Aws gaurav sharama

Key pair se machine ko acces kar paoge ssh karke

Inbound ham user jo traffic behj rha server koo

Outbound- server kaha traffic send kar sakte hai

# To access an ec2 instace

C:\Users\user121\Downloads>ssh -i test-ece2.pem ubuntu@ec2-52-66-238-149.ap-south-1.compute.amazonaws.com

The authenticity of host 'ec2-52-66-238-149.ap-south-1.compute.amazonaws.com (52.66.238.149)' can't be established.

# to access our ec2 inst we use dns

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-172-31-7-242:~$ # we are in the ec2 isntance

ubuntu@ip-172-31-7-242:~$ cat /etc/os-relase

cat: /etc/os-relase: No such file or directory

ubuntu@ip-172-31-7-242:~$ cat /etc/os-release

PRETTY\_NAME="Ubuntu 24.04.1 LTS"

NAME="Ubuntu"

VERSION\_ID="24.04"

VERSION="24.04.1 LTS (Noble Numbat)"

VERSION\_CODENAME=noble

ID=ubuntu

ID\_LIKE=debian

HOME\_URL="https://www.ubuntu.com/"

SUPPORT\_URL="https://help.ubuntu.com/"

BUG\_REPORT\_URL="https://bugs.launchpad.net/ubuntu/"

PRIVACY\_POLICY\_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"

UBUNTU\_CODENAME=noble

LOGO=ubuntu-logo

ubuntu@ip-172-31-7-242:~$ cat /etc/os-relase

cat: /etc/os-relase: No such file or directory

ubuntu@ip-172-31-7-242:~$ cat /etc/os-release

PRETTY\_NAME="Ubuntu 24.04.1 LTS"

NAME="Ubuntu"

VERSION\_ID="24.04"

VERSION="24.04.1 LTS (Noble Numbat)"

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BUG\_REPORT\_URL="https://bugs.launchpad.net/ubuntu/"

PRIVACY\_POLICY\_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"

UBUNTU\_CODENAME=noble

LOGO=ubuntu-logo

ubuntu@ip-172-31-7-242:~$ free -m

total used free shared buff/cache available

Mem: 957 331 402 0 375 626

Swap: 0 0 0

ubuntu@ip-172-31-7-242:~$ lscpu

Architecture: x86\_64

CPU op-mode(s): 32-bit, 64-bit

Address sizes: 46 bits physical, 48 bits virtual

ubuntu@ip-172-31-7-242:~$ df -h

Filesystem Size Used Avail Use% Mounted on

/dev/root 6.8G 1.7G 5.1G 26% /

tmpfs 479M 0 479M 0% /dev/shm

tmpfs 192M 876K 191M 1% /run

tmpfs 5.0M 0 5.0M 0% /run/lock

ubuntu@ip-172-31-7-242:~$ ip a

1: lo: <LOOPBACK,UP,LOWER\_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000

link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00

inet 127.0.0.1/8 scope host lo

valid\_lft forever preferred\_lft forever

inet6 ::1/128 scope host noprefixroute

valid\_lft forever preferred\_lft forever

2: enX0: <BROADCAST,MULTICAST,UP,LOWER\_UP> mtu 9001 qdisc fq\_codel state UP group default qlen 1000

link/ether 0a:bc:f4:d8:d7:45 brd ff:ff:ff:ff:ff:ff

inet 172.31.7.242/20 metric 100 brd 172.31.15.255 scope global dynamic enX0

valid\_lft 2915sec preferred\_lft 2915sec

inet6 fe80::8bc:f4ff:fed8:d745/64 scope link

valid\_lft forever preferred\_lft forever

to access an ec2 in browser use ec2 instnance connect and you are isnde ec2

Ap-south1a azone mere ala gaur aapka alag hoge , isse aws manage karte hai azone ko , ham dono ka azone alag alag hai

, agar ec2 banaya ek azone main ahmne toh who mere alag main hoge aur aapka alga main hoge , isse aws manage karata hai

# Install Nginx in ec2 instance

ubuntu@ip-172-31-7-242:~$ sudo -i^C

ubuntu@ip-172-31-7-242:~$

$ to login as root user

root@ip-172-31-7-242:~# apt-get update

root@ip-172-31-7-242:~# apt-get update

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

apt install nginx

root@ip-172-31-7-242:~# ^C

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

apt install nginx

root@ip-172-31-7-242:~# ^C

Fetched 32.3 MB in 21s (1547 kB/s)

Reading package lists... Done

root@ip-172-31-7-242:~# nginx -t

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

apt install nginx

root@ip-172-31-7-242:~# ^C

root@ip-172-31-7-242:~# apt-get install nginx

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following additional packages will be installed:

nginx-common

root@ip-172-31-7-242:~# nginx -t

nginx: the configuration file /etc/nginx/nginx.conf syntax is ok

nginx: configuration file /etc/nginx/nginx.conf test is successful

root@ip-172-31-7-242:~# service nginx status

● nginx.service - A high performance web server and a reverse proxy server

Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)

Active: active (running) since Thu 2025-02-13 05:14:35 UTC; 1min

root@ip-172-31-7-242:~# curl localhost

<!DOCTYPE html>

<html>

<head>

<title>Welcome to nginx!</title>

<style>

html { color-scheme: light dark; }

body { width: 35em; margin: 0 auto;

root@ip-172-31-7-242:~# cd /var/www/html/

root@ip-172-31-7-242:/var/www/html# echo "welcome to leanring ocearn" >index.html

root@ip-172-31-7-242:/var/www/html# curl localhost

welcome to leanring ocearn

# ham ssh kar sakte hai apne ec2 pa , allow ssh traffic from , toh traffic allow from everywhere

Firewall (security groups)

 Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

We'll create a new security group called '**launch-wizard-2**' with the following rules:

Allow SSH traffic fromHelps you connect to your instance

Anywhere0.0.0.0/0

Aws + sheel script

#!bin/bash

Apt-get update

Apt-get install nginx-y

echo “welcome to learning ocear” >/var/www/html/index.html

$ this script install nginx on ec2 instance and run cmd

SG GROUP

Kval is port se ya ip address se traffic allow ahi toh whi se traffic port pa phcohge gaa , deny ports , only allowed rule write kar stake hai , icoming traffic allow inbound allow akr satke hai only , which port or ip are allowed to insntace

**Inbound rules**

[**Info**](https://docs.aws.amazon.com/en_us/console/ec2/security-groups)

# instance ka upar jo rule phcohege

## Inbound rules

[**Info**](https://docs.aws.amazon.com/en_us/console/ec2/security-groups)

**Type**

[**Info**](https://docs.aws.amazon.com/en_us/console/ec2/security-groups)

**Protocol**

[**Info**](https://docs.aws.amazon.com/en_us/console/ec2/security-groups)

**Port range**

[**Info**](https://docs.aws.amazon.com/en_us/console/ec2/security-groups)

**Source**

[**Info**](https://docs.aws.amazon.com/en_us/console/ec2/security-groups)

**Description - optional**

[**Info**](https://docs.aws.amazon.com/en_us/console/ec2/security-groups)

