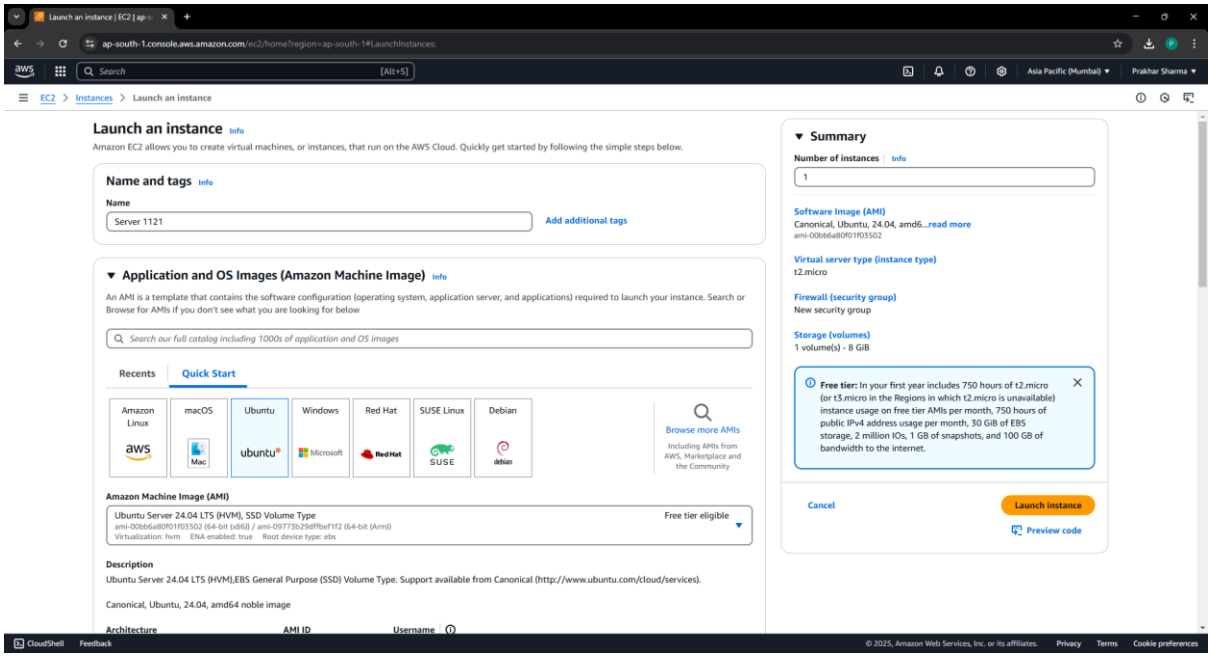
D Y PATIL INTERNATIONAL UNIVERSITY
AKURDI PUNE

School of Computer Science, Engineering and Applications(SCSEA)
B.C.A. TY (CCSA)
Subject : Containers and Orchestration (P)

Name of the Student:	**Prakhar Anil Sharma**	**PRN:**	**20220801121**
Title of Practical:	**Docker Container Lifecycle: Managing Ubuntu & Apache2 Images with Start, Stop, Kill, and Prune Operations.**		

Step 1] Create a Linux/Ubuntu EC2 Instance -

- Name the instance – Server 1121.
- Select AMI as Ubuntu Server 24.04 LTS (Free Tier).
- Select t2.micro as instance type.
- Create or select existing key pair – Key 07.
- In Network Settings, select Create security group and click on the checkbox of Allow HTTP traffic from internet.
- Click on Launch Instance.



