,AWS
Documentation

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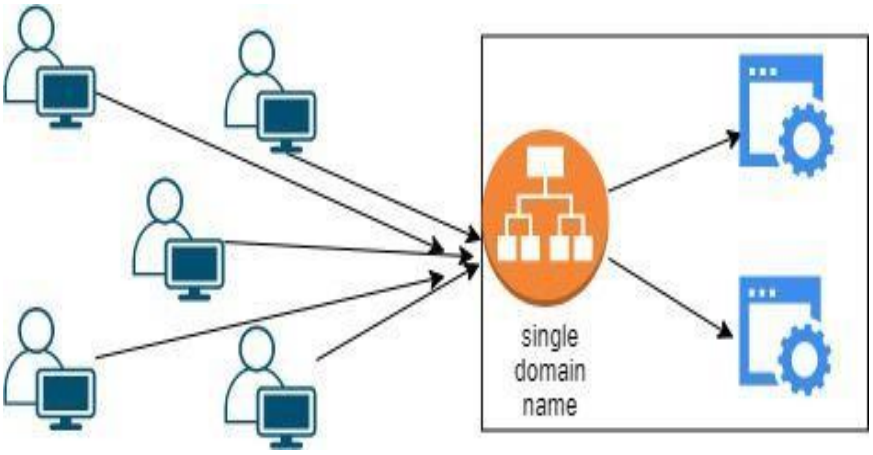
1.	Load balancer.
2.	Types of Load balancer.

Load balancer:

Elastic Load Balancing automatically distributes your incoming traffic across multiple targets, such as EC2 instances, containers, and IP addresses, in one or more Availability Zones. It monitors the health of its registered targets, and routes traffic only to the healthy targets. Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.



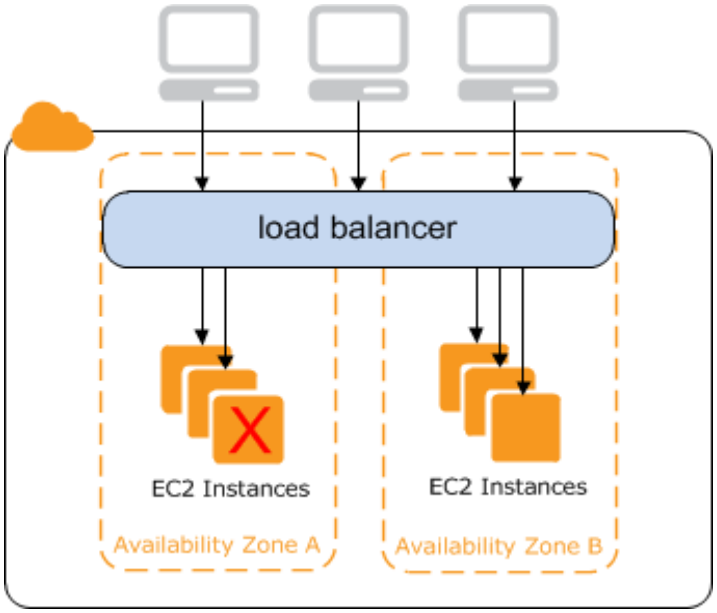
Types of Load Balancer:

- User Guide for Application Load Balancers
- User Guide for Network Load Balancers
- User Guide for Gateway Load Balancers
- User Guide for Classic Load Balancers

Classic Load Balancer:

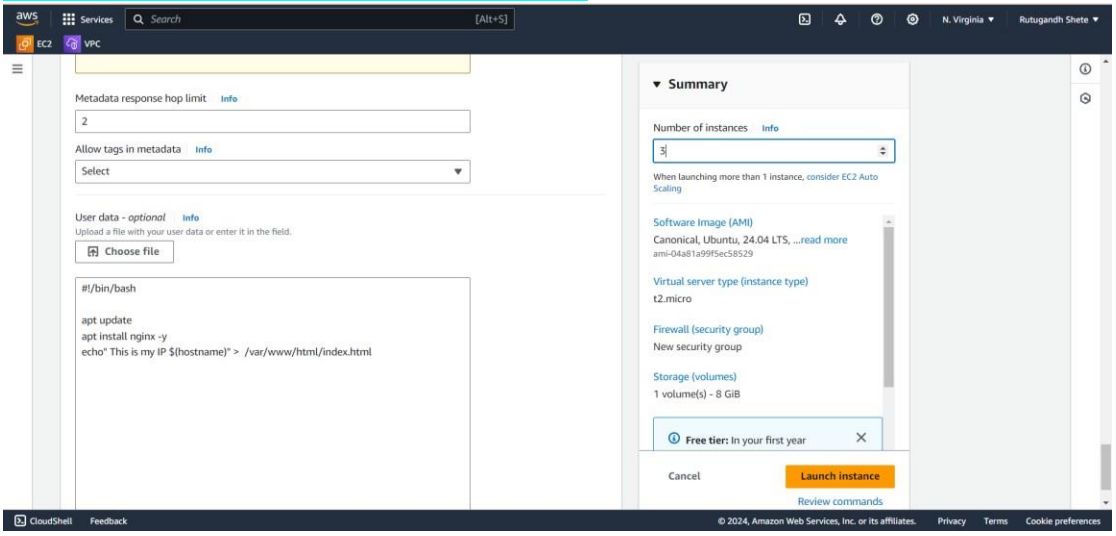
A load balancer distributes incoming application traffic across multiple EC2 instances in multiple Availability Zones. This increases the fault tolerance of your applications. Elastic Load Balancing detects unhealthy instances and routes traffic only to healthy instances.

Your load balancer serves as a single point of contact for clients. This increases the availability of your application. You can add and remove instances from your load balancer as your needs change, without disrupting the overall flow of requests to your application. Elastic Load Balancing scales your load balancer as traffic to your application changes over time. Elastic Load Balancing can scale to the vast majority of workloads automatically.

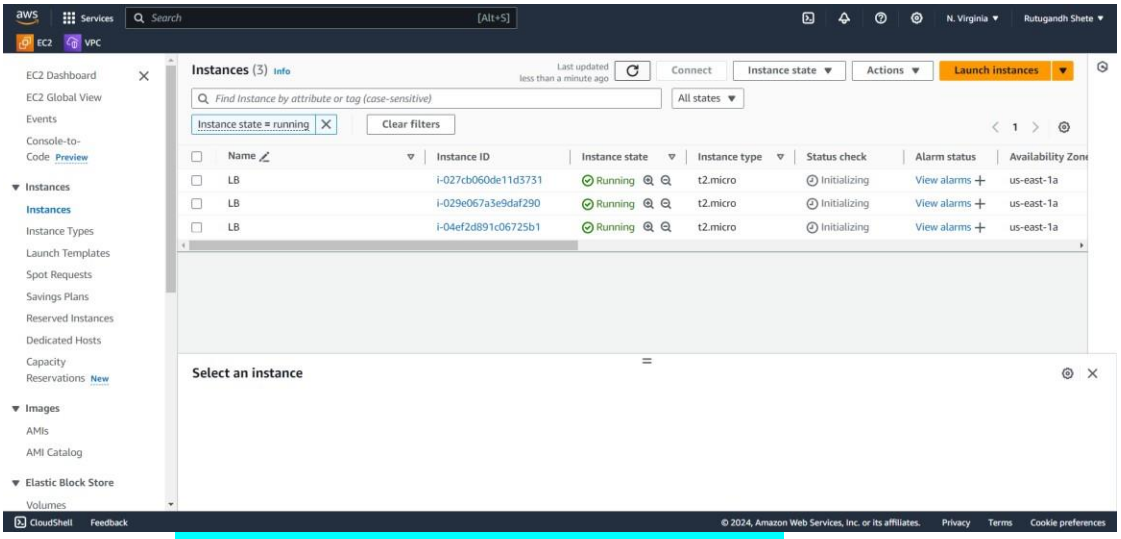


Steps:

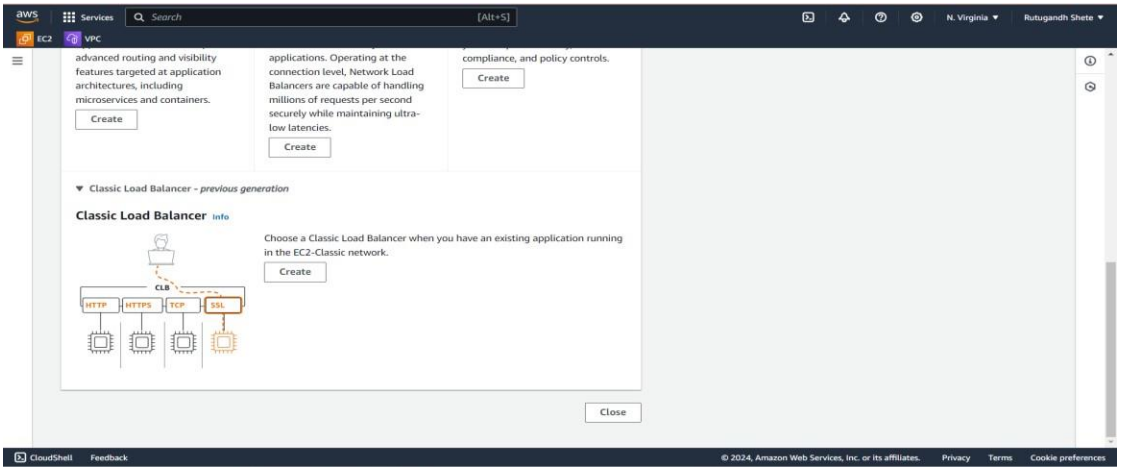
- Let’s create more than one instances, suppose for time being 3 instances. While creating instances edit networking settings and add http to security group. In advanced settings add script.