SSH





My IP

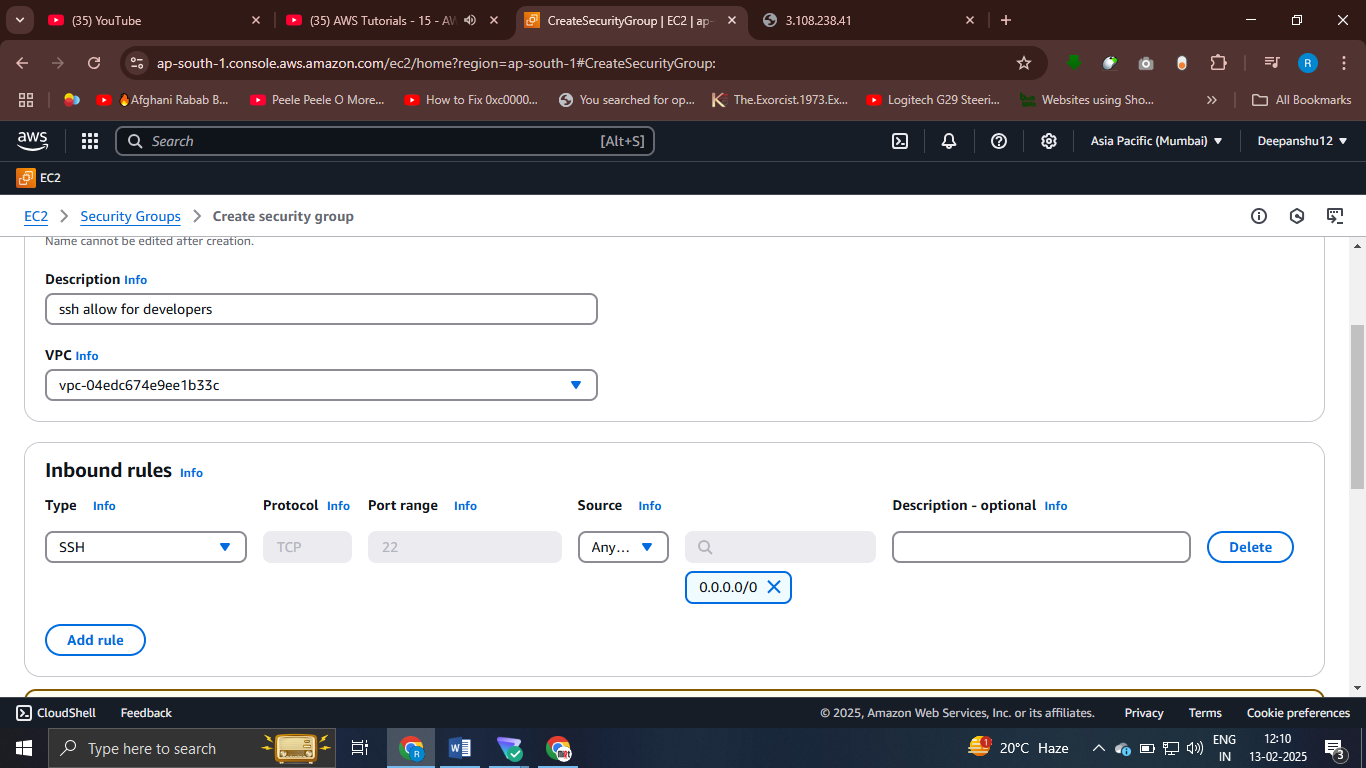


* 212.102.51.111/32



Delete

$ kaval main my ip se ssh kar paunga instance ko aur koi nahi kar skate , is ip se is port ko access kar payenge , port 22 pa traffic allow hoge hamraa

