Project - 1

Creating a project on High Availability (HA) and Auto Scaling for a web application using Amazon EC2 (Elastic Compute Cloud), ELB (Elastic Load Bala ASG (Auto Scaling Group), and EBS (Elastic Block Store) involves several steps. Here's a comprehensive guide to set up this project:

1. **Set Up the VPC and Subnets**

Create a VPC:

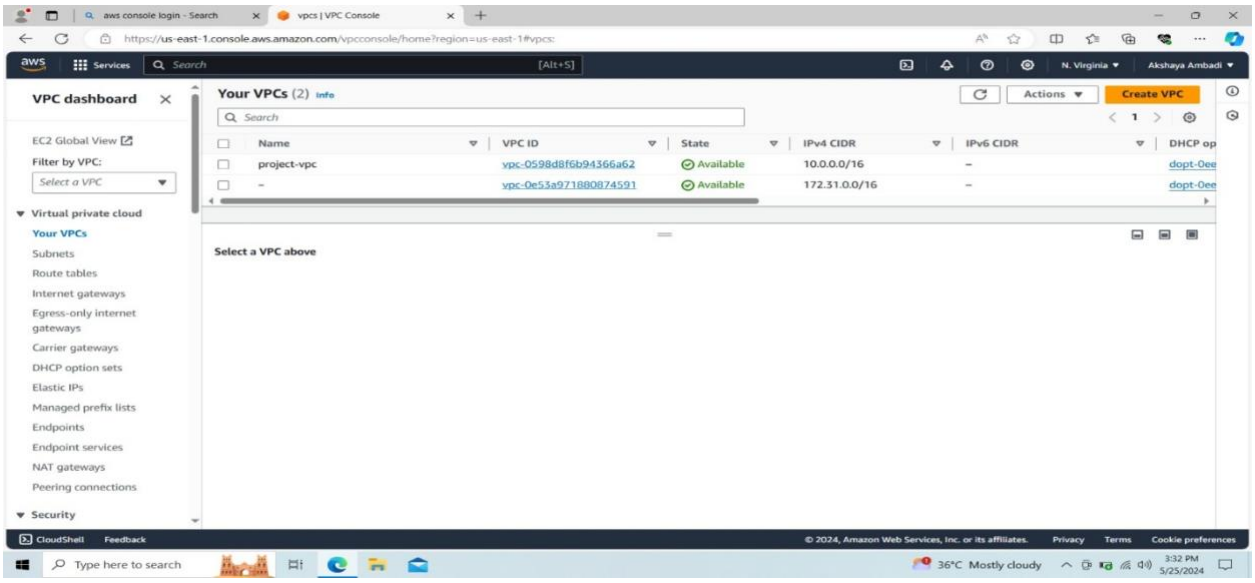
Navigate to the VPC dashboard in the AWS Management Console.

Create a new VPC with a CIDR block (e.g., 10.0.0.0/16).

Create Subnets:

Create two public subnets(A,B) in different Availability Zones (AZs) within the VPC for the web application instances.

Optionally, create private subnets for backend services or databases.



2 . Set Up Security Groups

Create Security Groups:

Create a security group for the EC2 instances allowing HTTP (port 80) and SSH (port 22) access.

Create a security group for the load balancer allowing HTTP access (port 80) from the internet.

2. **Launch Two EC2 Instances**

***Navigate to EC2 Dashboard*:**

- Open the AWS Management Console.

- Go to the EC2 service.

***Launch Instances*:**

- Click on "Launch Instance".