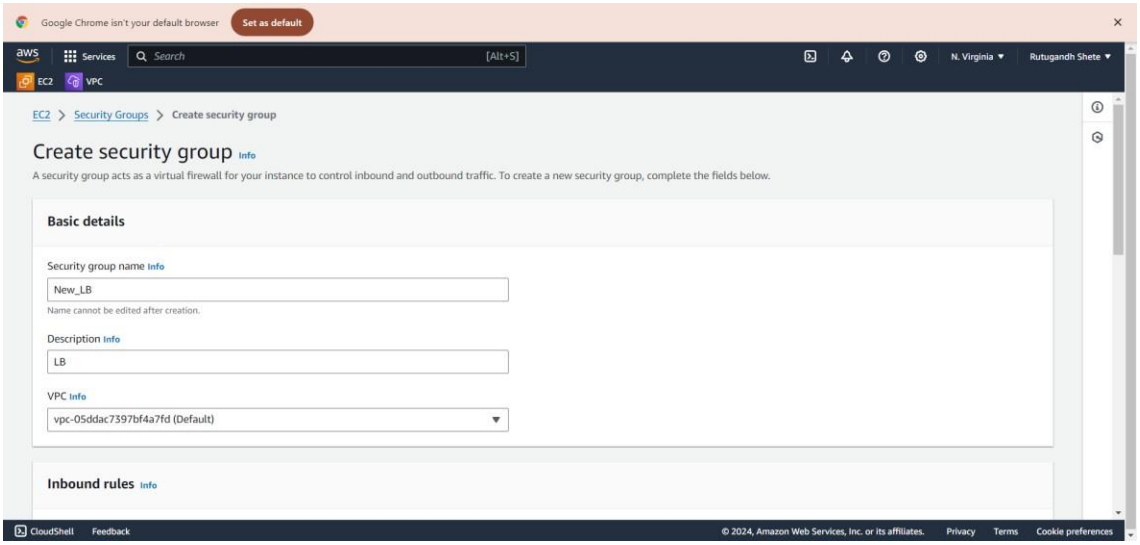
- After creating Instances



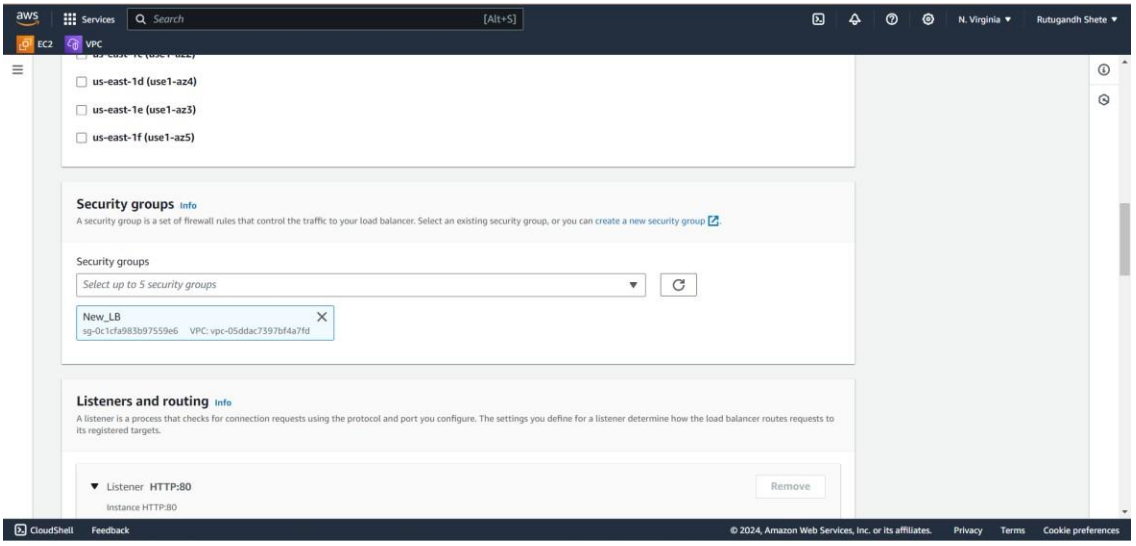
- Go to Load balancer→create→classic load balancer



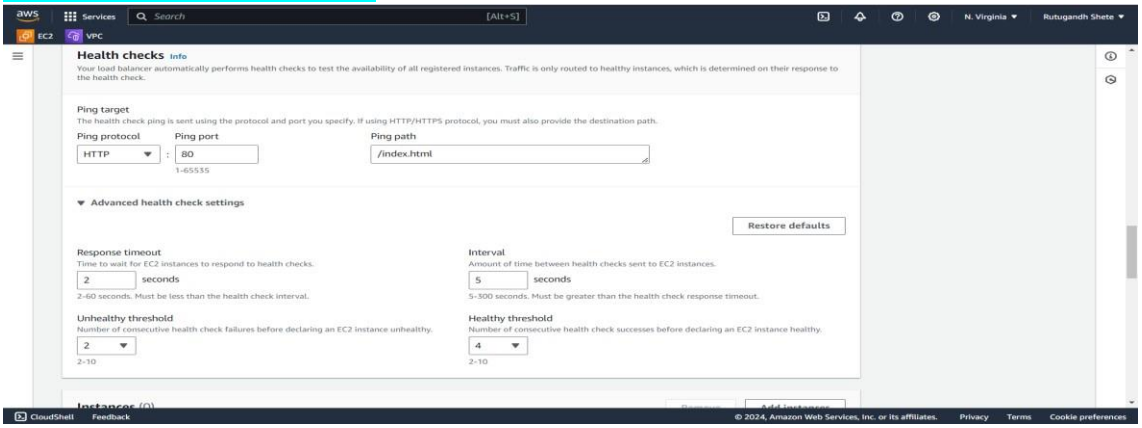
- Create classic→Name→description →select zone according to instances→we can select default security group and we can create accordingly→add inbound and outbound rule.



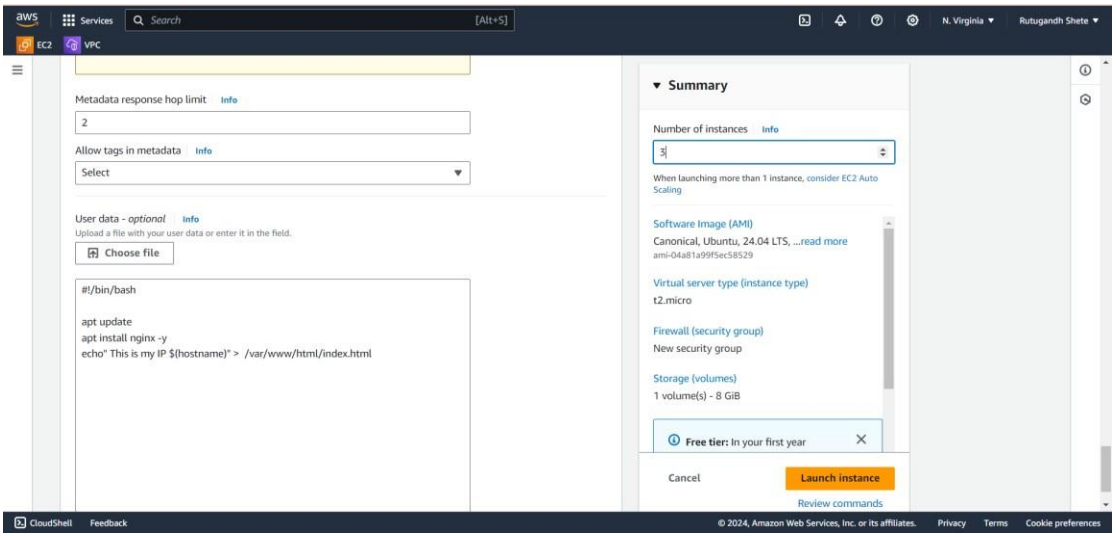
- Select security group(we can select existing security group but we can add/create another security group also). While creating security group check we are attaching it to instances/load balancer etc.

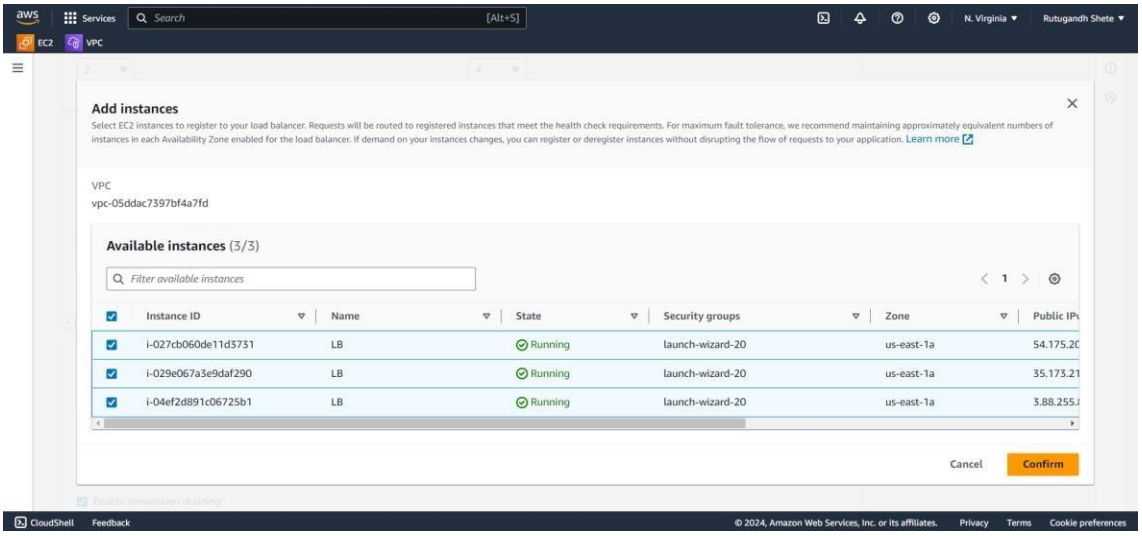


- In health check →Advanced health check settings→we can alter healthy and unhealthy threshold

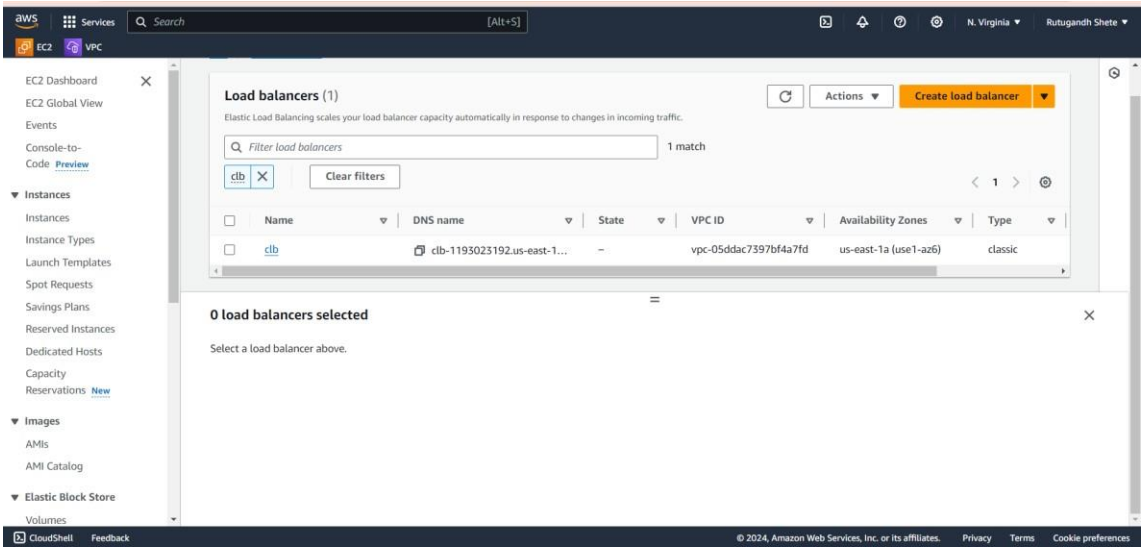


- In add instances we have to add instances and while creating it add script into User data.

