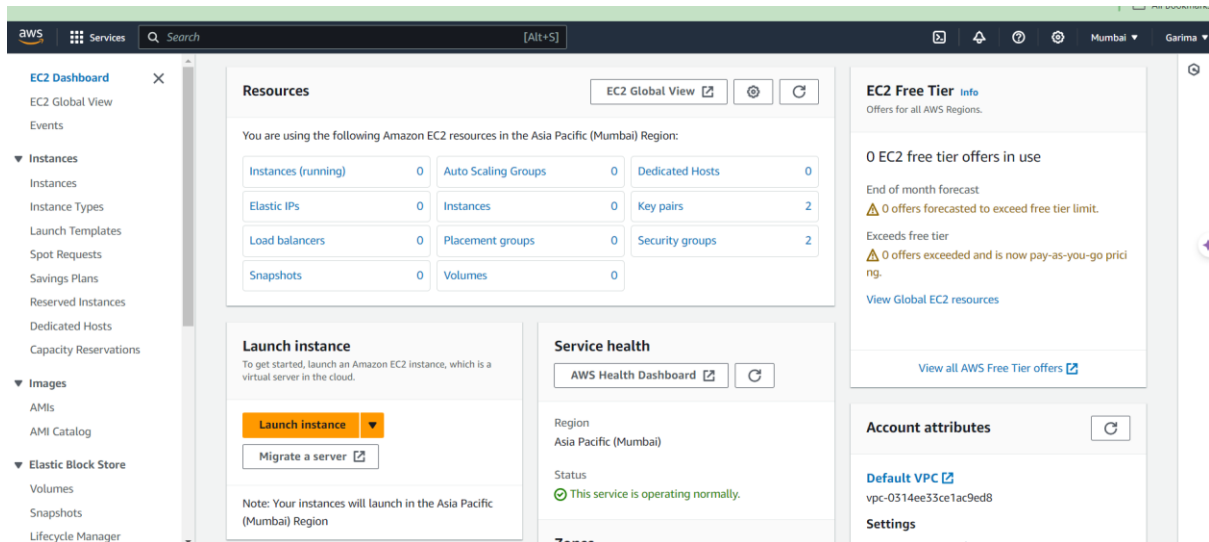


Name: Garima Nagesh Joshi

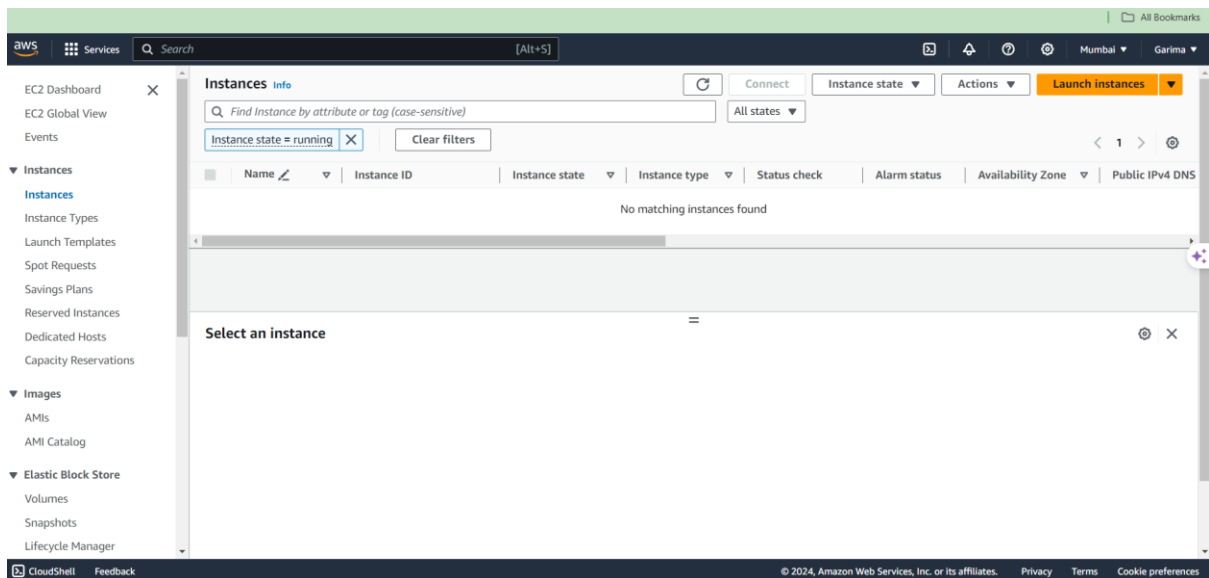
Cloud Computing: Infrastructure as a service using AWS

Q1.) Implement windows machine using AWS EC2.

Ans:



From resources section, select “Instances (Running)” option.



Currently there are no instances running. To launch an instance, click on the “Launch instances” button at the top right corner.

aws Services Search [Alt+S]

EC2 > Instances > Launch an instance

## Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

### Name and tags [Info](#)

Name

[Add additional tags](#)

### ▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

[Recents](#) [Quick Start](#)

### ▼ Summary

Number of instances [Info](#)

[Software Image \(AMI\)](#)  
Amazon Linux 2023 AMI 2023.5.2...[read more](#)  
ami-0ec0e125bb6c6e8ec

[Virtual server type \(instance type\)](#)  
t2.micro

[Firewall \(security group\)](#)  
New security group

[Storage \(volumes\)](#)  
1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which)

[Cancel](#) [Launch instance](#)

We are creating only one instance for windows. So, in “Summary”, the number of instances will be 1. In “Name and tags”, assign a name to the instance. Here we give the name “windows\_server”.

aws Services Search [Alt+S]

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

[Recents](#) [Quick Start](#)

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE Linux

[Browse more AMIs](#)  
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Microsoft Windows Server 2022 Base  
ami-049f0f6f51145f140 (64-bit (x86))  
Virtualization: hvm ENA enabled: true Root device type: ebs

[Free tier eligible](#)

Description  
Microsoft Windows 2022 Datacenter edition. [English]

### ▼ Summary

Number of instances [Info](#)

[Software Image \(AMI\)](#)  
Microsoft Windows Server 2022 ...[read more](#)  
ami-049f0f6f51145f140