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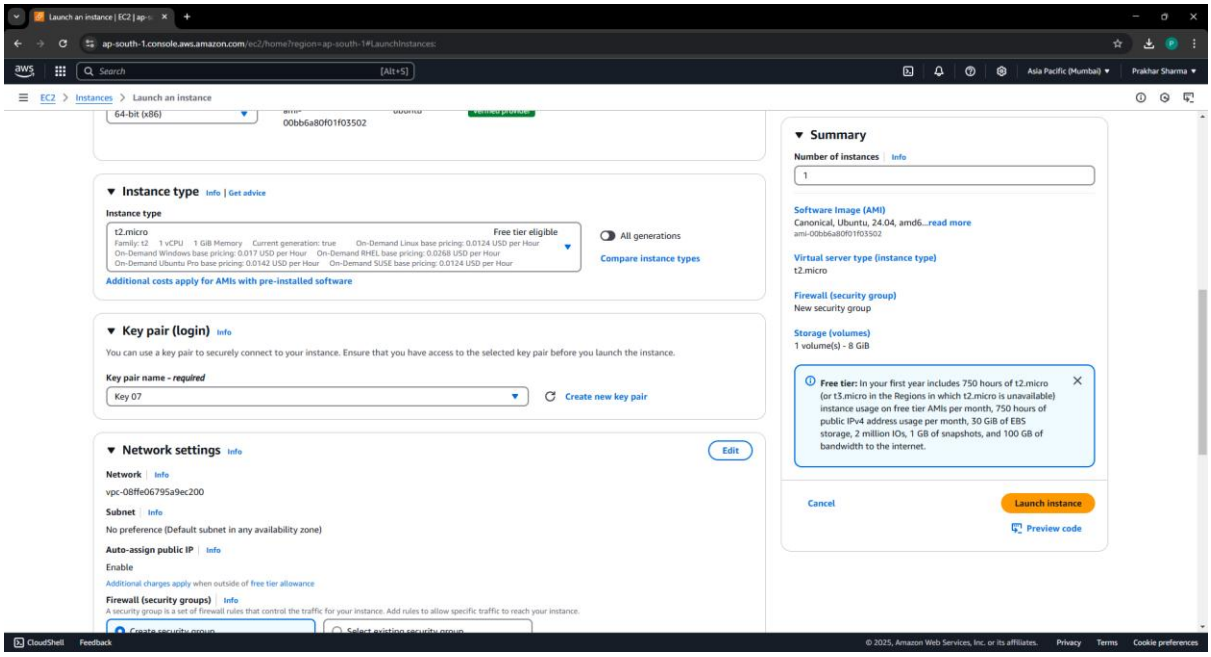