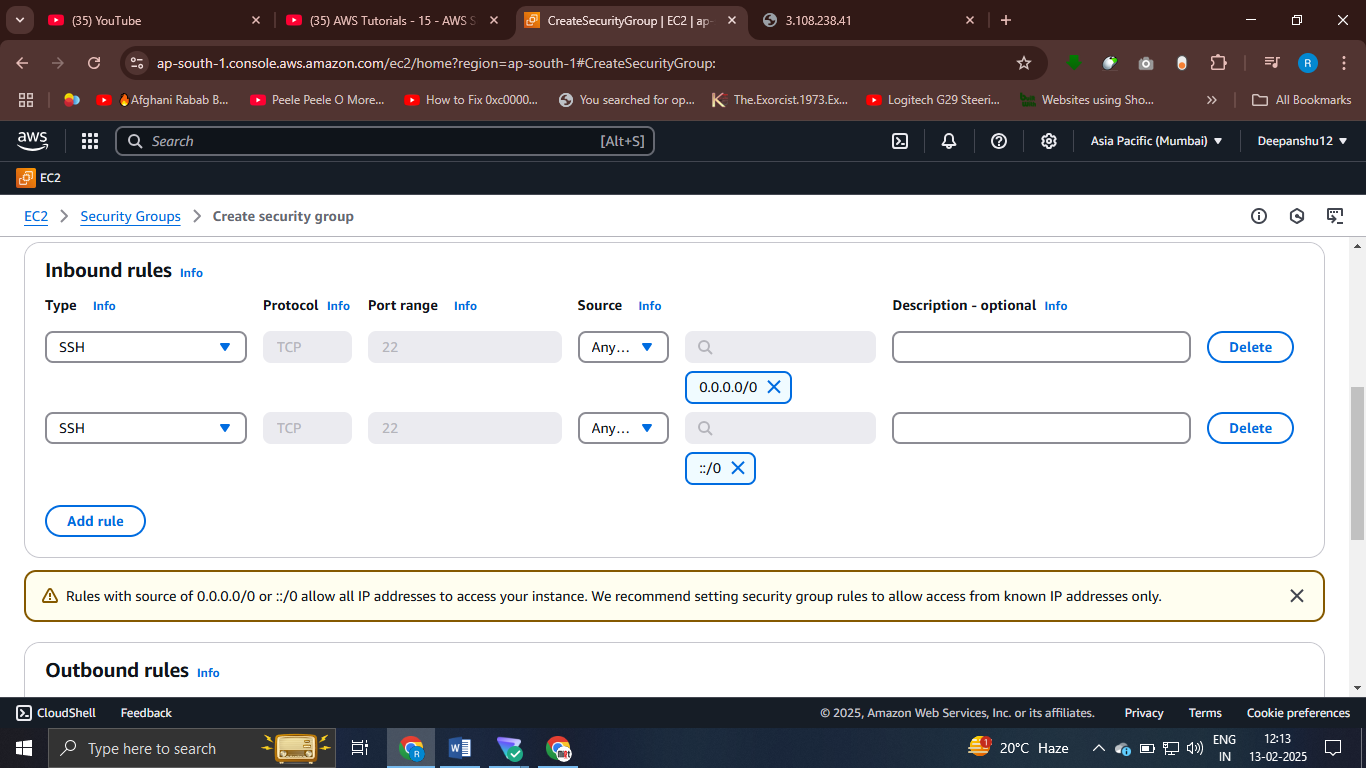


#port 22 poori duniya ka liye allow kar diya hamne , source pa define karete hai



Delete

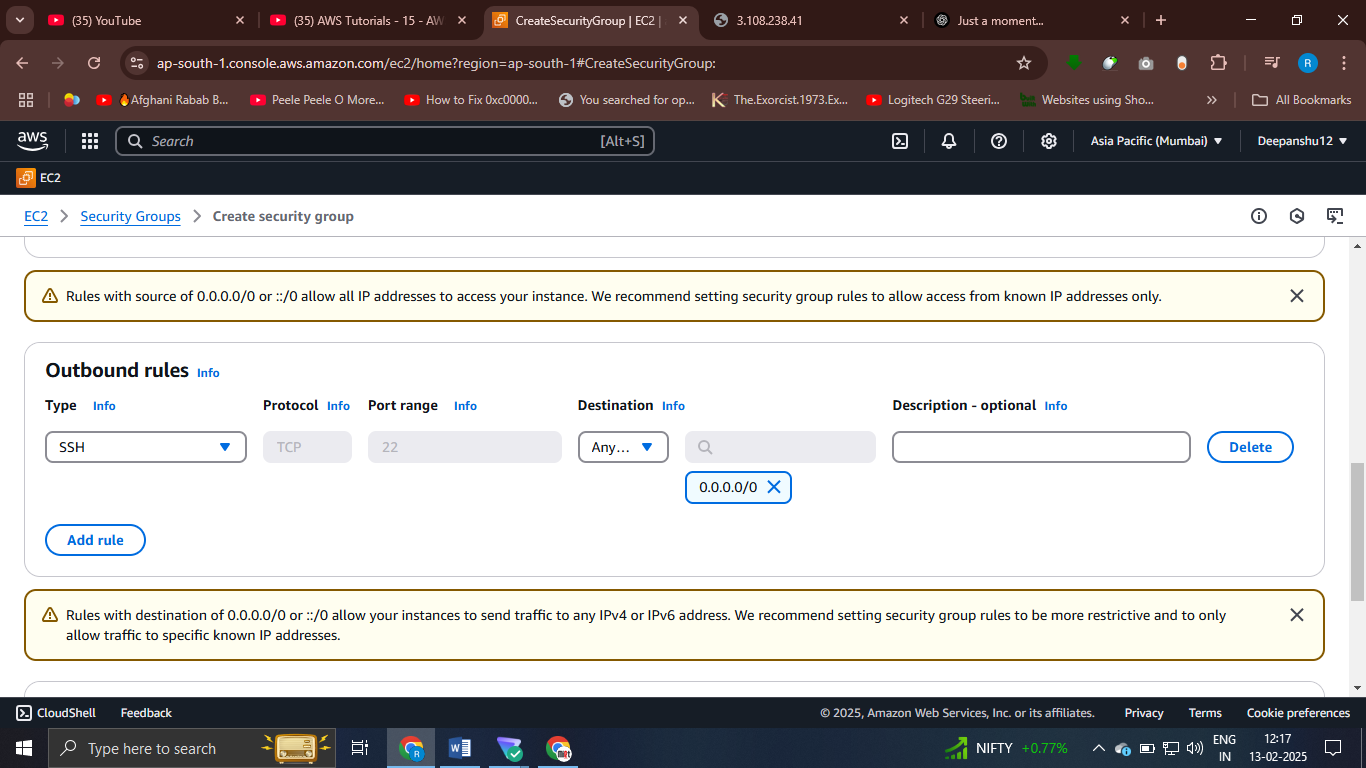
$ ssh kar skte hai



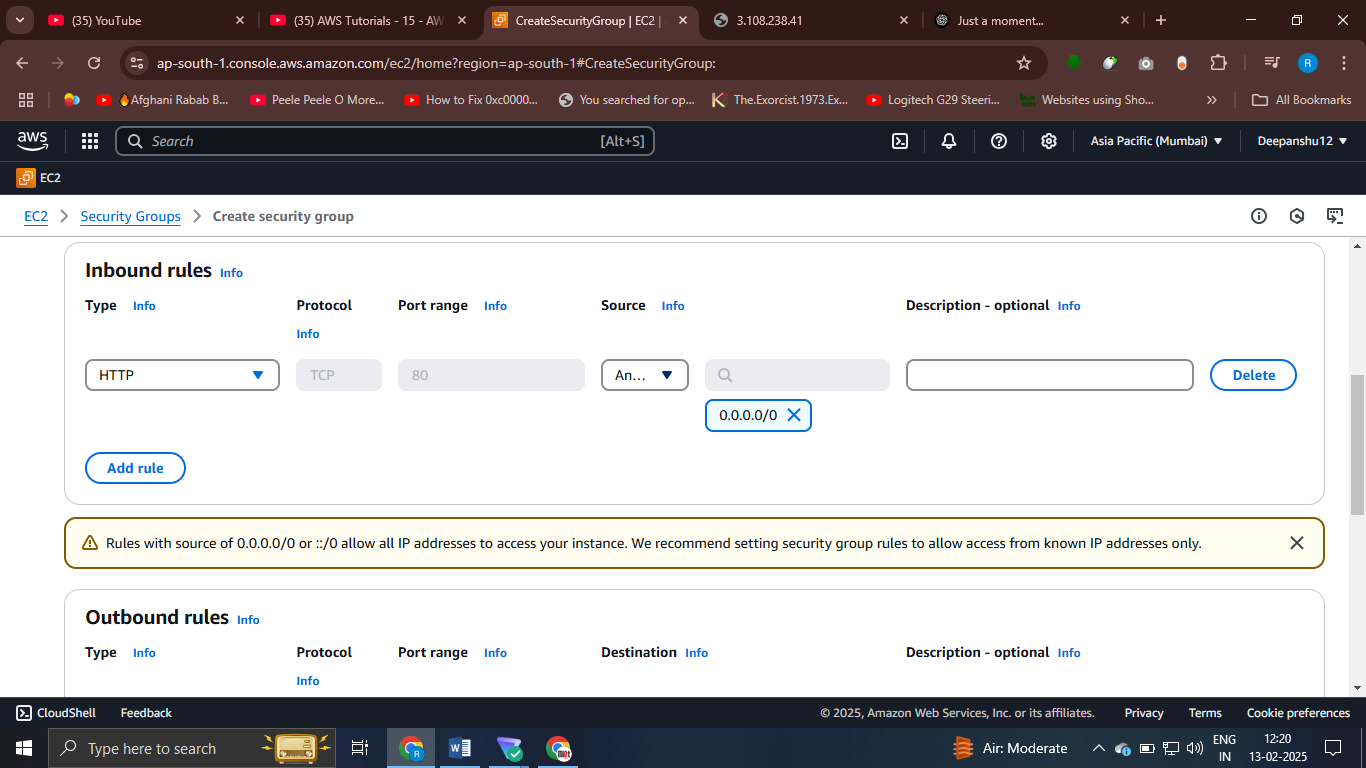
#ipv6 ko bhi allow kar skte , iss ip se traffic allow kar diya traffic

#outbound

#instance bhahr kisse baat kar skte hai , instance kisse web server se communicate kar skate hai



$ isnce kisi se bhi connect ho skate hai , koi bhi webserver se connect ho jayega

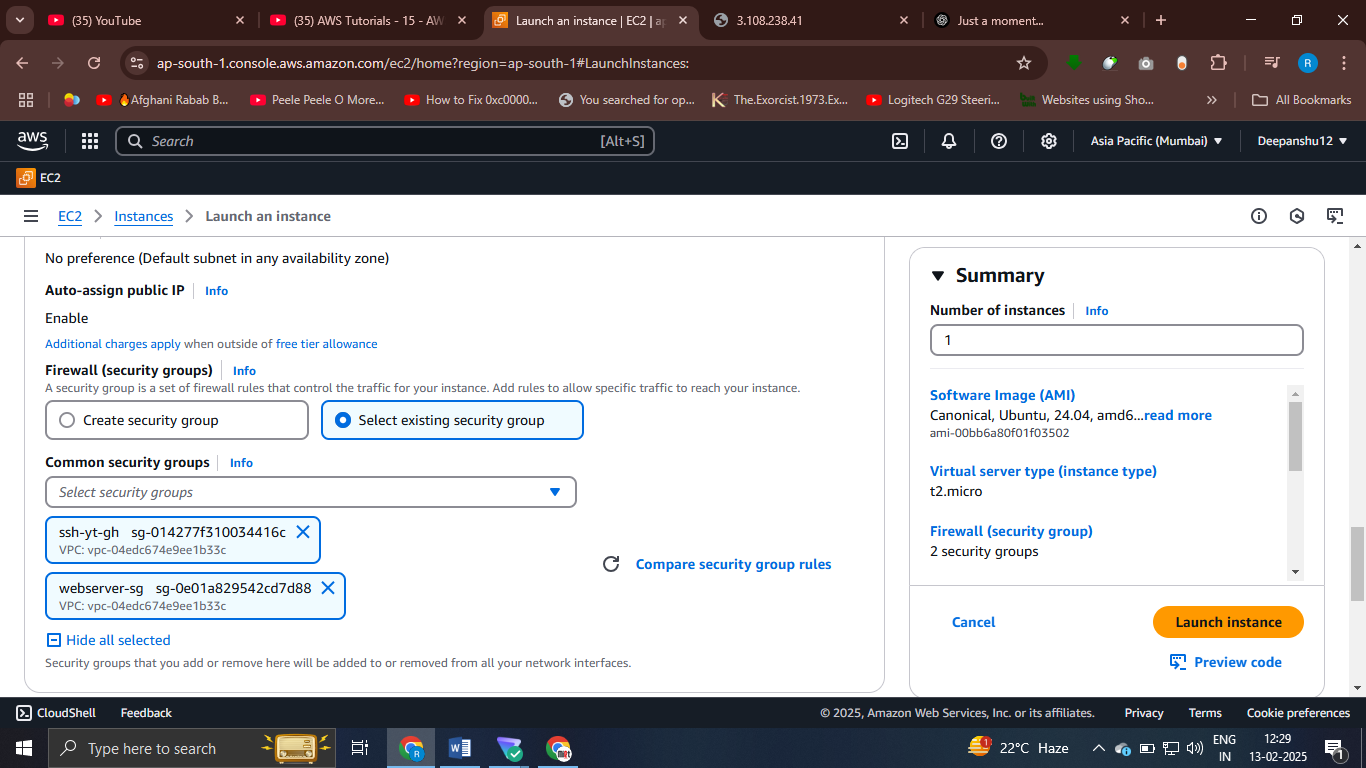


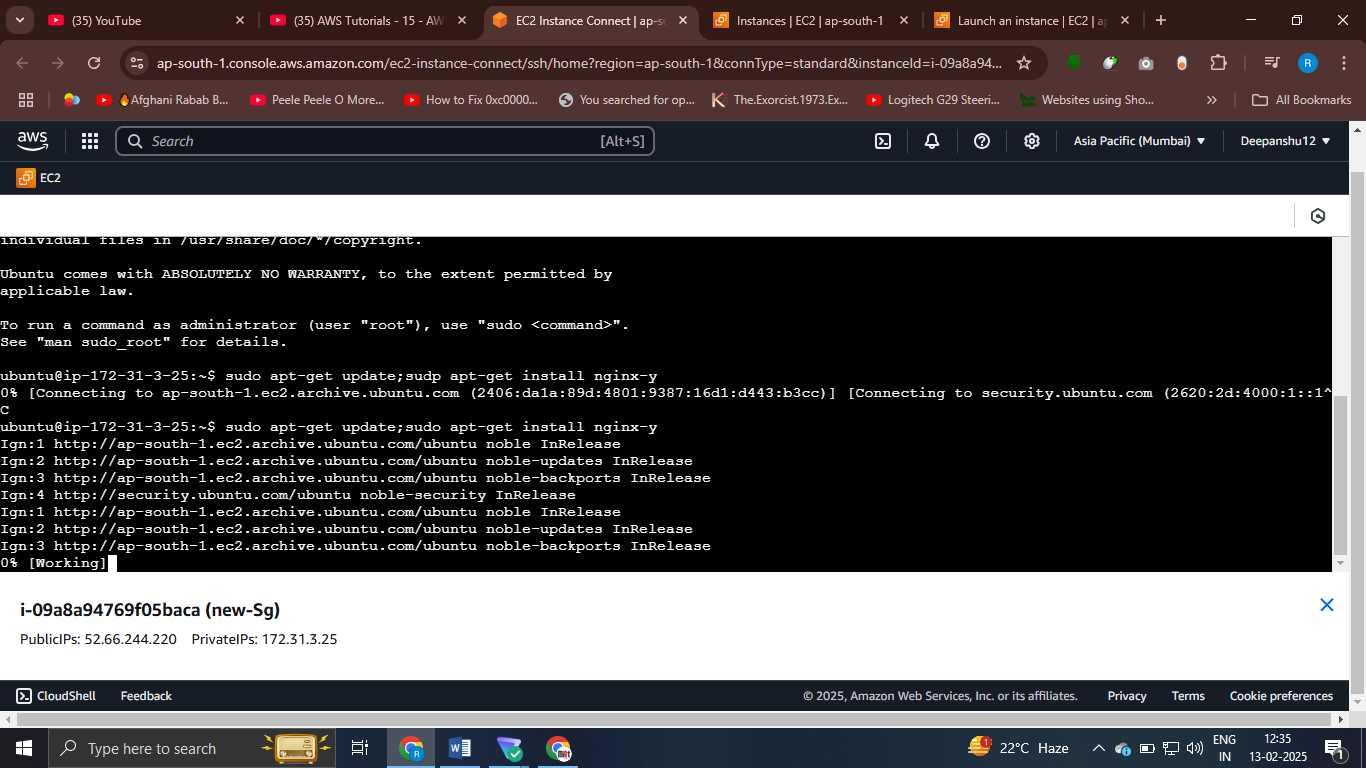
$ agar web server 80 port main chal rha toh port 80 enable kar diya , koi bhi isse APNE ip adderess se traffic send kar payega

