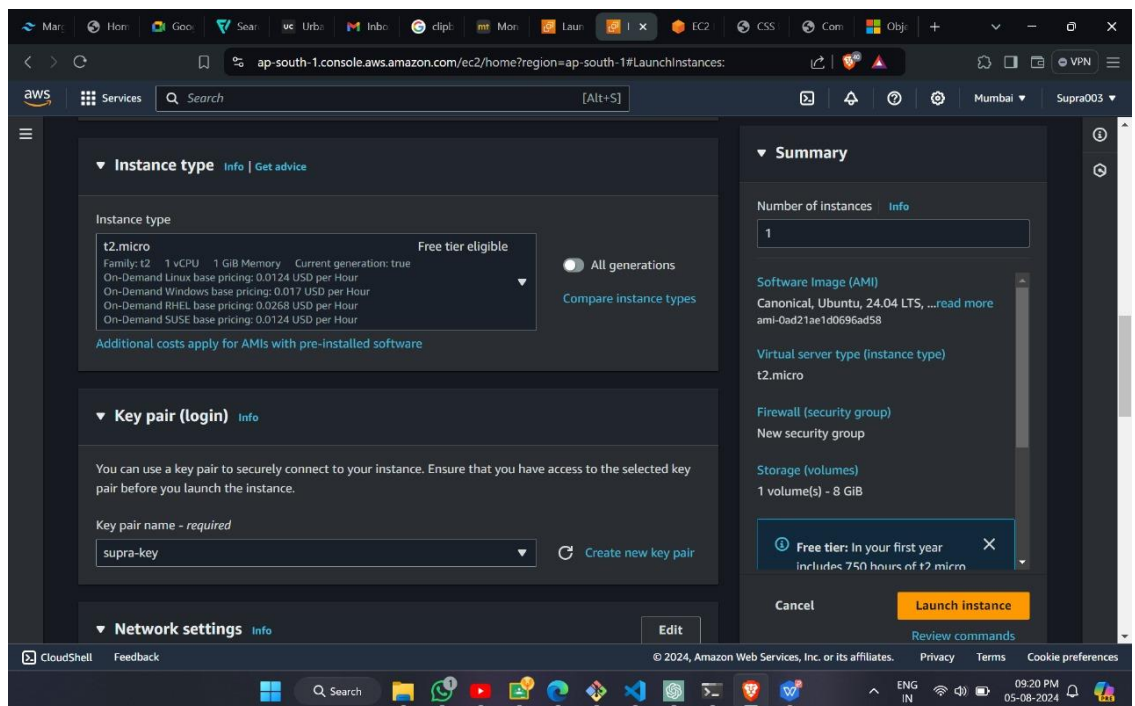
Experiment 01

a) To develop a website and host it on your local machine on a VM