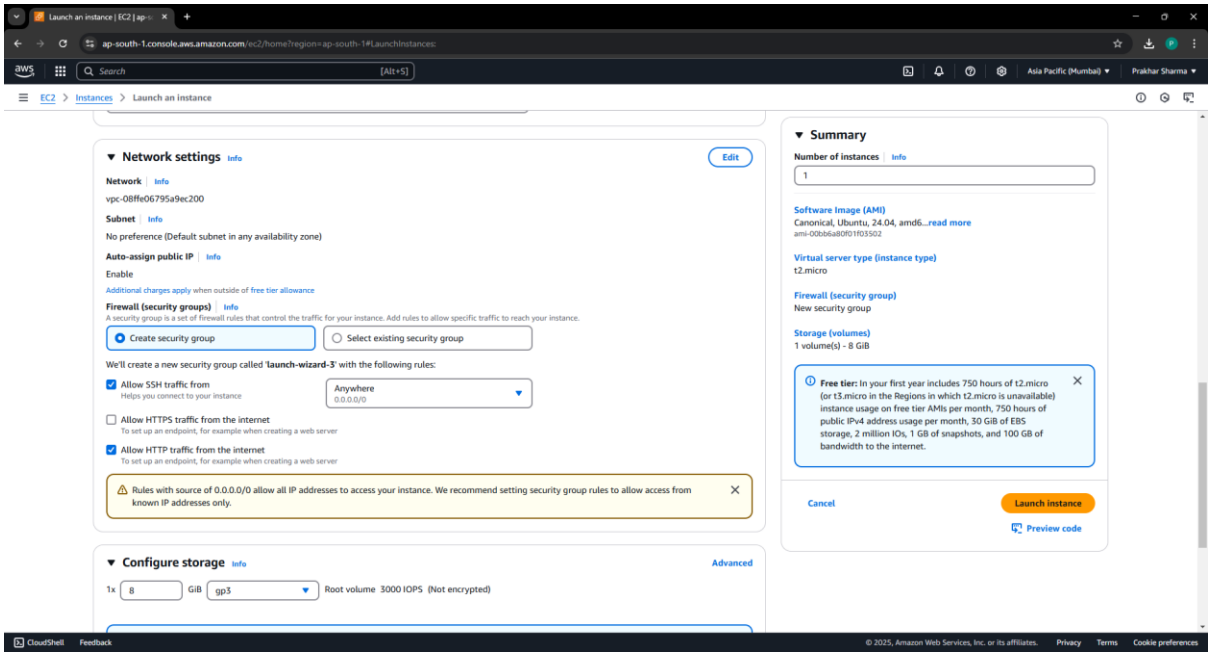

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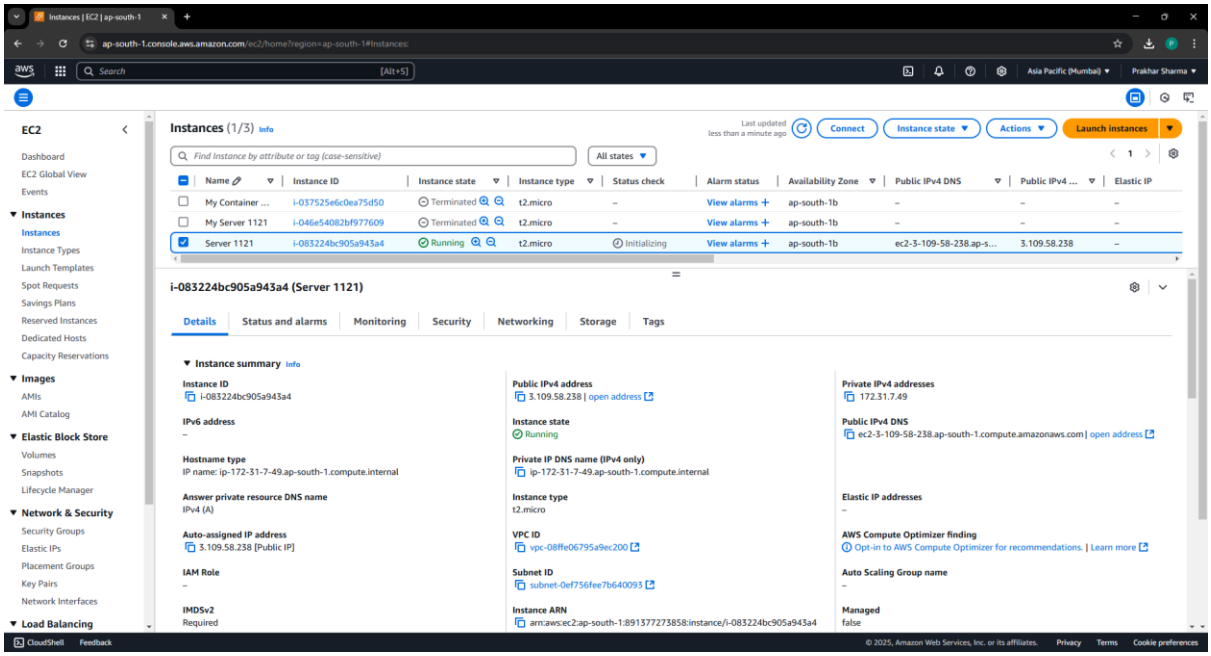
Step 2] Connect the instance –

- Select the instance and click on connect.
- Go to SSH Client tab and copy the example.
- Paste the copied example in the command prompt and connect the server.