$ port ko access kon banda access kar skte hai who dala

# agar hamari web appn main attack start hoge ki ye specific ip se attack na ho , ye block akr doo

# Ssg contiant only allow rules



ubuntu@ip-172-31-3-25:~$ sudo apt-get update;sudo apt-get install nginx-y

ubuntu@ip-172-31-3-25:~$ sudo apt-get update

Ign:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble InRelease

Ign:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease

Ign:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease

Ign:4 http://security.ubuntu.com/ubuntu noble-security InRelease

Ign:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble InRelease

Ign:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease

Ign:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease

Ign:4 http://security.ubuntu.com/ubuntu noble-security InRelease

Ign:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble InRelease

Ign:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease

Ign:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease

Ign:4 http://security.ubuntu.com/ubuntu noble-security InRelease

Err:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble InRelease

Cannot initiate the connection to ap-south-1.ec2.archive.ubuntu.com:80 (2406:da1a:89d:4801:938

ubuntu@ip-172-31-3-25:~$ sudo apt-get install nginx-y

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

Service nginx-status

#sshka liye alag sgop aur appn ka port ka liye alag sg group banao – best practices

#multople sg attach to instance

# ek sg goup ko multpl instance se attach kar sakte

T2.micro

T refer to class 2 genretation and micro refer to size

INSTANCE-METADATA

Using RDP client we can connect to window instance

# Instacne metadata with meta1 instance , connect to ec2 isntace

Ip –a

ubuntu@ip-172-31-0-17:~$ curl 169.254.169.254

ubuntu@ip-172-31-0-17:~$ TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600")

curl -H "X-aws-ec2-metadata-token: $TOKEN" -v http://169.254.169.254/latest/meta-data/

% Total % Received % Xferd Average Speed Time Time Time Current

Dload Upload Total Spent Left Speed

100 56 100 56 0 0 17823 0 --:--:-- --:--:-- --:--:-- 18666

\* Trying 169.254.169.254:80...

\* Connected to 169.254.169.254 (169.254.169.254) port 80

> GET /latest/meta-data/ HTTP/1.1

> Host: 169.254.169.254

> User-Agent: curl/8.5.0

> Accept: \*/\*

> X-aws-ec2-metadata-token: AQAEAFnfZHbMoKrK6UOCb3s2RWKJRvi02MG5ht-Cu9oOE0lpvf25ZA==

>

< HTTP/1.1 200 OK

< X-Aws-Ec2-Metadata-Token-Ttl-Seconds: 21600

< Content-Type: text/plain

< Accept-Ranges: none

< Last-Modified: Sat, 15 Feb 2025 15:28:06 GMT

< Content-Length: 338

< Date: Sat, 15 Feb 2025 15:30:25 GMT

< Server: EC2ws

< Connection: close

<

ami-id

ami-launch-index

ami-manifest-path

block-device-mapping/

events/

hostname

identity-credentials/

instance-action

instance-id

instance-life-cycle

instance-type

local-hostname

local-ipv4

mac

managed-ssh-keys/

metrics/

network/

placement/

profile

public-hostname

public-ipv4

public-keys/

reservation-id

security-groups

services/

\* Closing connection

systemubuntu@ip-172-31-0-17:~$ curl 169.254.169.254/latest

ubuntu@ip-172-31-0-17:~$ ^C

ubuntu@ip-172-31-0-17:~$ TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600")

curl -H "X-aws-ec2-metadata-token: $TOKEN" http://169.254.169.254/latest/meta-data/

% Total % Received % Xferd Average Speed Time Time Time Current

Dload Upload Total Spent Left Speed

100 56 100 56 0 0 11267 0 --:--:-- --:--:-- --:--:-- 14000

ami-id

ami-launch-index

ami-manifest-path

block-device-mapping/

events/

hostname

identity-credentials/

instance-action

instance-id

instance-life-cycle

instance-type

local-hostname

local-ipv4

mac

managed-ssh-keys/

metrics/

network/

placement/

profile

public-hostname

public-ipv4

public-keys/

reservation-id

security-groups

services/

systemubuntu@ip-172-31-0-TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600")1600")

curl -H "X-aws-ec2-metadata-token: $TOKEN" http://169.254.169.254/latest/meta-data/ami-id

% Total % Received % Xferd Average Speed Time Time Time Current

Dload Upload Total Spent Left Speed

100 56 100 56 0 0 22108 0 --:--:-- --:--:-- --:--:-- 28000

ami-00bb6a80f01f03502ubuntu@ip-172-31-0-17:~$

$ Retriving Instance metadata

systemubuntu@ip-172-31-0-TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600")1600")

curl -H "X-aws-ec2-metadata-token: $TOKEN" http://169.254.169.254/latest/meta-data/ami-id

% Total % Received % Xferd Average Speed Time Time Time Current

Dload Upload Total Spent Left Speed

100 56 100 56 0 0 22108 0 --:--:-- --:--:-- --:--:-- 28000

ami-00bb6a80f01f03502ubuntu@ip-172-31-0-17:~$ TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600") TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600")

curl -H "X-aws-ec2-metadata-token: $TOKEN" http://169.254.169.254/latest/meta-data/public-ipv4

% Total % Received % Xferd Average Speed Time Time Time Current

Dload Upload Total Spent Left Speed

100 56 100 56 0 0 16751 0 --:--:-- --:--:-- --:--:-- 18666

35.154.29.102ubuntu@ip-172-31-0-17:~$ TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600") TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600")

curl -H "X-aws-ec2-metadata-token: $TOKEN" http://169.254.169.254/latest/meta-data/local-ipv4

% Total % Received % Xferd Average Speed Time Time Time Current

Dload Upload Total Spent Left Speed

100 56 100 56 0 0 17604 0 --:--:-- --:--:-- --:--:-- 18666

ELASTIC IP

$ RETRIVE public and private IP and ami of ec2 instance , so in this way we get instance of meta data

Instce stop and start . ip address change of isntacen ,

TOKEN=$(curl -X PUT "http://169.254.169.254/latest/api/token" -H "X-aws-ec2-metadata-token-ttl-seconds: 21600")

curl -H "X-aws-ec2-metadata-token: $TOKEN" <http://169.254.169.254/latest/meta-data/public-ipv4>

check elastic ip in isnace

$ wehre to use elastic ip

Learning ocean ek sever pa host ahi ,toh jab server ko start ya stop akra hamne , we need fixed ip address of website for servers , then we can use elastic ip

$ dynamic ip address kabhi use mat karna , hamse fixed ip add ka use karna server ka liye ,instance stop to hip add change , website elost , elasitic ip ham yha use akrenge ,website down hogi