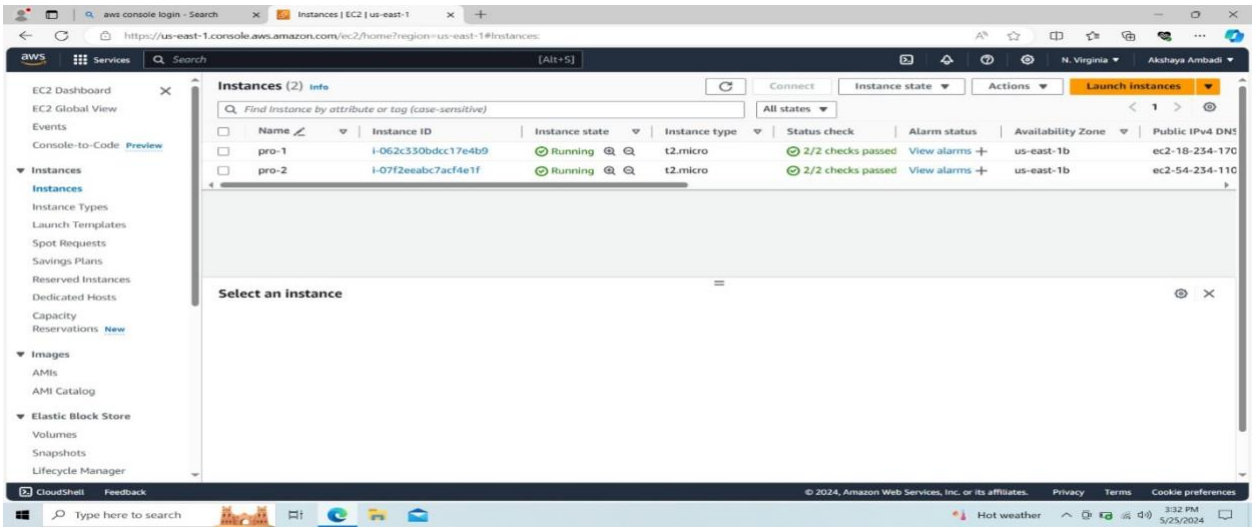
- Choose an Amazon Machine Image (AMI), such as Amazon Linux 2.

- Choose an instance type (e.g., t2.micro for free tier).

- Configure instance details:

- Network: Select your newly created VPC.

- Subnet: Select Subnet-A for the first instance and Subnet-B for the second instance.



- *Install Necessary Software*:

- Connect to each instance via SSH.

- Install web server software (e.g., Apache or Nginx):

sh

sudo yum update -y

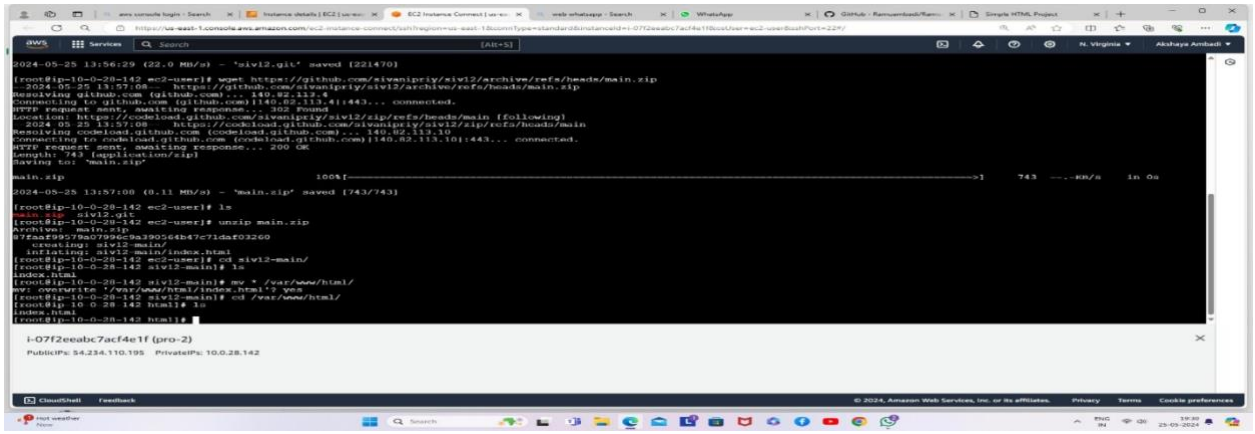
sudo yum install httpd -y

sudo systemctl start httpd

sudo systemctl enable httpd

wget https://github.com/sivanipriy/siv12.git

wget https://github.com/sivanipriy/siv12/archive/refs/heads/main.zip



4 . Create the Application Load Balancer

Navigate to Load Balancers:

In the EC2 Dashboard, under “Load Balancing,” select “Load Balancers.”