[Virtual server type \(instance type\)](#)  
t2.micro

[Firewall \(security group\)](#)  
New security group

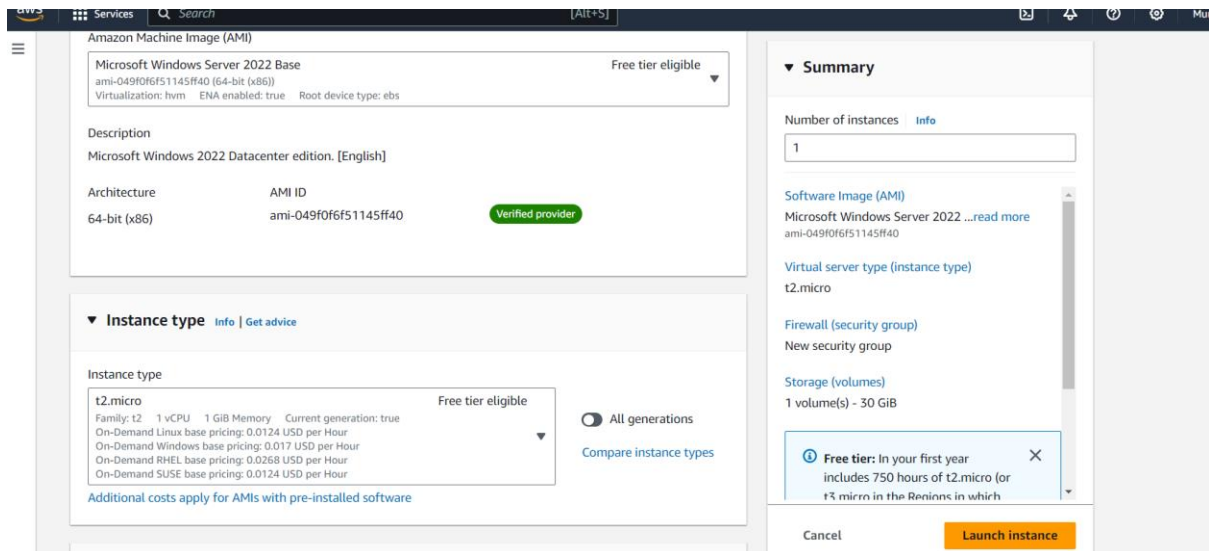
[Storage \(volumes\)](#)  
1 volume(s) - 30 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which)

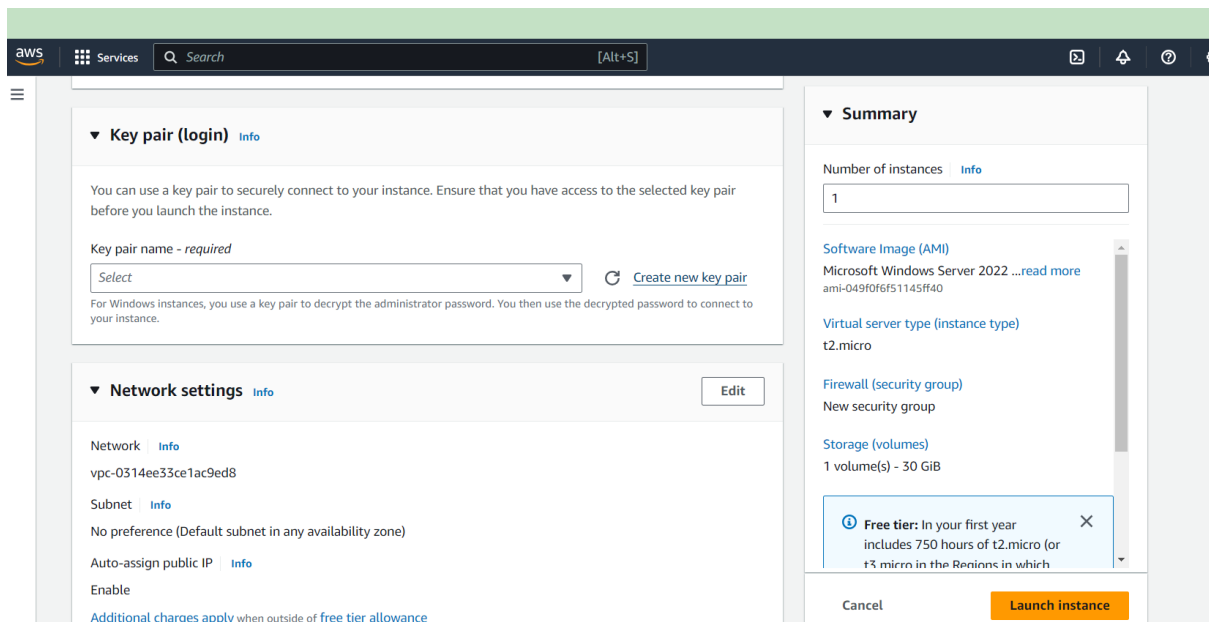
[Cancel](#) [Launch instance](#)

[Review commands](#)

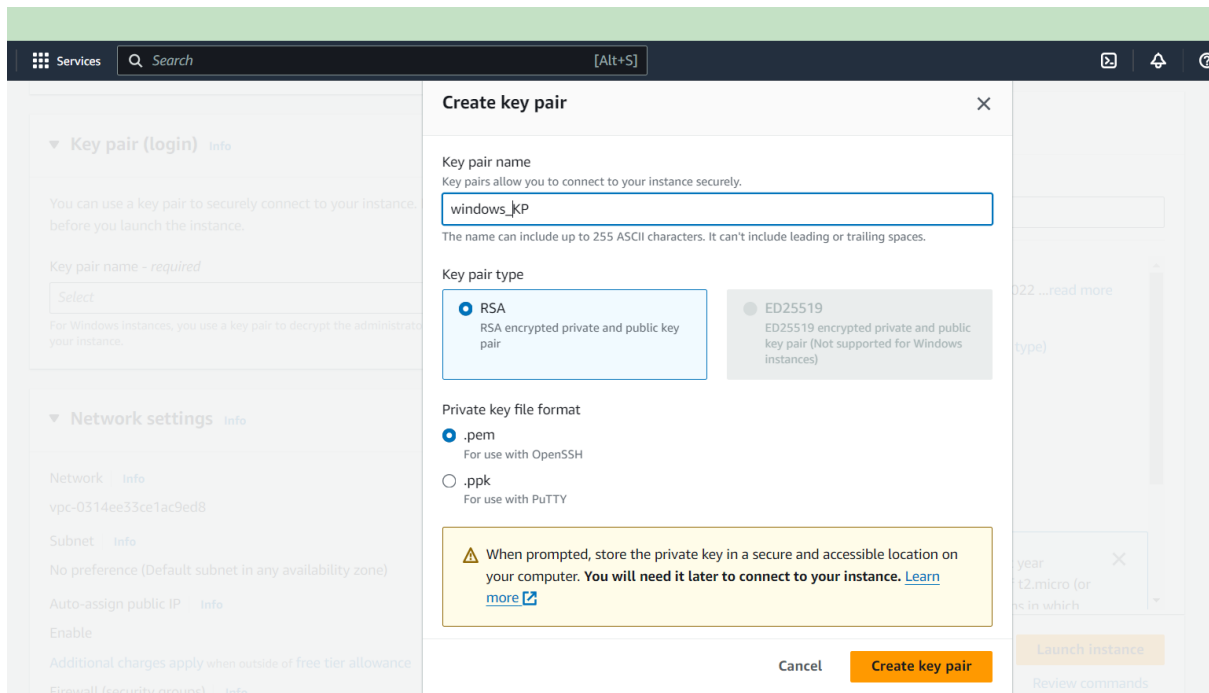
In “Application and OS Images (AMI)” section select the “Windows (Microsoft)” AMI. Select the AMI with the “Free Tier eligible” option only since the account is for free access purpose.