$ 5 elasictic ip reserve kar skte hai

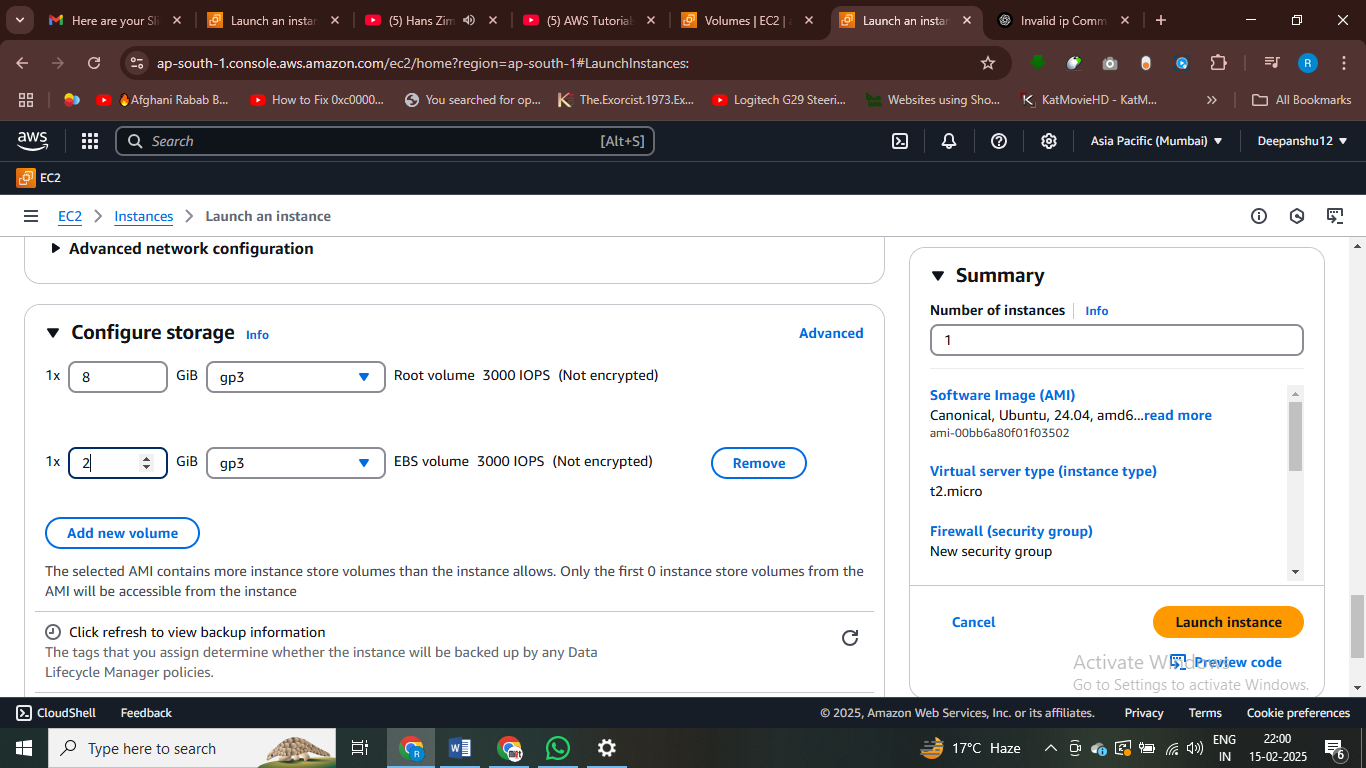
EBS

PEN DRIVE ki tarah network hai , ec2 se connect kar sakte hai , window main os c drive pa hai , aur linux main root volume pa hai

OS jo install hoge virtual hard drieve ma hoge

Machine ko har drvive attach kar rha hai

Data presistnat ka liy use ebs



Root ebs volume create hoga, jaise c drive winow ka case main yha se root volume crate hoga

ubuntu@ip-172-31-46-209:~$ lsblk

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS

loop0 7:0 0 26.3M 1 loop /snap/amazon-ssm-agent/9881

loop1 7:1 0 73.9M 1 loop /snap/core22/1722

loop2 7:2 0 44.4M 1 loop /snap/snapd/23545

xvda 202:0 0 8G 0 disk

├─xvda1 202:1 0 7G 0 part /

├─xvda14 202:14 0 4M 0 part

├─xvda15 202:15 0 106M 0 part /boot/efi

└─xvda16 259:0 0 913M 0 part /boot

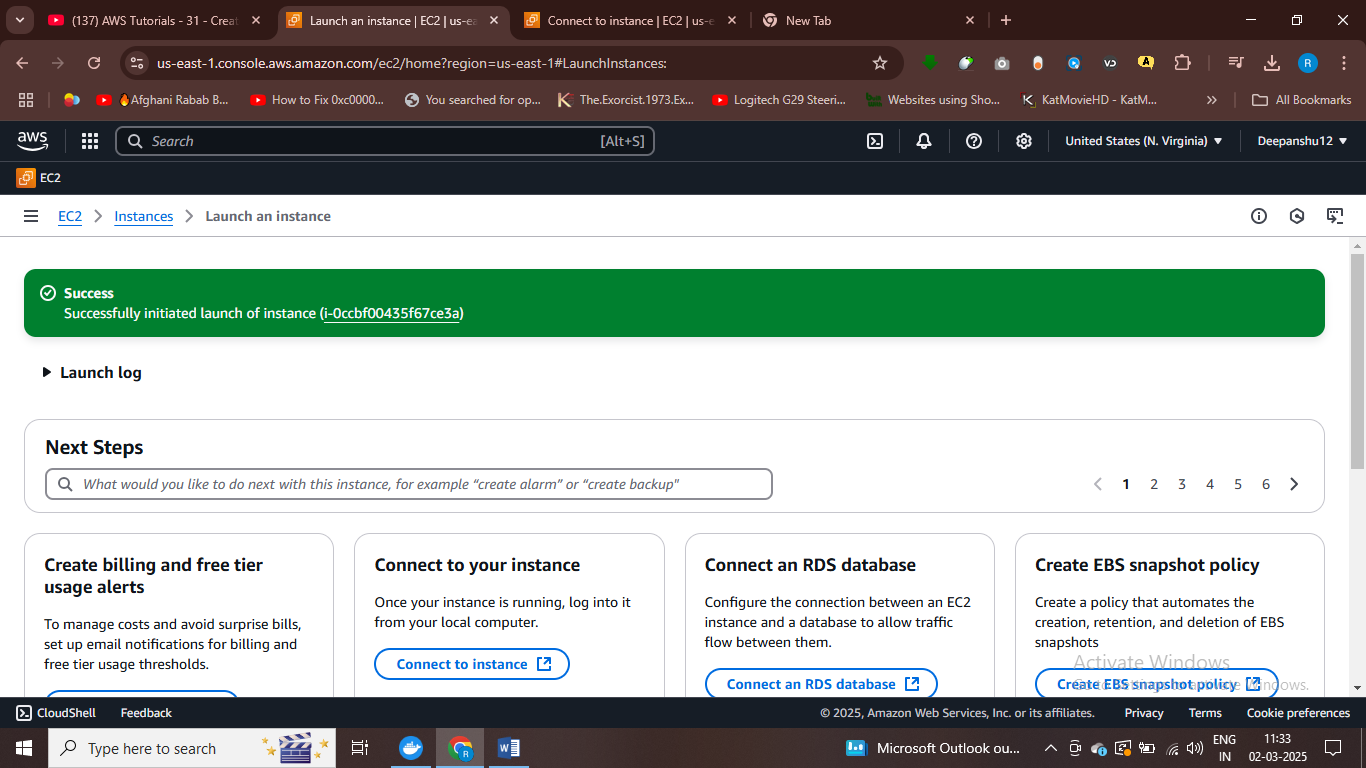
xvdb 202:16 0 2G 0 disk

ubuntu@ip-172-31-46-209:~$

EBS VLIUME TYPES

IP OR OUTput opn very fast karna hai top iops type use karo volume mai

AWS SNAPSHOTS



Created in ap-south-1 region

ubuntu@ip-172-31-2-127:~$ lsblk

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS

loop0 7:0 0 26.3M 1 loop /snap/amazon-ssm-agent/9881

loop1 7:1 0 73.9M 1 loop /snap/core22/1722

loop2 7:2 0 44.4M 1 loop /snap/snapd/23545

xvda 202:0 0 8G 0 disk

├─xvda1 202:1 0 7G 0 part /

├─xvda14 202:14 0 4M 0 part

├─xvda15 202:15 0 106M 0 part /boot/efi

└─xvda16 259:0 0 913M 0 part /boot

xvdb 202:16 0 10G 0 disk

ubuntu@ip-172-31-2-127:~$ sudo –i

# Login as root user

ubuntu@ip-172-31-2-127:~$ sudo -i

root@ip-172-31-2-127:~# file -s /dev/xvdb

/dev/xvdb: data

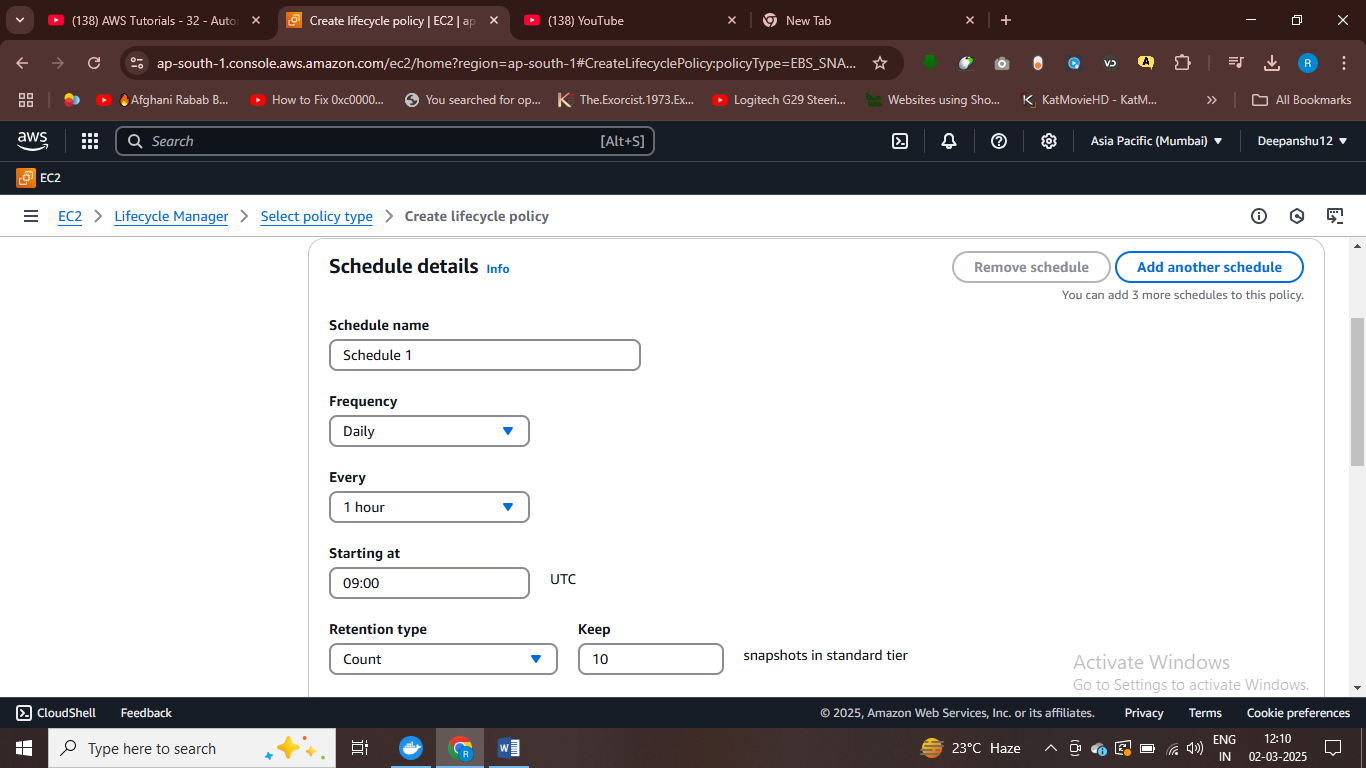
root@ip-172-31-2-127:~# mkfs.ext4 /dev/xvdb