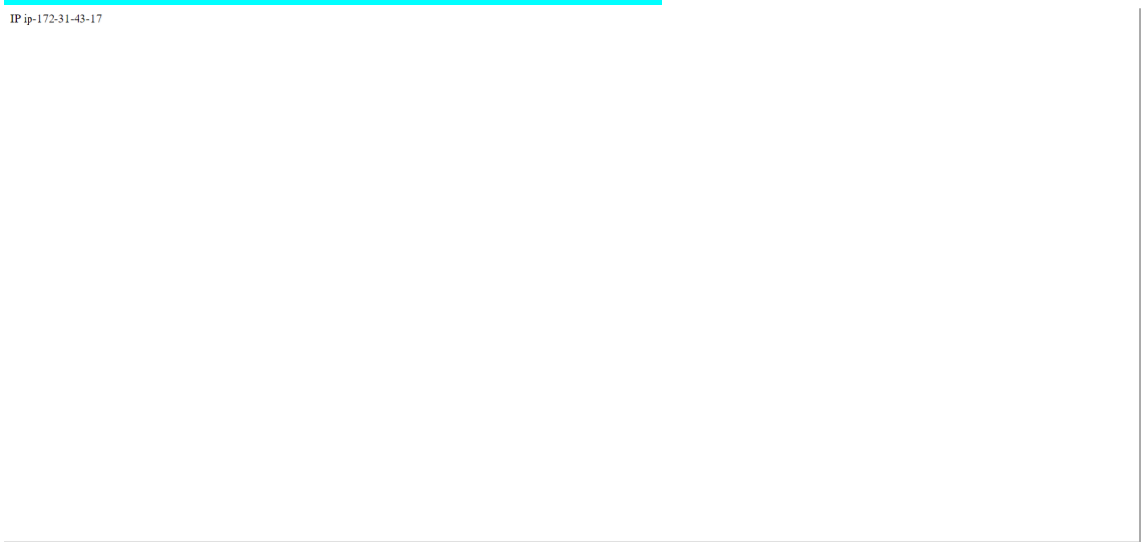




- After creating load balancer.

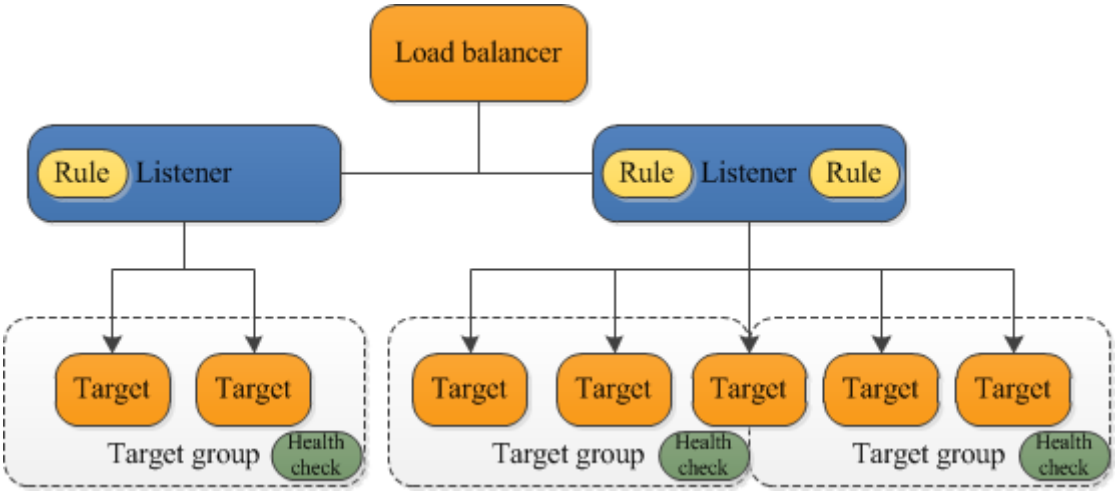


- Copy DNS name mentioned in DNS Name and paste it on browser. clb-1193023192.us-east-1.elb.amazonaws.com



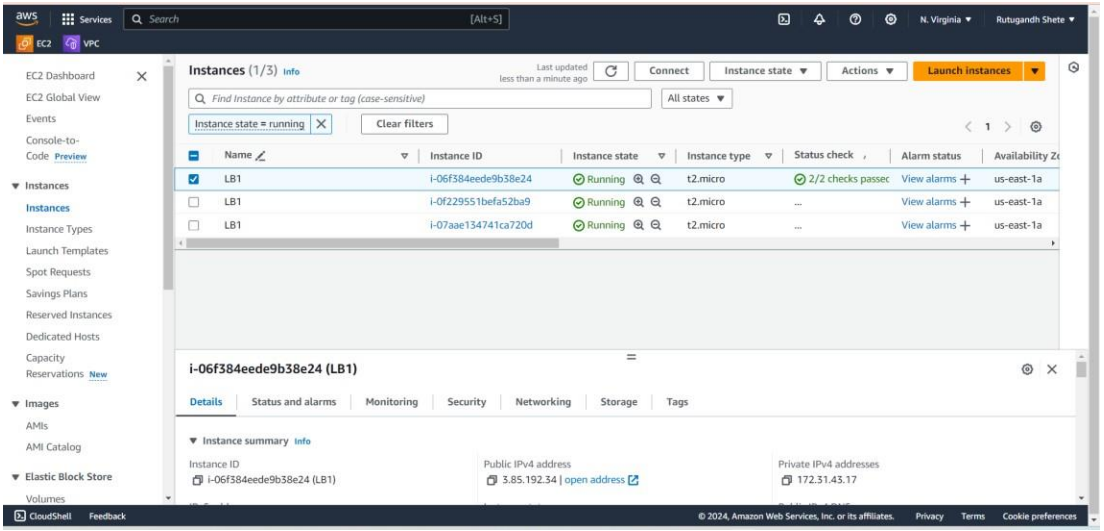
Application Load Balancer:

A *load balancer* serves as the single point of contact for clients. The load balancer distributes incoming application traffic across multiple targets, such as EC2 instances, in multiple Availability Zones. This increases the availability of your application. You add one or more listeners to your load balancer. Each *target group* routes requests to one or more registered targets, such as EC2 instances, using the protocol and port number that you specify. You can register a target with multiple target groups. You can configure health checks on a per target group basis. Health checks are performed on all targets registered to a target group that is specified in a listener rule for your load balancer.

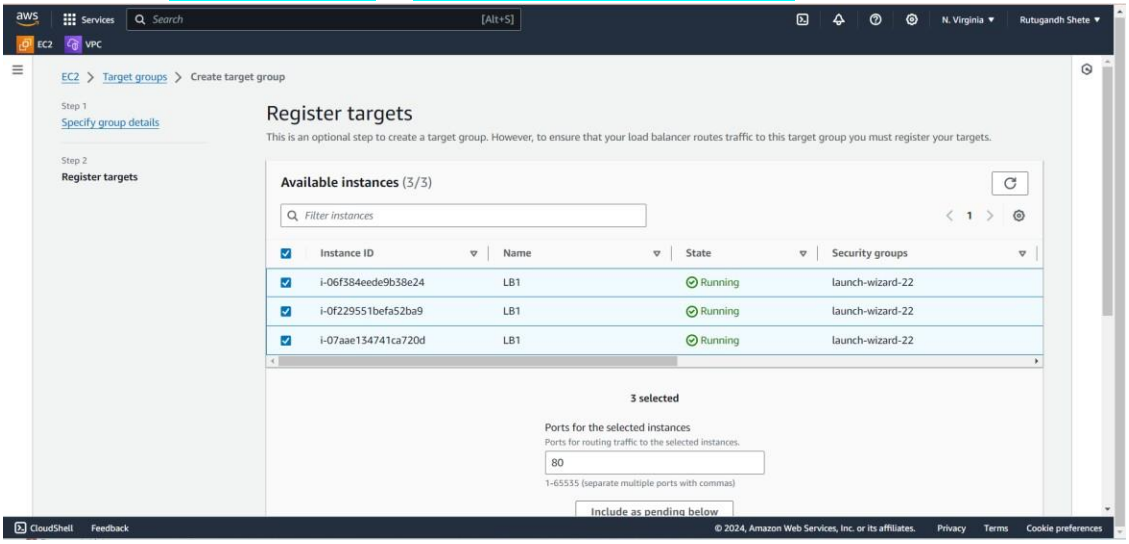


Steps:

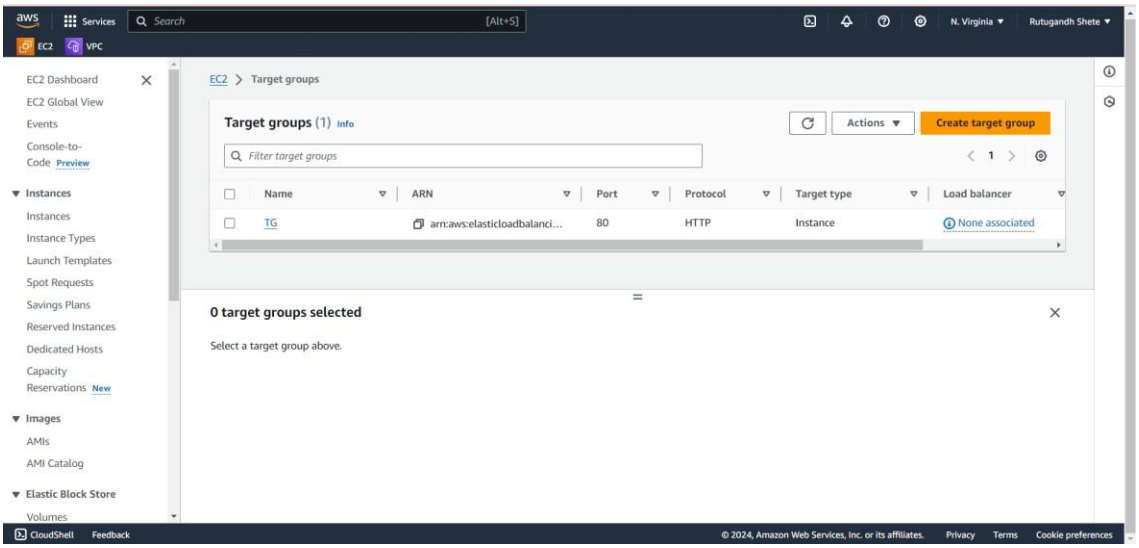
- Create instances.