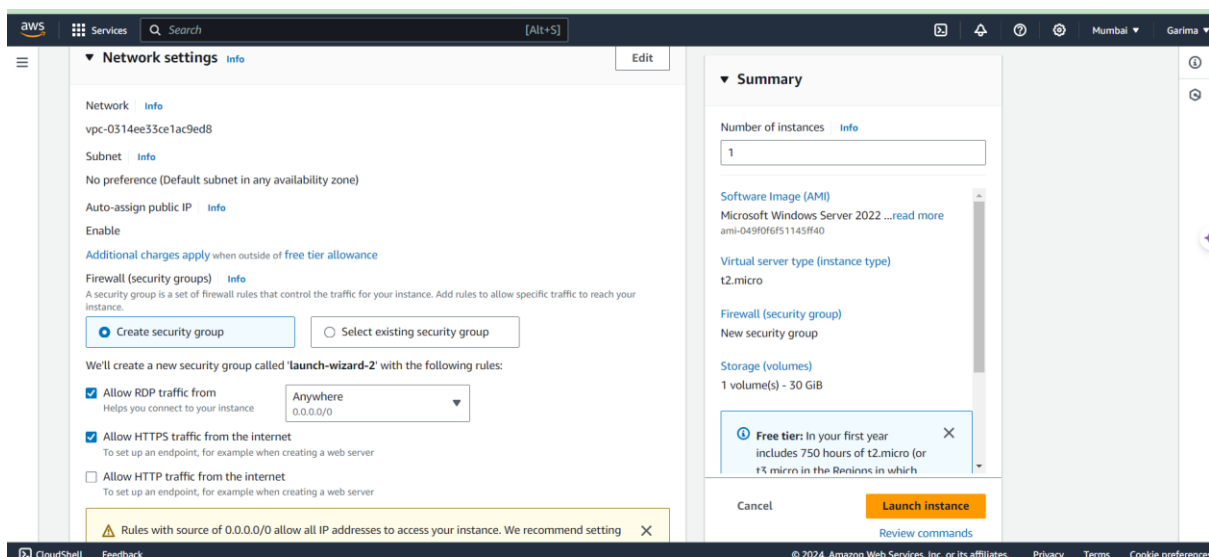
Instance types: We select our virtual CPUs and RAM/ memory associated. By default, the free tier eligible instance is selected. We select the latest “t2.micro” instance type.



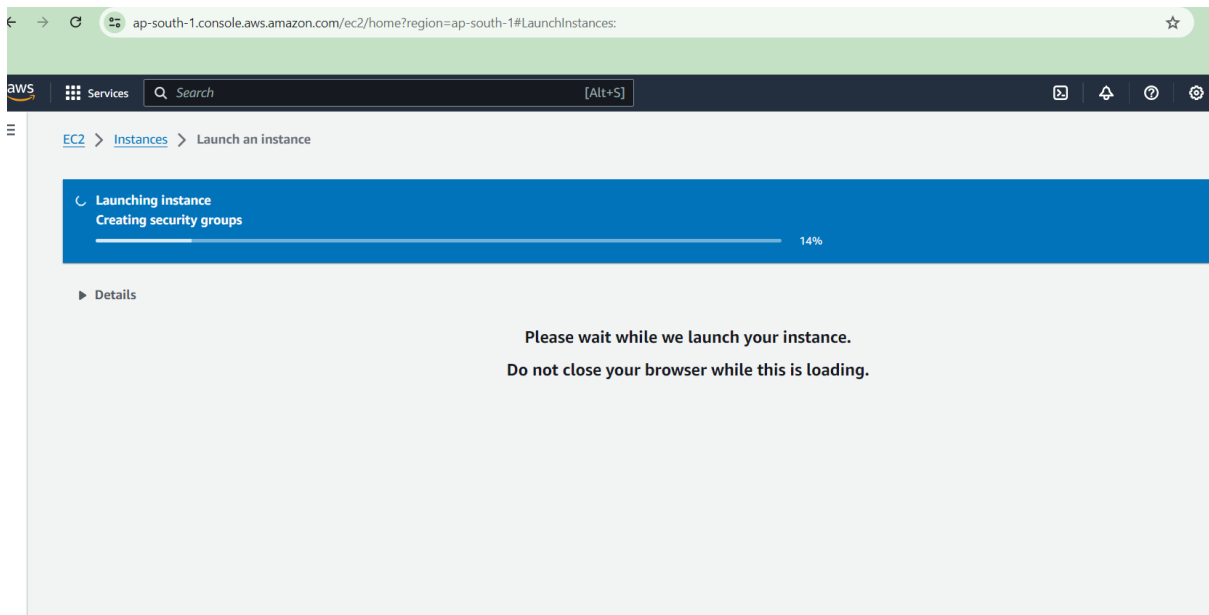
To login to the particular instance, we need keypair. Select the “Create new key pair” option at right of the drop-down box.



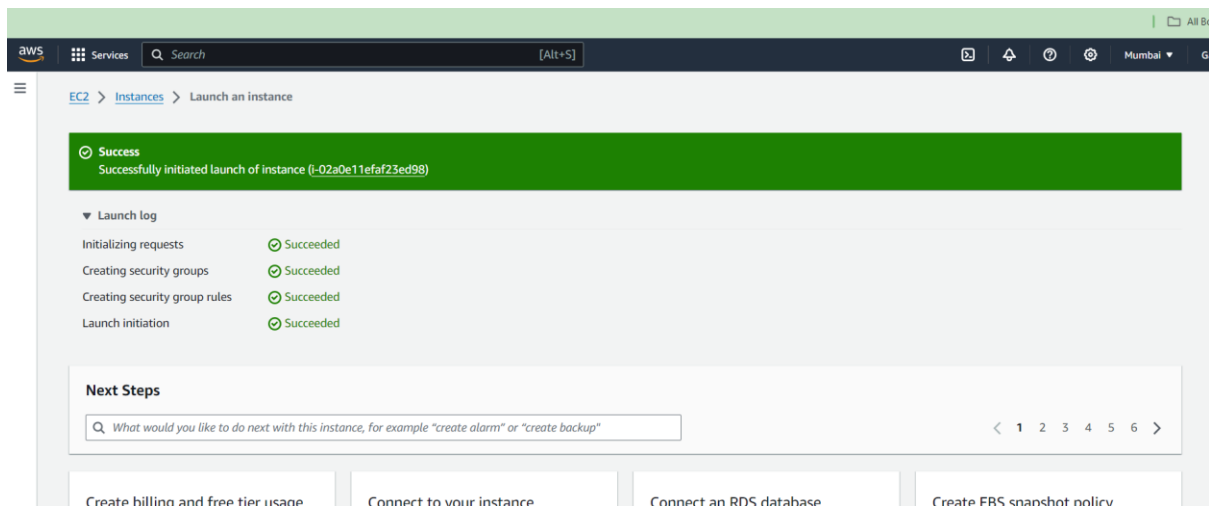
Assign name to key pair. Select “.pem” or “.ppk” key file format and create key pair. Accordingly, a file will be downloaded.



