

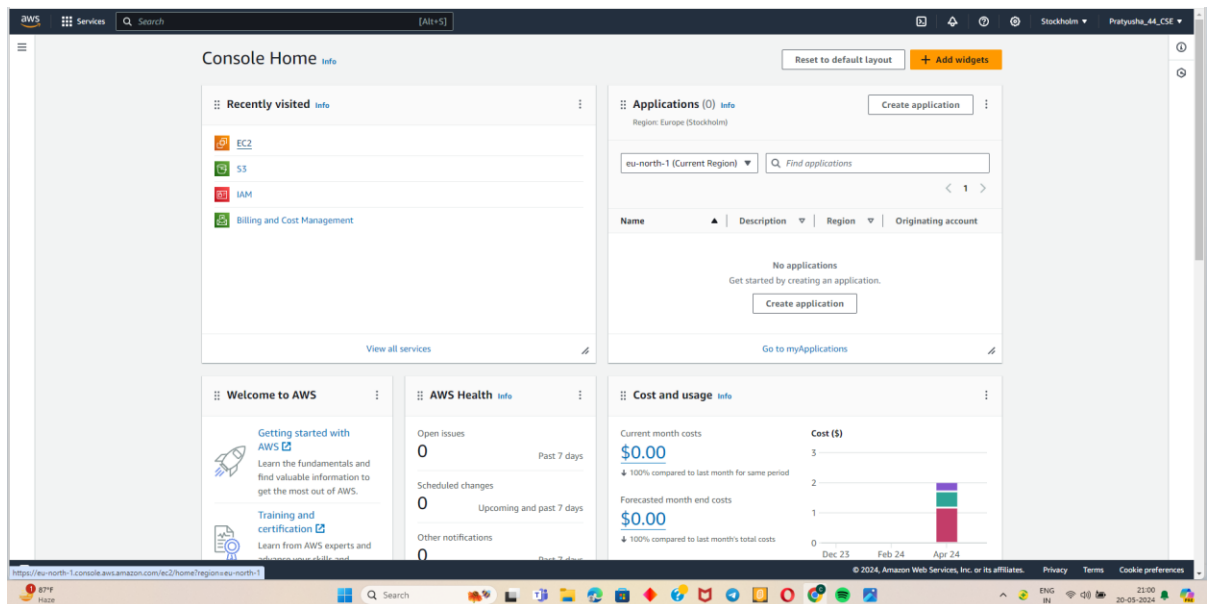
ASSIGNMENT - 11

PROBLEM STATEMENT -

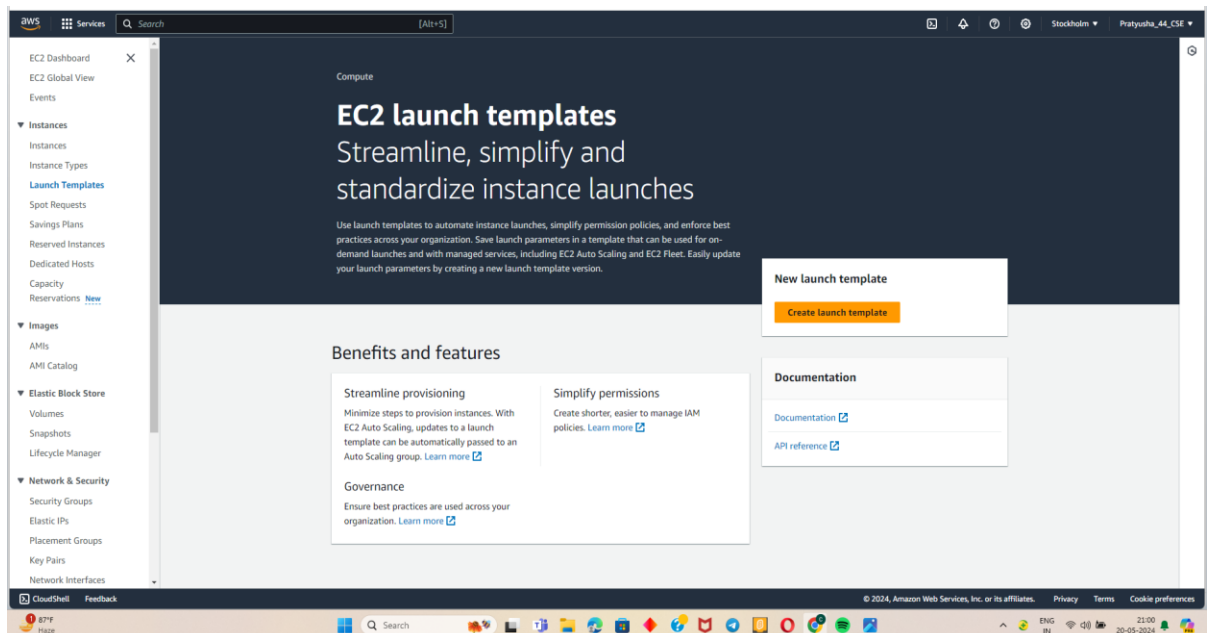
Build scaling plans in AWS that balances the load on different EC2 instances.

Procedure:-

1. From AWS home screen, select EC2 option.



2. Under the Launch Templates, click on Create Launch Template.



3. Give a name and description to the template. Check the Auto Scaling Guidance checkbox.

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.

Launch template name and description

Launch template name - required
Pro_Tem
Must be unique to this account. Max 128 chars. No spaces or special characters like %, *, @.