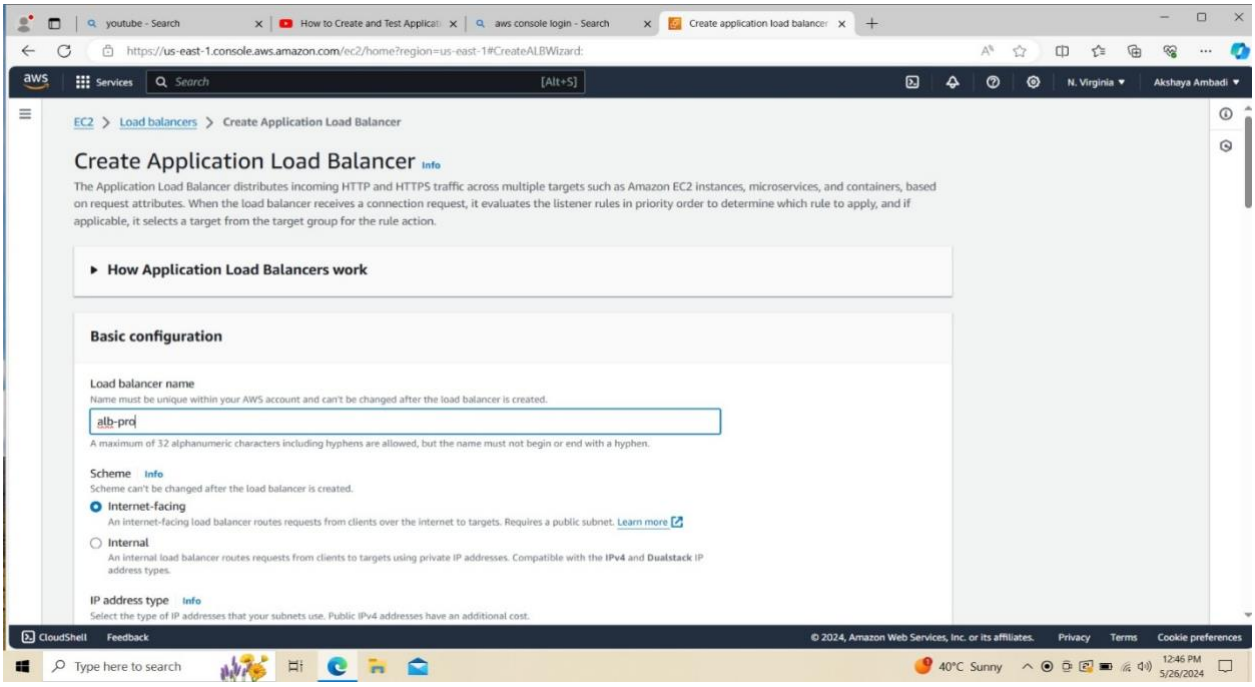
Create Load Balancer:

Click “Create Load Balancer” and select “Application Load Balancer.”

Define the ALB name, scheme (Internet-facing or Internal), and IP address type (IPv4 or Dualstack).

Select at least two Availability Zones and corresponding subnets for the ALB.

Configure Routing:



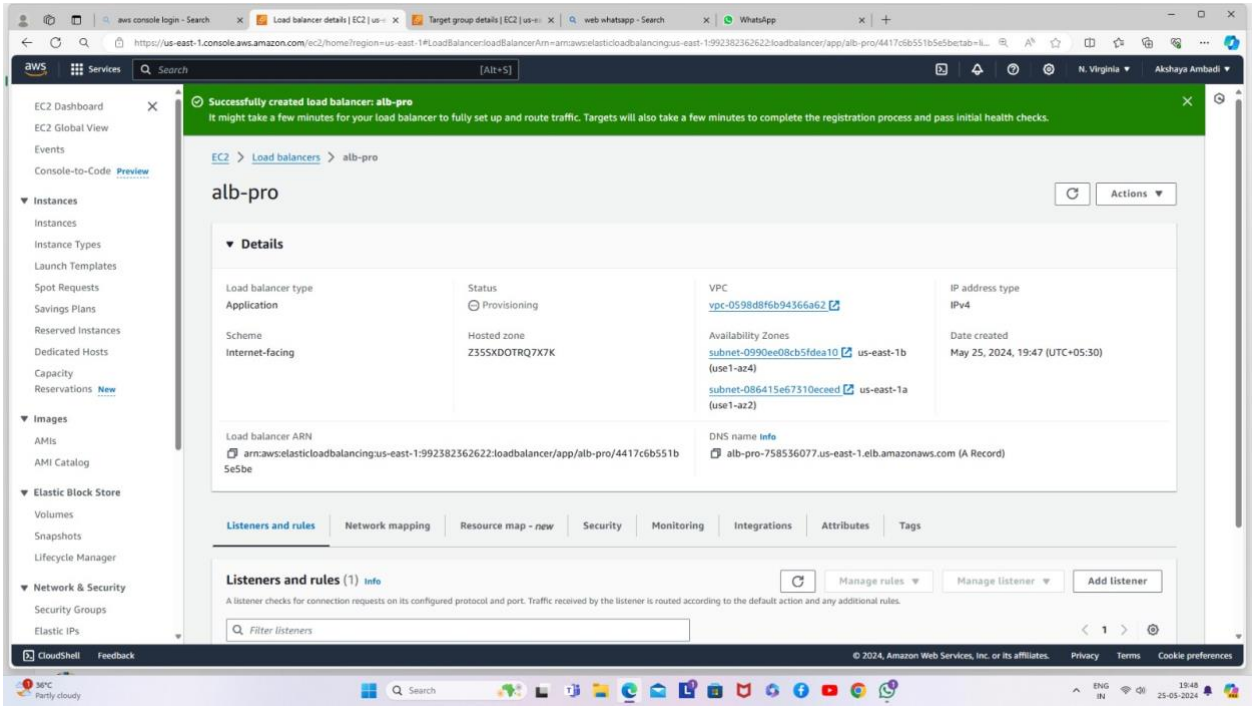
Create a new target group (e.g., MyTargetGroup).