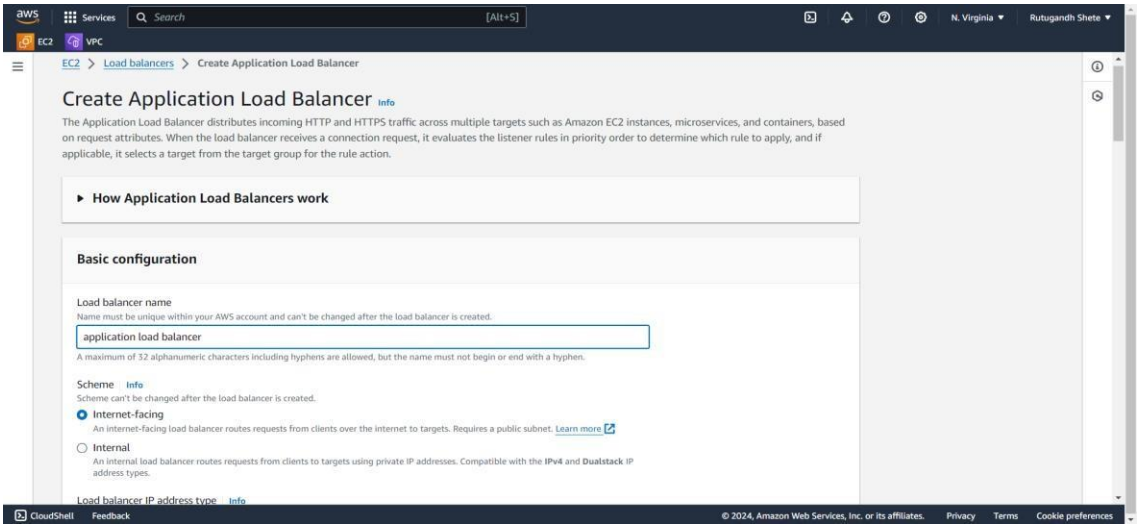
- Create target groups. Load balancing → Target groups→create →Name→add instances→include as pending below→create.



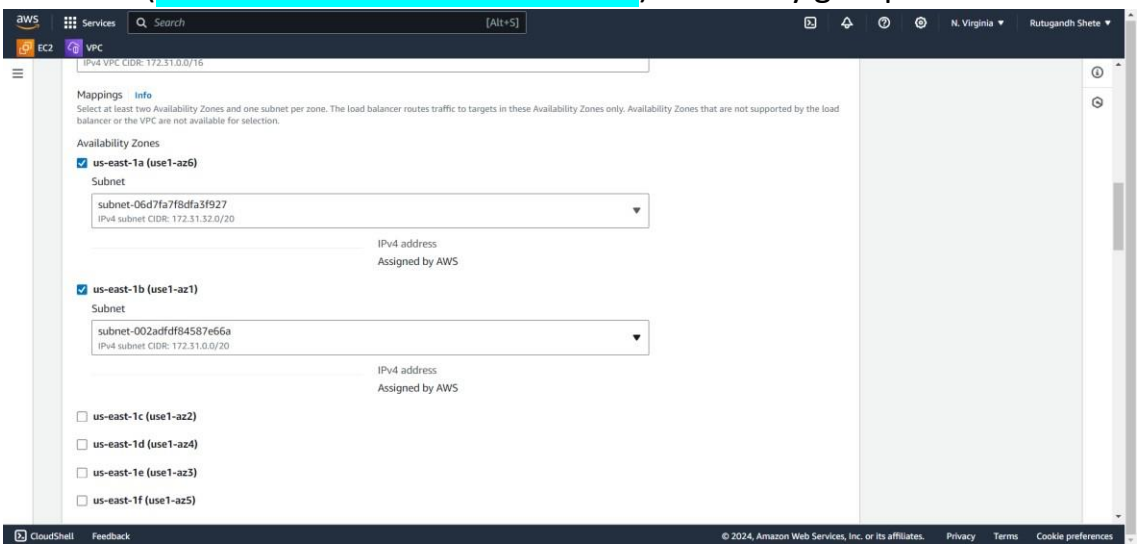
- After creation of target group.



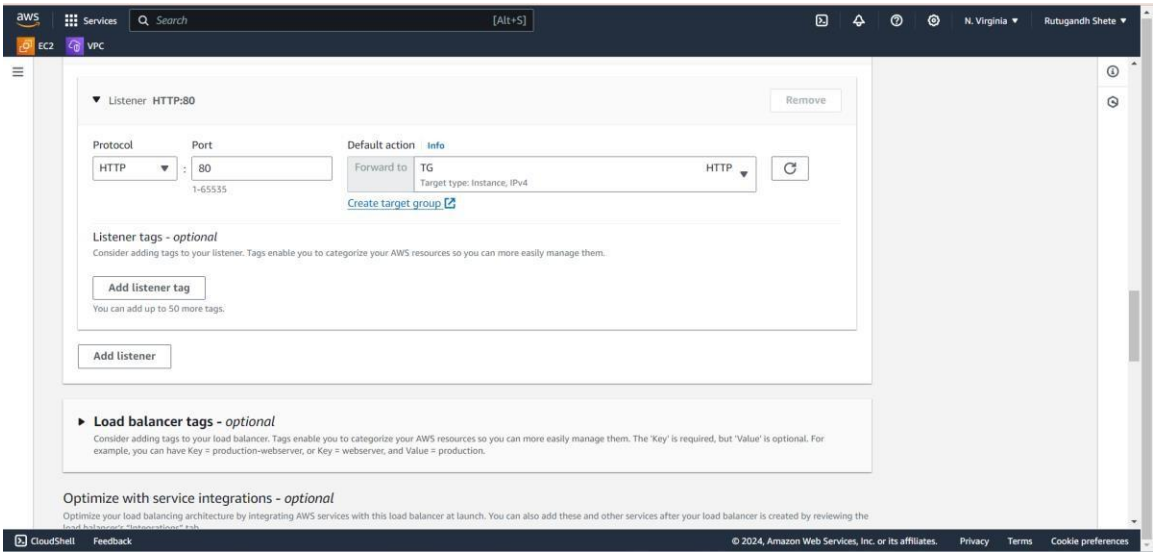
- Create application load balancer→load balancers→create→application load balancer→name.



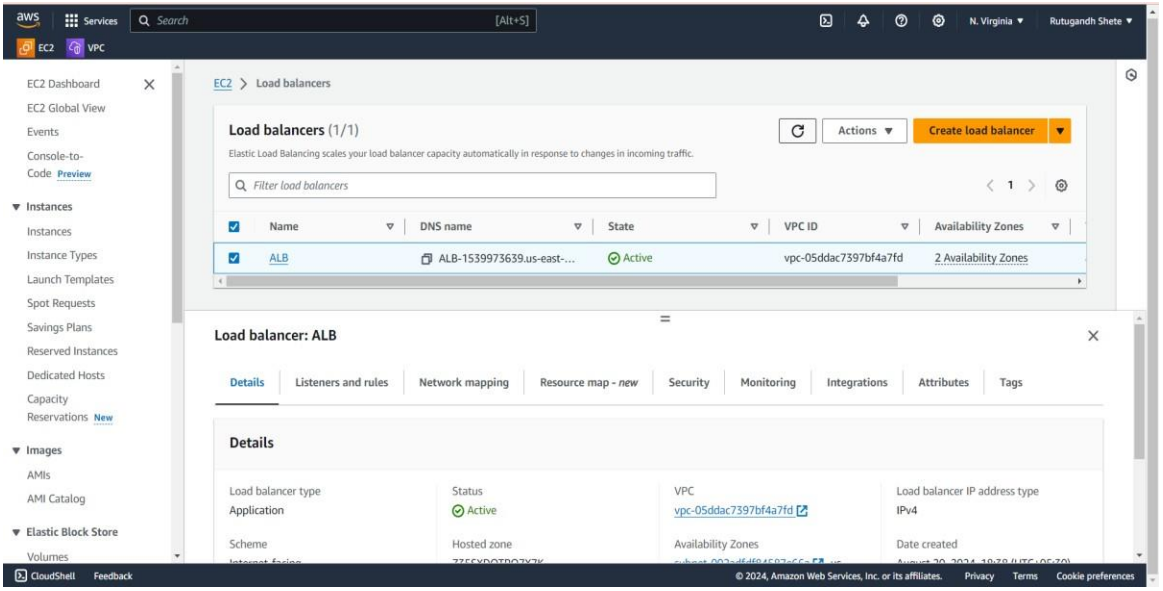
- Add zone(atleast 2 zones should be added)→security group



- Add target group in load balancer that we have created already.



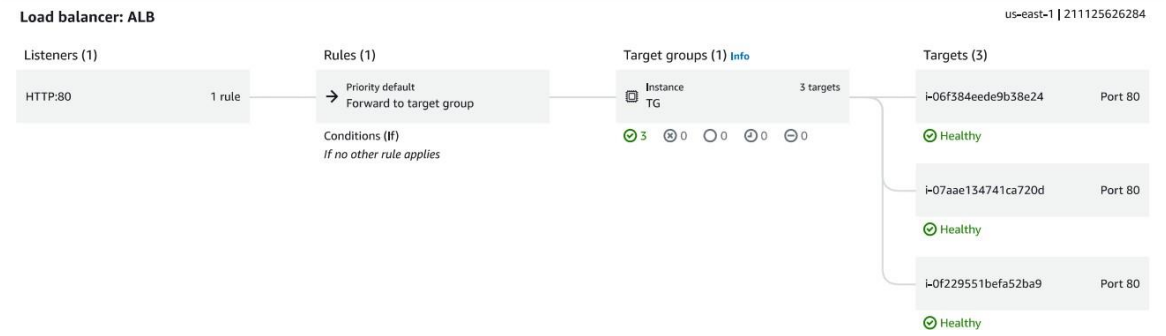
- After creating application load balancer.