Template version description
Pro_Tem
Max 255 chars

Auto Scaling guidance [Info](#)
Select this if you intend to use this template with EC2 Auto Scaling.
☒ Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

► Template tags
► Source template

Launch template contents
Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

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

Summary

Software Image (AMI)
-

Virtual server type (instance type)
-

Firewall (security group)
-

Storage (volumes)
-

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the internet.

Cancel **Create launch template**

4. Select Ubuntu & under instance type, select t3.micro .

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
ami-0705384c0b33c194c (64-bit (x86)) / ami-0ac0d8e77d03533a1d (64-bit (arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description
Canonical, Ubuntu, 24.04 LTS, amd64 noble image build on 2024-04-23

Architecture
64-bit (x86)

AMI ID
ami-0705384c0b33c194c **Verified provider**

Instance type [Info](#) [Get advice \[Advanced\]\(#\)](#)

Instance type
t3.micro
Family: t3 2 vCPU 1 GiB Memory Current generation: true
On-Demand RHEL base pricing: 0.0708 USD per Hour
On-Demand SUSE base pricing: 0.0108 USD per Hour
On-Demand Linux base pricing: 0.0108 USD per Hour
On-Demand Windows base pricing: 0.02 USD per Hour

Additional costs apply for AMIs with pre-installed software

Summary

Software Image (AMI)
Canonical, Ubuntu, 24.04 LTS, ...read more
ami-0705384c0b33c194c

Virtual server type (instance type)
t3.micro

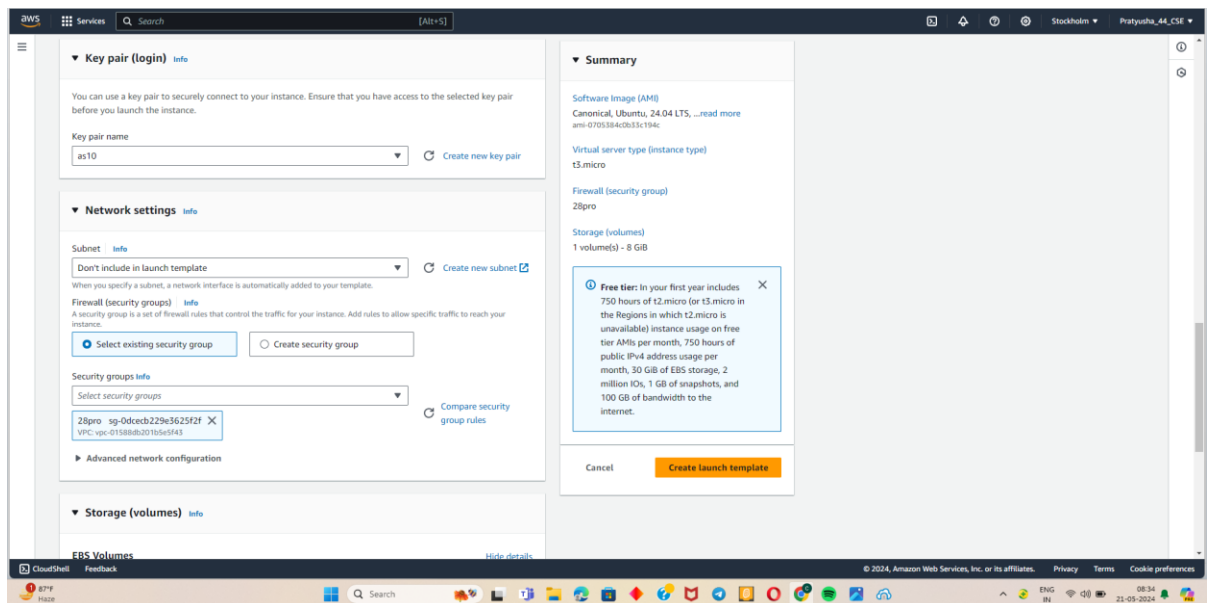
Firewall (security group)
-

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

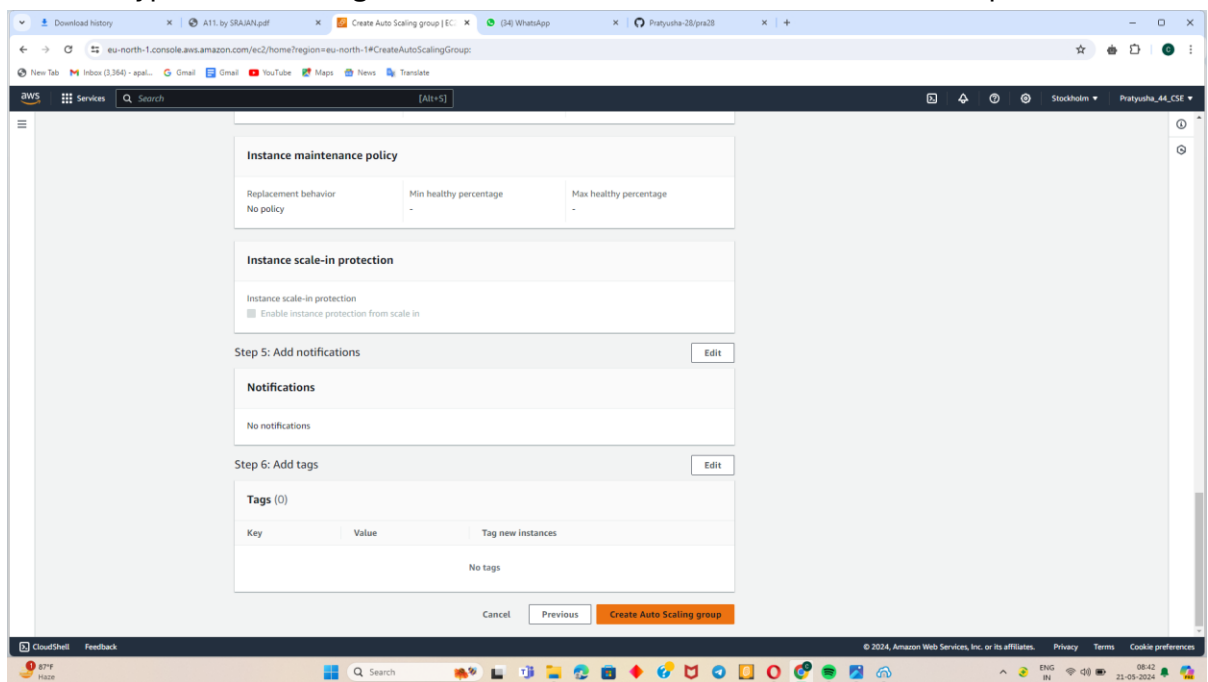
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the internet.