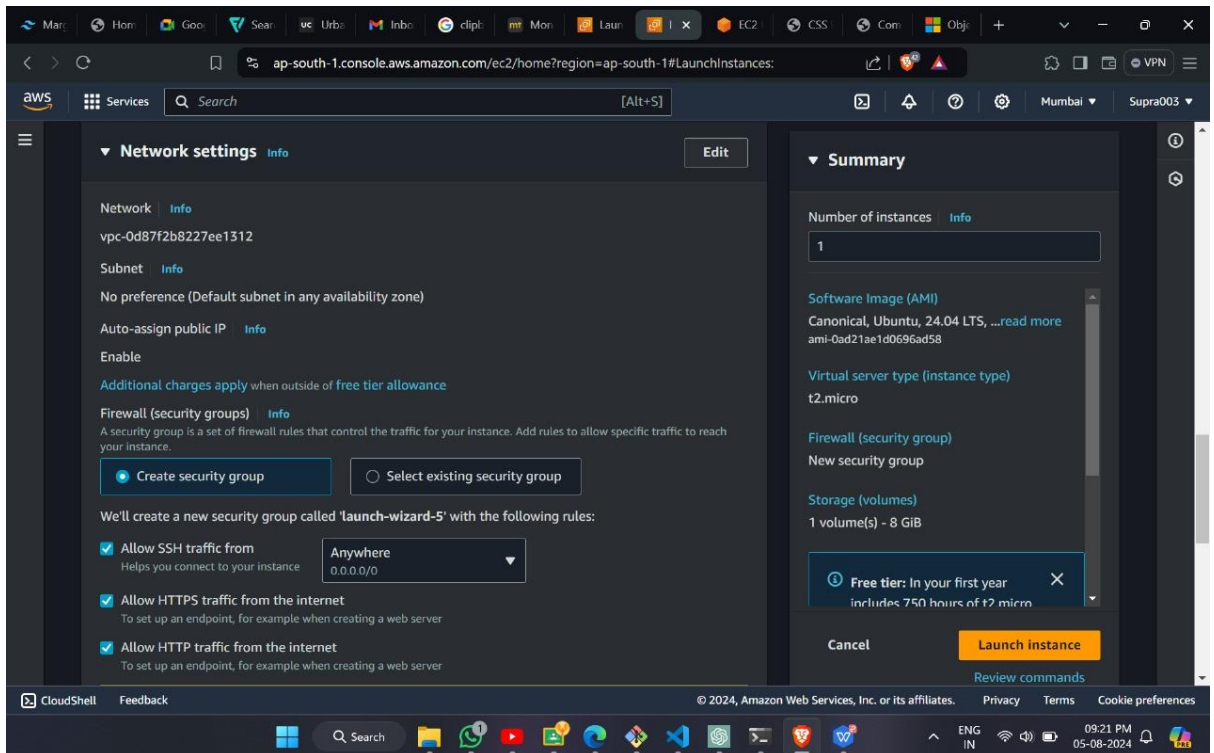
1. Give name to EC2 instance



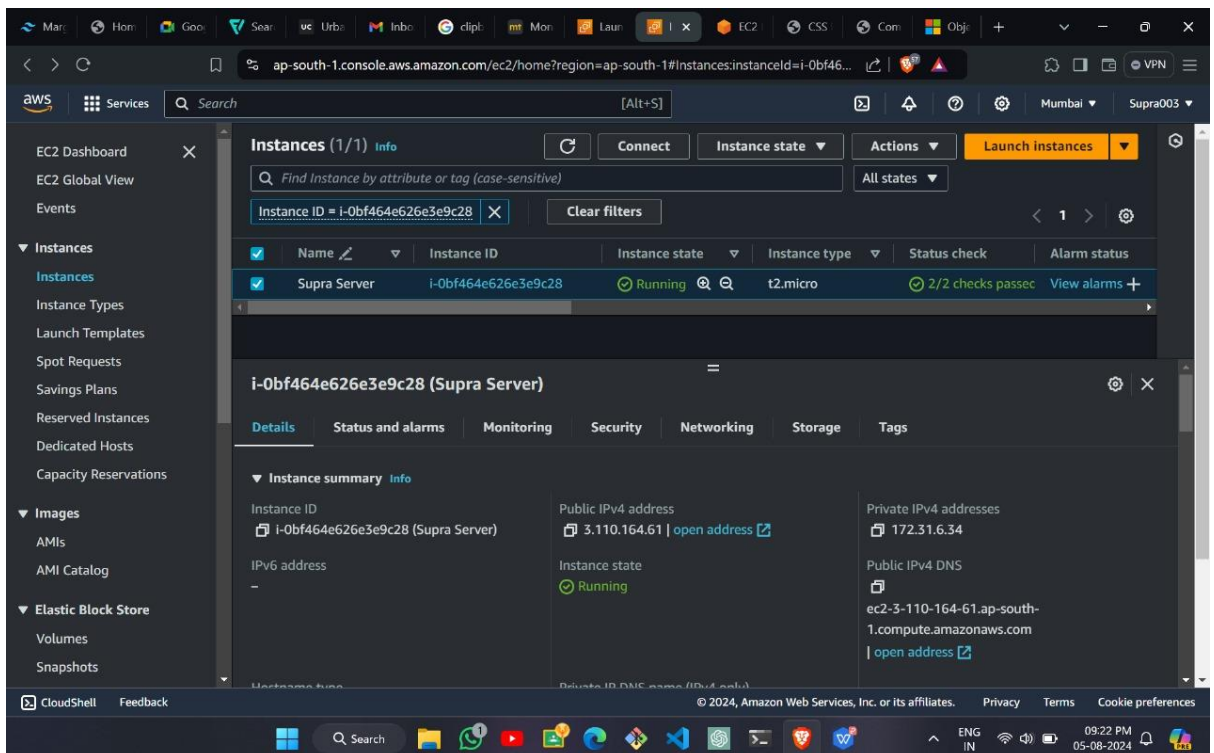
2. Create a key-pair login.