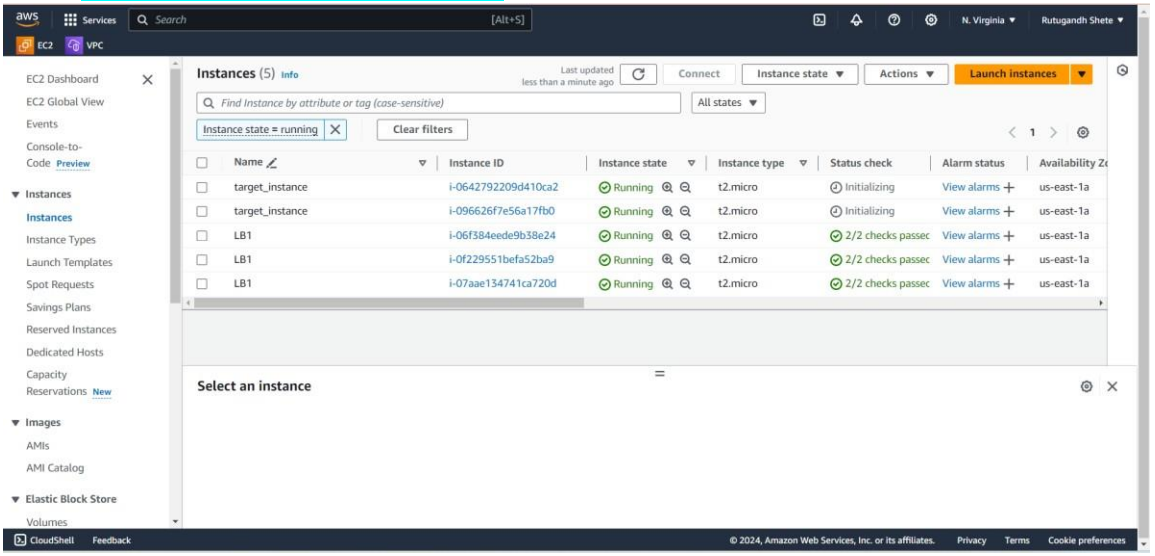
- After pasting DNS to browser.

IP ip-172-31-41-248

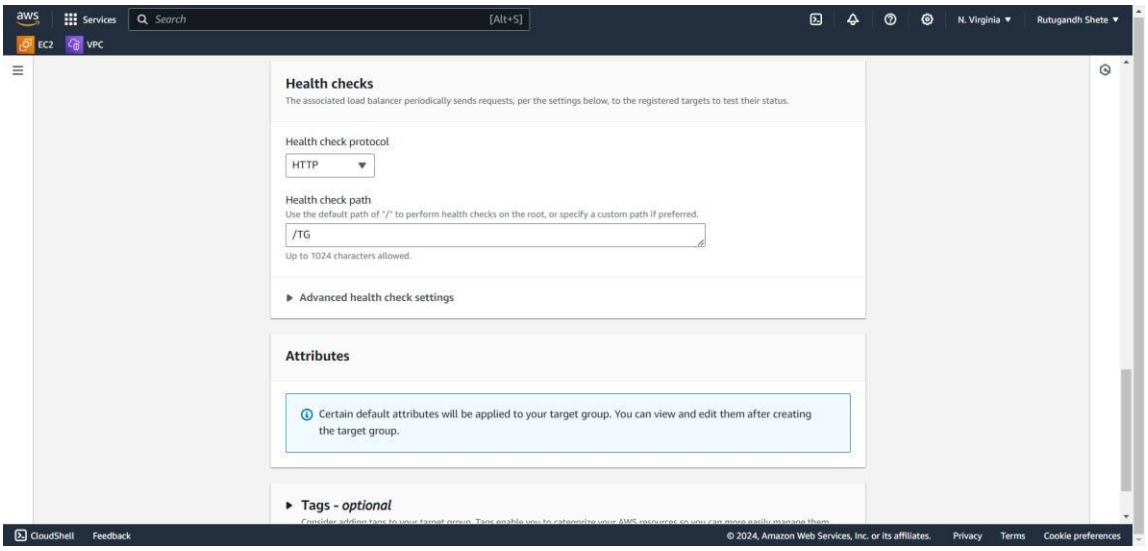
- In below diagram we can see that we have associated only one target group to application load balancer.



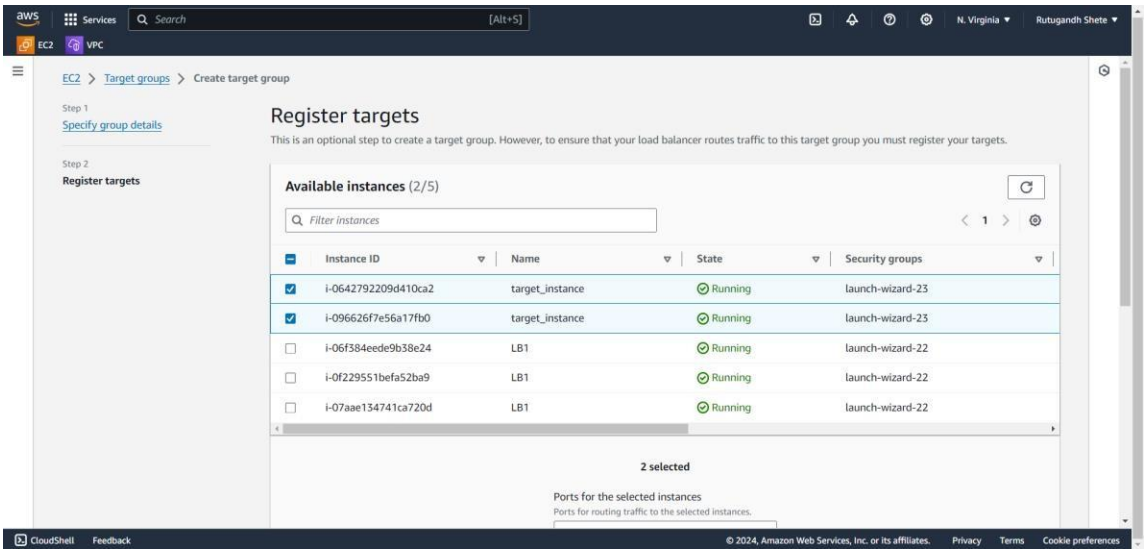
- Now create another target group ,for that we have to create instances .



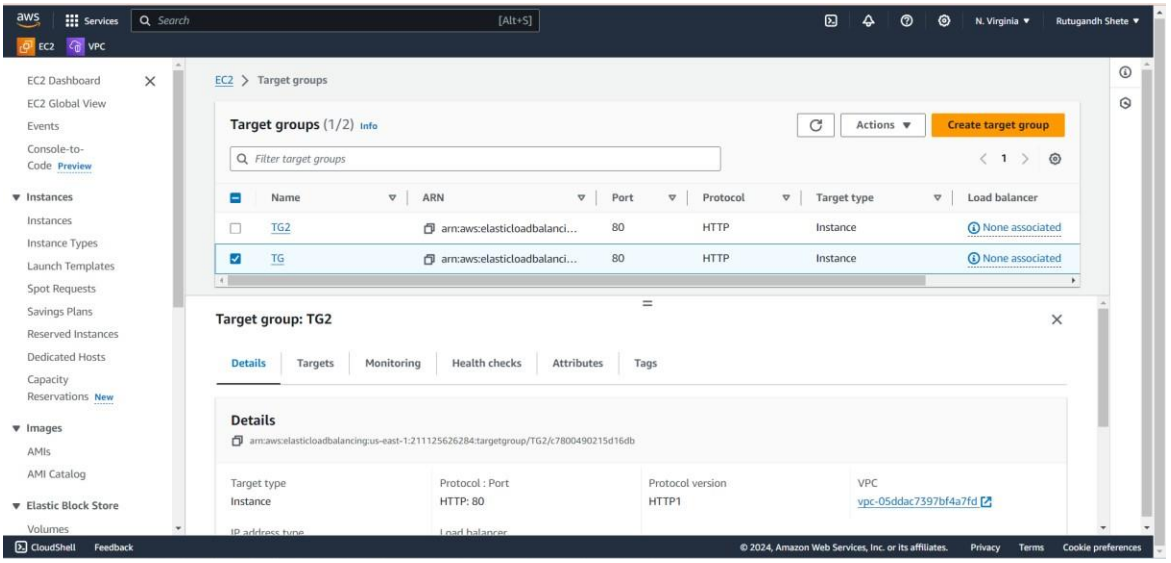
- Create another target group for another reason . load balancers→target groups→create→Name→add health check path.



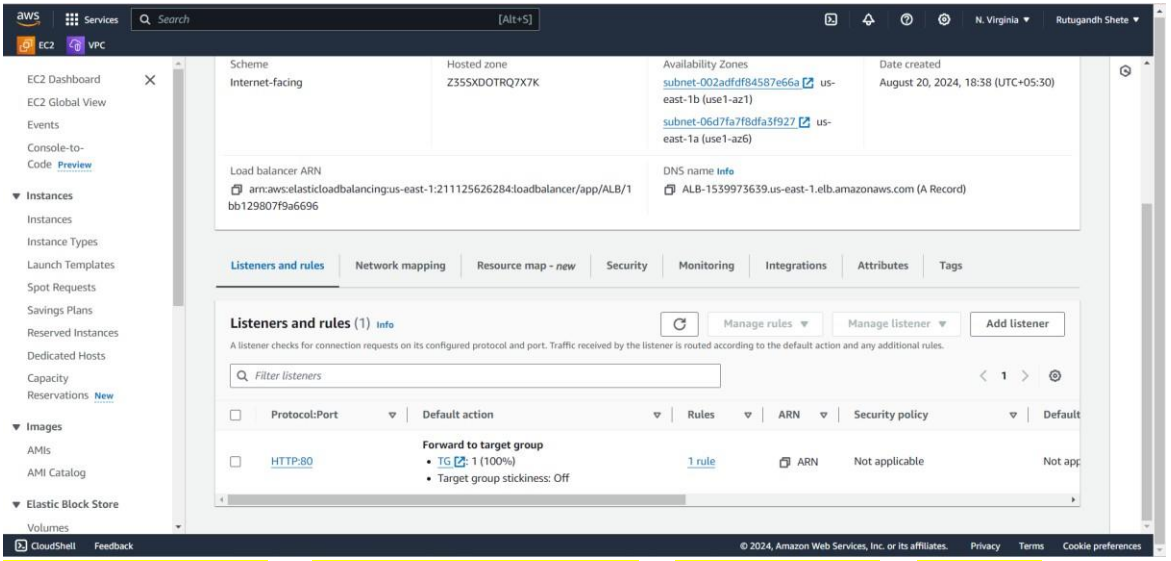
- After this add instances→including instances as below→create