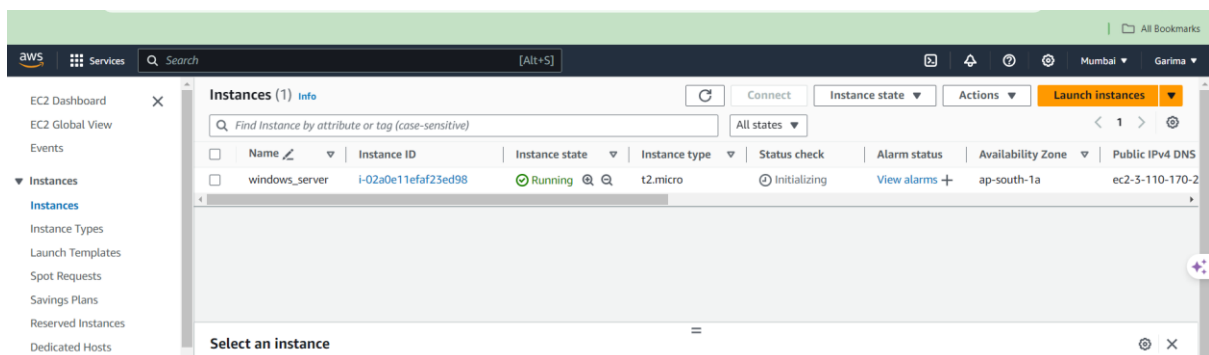
In “Network” settings, select “Create security group”. Select the 2 check boxes and then, at bottom right corner, select the “Launch” instance button to launch the instance.



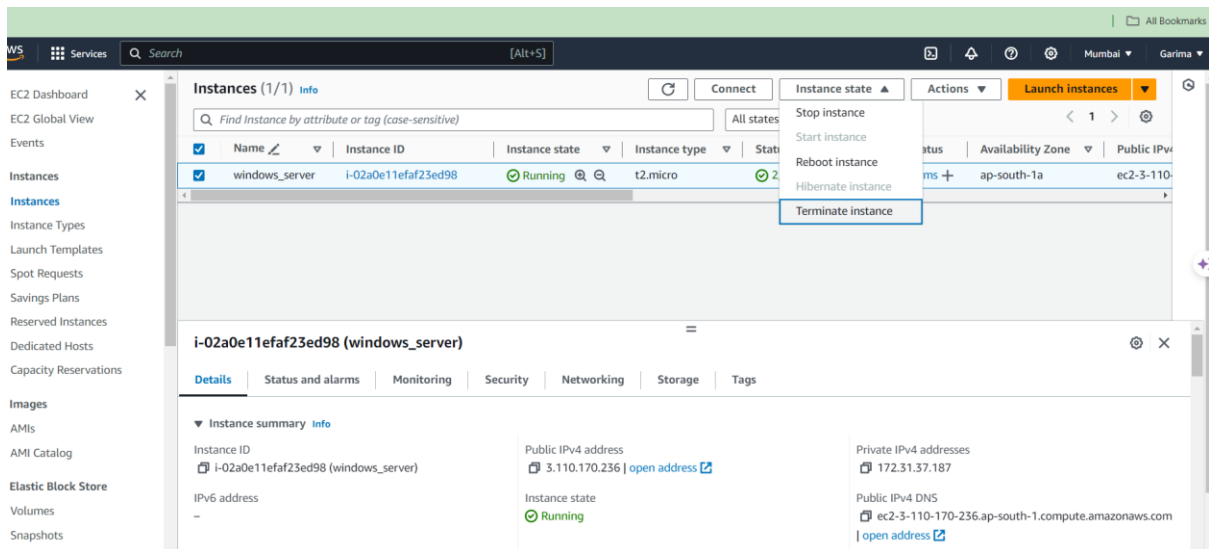
Once this completes. The instance will be launched.



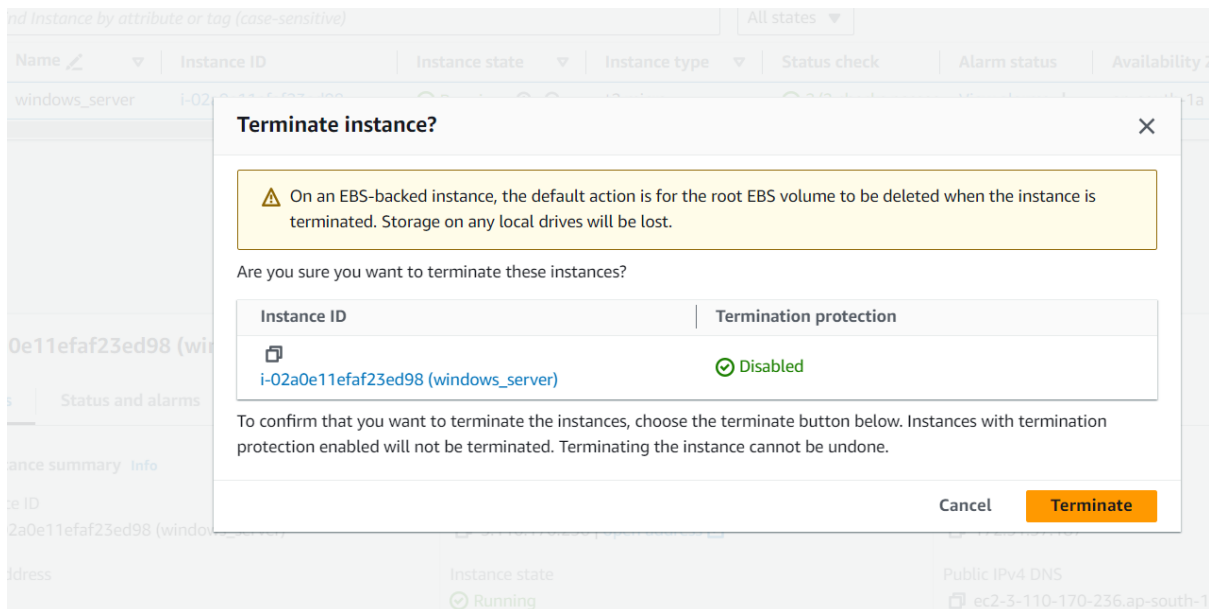
Once the instance is launched, this page should appear. Then at top left corner, above the green dialogue box, go on "Instances" option



