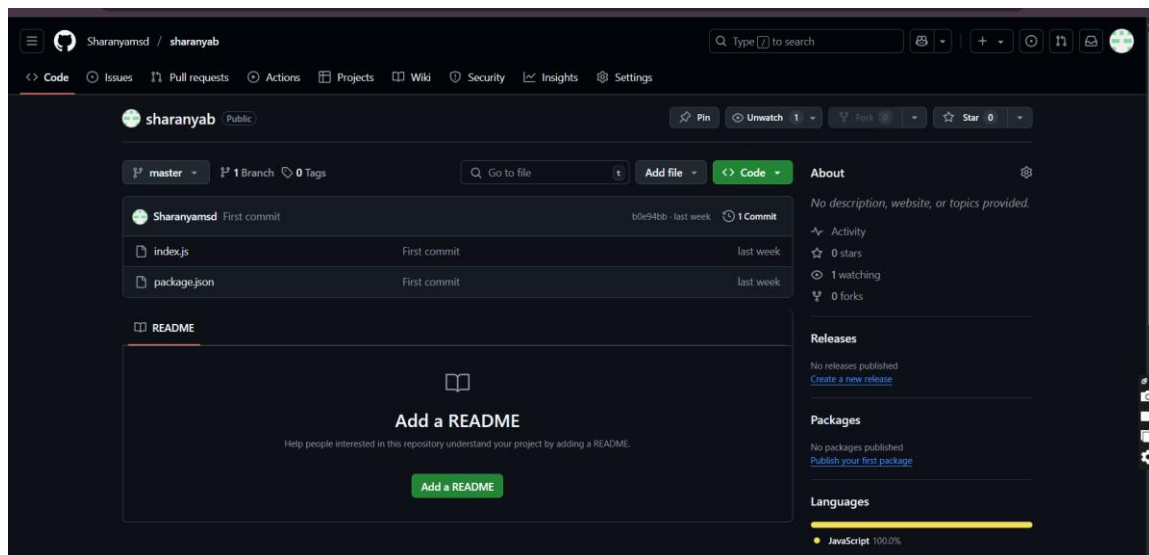


Assignment No:11

Title: Build scaling plans in AWS that balance the load on different EC2 instances.

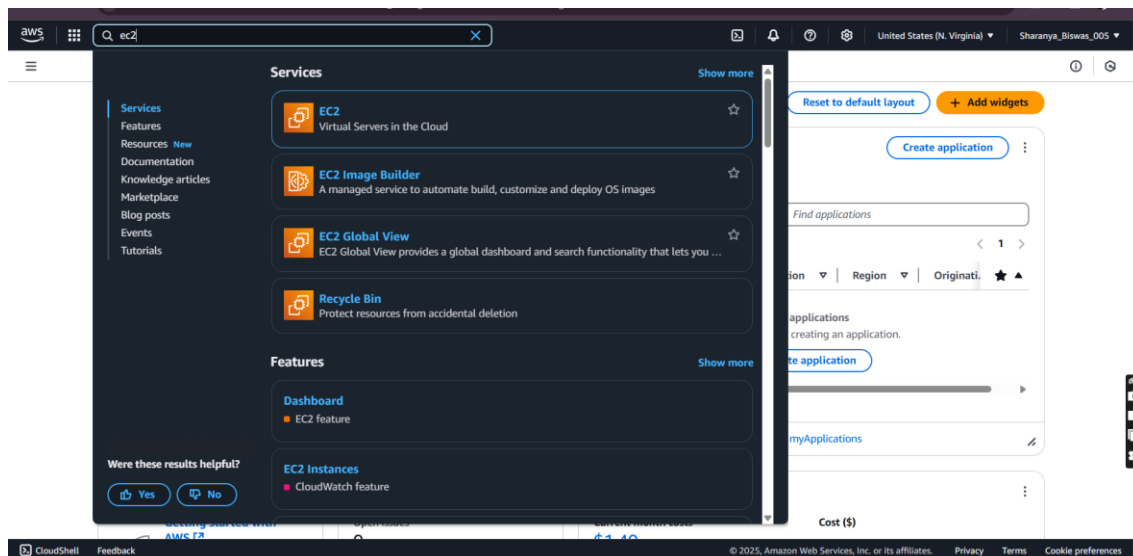
Step-1:

Upload required files to github



Step-2:

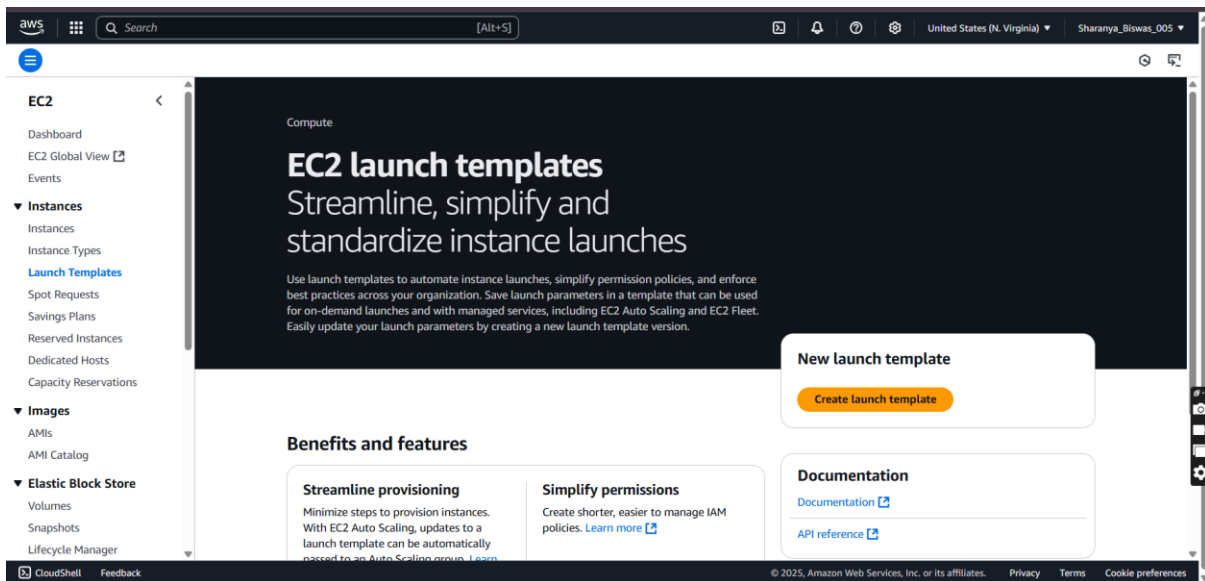
Log into AWS and open EC2.



Step-3:

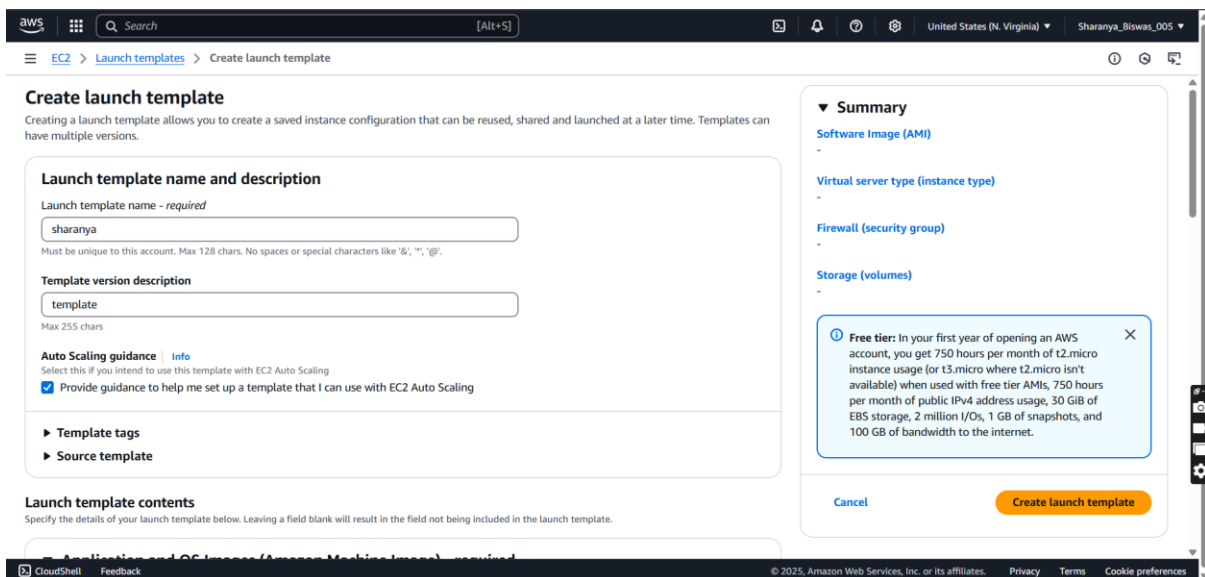
Open the launch templates from left side.