Target type: Instance.

Protocol: HTTP.

Port: 80.

Health checks: Use the default path (/).



5.Ceate an Auto Scaling Group

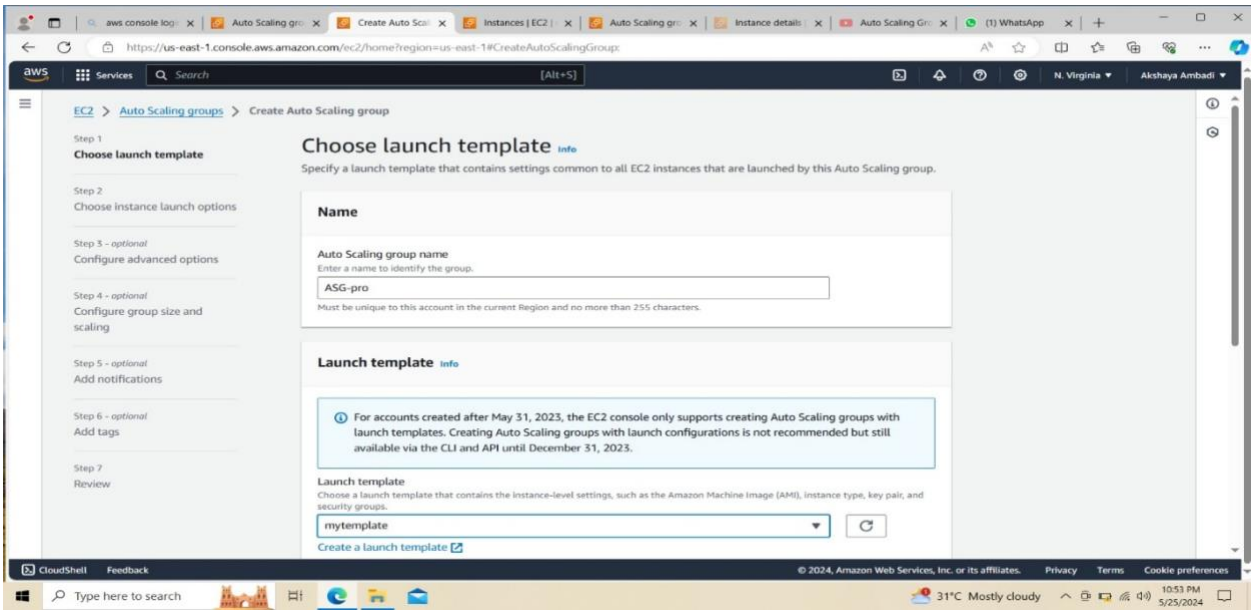
Create an Auto Scaling Group:

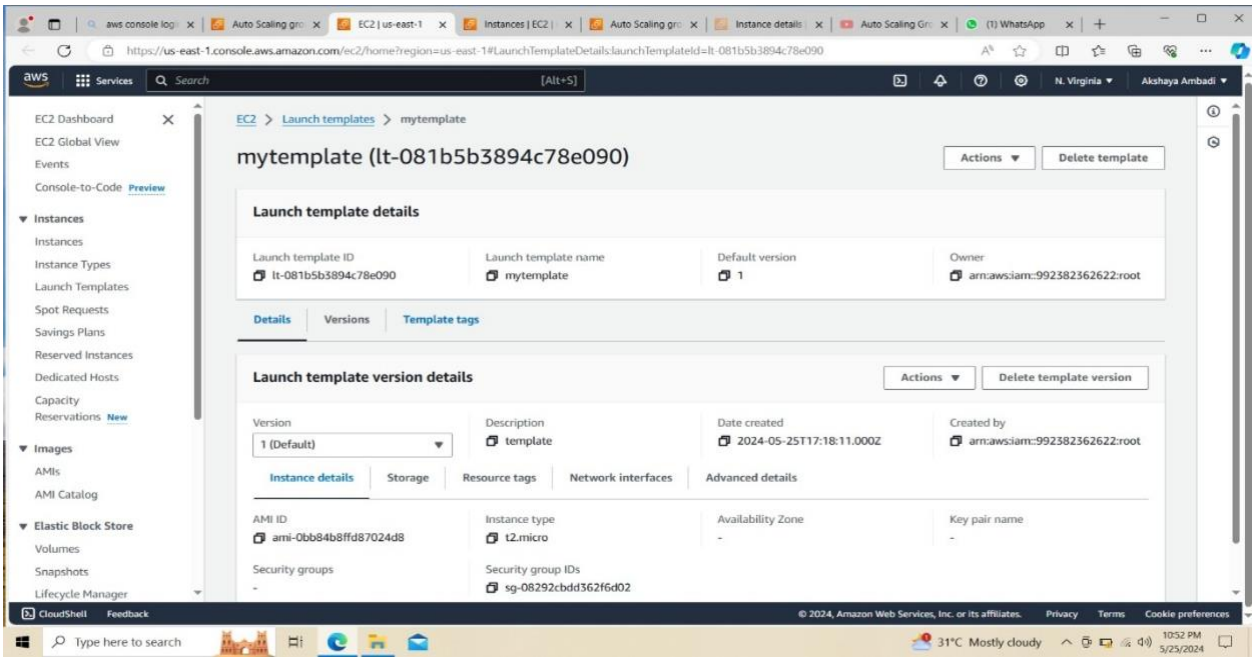
Navigate to the EC2 dashboard, then to Auto Scaling Groups.

Create a new Auto Scaling Group using the launch template.

Specify the VPC and the public subnets created earlier.

Set the desired, minimum, and maximum number of instances.