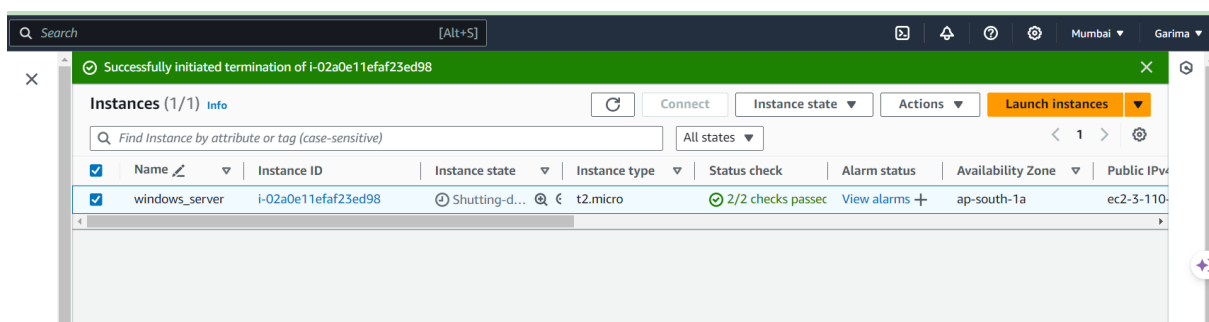
Here, we get to see the list of instances that we have launched. The instance state currently is "Running" indicating that the code is being processed. When it is processed and checking is done, the Status check column will show "2/2 passed".



To terminate the instance, select that instance, go to “Instance state” drop down and select “Terminate instance” option.



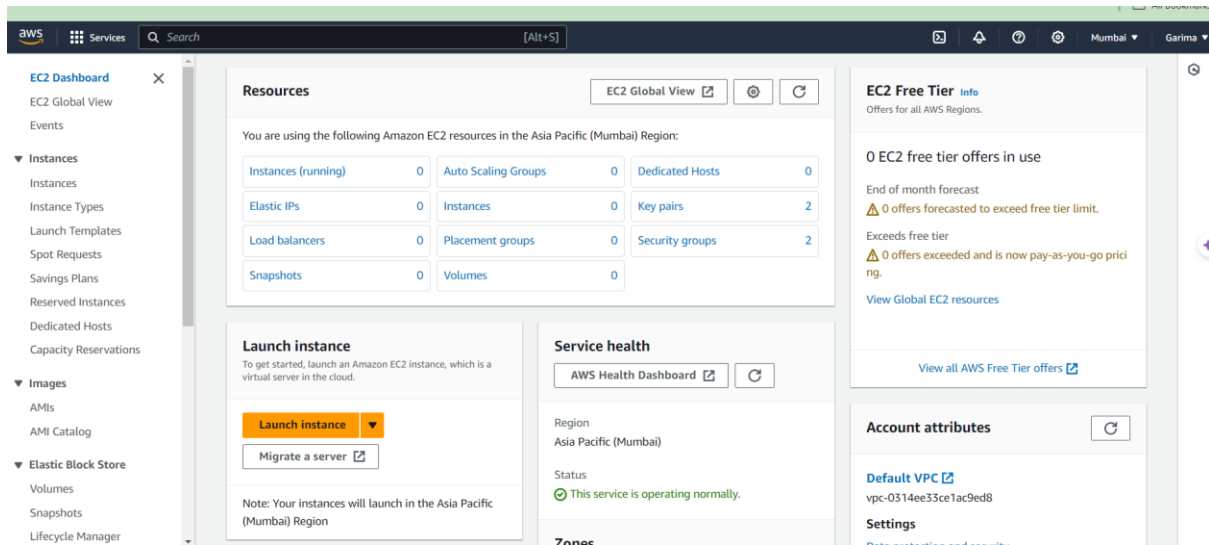
Click on “Terminate” button



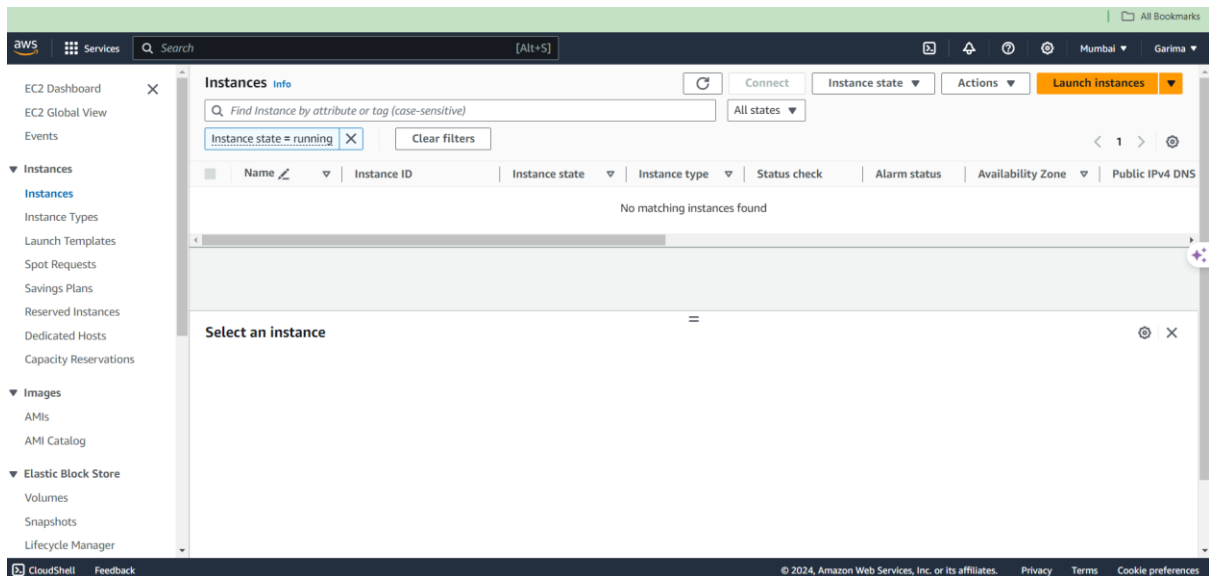
A dialogue box will appear stating termination of instance and the instance state will change to “Shutting-down”. When it is completely terminated, the state will change to “Terminated”.

Q2.) Implement Ubuntu machine using AWS ec2 and execute the Linux commands.

Ans:



From resources section, select “Instances (Running)” option.



Currently there are no instances running. To launch an instance, click on the “Launch instances” button at the top right corner.