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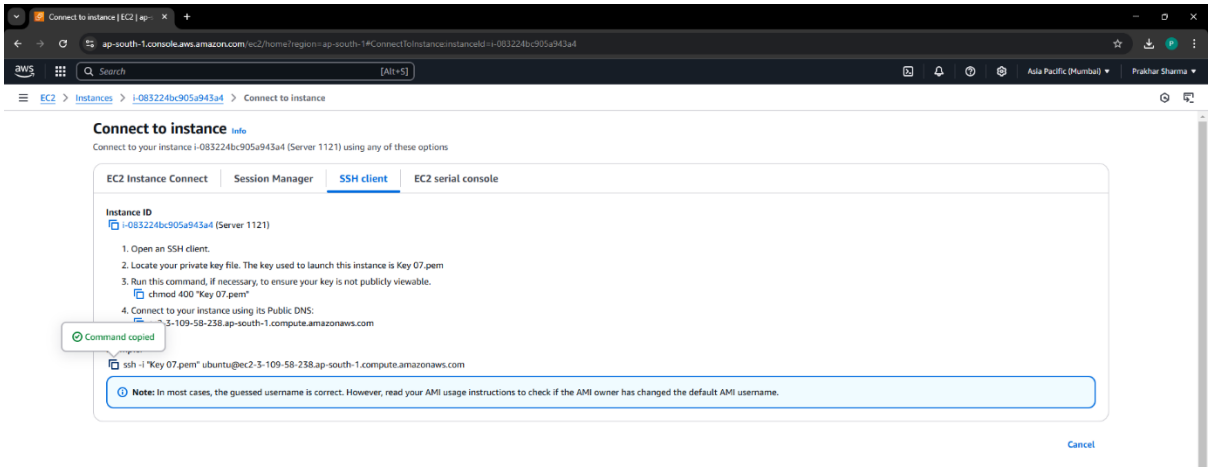
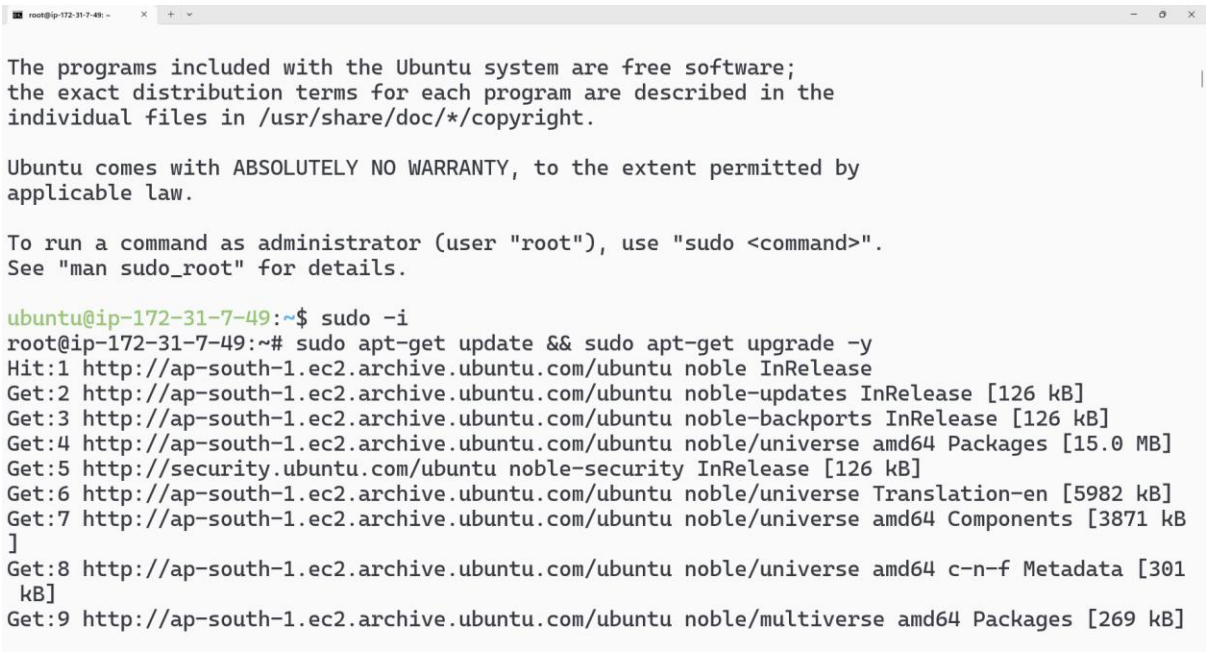



```
Microsoft Windows [Version 10.0.26100.3037]
(c) Microsoft Corporation. All rights reserved.

C:\Users\prakh>cd downloads

C:\Users\prakh\Downloads>ssh -i "Key 07.pem" ubuntu@ec2-3-109-58-238.ap-south-1.compute.amazon
aws.com
The authenticity of host 'ec2-3-109-58-238.ap-south-1.compute.amazonaws.com (3.109.58.238)' ca
n't be established.
ED25519 key fingerprint is SHA256:N5flCi7rAMqg6NOOTWQ5K2FvxTOeBSw7CSv5BPOpli4.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-109-58-238.ap-south-1.compute.amazonaws.com' (ED25519) to th
e list of known hosts.
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1021-aws x86_64)

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

 System information as of Mon Feb 10 18:05:22 UTC 2025

  System load:  0.23              Processes:             107
  Usage of /:   24.9% of 6.71GB   Users logged in:       0
```