Cancel **Create launch template**

- Under key pair, select an existing key and select the user created Security group.



- Expand the Advanced Details tab and scroll down to the bottom, in the bash console type the following commands then click on Create Launch Template .



- Click on Auto Scaling Group then click on Create Auto Scaling Group and give a name and select the newly created Template. Then, click on Next .

The screenshot shows the AWS Management Console interface for creating an Auto Scaling Group. The left sidebar contains a navigation menu with steps: Step 3 - optional (Configure advanced options), Step 4 - optional (Configure group size and scaling), Step 5 - optional (Add notifications), Step 6 - optional (Add tags), and Step 7 (Review). The main content area is titled 'Name' and 'Launch template info'. Under 'Name', there is a text input field for 'Auto Scaling group name' with the value 'pro_scale' and a note: 'Must be unique to this account in the current Region and no more than 255 characters.' Under 'Launch template info', there is a blue informational box stating: 'For accounts created after May 31, 2023, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2023.' Below this, the 'Launch template' section shows a dropdown menu with 'Pro_Tem' selected. The 'Version' section shows a dropdown menu with 'Default (1)' selected. The 'Description' section shows 'Pro_Tem'. The 'AMI ID' section shows 'ami-0705384c0b35c194c'. The 'Key pair name' section shows 'as10'. The 'Launch template' section shows 'Pro_Tem' and 'It-0602b13e1ecbaa01'. The 'Instance type' section shows 't3.micro'. The 'Request Spot Instances' section shows 'No'. The 'Security groups' section shows '-'. The 'Security group IDs' section shows 'sg-0d0c0cb229e3625f2f'.

- In Network tab select all the available zones. Then click on next.

The screenshot shows the AWS Management Console interface for creating an Auto Scaling Group, specifically the 'Network' tab. The left sidebar contains a navigation menu with steps: Step 3 - optional (Configure advanced options), Step 4 - optional (Configure group size and scaling), Step 5 - optional (Add notifications), Step 6 - optional (Add tags), and Step 7 (Review). The main content area is titled 'Network info'. It contains a section for 'VPC' with a dropdown menu showing 'vpc-01588db20105e5f43' and a note: 'Choose the VPC that defines the virtual network for your Auto Scaling group.' Below this, there is a section for 'Availability Zones and subnets' with a dropdown menu showing 'eu-north-1a | subnet-0078d9f349e047f3b1'. Below this, there are three subnets listed: 'eu-north-1a | subnet-0078d9f349e047f3b1', 'eu-north-1b | subnet-0384c308f6707b6a7', and 'eu-north-1c | subnet-01ef093b51103a611'. Each subnet has a close button (X) and a default IP range of '172.31.16.0/20'.

9. Select Attach a new load balancer , select Application Load Balancer & select Internet Facing.

Load balancing info

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

- ☐ No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.
- ☐ Attach to an existing load balancer
Choose from your existing load balancers.
- ☒ Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

Attach to a new load balancer

Define a new load balancer to create for attachment to this Auto Scaling group.

Load balancer type

Choose from the load balancer types offered below. Type selection cannot be changed after the load balancer is created. If you need a different type of load balancer than those offered here, visit the [Load Balancing console](#).

- ☒ Application Load Balancer
HTTP, HTTPS
- ☐ Network Load Balancer
TCP, UDP, TLS

Load balancer name

Name cannot be changed after the load balancer is created.

pro-scale-1

Load balancer scheme

Scheme cannot be changed after the load balancer is created.

- ☐ Internal
- ☒ Internet-facing

Network mapping

10. Give the port no. 4000 & select Create a target group. Then select No VPC Lattice Service.

Network mapping

Your new load balancer will be created using the same VPC and Availability Zone selections as your Auto Scaling group. You can select different subnets and add subnets from additional Availability Zones.

VPC

vpc-01588db201b5e5f43

Availability Zones and subnets

You must select a single subnet for each Availability Zone enabled. Only public subnets are available for selection to support DNS resolution.

- ☒ eu-north-1b: subnet-0384c308fd707b6a7
- ☒ eu-north-1a: subnet-0078df349e047f3b1
- ☒ eu-north-1c: subnet-08ef093b51103a611

Listeners and routing

If you require secure listeners, or multiple listeners, you can configure them from the [Load Balancing console](#) after your load balancer is created.

Protocol: HTTP

Port: 4000

Default routing (forward to): Create a target group

New target group name

An instance target group with default settings will be created.

proscale1

Tags - optional

Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them.