**Launch an instance** [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

**Name and tags** [Info](#)

Name  
e.g. My Web Server [Add additional tags](#)

**Application and OS Images (Amazon Machine Image)** [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Recents [Quick Start](#)

**Summary**

Number of instances [Info](#)  
1

Software Image (AMI)  
Amazon Linux 2023 AMI 2023.5.2...[read more](#)  
ami-0ec0e125bb6c6e8ec

Virtual server type (instance type)  
t2.micro

Firewall (security group)  
New security group

Storage (volumes)  
1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which

Cancel [Launch instance](#)

We are creating only one instance for windows. So, in “Summary”, the number of instances will be 1. In “Name and tags”, assign a name to the instance. Here we give the name “ubuntu\_server”.

**Application and OS Images (Amazon Machine Image)** [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Recents [Quick Start](#)

Amazon Linux macOS **Ubuntu** Windows Red Hat SUSE Li [Browse more AMIs](#)  
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type [Free tier eligible](#)  
ami-0ad21ae1d0696ad58 (64-bit (x86)) / ami-01f6c796d6dbc1e36 (64-bit (Arm))  
Virtualization: hvm ENA enabled: true Root device type: ebs

Description  
Ubuntu Server 24.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

**Summary**

Number of instances [Info](#)  
1

Software Image (AMI)  
Canonical, Ubuntu, 24.04 LTS, ...[read more](#)  
ami-0ad21ae1d0696ad58

Virtual server type (instance type)  
t2.micro

Firewall (security group)  
New security group

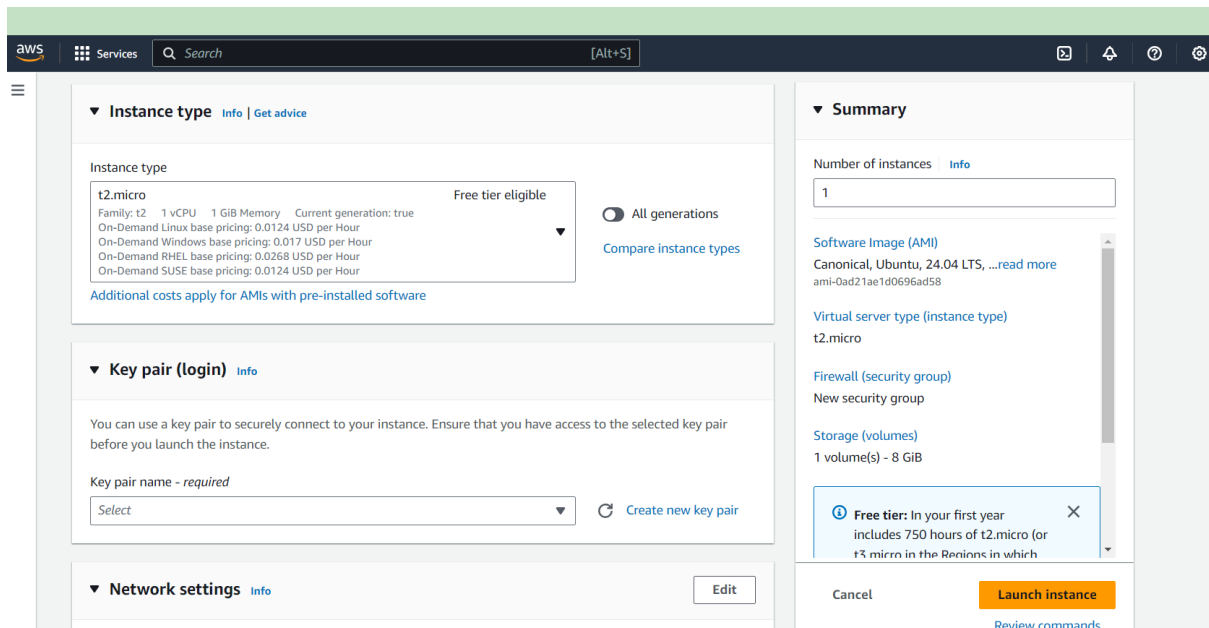
Storage (volumes)  
1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which

Cancel [Launch instance](#)  
[Review commands](#)

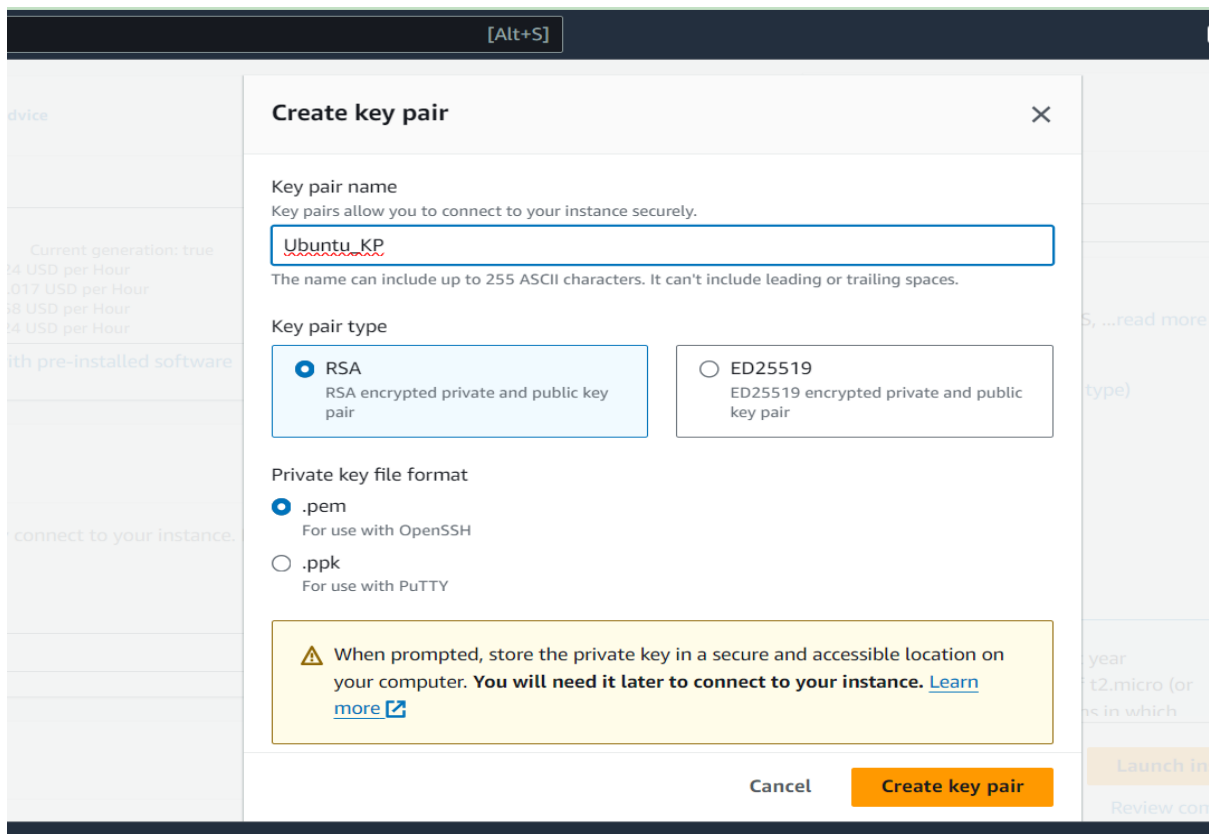
In “Application and OS Images (AMI)” section select the “Ubuntu” AMI. Select the latest AMI with the “Free Tier eligible” option only since the account is for free access purpose.