Step 3] Run the below commands in command prompt to install the nginx and apache2 server on the instance.

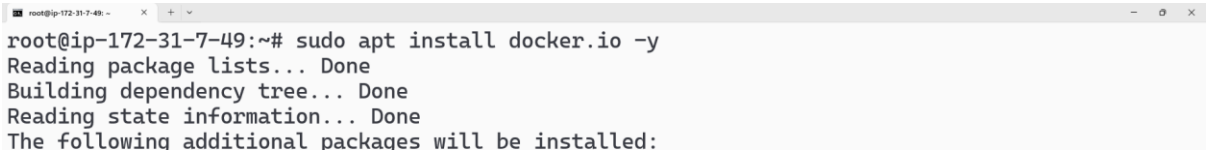
- sudo -i

- sudo apt-get update && sudo apt-get upgrade -y



Step 4] Now after updating and upgrading the instance , then installing docker on it using below command.

- sudo apt install docker.io -y



Step 5] Now installing the nginx server by making a container on docker using below command and checking the successful installation and resources it using.

- docker run -d –name prakhar-nginx -p 3000:80 nginx

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- docker container ls -a

```
No containers need to be restarted.

User sessions running outdated binaries:
 ubuntu @ session #2: sshd[1036,1146]
 ubuntu @ user manager service: systemd[1041]
root@ip-172-31-7-49:~# docker run -d --name prakhar-nginx -p 3000:80 nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
c29f5b76f736: Pull complete
e19db8451adb: Pull complete
24ff42a0d907: Pull complete
c558df217949: Pull complete
976e8f6b25dd: Pull complete
6c78b0ba1a32: Pull complete
84cade77a831: Pull complete
Digest: sha256:91734281c0ebfc6f1aea979cffeed5079cfe786228a71cc6f1f46a228cde6e34
Status: Downloaded newer image for nginx:latest
871b14cb6c08a7c934d5eb117b59bcfcaf77db6b881a7a61453e76ffdc4b75e4
root@ip-172-31-7-49:~# docker container ls -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS         PORTS
                          NAMES
871b14cb6c08   nginx     "/docker-entrypoint.…"   11 seconds ago   Up 9 seconds   0.0.0.0:3000
->80/tcp, :::3000->80/tcp   prakhar-nginx
root@ip-172-31-7-49:~#
```

Step 6] Now for checking successful installation ,copy the ip of the instance and paste it on new tab ,you will see the site is not loading

Because the port number is not added in the security group it will not allow the network coming from that port ,so add the port number on which nginx is installed