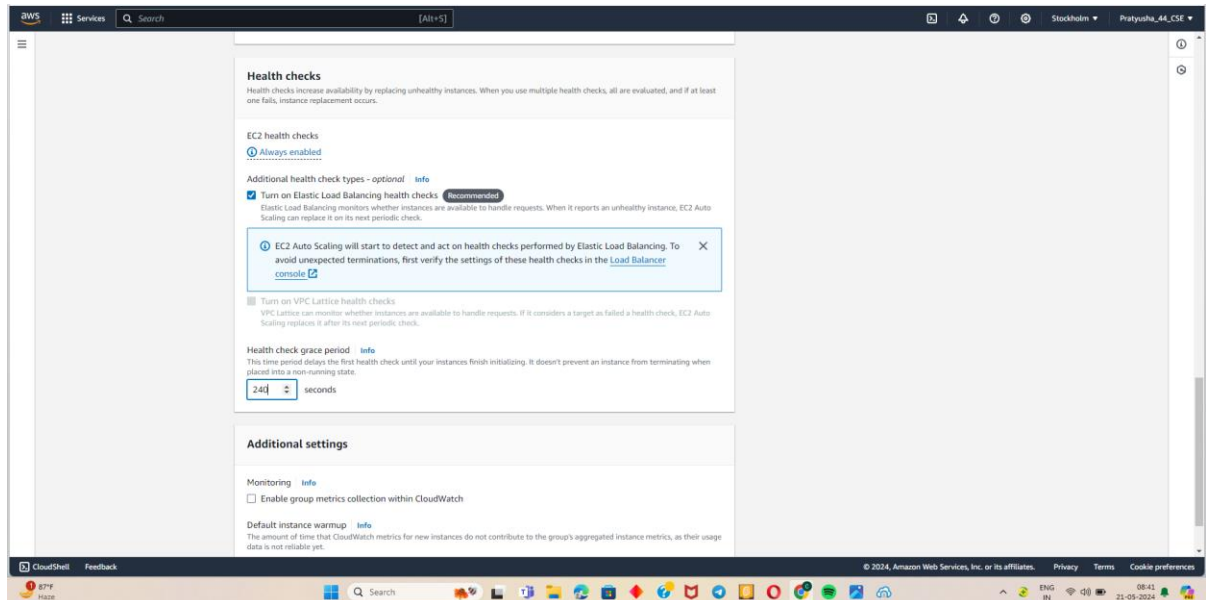
[Add tag](#)

50 remaining

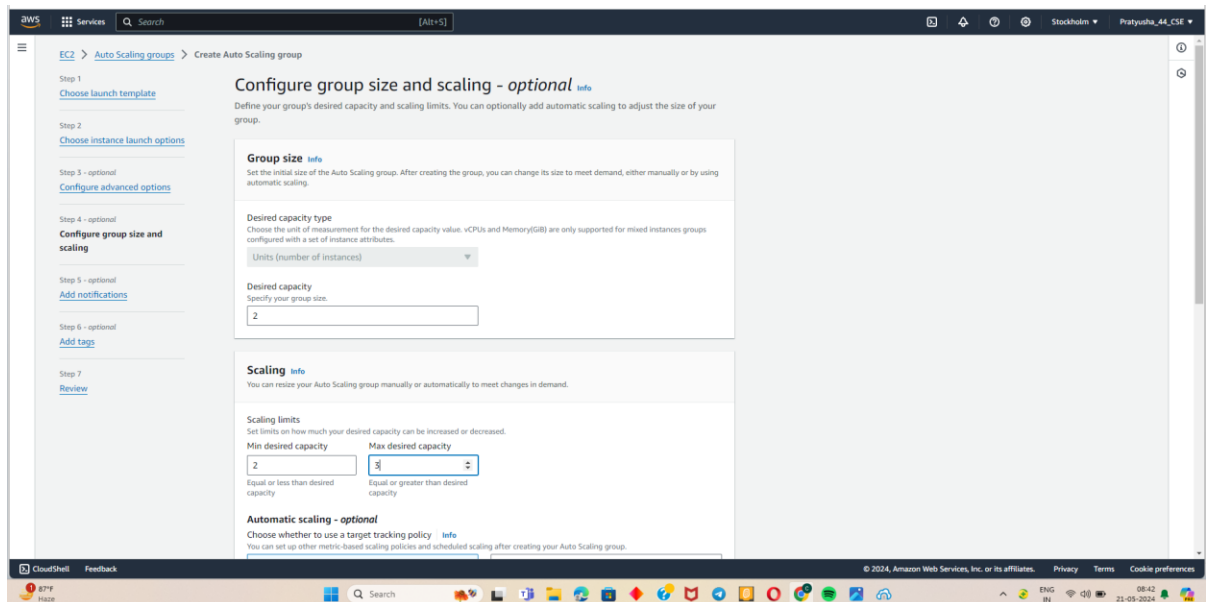
VPC Lattice integration options

To improve networking capabilities and scalability, integrate your Auto Scaling group with VPC Lattice. VPC Lattice facilitates communications between AWS services and helps you connect and manage your applications across compute services in AWS.

11. Check the Turn on Elastic Load Balancing Health checks checkbox. Give the Health Check Grace Period of 240 seconds. Click on NEXT .



12. Under Desired capacity, give a size of 2. Under Scaling, give min capacity 2 & max capacity 3.



13. Select Target tracking scaling policy . And give the instance warmup time of 240 seconds. Then click on Next .

Get alerts on how much your desired capacity can be increased or decreased.

Min desired capacity: 2
Max desired capacity: 3

Equal or less than desired capacity
Equal or greater than desired capacity

Automatic scaling - optional

Choose whether to use a target tracking policy. [Info](#)

You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

☐ No scaling policies
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

☒ Target tracking scaling policy
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Scaling policy name: Target Tracking Policy

Metric type: [Info](#)
Monitored metric that determines if resource utilization is too low or high. If using EC2 metrics, consider enabling detailed monitoring for better scaling performance.