3. Edit network settings. And Launch Instance.



4. Instance successfully launched.



5. Create a virtual environment with key pair permission.

```
Command Prompt  Windows PowerShell

supra>ssh -i "supra-key.pem" ubuntu@3.110.164.61
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1009-aws x86_64)

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

System information as of Mon Aug 5 14:53:57 UTC 2024

System load:  0.01          Processes:           105
Usage of /:   22.7% of 6.71GB Users logged in:          0
Memory usage: 20%          IPv4 address for enx0: 172.31.6.34
Swap usage:   0%

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.
```

6. Install apache on virtual machine.

```
Command Prompt  Windows PowerShell

ubuntu@ip-172-31-6-34:~$ sudo apt update && sudo apt upgrade -y
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [317 kB]
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [82.7 kB]
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [5640 B]
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [318 kB]
Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [133 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [45.0 kB]
Get:19 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [12.5 kB]
Get:20 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [208 kB]
Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [40.7 kB]
Get:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [416 B]
Get:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [14.1 kB]
Get:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3608 B]
Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]
Get:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [532 B]
Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.3 kB]
Get:30 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.5 kB]
Get:31 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
Get:32 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1016 B]
Get:33 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:34 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
```


7. Update and upgrade it.

```
Command Prompt
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-6-34:~$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /usr/lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /usr/lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.2) ...
Scanning processes...
Scanning candidates...
Scanning linux images...

Pending kernel upgrade!
```

8. Start the apache server.

```
Command Prompt
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-6-34:~$ sudo systemctl start apache2
ubuntu@ip-172-31-6-34:~$ 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-172-31-6-34:~$ client_loop: send disconnect: Connection reset

supra>scp -i "supra-key.pem" "C:\Users\91952\Downloads\index.html" ubuntu@3.110.164.61:/var/www/html/
scp: /var/www/html/index.html: Permission denied

supra>scp -i "supra-key.pem" "C:\Users\91952\Downloads\index.html" ubuntu@3.110.164.61:/var/www/html
scp: /var/www/html/index.html: Permission denied

supra>scp -i "supra-key.pem" "C:\Users\91952\Downloads\index.html" ubuntu@3.110.164.61:/home/ubuntu/
index.html      100% 2955    36.8KB/s   00:00

supra>ssh -i "supra-key.pem" ubuntu@3.110.164.61
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1009-aws x86_64)

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

System information as of Mon Aug 5 15:08:46 UTC 2024

System load:  0.0          Processes:      110
Usage of /:   29.1% of 6.71GB Users logged in: 0
Memory usage: 25%         IPv4 address for enX0: 172.31.6.34
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
```

9. Give file location to be executed.

```
Command Prompt
*** System restart required ***
Last login: Mon Aug 5 14:53:58 2024 from 152.58.43.204
ubuntu@ip-172-31-6-34:~$ sudo mv /home/ubuntu/index.html /var/www/html/
ubuntu@ip-172-31-6-34:~$ sudo chown -R www-data:www-data /var/www/html
ubuntu@ip-172-31-6-34:~$ sudo nano /etc/apache2/sites-available/000-default.conf
ubuntu@ip-172-31-6-34:~$ sudo a2ensite 000-default.conf
Site 000-default already enabled
ubuntu@ip-172-31-6-34:~$ sudo systemctl restart apache2
ubuntu@ip-172-31-6-34:~$ sudo apt install certbot python3-certbot-apache
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  Augeas-lenses libaugeas0 python3-acme python3-augeas
  python3-certbot python3-configargparse python3-icu
  python3-josepy python3-parsedatetime python3-rfc3339
Suggested packages:
  Augeas-doc python-certbot-doc python3-certbot-nginx
  Augeas-tools python-acme-doc python-certbot-apache-doc
The following NEW packages will be installed:
  Augeas-lenses certbot libaugeas0 python3-acme python3-augeas
  python3-certbot python3-certbot-apache
..
Unpacking python3-parsedatetime (2.6-3) ...
Selecting previously unselected package python3-certbot.
Preparing to unpack .../08-python3-certbot_2.9.0-1_all.deb ...
Unpacking python3-certbot (2.9.0-1) ...
Selecting previously unselected package certbot.
Preparing to unpack .../09-certbot_2.9.0-1_all.deb ...
Unpacking certbot (2.9.0-1) ...
Selecting previously unselected package python3-certbot-apache.
Preparing to unpack .../10-python3-certbot-apache_2.9.0-1_all.deb ...
Unpacking python3-certbot-apache (2.9.0-1) ...
Selecting previously unselected package python3-icu.
Preparing to unpack .../11-python3-icu_2.12-1build2_amd64.deb ...
Unpacking python3-icu (2.12-1build2) ...
```

10. Output of the code on local machine.