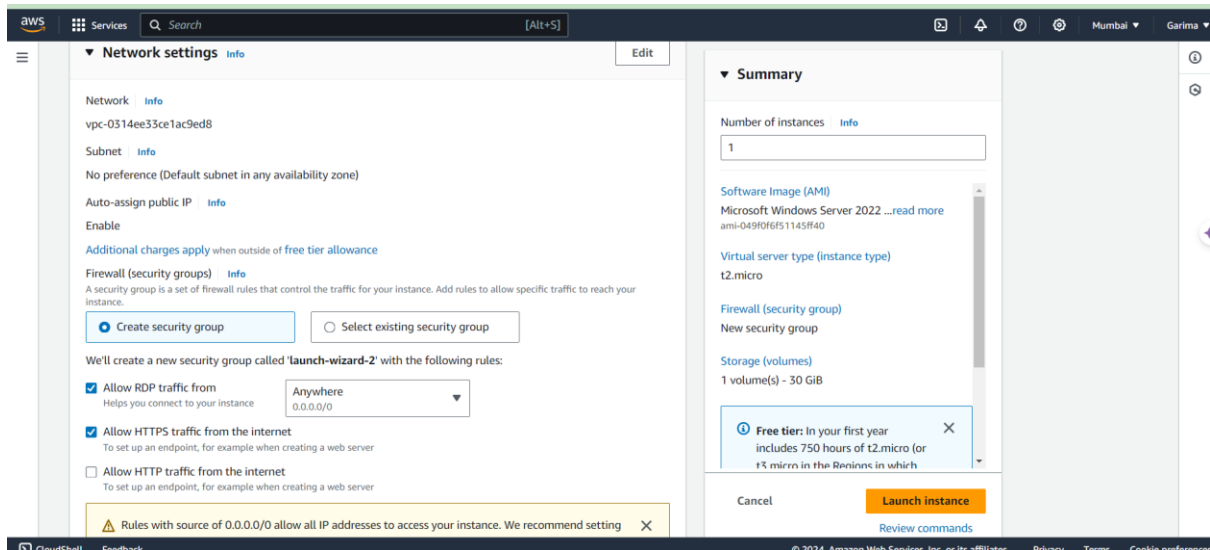
Instance types: We select our virtual CPUs and RAM/ memory associated. By default, the free tier eligible instance is selected. We select the latest “t2.micro” instance type.

To login to the particular instance, we need keypair. Select the “Create new key pair” option at right of the drop-down box.

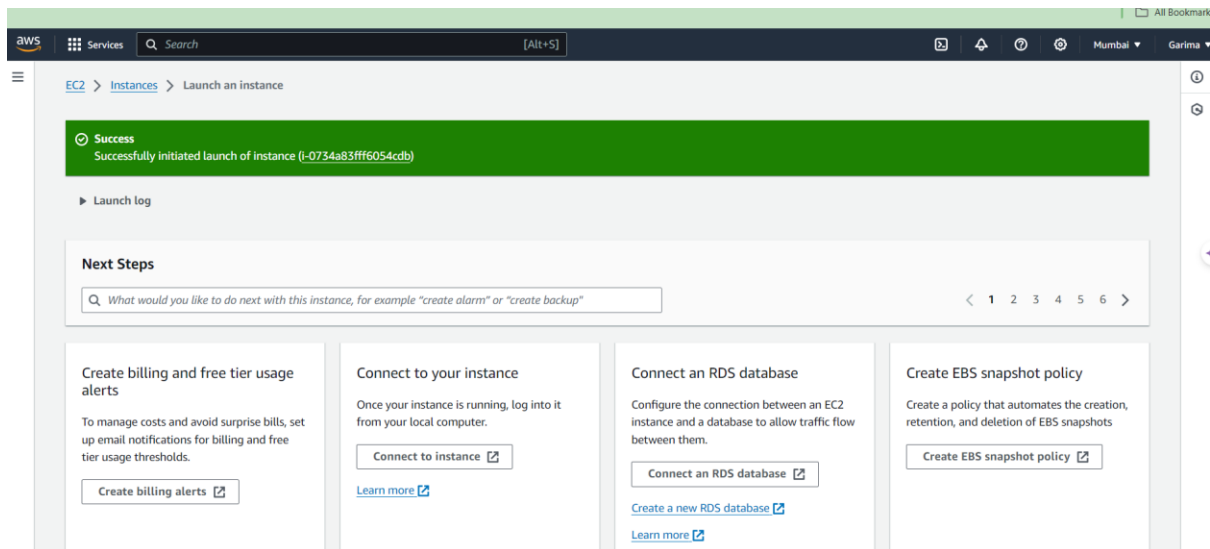


Assign name to key pair. Select “.pem” or “.ppk” key file format and create key pair. Accordingly, a file will be downloaded.

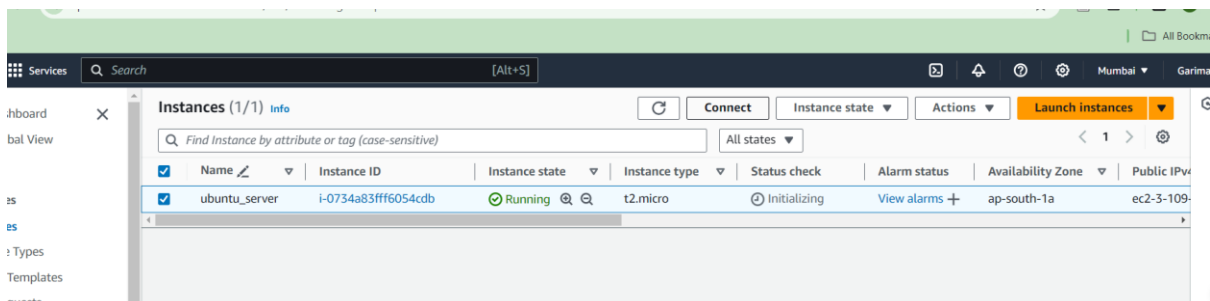
will be downloaded.



In “Network” settings, select “Create security group”. Select the 2 check boxes and then, at bottom right corner, select the “Launch” instance button to launch the instance.



After successful launching of instance, we get the above message. Go to Instances from the above options to check for the instance that we have launched.