Metric type: Average CPU utilization

Target value: 50

Instance warmup: seconds

☐ Disable scale in to create only a scale-out policy

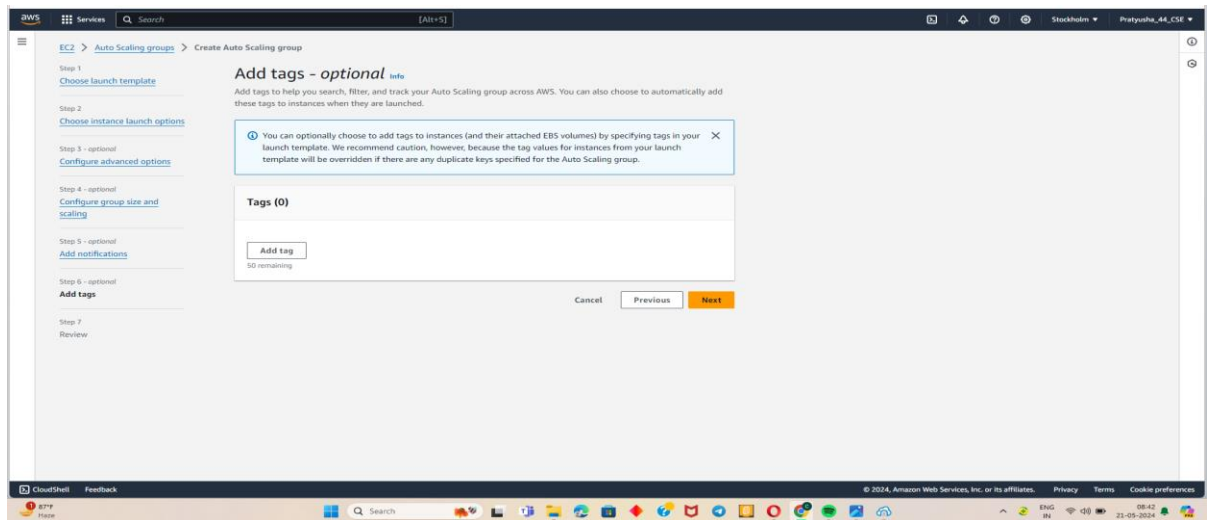
Instance maintenance policy [Info](#)
Control your Auto Scaling group's availability during instance replacement events. This includes health checks, instance refreshes, maximum instance lifetime features and events that happen automatically to keep your group balanced, called rebalancing events.

14. Click on Next .

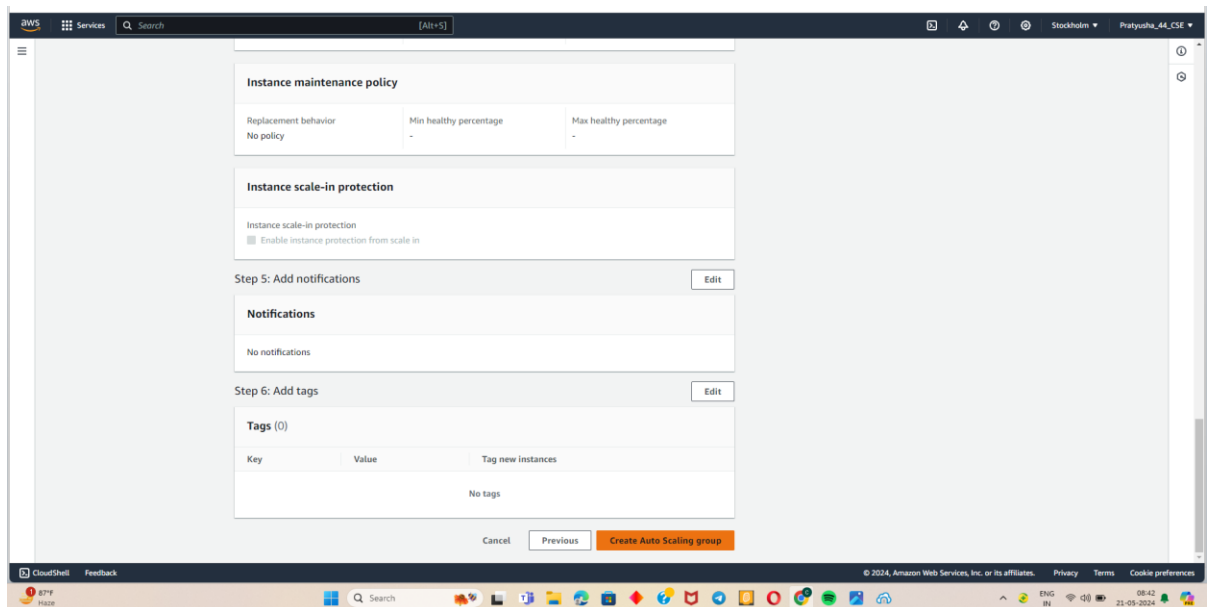
Add notifications - optional [Info](#)

Send notifications to SNS topics whenever Amazon EC2 Auto Scaling launches or terminates the EC2 instances in your Auto Scaling group.