For this edit the security group inbound rule

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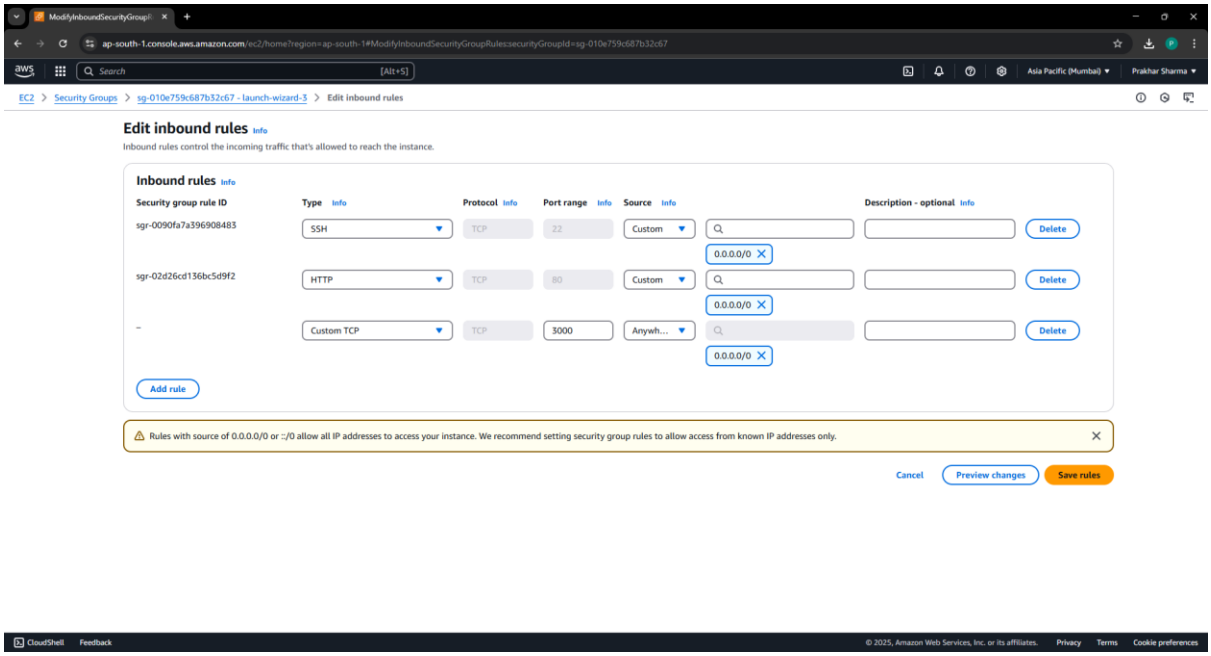
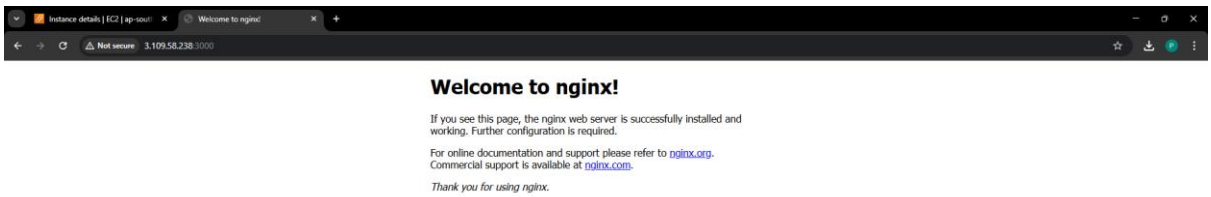


Now refresh the tab and will see this on the tab, this prove that nginx installed successfully



Step 7] Now we will Stop, Start, kill the Running Nginx Container using the below commands :-

- docker stop prakhar-nginx
- docker start prakhar-nginx
- docker kill prakhar-nginx

- docker container prune

```
root@ip-172-31-7-49:~# docker container ls -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS         PORTS
                          NAMES
871b14cb6c08   nginx     "/docker-entrypoint.…"   11 seconds ago   Up 9 seconds   0.0.0.0:3000
->80/tcp, :::3000->80/tcp   prakhar-nginx
root@ip-172-31-7-49:~# docker stop prakhar-nginx
prakhar-nginx
root@ip-172-31-7-49:~# docker start prakhar-nginx
prakhar-nginx
root@ip-172-31-7-49:~# docker kill prakhar-nginx
prakhar-nginx
root@ip-172-31-7-49:~# docker container ls -a
CONTAINER ID   IMAGE     COMMAND                  CREATED         STATUS
  PORTS     NAMES
871b14cb6c08   nginx     "/docker-entrypoint.…"   4 minutes ago   Exited (137) 11 seconds ago
            prakhar-nginx
root@ip-172-31-7-49:~# docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
871b14cb6c08a7c934d5eb117b59bcfcaf77db6b881a7a61453e76ffdc4b75e4

Total reclaimed space: 1.095kB
root@ip-172-31-7-49:~#
```

Step 8] Now installing the ubuntu apache2 server by making a container on docker using below command and checking the successful installation and resources it using .