mke2fs 1.47.0 (5-Feb-2023)

# created a new file system

**Volume ka type change kar sakte hai snapshot leke – gp2 se gp3 – aphle snapshot lo phir uske type change kar dop – IMP**

**Volume or instance ka bhi snapshot leaoge**



#phicle 10 dino ka snapshot lelo

# critical appn jaise db ka backup lene or imp appn ka backup

Snapshot region pa hote hai , snapshot ko ek regison se dosre region pa len ja ksatehai

RECYLE BIN – Rule set kar skate ho – ki volume aapka recyle bin main jayega

**Aws AMI GAURAV SHARMA – >**

ubuntu@ip-172-31-6-45:~$ sudo su

root@ip-172-31-6-45:/home/ubuntu#

#create an ec2 isntance and login as root user

ubuntu@ip-172-31-6-45:~$ sudo su

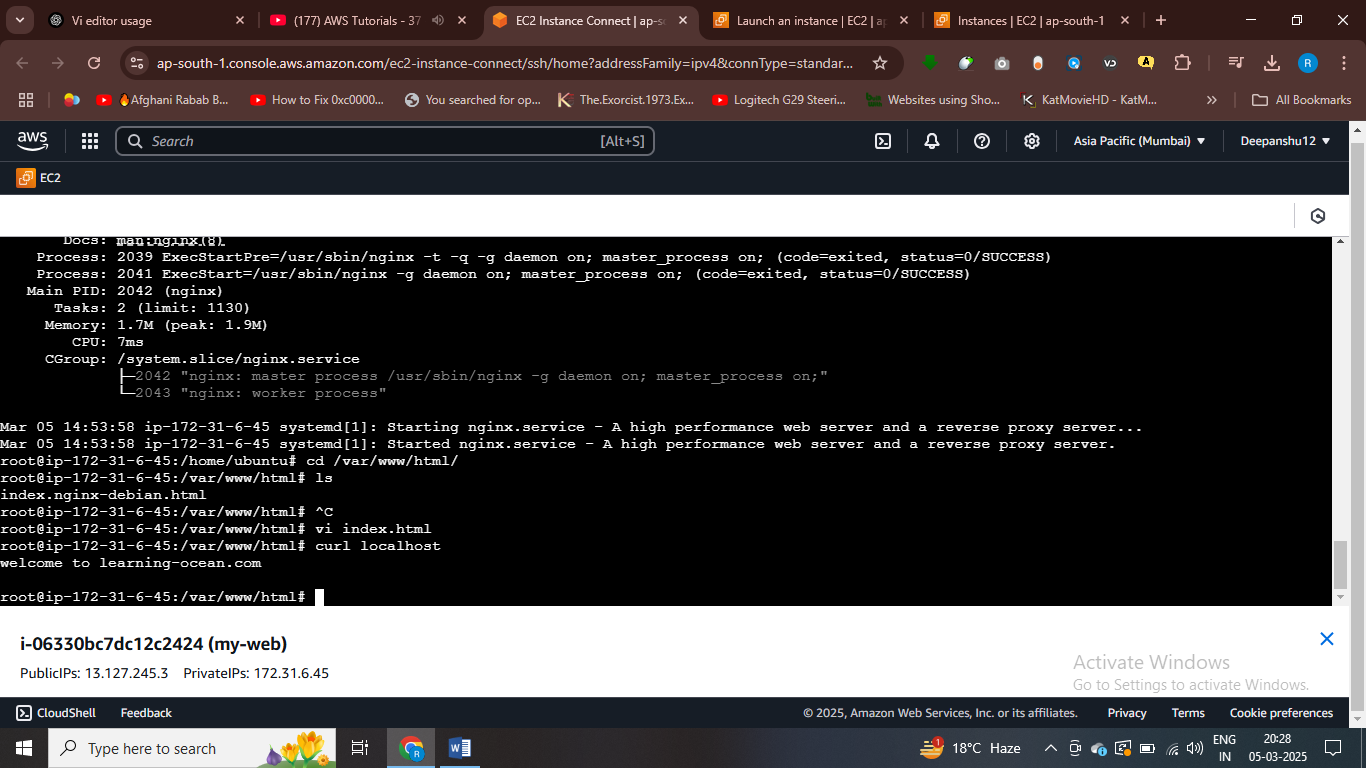
root@ip-172-31-6-45:/home/ubuntu# apt-get update;apt-get install nginx -y