15. Click on Next .

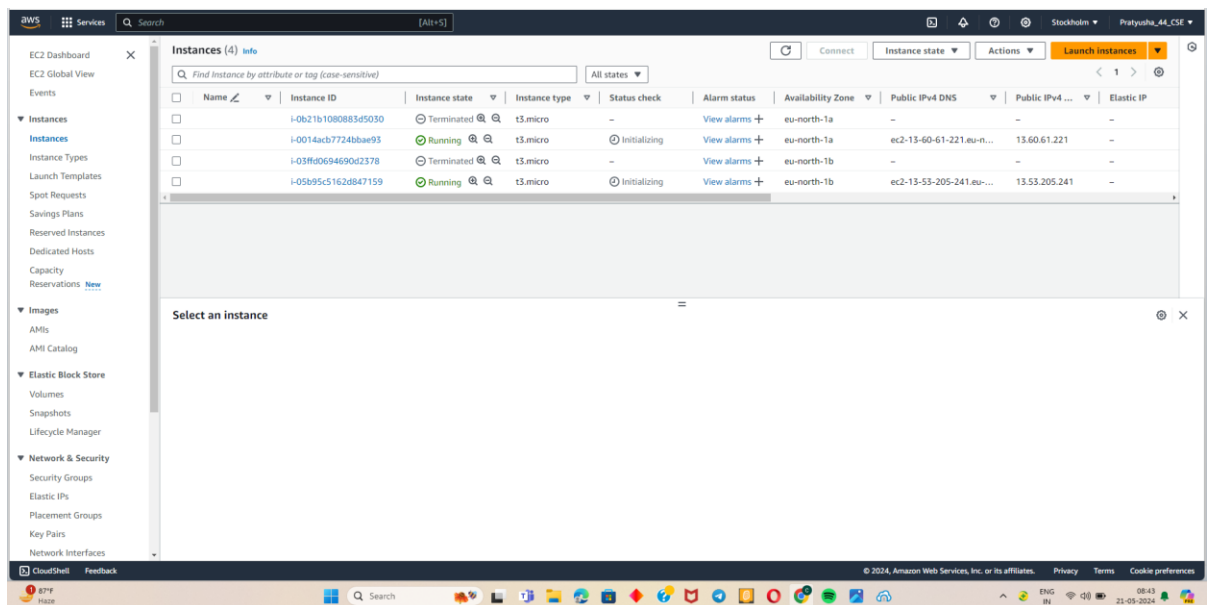


16. Review all the data of the group to be created and click on Create Auto Scaling Group .

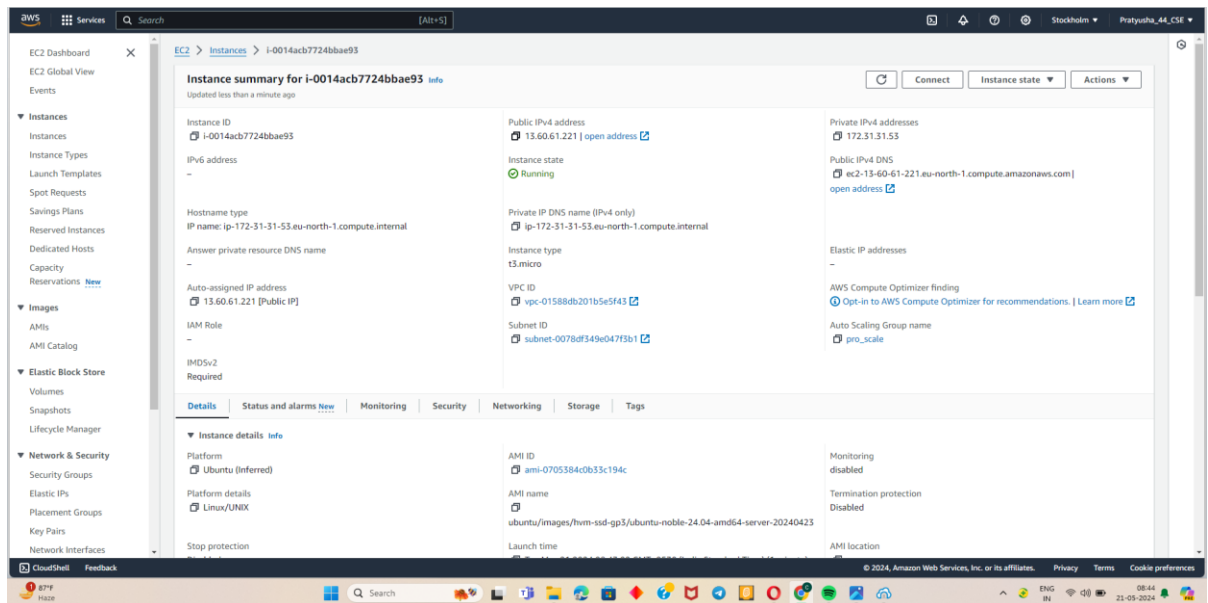


17. After creating the scaling group, go back to Instances from the left side menu. Since the capacity was given as 2, two instances are created. Now open any one of the the