- docker run -d –name prakhar-apache2 -p 3001:80 ubuntu/apache2
- docker container ls -a

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```
Are you sure you want to continue? [y/N] y
Deleted Containers:
871b14cb6c08a7c934d5eb117b59bcfcaf77db6b881a7a61453e76ffdc4b75e4

Total reclaimed space: 1.095kB
root@ip-172-31-7-49:~# docker run -d --name prakhar-apache2 -p 3001:80 ubuntu/apache2
Unable to find image 'ubuntu/apache2:latest' locally
latest: Pulling from ubuntu/apache2
207a8499ffa9: Pull complete
1db32677b891: Pull complete
cbeb97bc6e2c: Pull complete
Digest: sha256:590b7b0f55fbfaf363be800d938247addfdfd461371082bc0cb56ac7dbc5876b
Status: Downloaded newer image for ubuntu/apache2:latest
b24ca34070c50fbf8bd5c8130a684b49c48dda92ba09c636fbc5d05cf1a1b41e
root@ip-172-31-7-49:~# docker images
REPOSITORY       TAG       IMAGE ID       CREATED         SIZE
nginx            latest    97662d24417b   4 days ago      192MB
ubuntu/apache2   latest    0c7bff66a8b0   5 months ago    221MB
root@ip-172-31-7-49:~# docker container ls -a
CONTAINER ID   IMAGE            COMMAND                  CREATED         STATUS         PORTS
                                NAMES
b24ca34070c5   ubuntu/apache2   "apache2-foreground"     3 minutes ago   Up 3 minutes   0.0.0.0:
3001->80/tcp, :::3001->80/tcp   prakhar-apache2
root@ip-172-31-7-49:~#
```

Step 9]Now for checking successful installation ,copy the ip of the instance and paste it on new tab ,you will see the site is not loading

Because the port number is not added in the security group it will not allow the network coming from that port ,so add the port number on which apache2 is installed

For this edit the security group inbound rule

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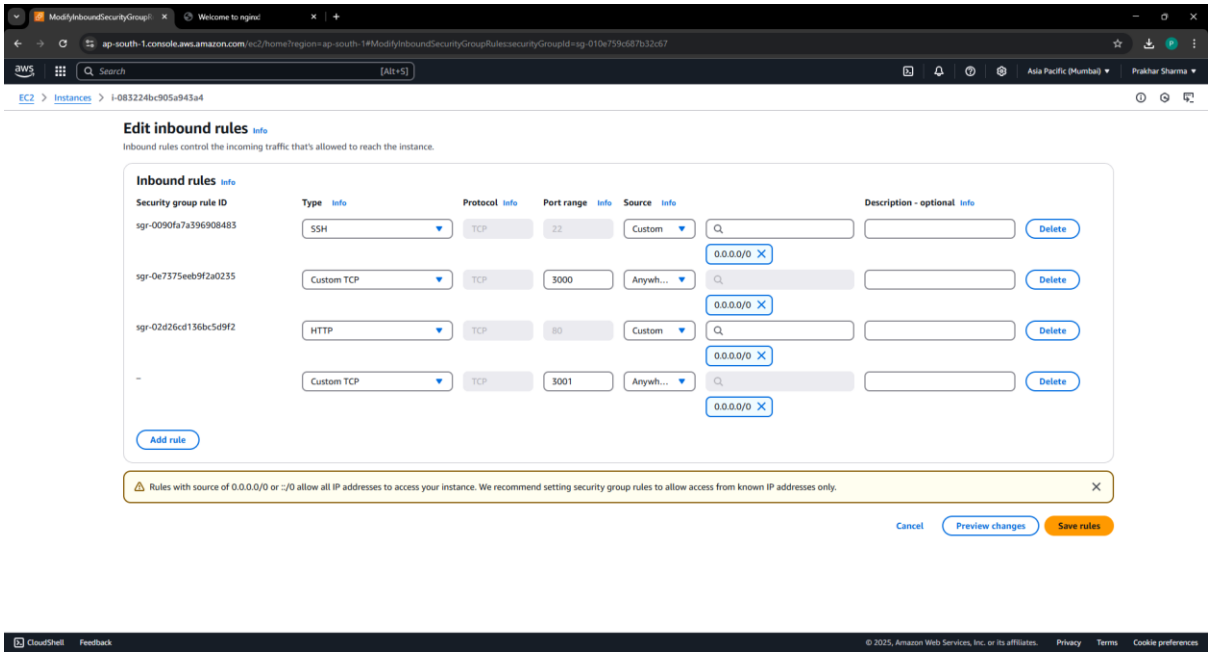
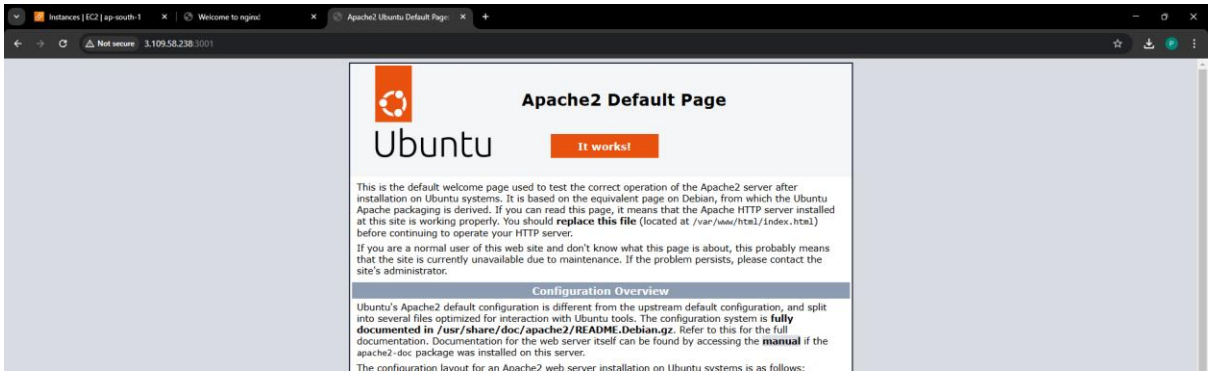


Now refresh the tab and will see this on the tab, this prove that apache2 installed successfully



Step 10] Now we will Stop, Start, kill the Running apache2 Container using the below commands :-

- docker stop prakhar-apache2

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- docker start prakhar-apache2

- docker kill prakhar-apache2

- docker container prune