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Step-4:

Give name and description to the template and then check Provide guidance to help me setup a template that I can use with EC2 auto scaling then open the quick start in the os image then select instance type, key pair and security group. After that additional details scroll down to user data and provide all the required commands then click on create launch template.



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EC2 > Launch templates > Create launch template

Search our full catalog including 1000s of application and OS images

Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Linux Debian

Browse more AMIs

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
ami-084568db4383264d4 (64-bit (x86)) / ami-0c4a709339fa8521a (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs Free tier eligible

Description

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

Canonical, Ubuntu, 24.04, amd64 noble image

Architecture 64-bit (x86) **AMI ID** ami-084568db4383264d4 **Publish Date** 2025-03-05 **Username** ubuntu **Verified provider**

Summary

Software Image (AMI)
Canonical, Ubuntu, 24.04, amd64...[read more](#)
ami-084568db4383264d4

Virtual server type (instance type)
-

Firewall (security group)
-

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

Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier AMIs, 750 hours per month of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel Create launch template

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Instance type [info](#) [Get advice](#) **Advanced**

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

Additional costs apply for AMIs with pre-installed software

Key pair (login) [info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name
biswas_aws [Create new key pair](#)

Network settings [info](#)

Subnet [info](#)
Don't include in launch template [Create new subnet](#)

When you specify a subnet, a network interface is automatically added to your template.

Firewall (security group) [info](#)

Summary

Software Image (AMI)
Canonical, Ubuntu, 24.04, amd64...[read more](#)
ami-084568db4383264d4

Virtual server type (instance type)
t2.micro

Firewall (security group)
-

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

Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier AMIs, 750 hours per month of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

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EC2 > Launch templates > Create launch template

Allow tags in metadata [info](#)
Don't include in launch template

User data - optional [info](#)
Upload a file with your user data or enter it in the field.

[Choose file](#)

```
#!/bin/bash
apt-get update
apt-get upgrade
apt-get install -y nginx
systemctl start nginx
systemctl enable nginx
apt-get install -y git
curl -SL https://deb.nodesource.com/setup_16.x sudo -E bash -
apt-get install -y nodejs
git clone https://github.com/Sharanyamsd/sharanyab.git
cd sharanyab
npm install
node index.js
```

☐ User data has already been base64 encoded

Summary

Software Image (AMI)
Canonical, Ubuntu, 24.04, amd64...[read more](#)
ami-084568db4383264d4

Virtual server type (instance type)
t2.micro

Firewall (security group)
okokokok

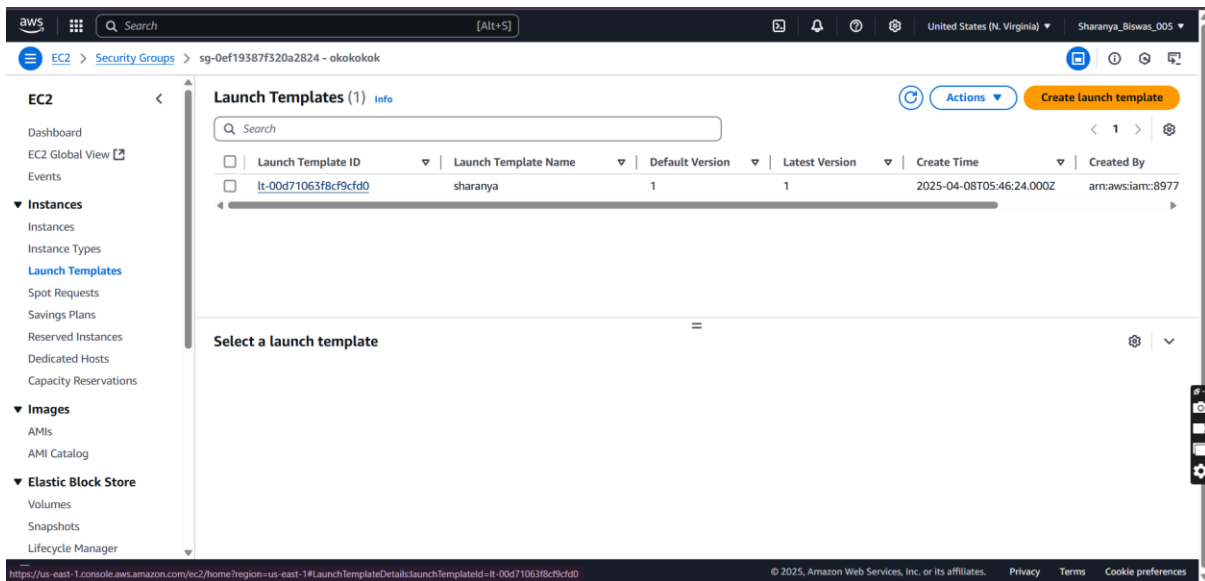
Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier AMIs, 750 hours per month of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel Create launch template