root@ip-172-31-6-45:/home/ubuntu# service nginx status

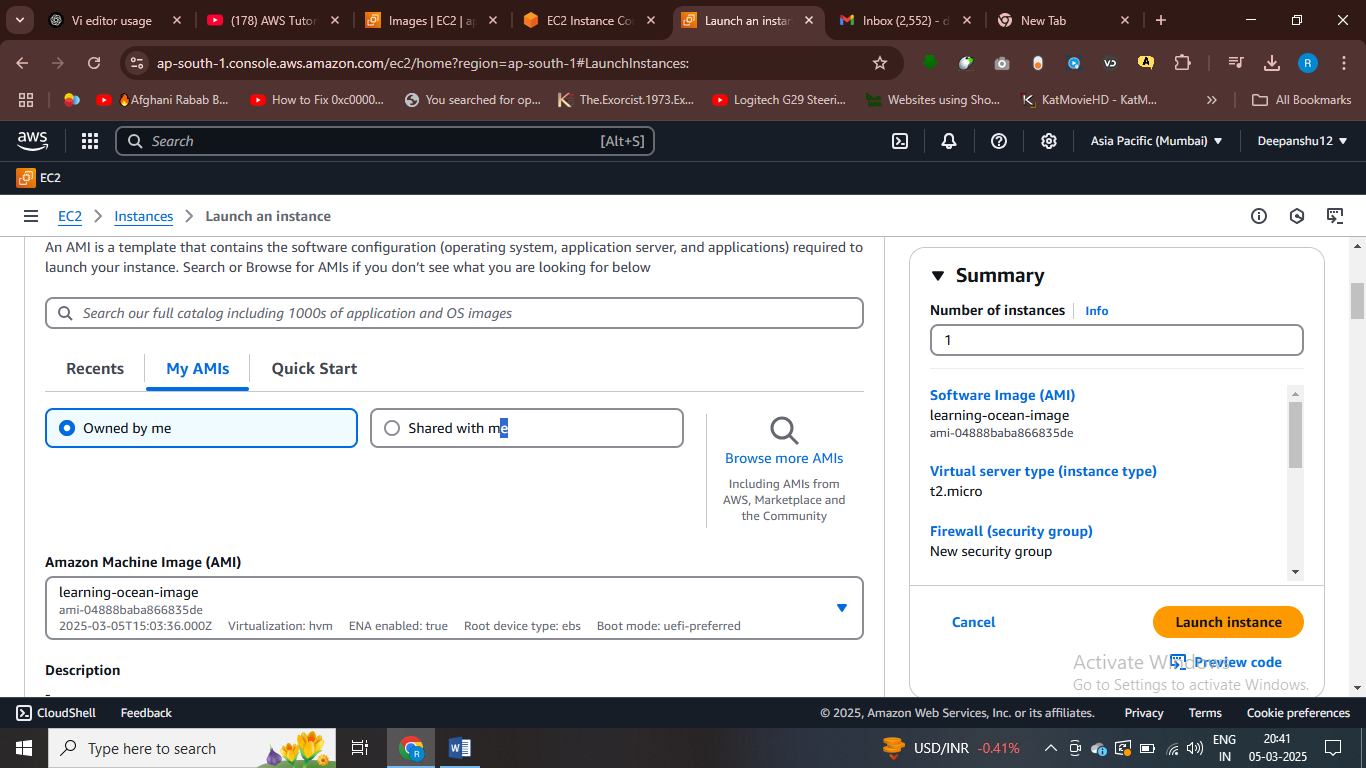
installing nginx server on ec2

root@ip-172-31-6-45:/var/www/html# ls

index.nginx-debian.html



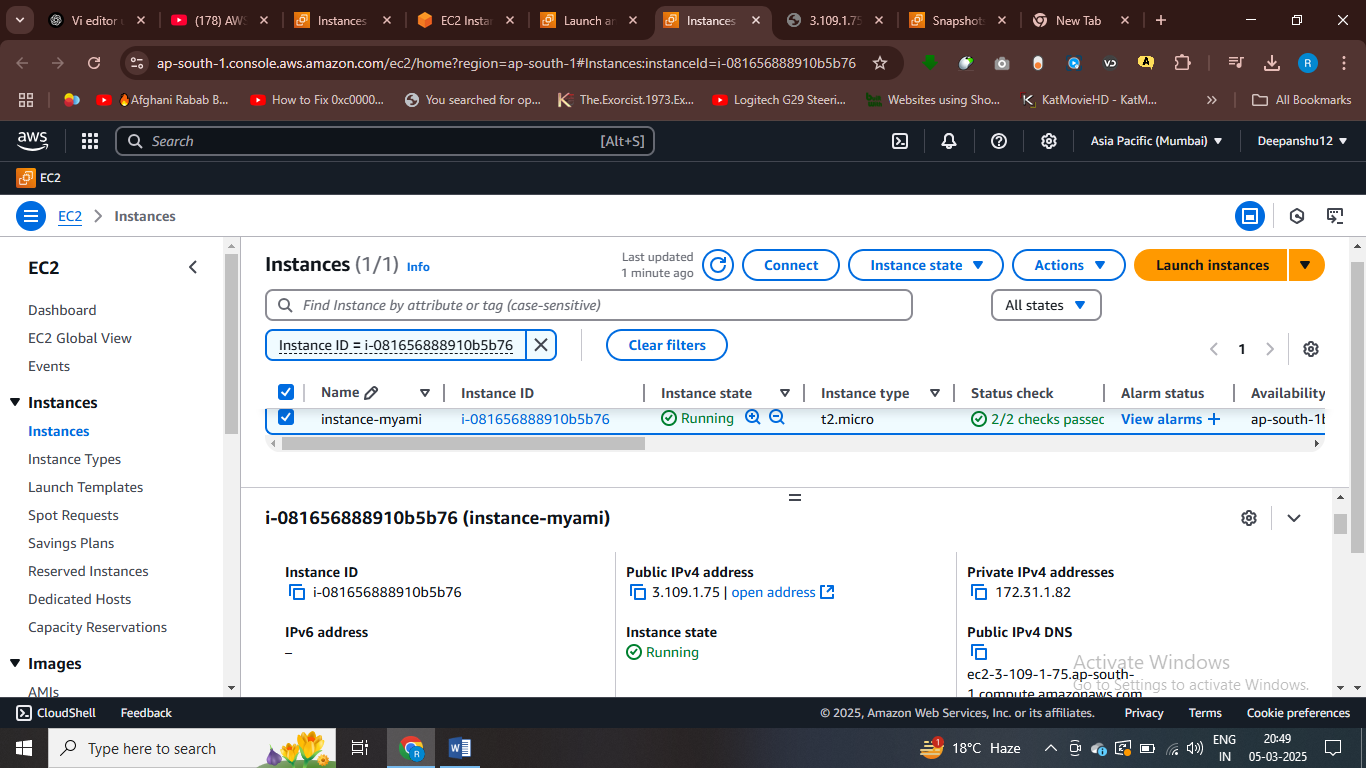
We can also create snapshot and we can create snapshot from image