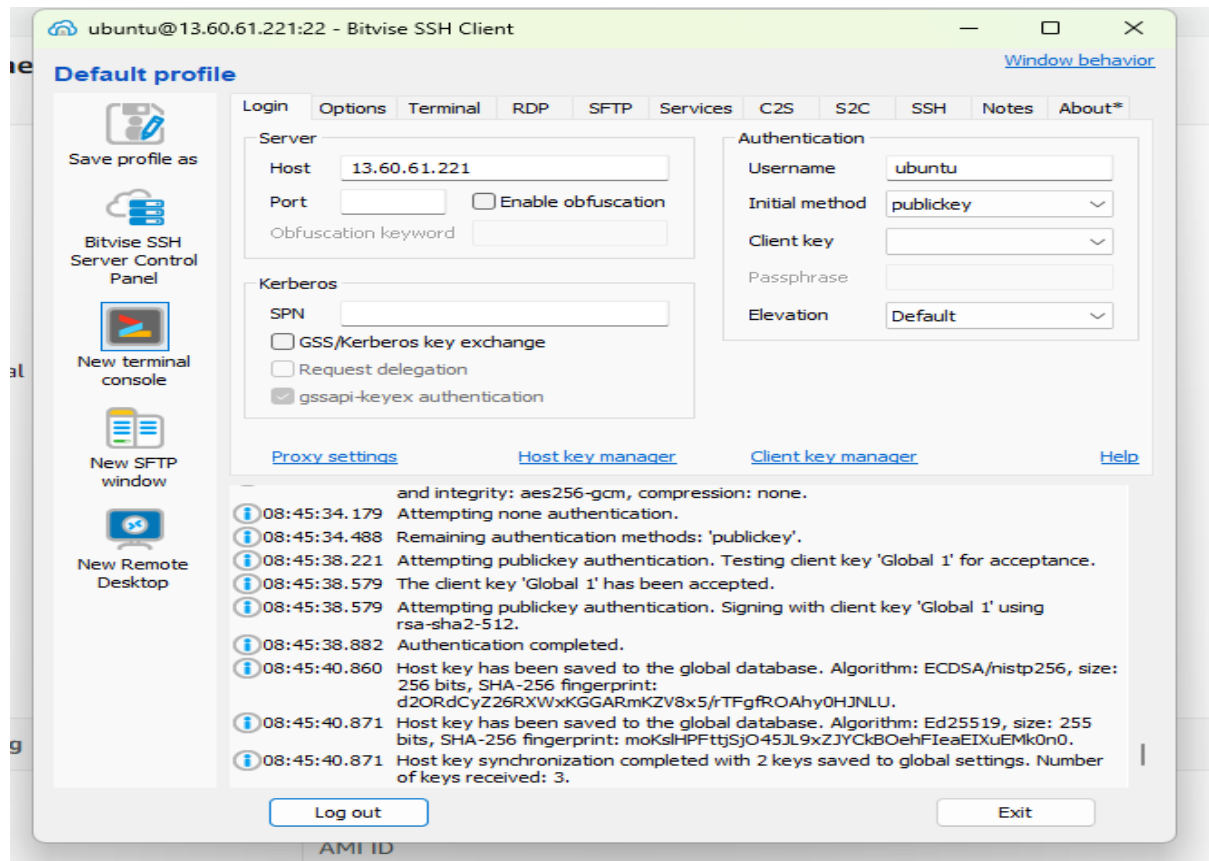
instance by clicking on its id.



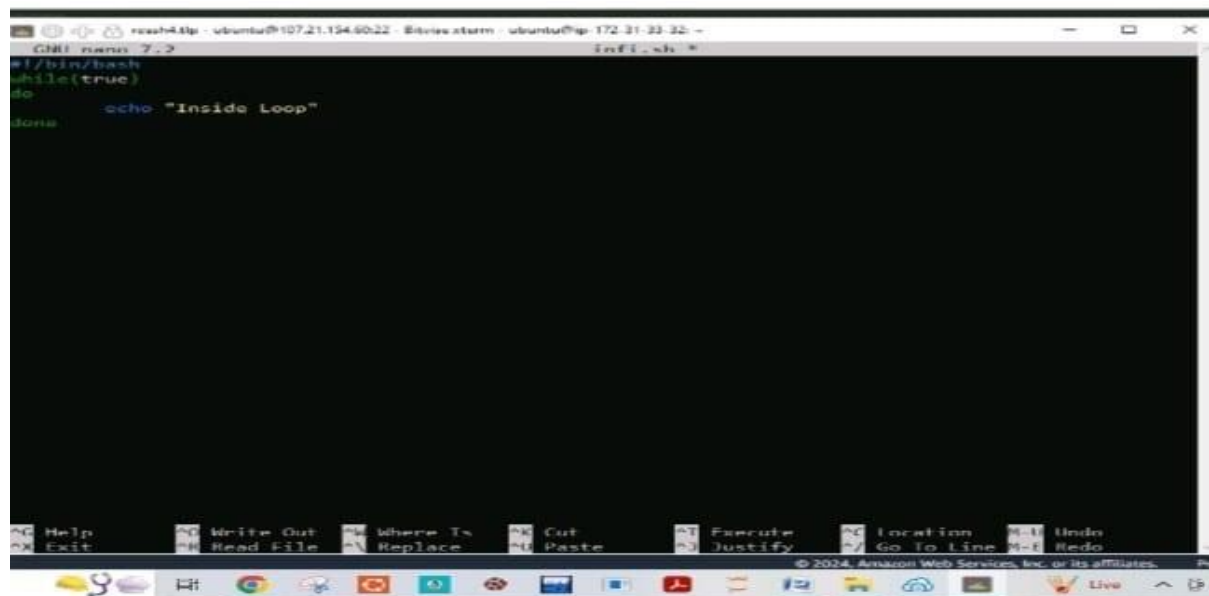
18. Copy its Public IPv4 Address.



19. Open Bitvise ssh client and then paste that public IPv4 address and then in client key manager import that generated key and then do login.



20. After click on New Terminal Console and then write command `sudo nano infy.sh` file will be created. Now write the following code to run infinite loop.