Here, we can see our instance in the Running state. To execute the Linux commands, we need to connect the instance to

So, we select the particular instance and at the top, select the “Connect” button.

aws Services Search [Alt+S]

Connect to your instance i-0734a83fff6054cdb (ubuntu\_server) using any of these options

EC2 Instance Connect Session Manager SSH client EC2 serial console

Instance ID  
i-0734a83fff6054cdb (ubuntu\_server)

Connection Type

☒ Connect using EC2 Instance Connect  
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.

☐ Connect using EC2 Instance Connect Endpoint  
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address  
3.109.5.27

Username  
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ubuntu.

ubuntu X

**Note:** In most cases, the default username, ubuntu, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

Cancel Connect

Without changing the selected options, we click connect button.

```
aws Services Search [Alt+S]
Usage of /: 22.7% of 6.71GB  Users logged in: 0
Memory usage: 20%          IPv4 address for enX0: 172.31.35.144
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

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.

ubuntu@ip-172-31-35-144:~$

i-0734a83fff6054cdb (ubuntu_server)
PublicIPs: 3.109.5.27 PrivateIPs: 172.31.35.144
```

The instance is now connected to the virtual ubuntu machine.

The following 5 Linux commands have been executed on the machine.

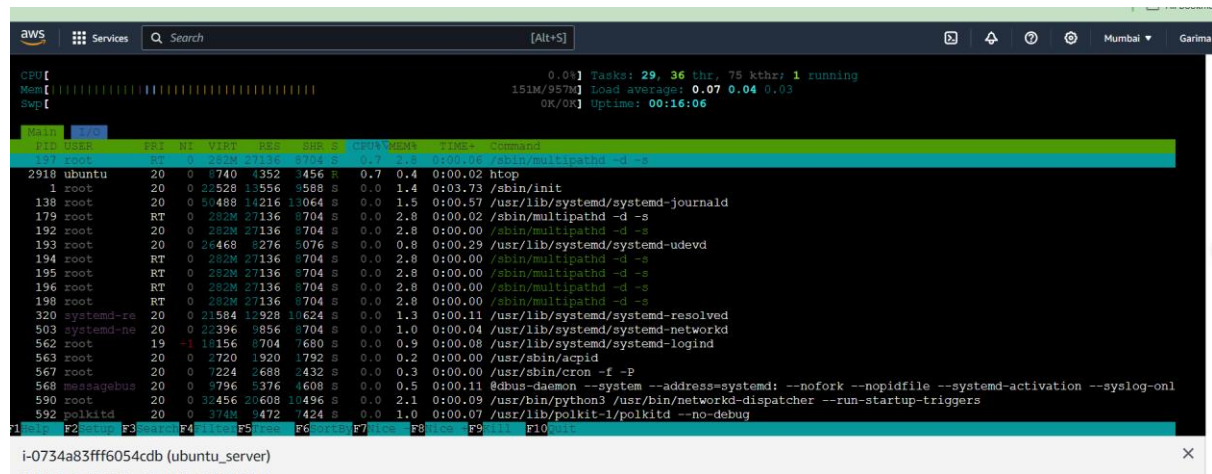
To run a command as administrator (user "root"), use "sudo <command>". See "man sudo\_root" for details.

```
ubuntu@ip-172-31-35-144:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        6.8G  1.6G  5.2G  23% /
tmpfs            479M    0  479M   0% /dev/shm
tmpfs            192M  868K  191M   1% /run
tmpfs            5.0M    0   5.0M   0% /run/lock
/dev/xvda16      881M   76M  744M  10% /boot
/dev/xvda15      105M   6.1M   99M   6% /boot/efi
tmpfs            96M   12K   96M   1% /run/user/1000

ubuntu@ip-172-31-35-144:~$ du -h
8.0K    ./config/htop
4.0K    ./config/procps
16K     ./config
8.0K    ./ssh
4.0K    ./cache
48K     .

ubuntu@ip-172-31-35-144:~$ htop
ubuntu@ip-172-31-35-144:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-35-144:~$ ls
ubuntu@ip-172-31-35-144:~$ mkdir Journal
ubuntu@ip-172-31-35-144:~$ ls
Journal
ubuntu@ip-172-31-35-144:~$
```

i-0734a83fff6054cdb (ubuntu\_server)



**df -h:** to see details of the machine. It says that total 6.8 GB of the root directory of which 23% of SSD is used

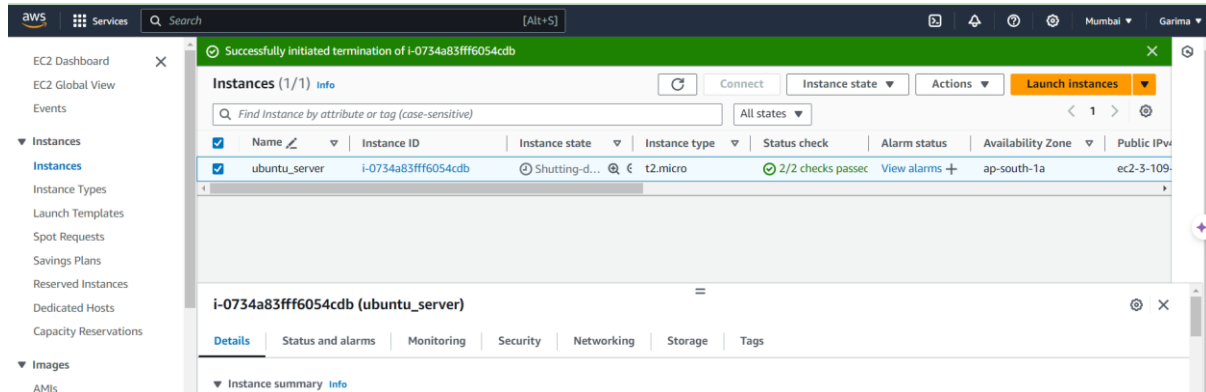
**du -h:** there is not much of the disk uses here

**htop:** to check machine details, CPU and machine utilizations. It tells that total there is 1 GB (957 MB) of RAM memory of which 151 MB memory is used up and almost 0% of CPU is being utilized

**pwd:** Allows to print current working directory on your terminal. Also, when creating scripts, it can be used to find the directory where the script has been saved

mkdir: allows to create directories from within the terminal. Here we created the Journal directory using this command.

ls: used to list files and directories in current working directory. Using command without any arguments gives an output with all files and directories in the directory. Initially, since there were no directories, when the command was given, we got no output. After a directory was created using the mkdir command, when the ls command was run, we got the output as the name of the directory created i.e. Journal.



After executing the Linux commands, terminate the instance by going to the "Instance state" drop-down and select "Terminate instance" option. After terminating, we get the above page and the instance state in the list for that instance changes to "Shutting-Down" and then finally to "Terminated".