# using my-ami

Snapshot created by AMI

# can share ami and copy ami in difrrent aws regions or with different accounts



#instace working prefcelty by using own AMI

**LOAD BALANCER**

Send traffic to only helath instances

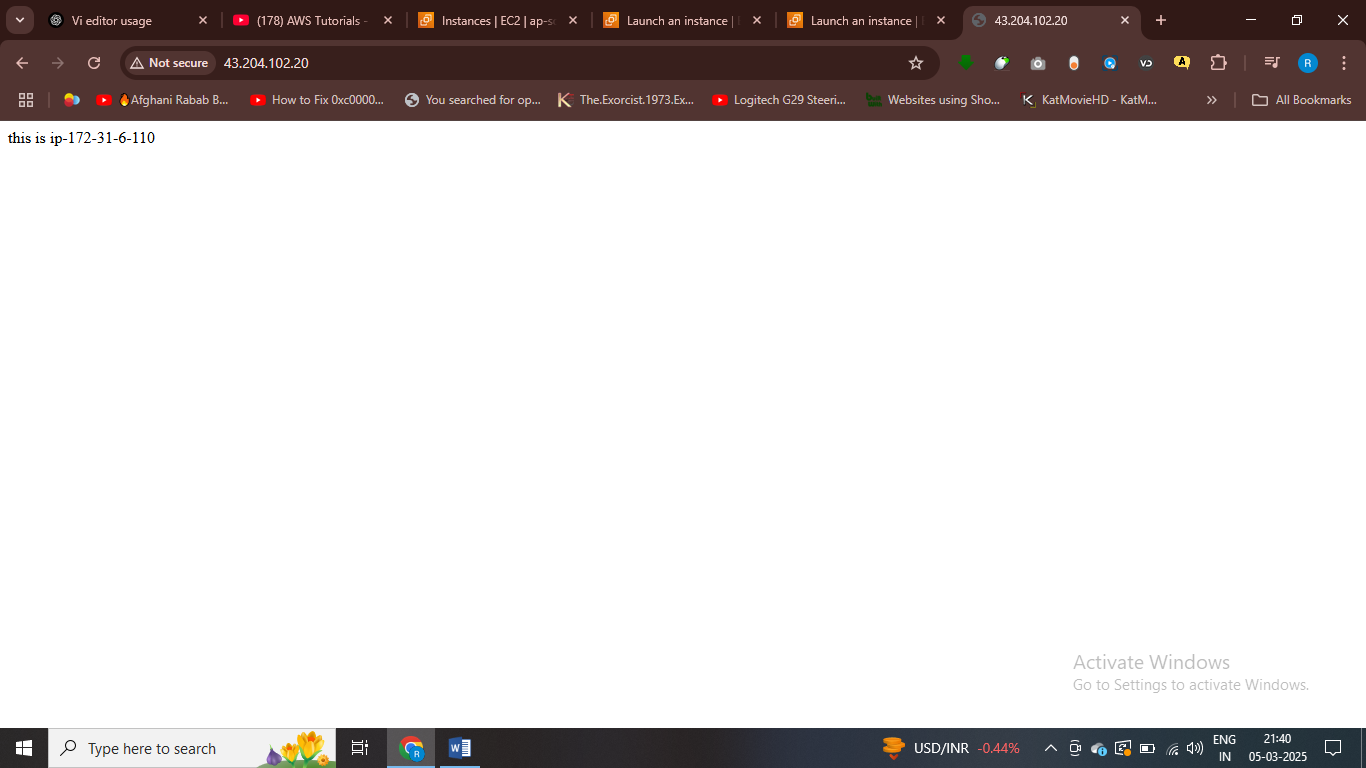
#!/bin/bash

apt-get update

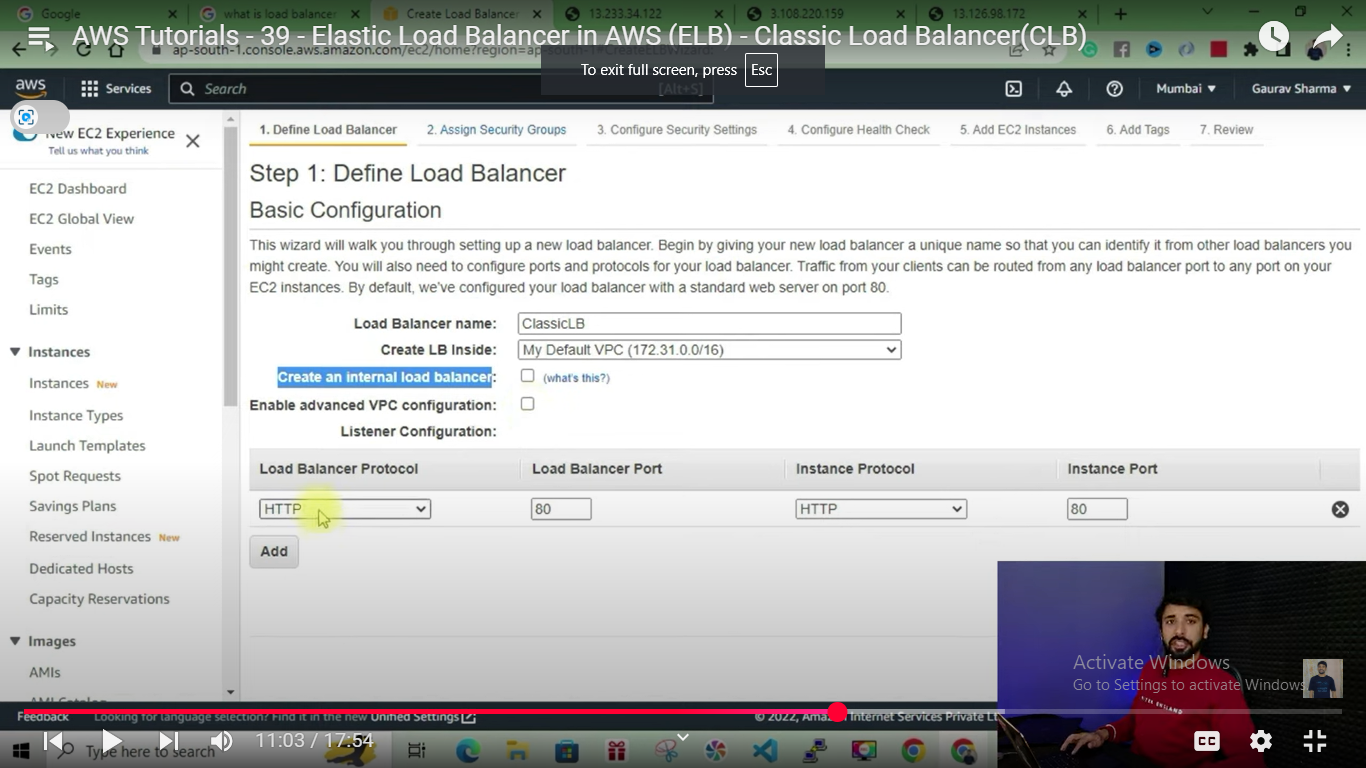
apt-get install nginx -y

echo "this is $(hostname)" > /var/www/html/index.html

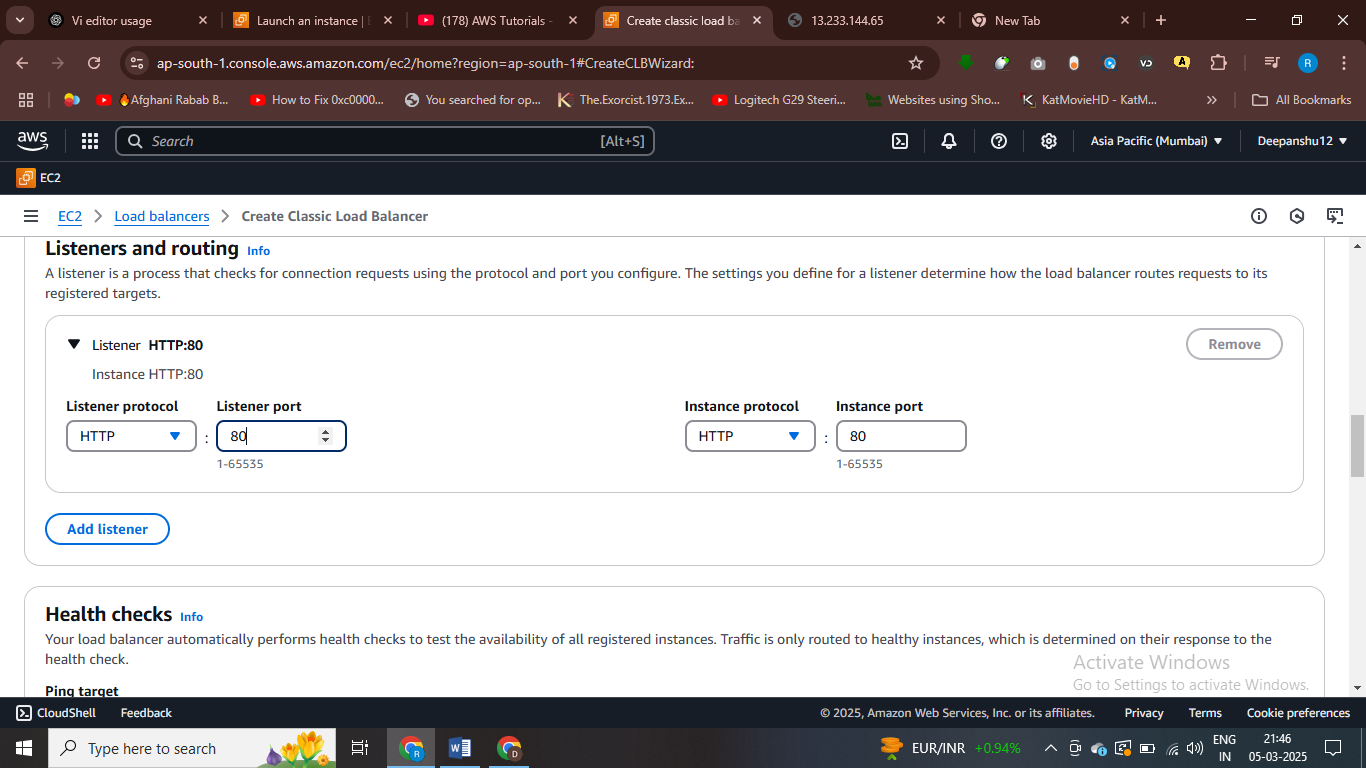
create three instance and access them by using public ip



#traffic equally distribute karenge teeno isntnace pa



#Internal load banclner = public ip se instance ko access nahi akr paoge



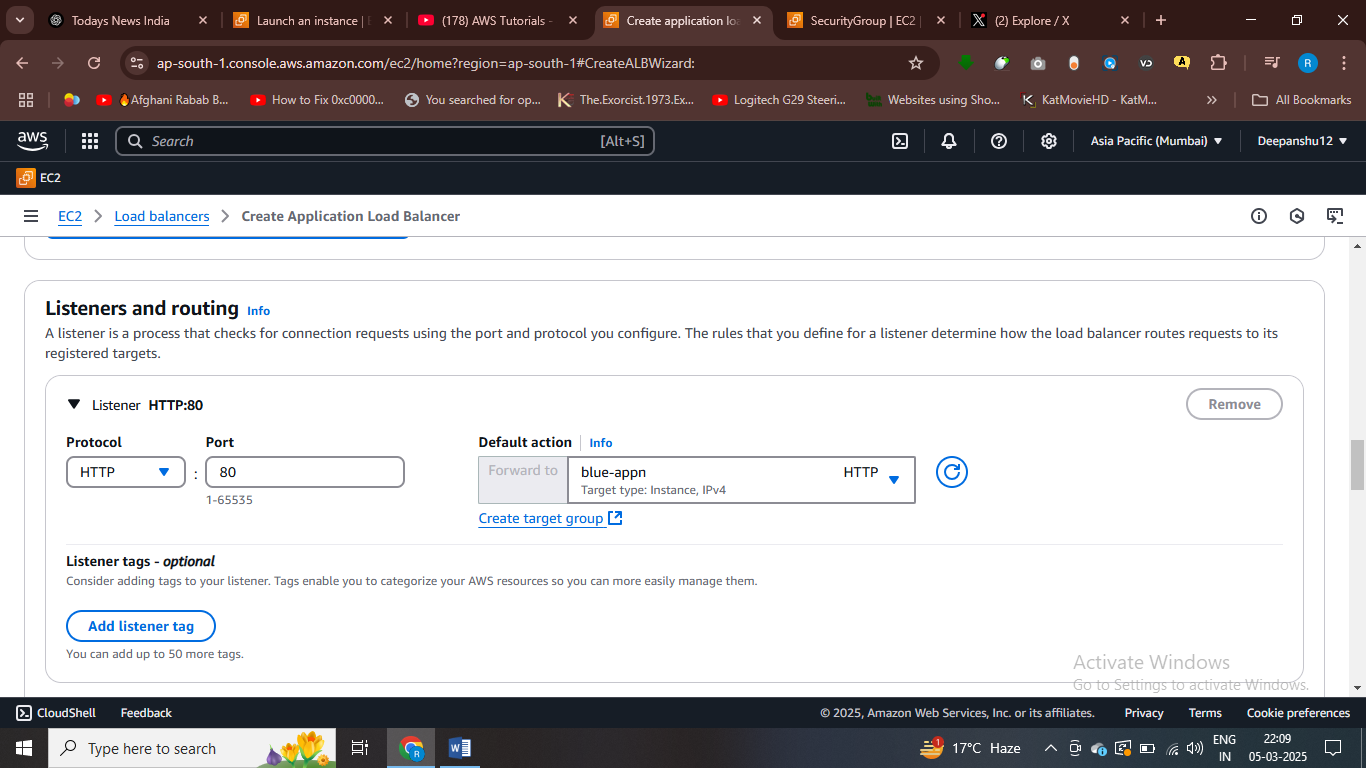
# Load balancer ka port 80 pa koi request aagei toh usse instance ka port 80 pa send kar denge

200 – appn is live status ok

CLB – NOT USED NOW DAYS

**ALB**

TRAFFIC Ko target gp pa bhejga , taget gp main instance hoge



#port 80 pa koi bhi traffic aaya toh usse yha redirect karo

Target gp main instance add kar do – aur lb ka use karo

On which path we need to send request –we can use alb rules for that

Path based routing kar skate hai

<https://www.youtube.com/watch?v=h4nSFaCfR-w&list=PL6XT0grm_TfgtwtwUit305qS-HhDvb4du&index=44>