21. Then do ctrl+x then y then click enter. And write command `sudo chmod 777 infi.sh` to provide all permissions to file and then to run give sh infy.sh

```

Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1000-aws x86_64)

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

System information as of Tue May 21 03:15:39 UTC 2024

System load: 0.23           Temperature: -273.1 C
Usage of /:  29.2% of 6.71GB Processes:           121
Memory usage: 30%          Users logged in:       0
Swap usage:  0%            IP address for ens5: 172.31.31.53

Expanded Security Maintenance for Applications is not enabled.

18 updates can be applied immediately.
10 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

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.

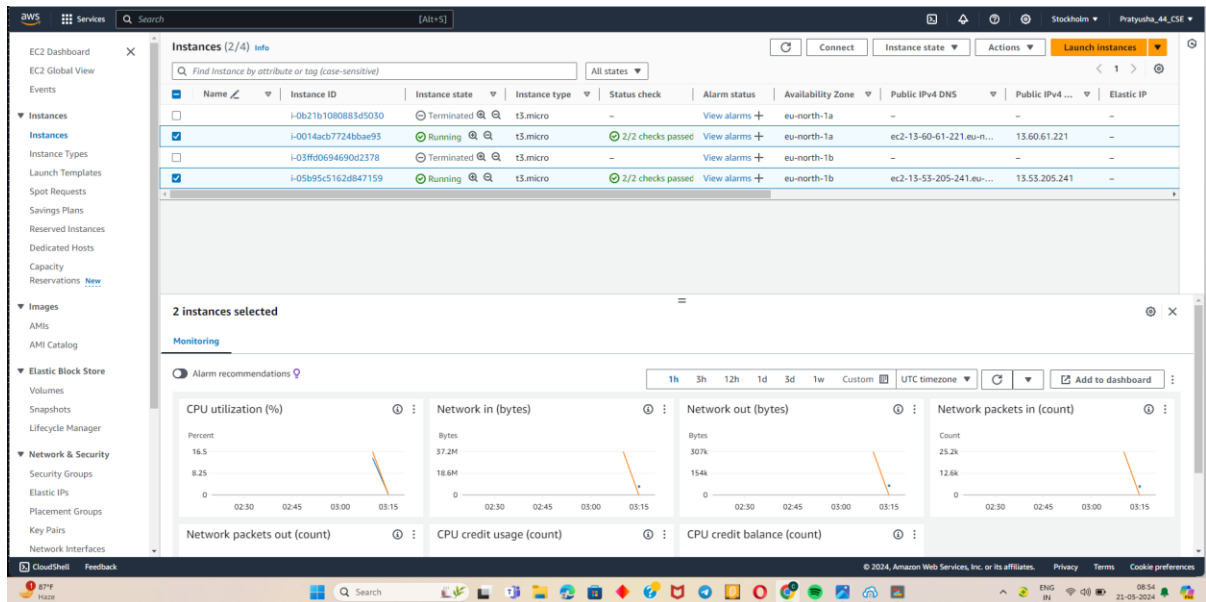
ubuntu@ip-172-31-31-53:~$ sudo nano info.sh
ubuntu@ip-172-31-31-53:~$ sudo chmod 777 info.sh
chmod: cannot access 'info.sh': No such file or directory
ubuntu@ip-172-31-31-53:~$ sudo chmod 777 info.sh
ubuntu@ip-172-31-31-53:~$ sh info.sh

```

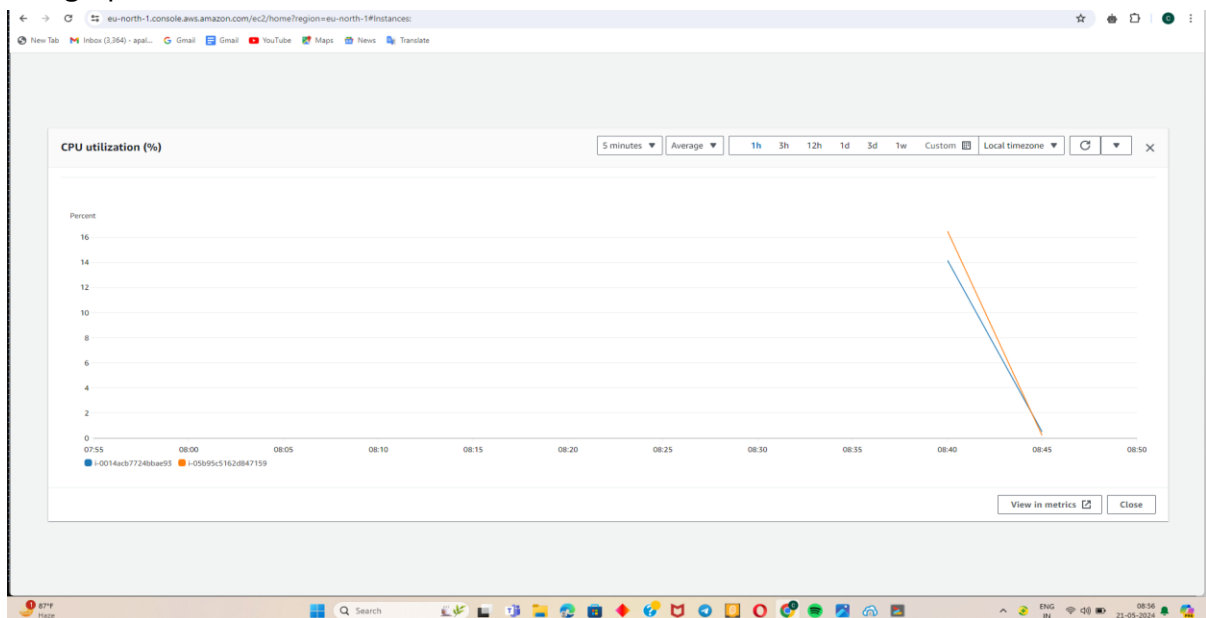
22. Here we can see infinite loop.

[illegible]

23. Select both the instances, then under monitoring go to CPU utilization and enlarge it.



24. The graph shows the CPU Utilization for both the instances.



- When the CPU utilization exceed the limit for both the instances, a new instance will be created.