```
b24ca34070c50fbf8bd5c8130a684b49c48dda92ba09c636fbc5d05cf1a1b41e
root@ip-172-31-7-49:~# docker images
REPOSITORY       TAG       IMAGE ID       CREATED        SIZE
nginx            latest    97662d24417b   4 days ago     192MB
ubuntu/apache2   latest    0c7bff66a8b0   5 months ago   221MB
root@ip-172-31-7-49:~# docker container ls -a
CONTAINER ID   IMAGE            COMMAND                  CREATED         STATUS         PORTS
                                NAMES
b24ca34070c5   ubuntu/apache2   "apache2-foreground"   3 minutes ago   Up 3 minutes   0.0.0.0:
3001->80/tcp, :::3001->80/tcp   prakhar-apache2
root@ip-172-31-7-49:~# docker stop prakhar-apache2
prakhar-apache2
root@ip-172-31-7-49:~# docker start prakhar-apache2
prakhar-apache2
root@ip-172-31-7-49:~# docker kill prakhar-apache2
prakhar-apache2
root@ip-172-31-7-49:~# docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
b24ca34070c50fbf8bd5c8130a684b49c48dda92ba09c636fbc5d05cf1a1b41e

Total reclaimed space: 688B
root@ip-172-31-7-49:~#
```