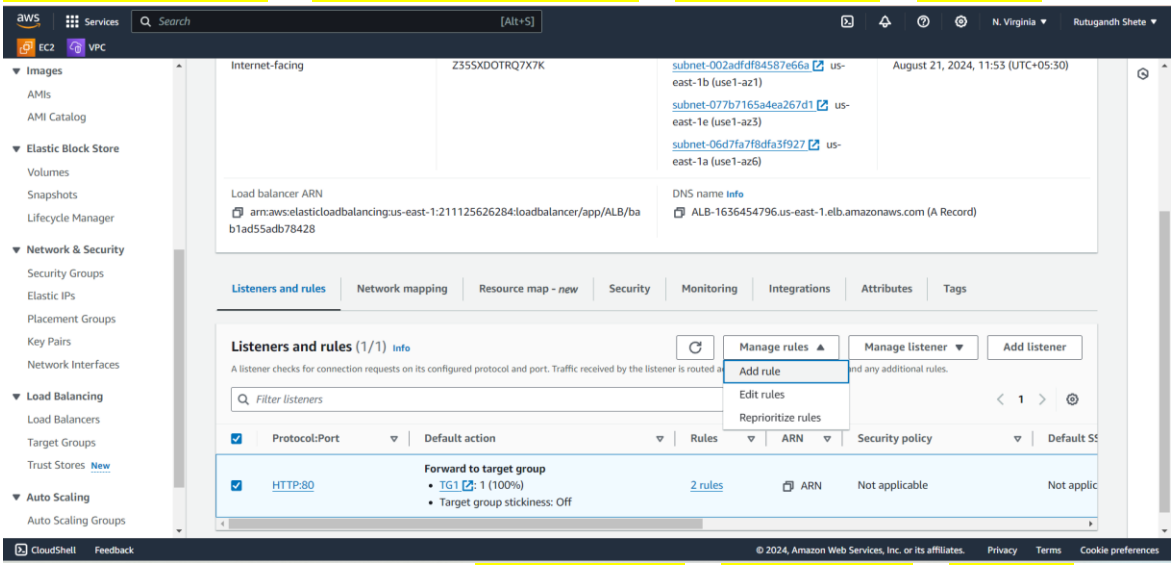
- After creating another target group.



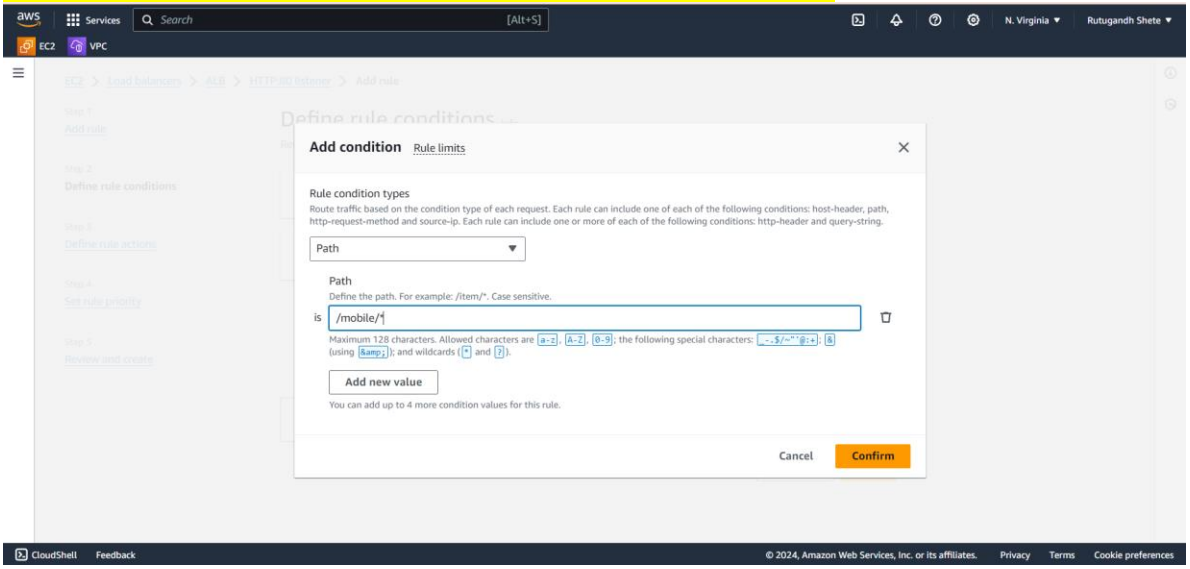
- For associating another target to same load balancer →click on load balancer→listners and rules.



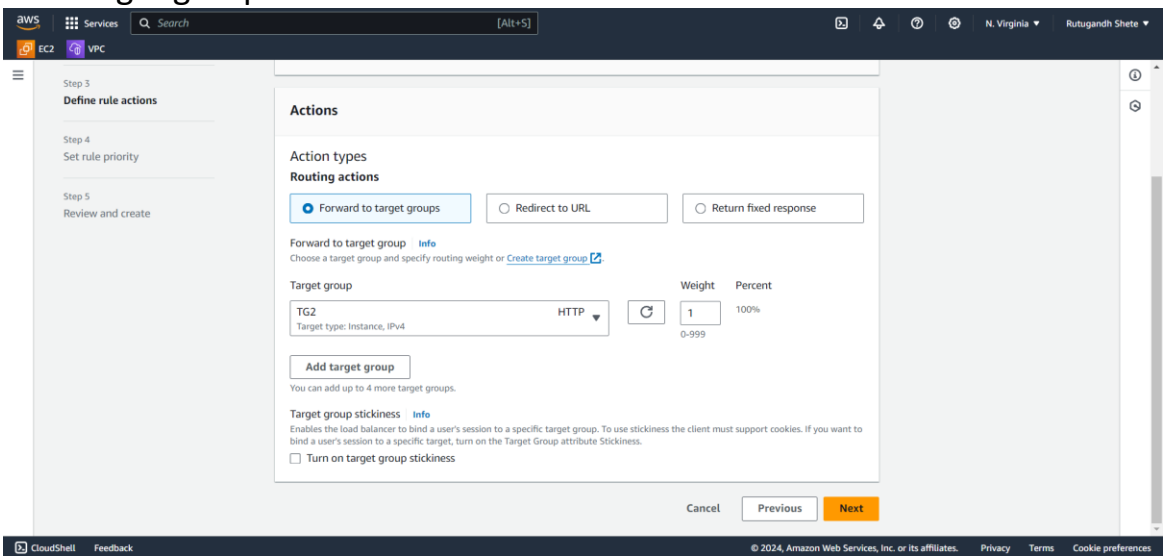
- Listners and rules→ click on HTTP80(port)→manage rules→add rule



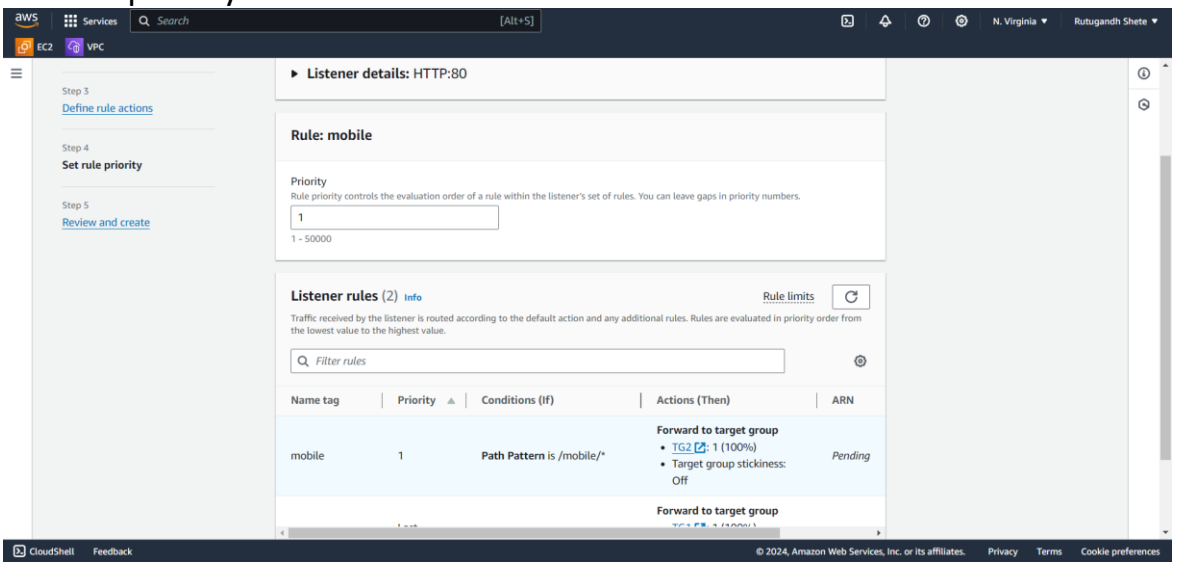
- Provide name→click on next→add condition→click on path→provide path(/mobile/*)….(/* means all file after that directory→confirm