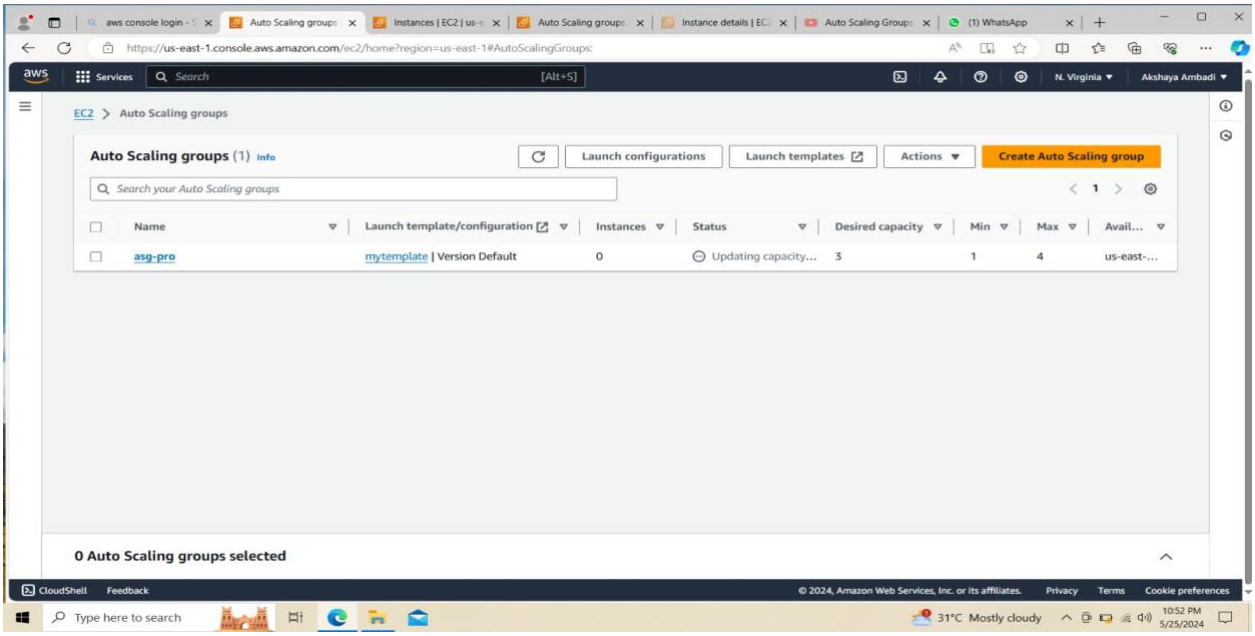




Configure Auto Scaling Group Details*:

Select your ned VPC.

Select the subnets created in Step 1



6 . Attach EBS Volumese to EC2 instances

Open the AWS Management Console.

Go to the EC2 service and select “Volumes” from the left menu.

2. Create EBS Volumes:

Click “Create Volume”.

Choose volume type (e.g., General Purpose SSD).

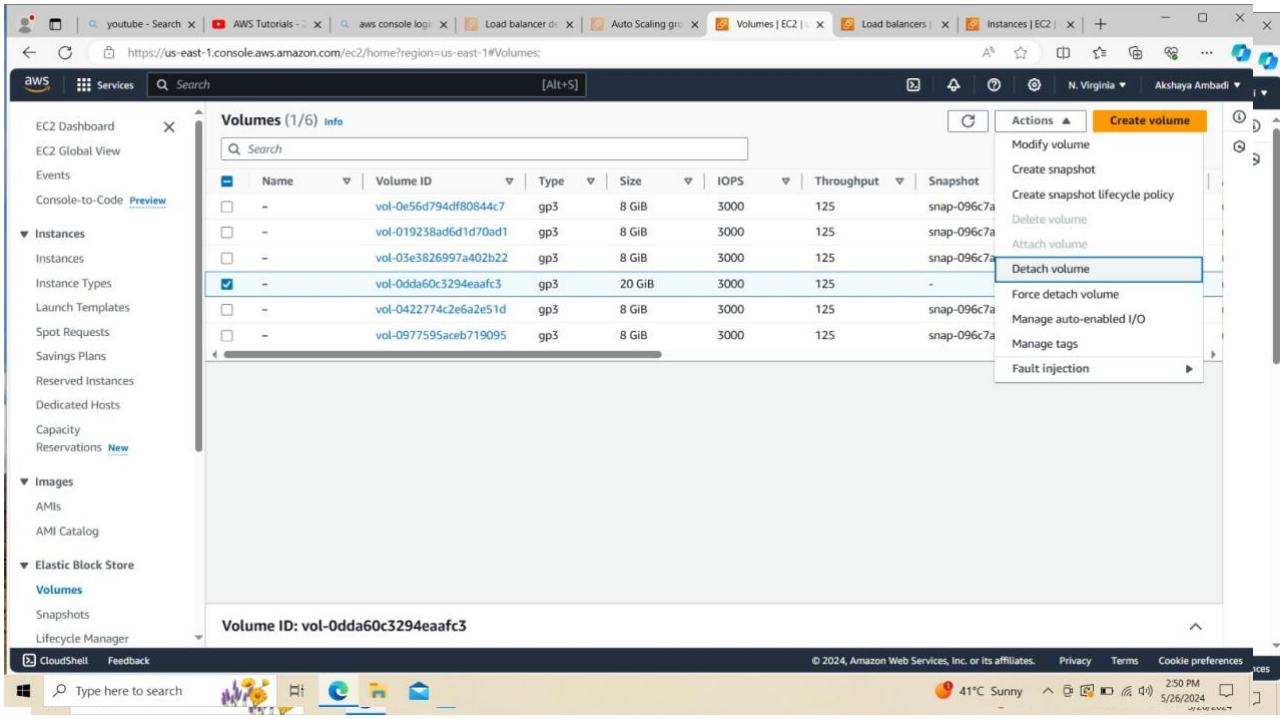
Specify size and availability zone matching your instances.

Create the volumes.

3. Attach Volumes to Instances:

Select each volume and click “Actions” -> “Attach Volume”.

Choose the corresponding instance name.



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