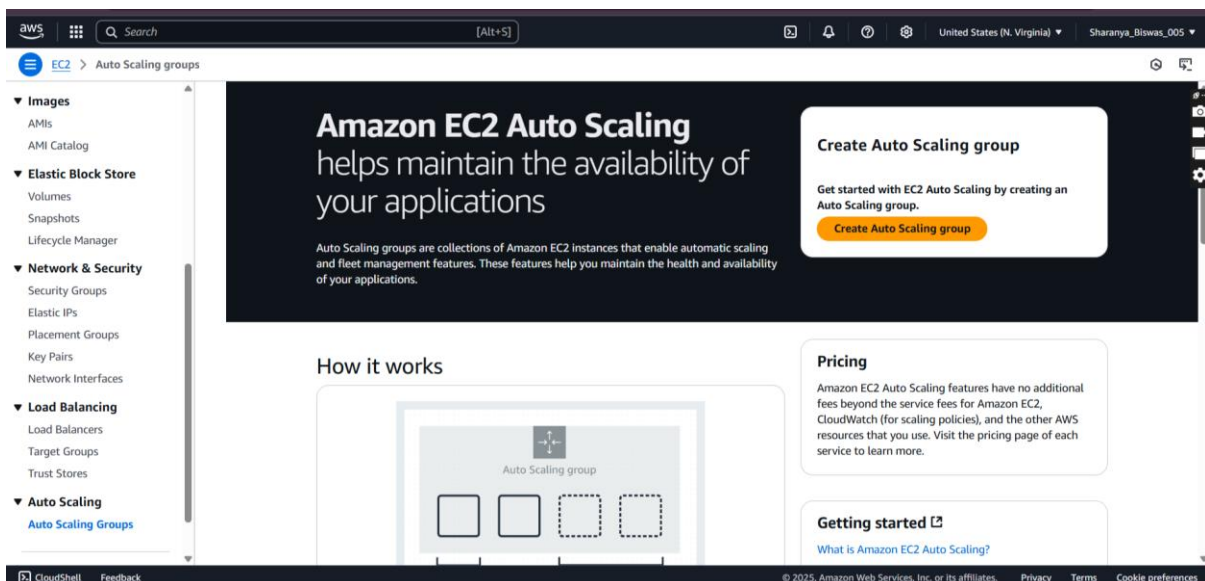
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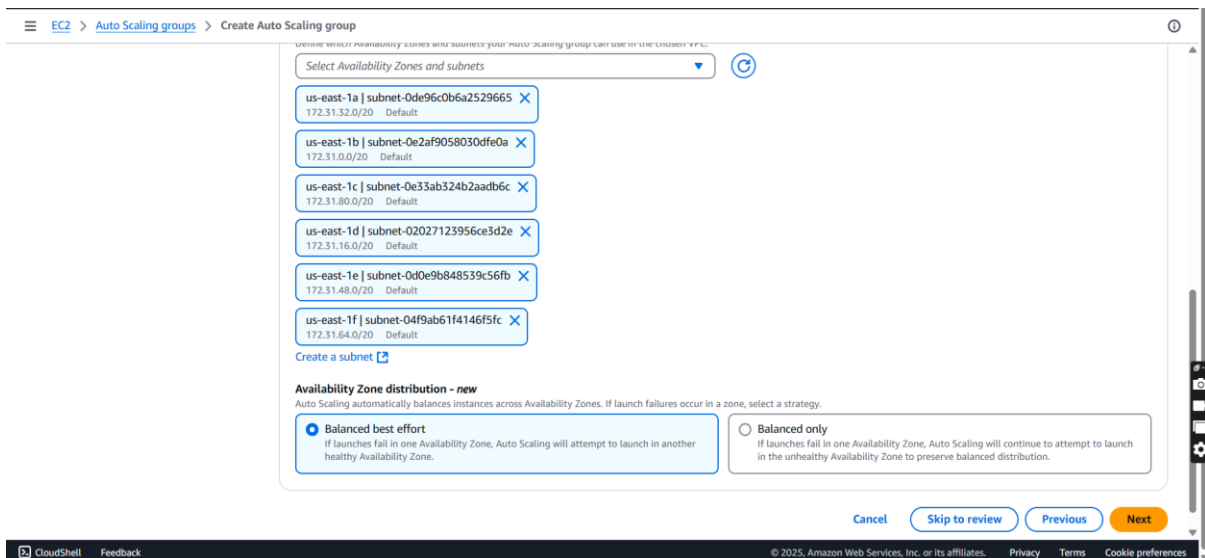
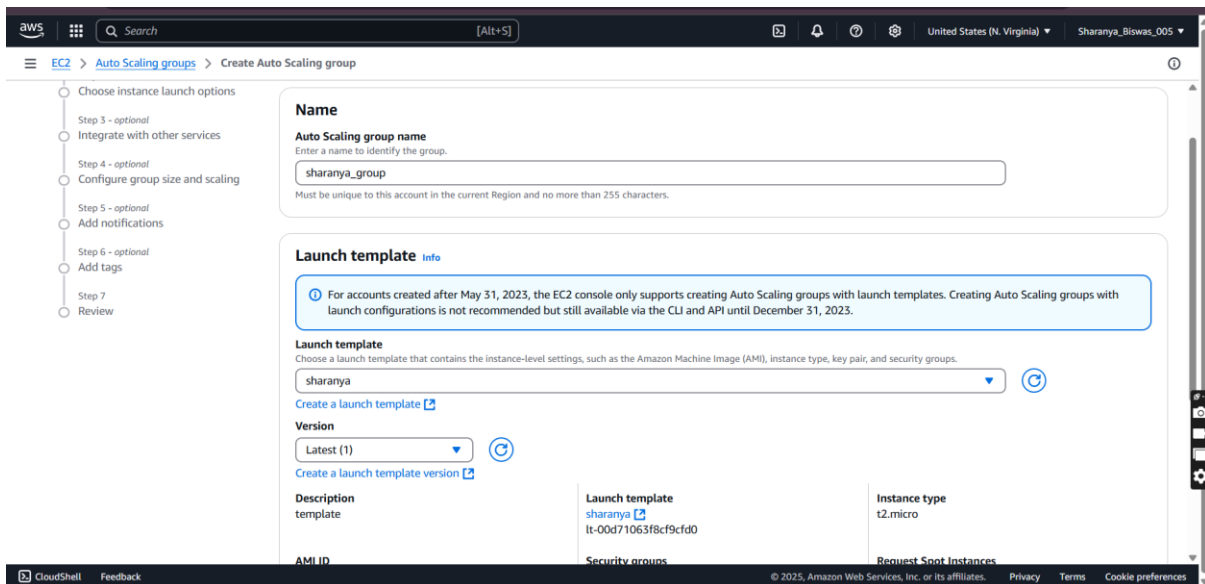
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Step-5:

Next open the auto scaling groups and click on create auto scaling group. Then name the group then select the launch template that we just created then select availability zones then click next.





Step-6:

Here attach a load balancer then network layer balancer after that name the load balancer and create a target group then attach a vpc lattice service and next.

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EC2 > Auto Scaling groups > Create Auto Scaling group

Choose instance launch options

Step 3 - optional

Integrate with other services

Step 4 - optional

Configure group size and scaling

Step 5 - optional

Add notifications

Step 6 - optional

Add tags

Step 7

Review

Availability zones with zonal shift: You can also customize health check replacements and monitoring.

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.

sharanya_group-1

Load balancer scheme

Scheme cannot be changed after the load balancer is created.

☒ **Internal**

☐ Internet-facing

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EC2 > Auto Scaling groups > Create Auto Scaling group

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: TCP Port: 80

Default routing (forward to)

Create a target group

New target group name

An instance target group with default settings will be created.

sharanya_group-1

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 [info](#)

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.

Select VPC Lattice service to attach

☐ No VPC Lattice service
VPC Lattice will not manage your Auto Scaling group's network access and connectivity with other services.

☒ **Attach to VPC Lattice service**
Incoming requests associated with specified VPC Lattice target groups will be routed to your Auto Scaling group.

[Create new VPC Lattice service](#)

Choose VPC Lattice target group

Step-7:

After that specify the desired capacity (here 2) then give min and max desired capacity and then select target tracking scaling policy and give the policy a name then select the policy for creating new server minimum load. Next and then review it and create the group.

aws

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EC2

Auto Scaling groups

Create Auto Scaling group

Disabled

Disabled

Disabled

Capacity Reservation preference

Preference
Default

Capacity Reservation IDs
-

Resource Groups
-

Step 5: Add notifications

Notifications

No notifications

Edit

Step 6: Add tags

Tags (0)