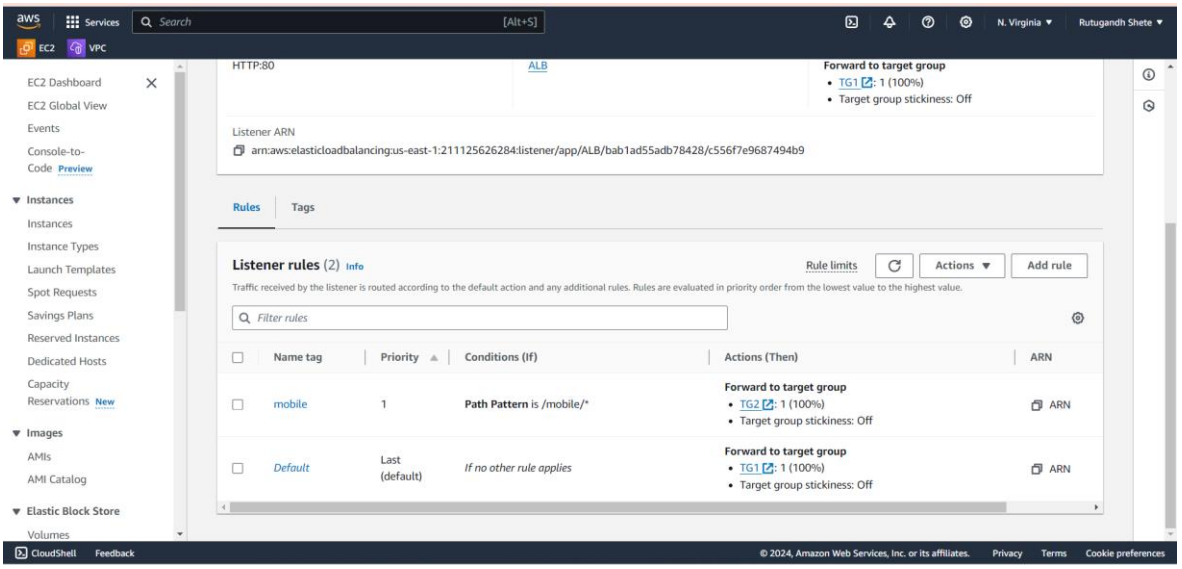
- Add target group→next



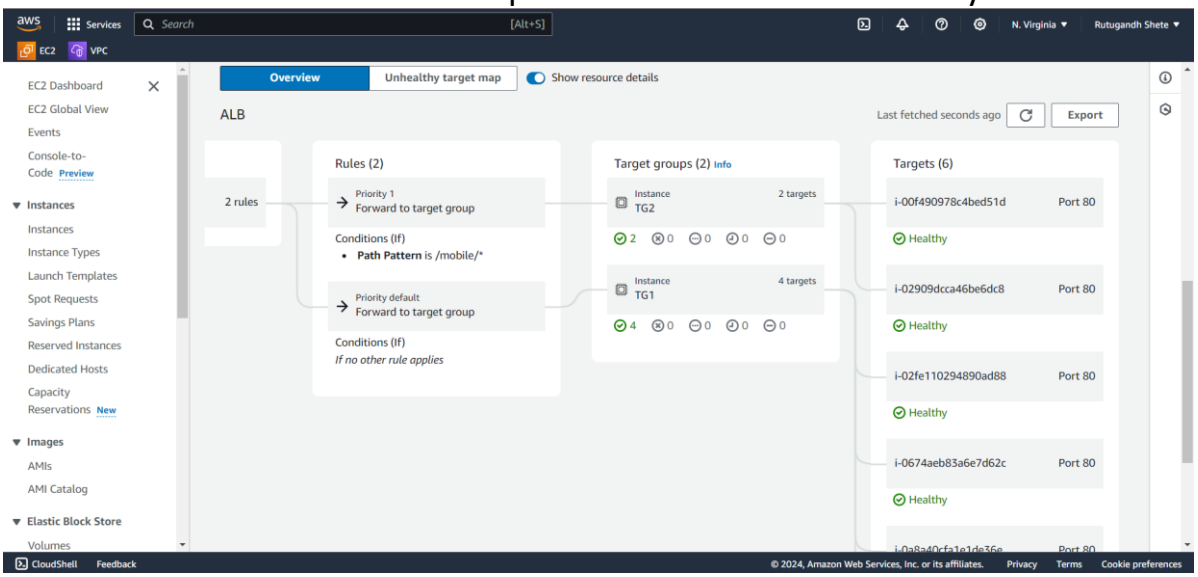
- Provide priority number→next →see all details →create



- After adding listener rule



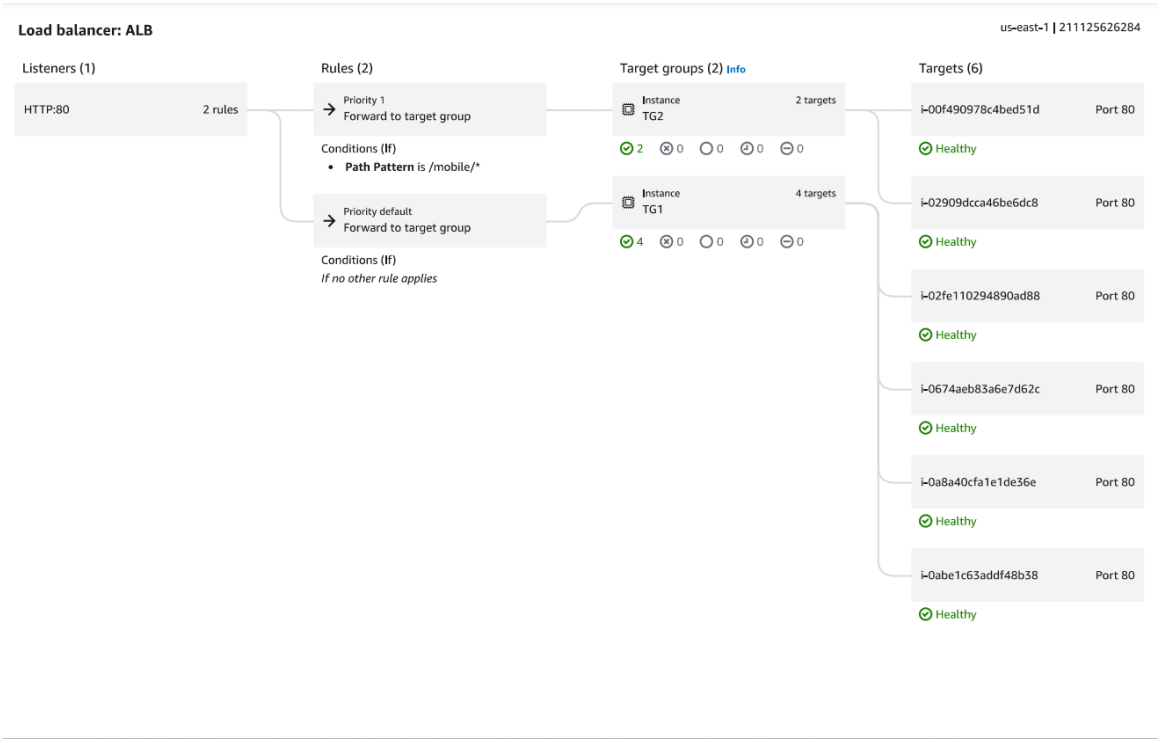
- To check whether the instances added are healthy or not then click application load balancer →resource and map→check instances are healthy or not



- As we can see that after pasting DNS of application load balancer on browser we are able to navigate through target one and for target group 2 " DNSpath link/mobile/" add this path and after pasting it we are able to navigate through target group 2.

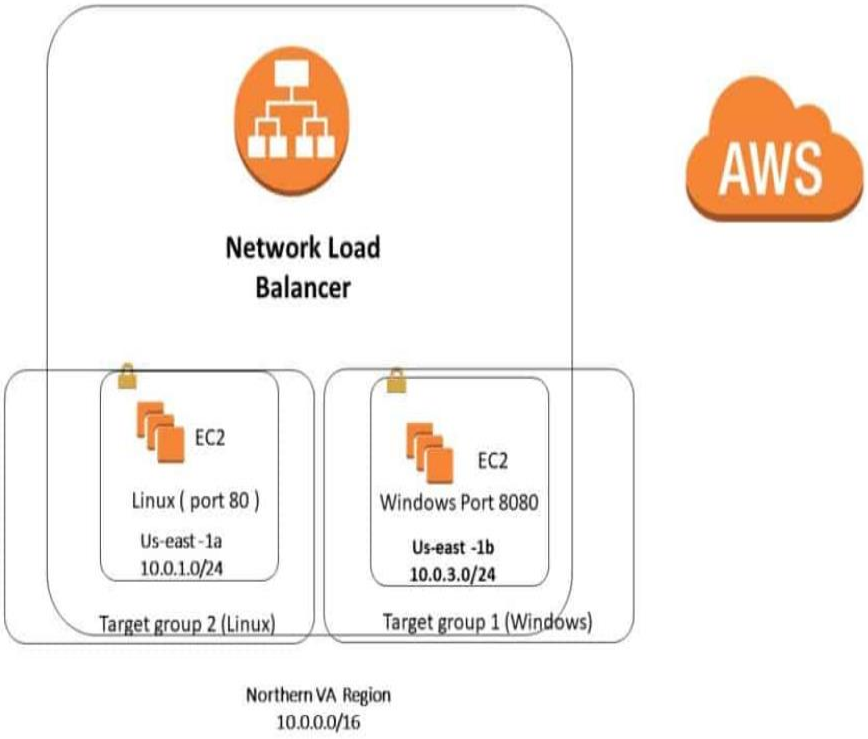
this is my mobile IP ip-172-31-57-31

- In this diagram we can see that after adding target group there are healthy checks.



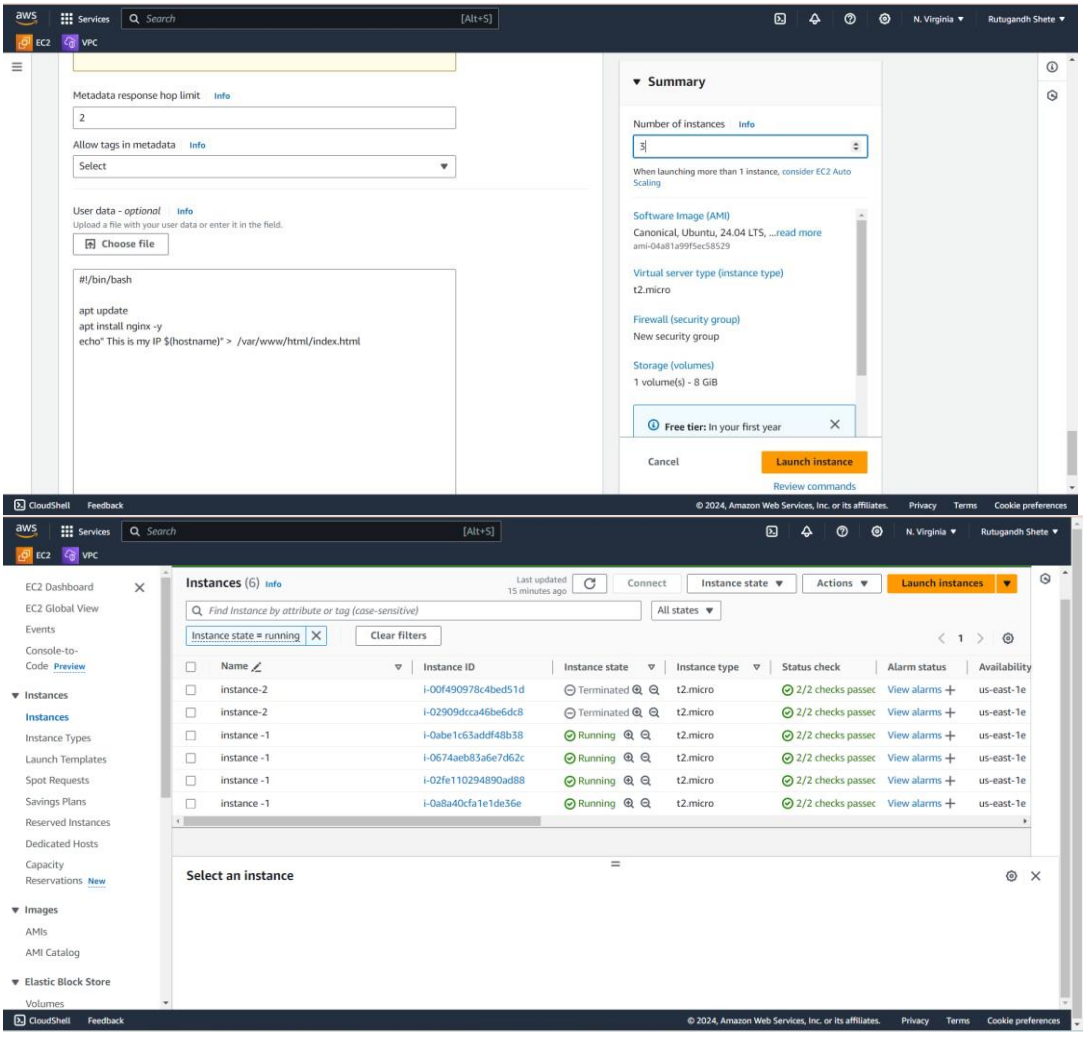
Network load balancer:

Network Load Balancer target groups support the TCP, UDP, TCP_UDP, and TLS protocols. You can register a target with multiple target groups. You can configure health checks on a per target group basis. Health checks are performed on all targets registered to a target group that is specified in a listener rule for your load balancer. A Network Load Balancer functions at the fourth layer of the Open Systems Interconnection (OSI) model. It can handle millions of requests per second. After the load balancer receives a connection request, it selects a target from the target group for the default rule. It attempts to open a TCP connection to the selected target on the port specified in the listener configuration.