Key

Value

Tag new instances

No tags

Edit

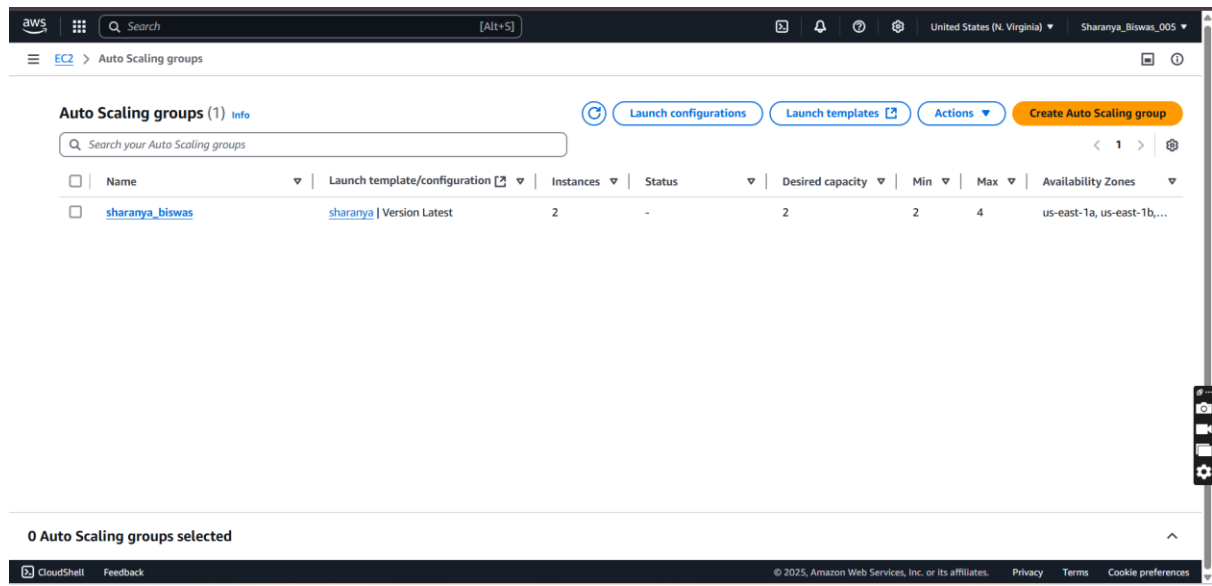
Preview code

Cancel

Previous

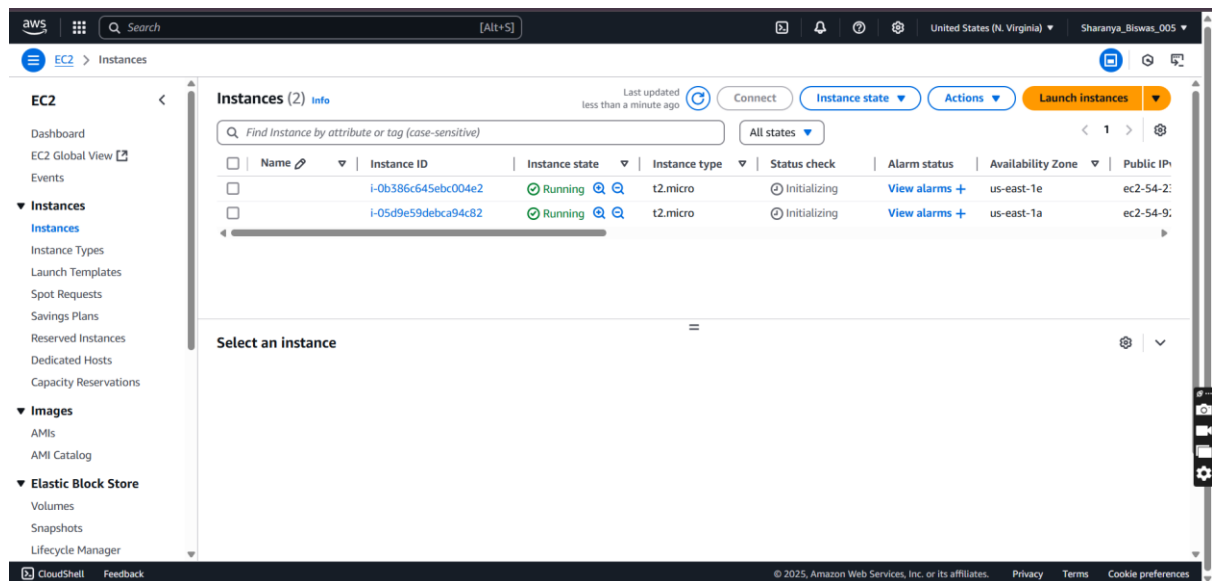
Create Auto Scaling group

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Step-8:

Now goto the instances and notice there are 2 instances automatically created. If we try to delete them new instances created automatically within few seconds.



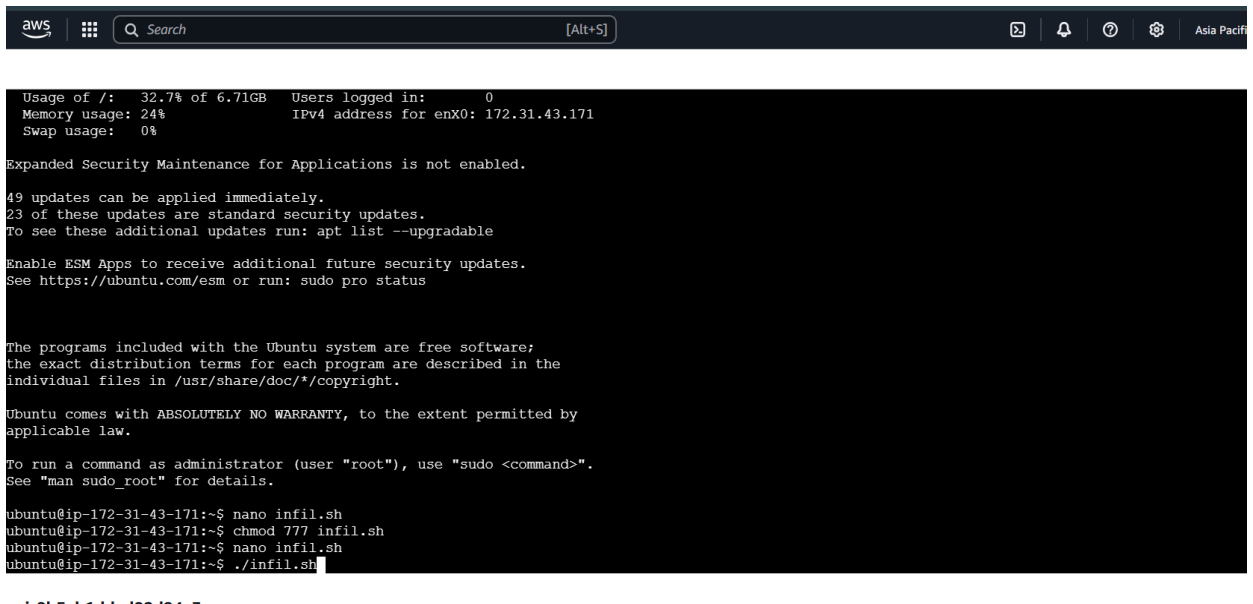
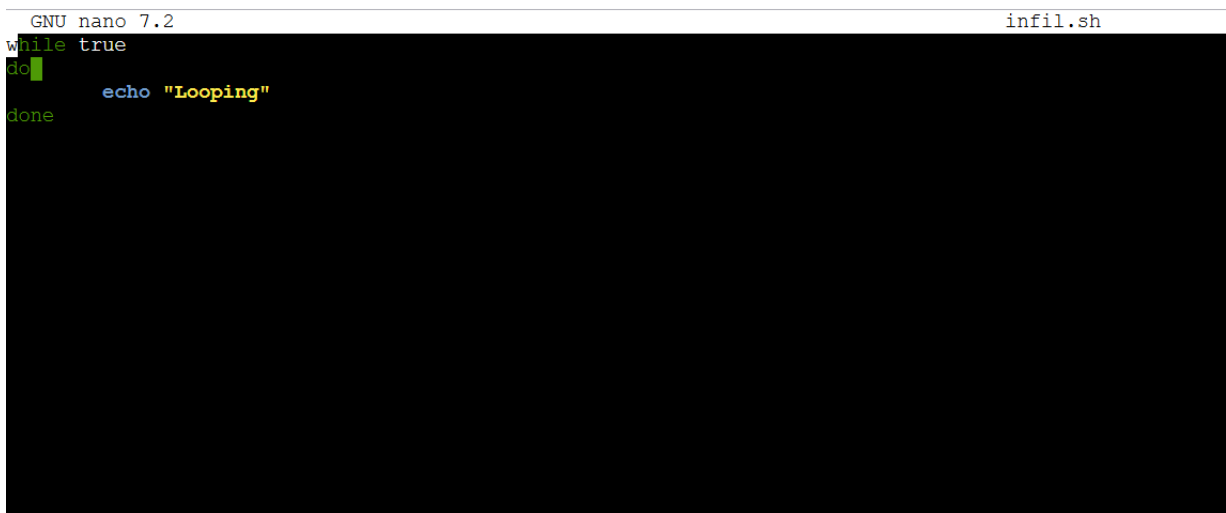
Step-9:

Copy public IPv4 of any of the running instances and open it to see the website opened.



Step-10:

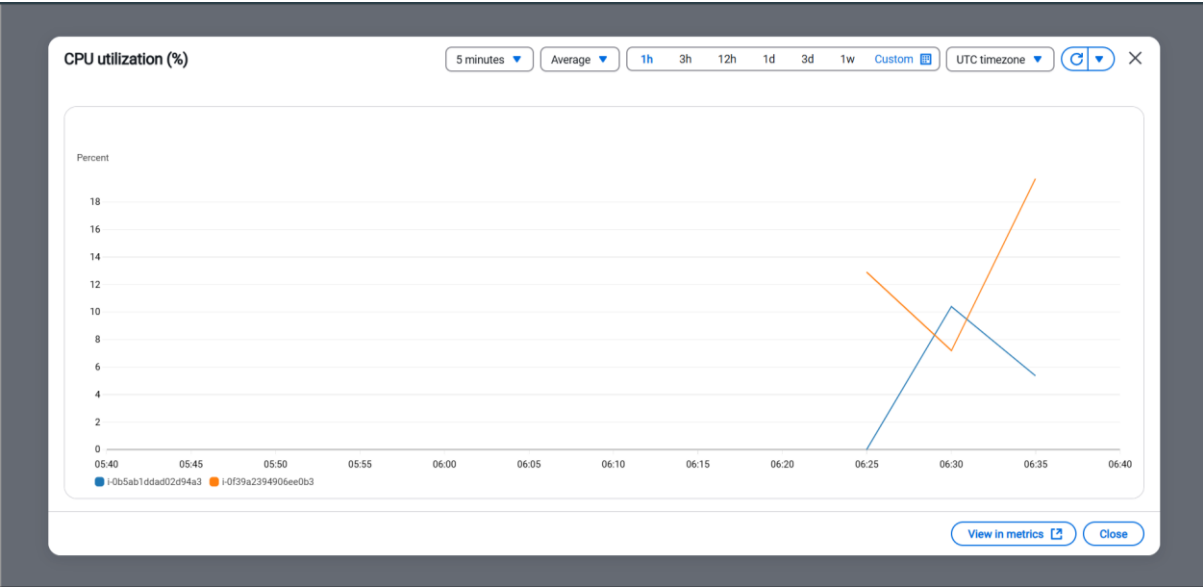
Now open both instances and write the below bash or shell code and run it in them. It will increase the load in the servers.



Step-11:

After a certain threshold the servers will over load and the auto scaling group will create a new server to handle the load. Open CPU utilization graph of the

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