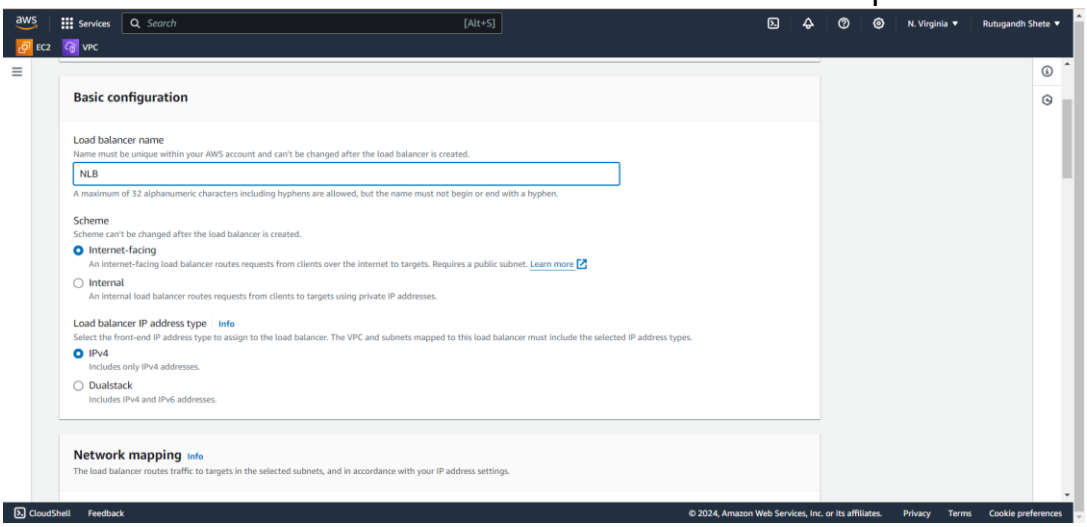


Steps:

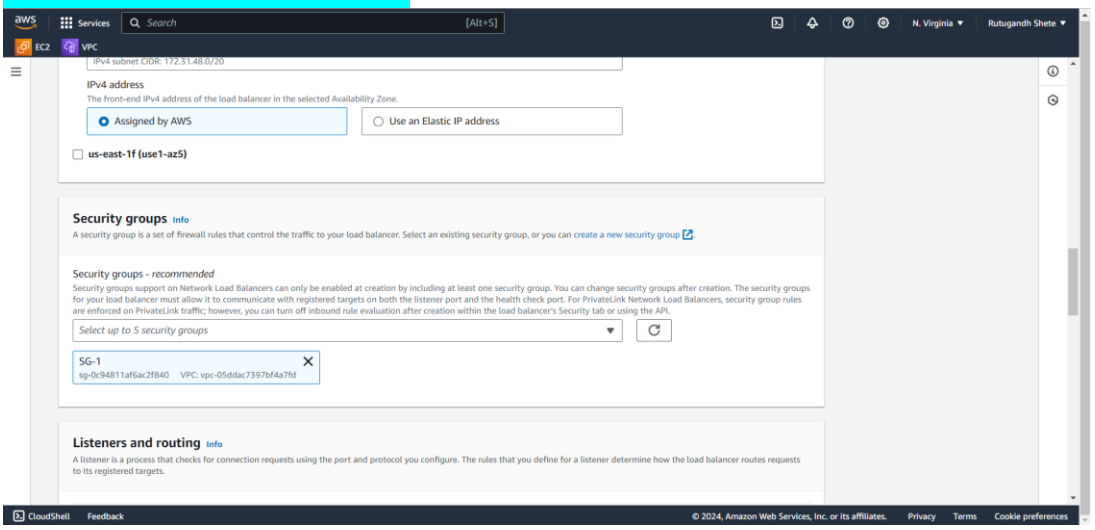
- Create more than one instances for time being and while creating it add script to user data.



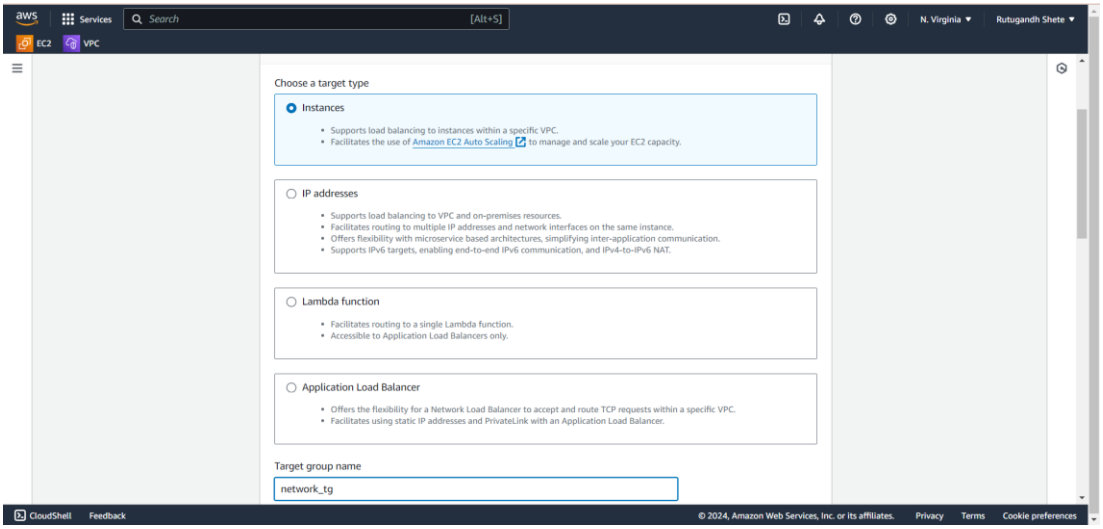
- Go to load balancers→create →network load balancer→provide name



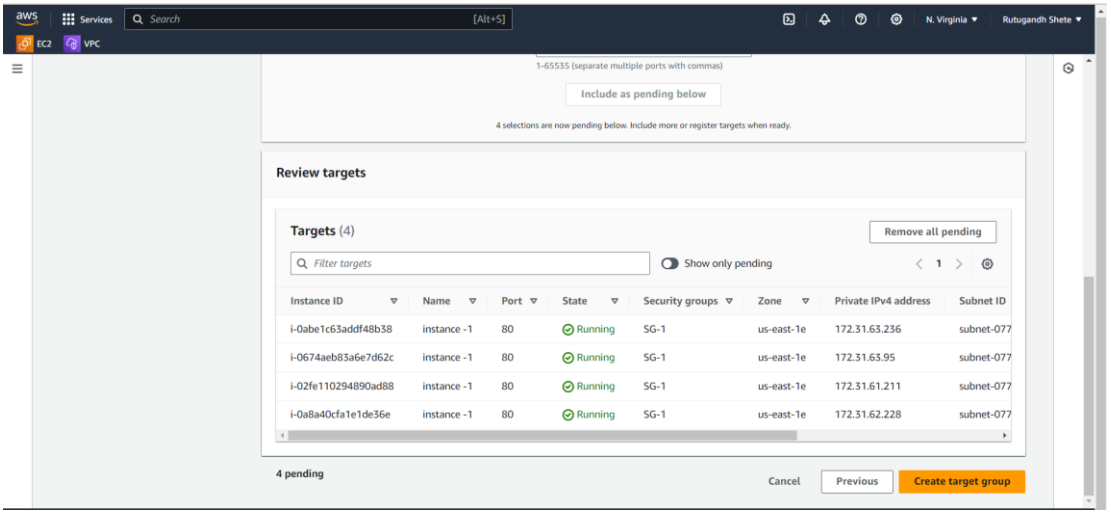
- Select zones as per the instances zones and select security group that we have attached to instances



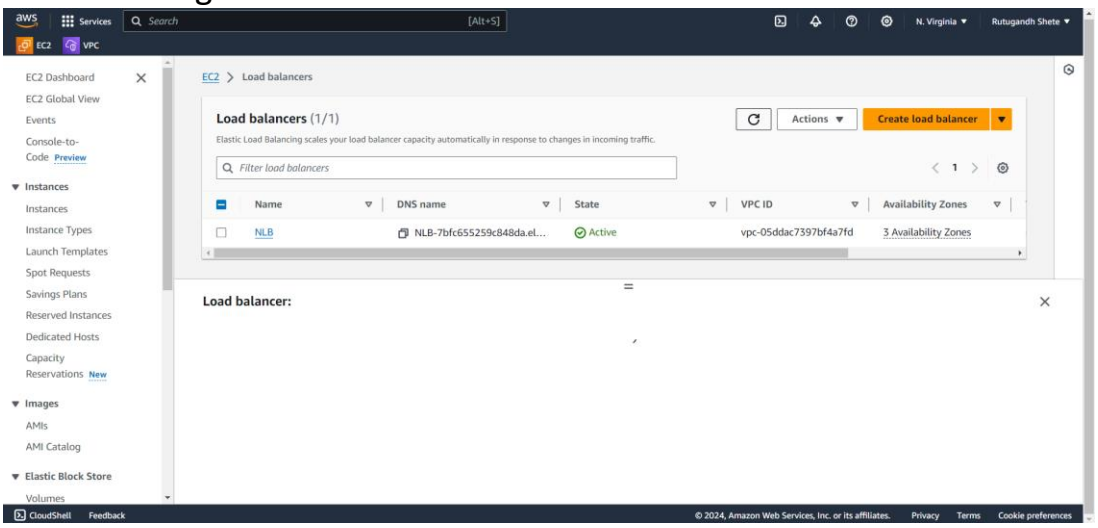
- Add target group for that we have to create target group→click on target group→add name



- After that →next →include all instances →create.



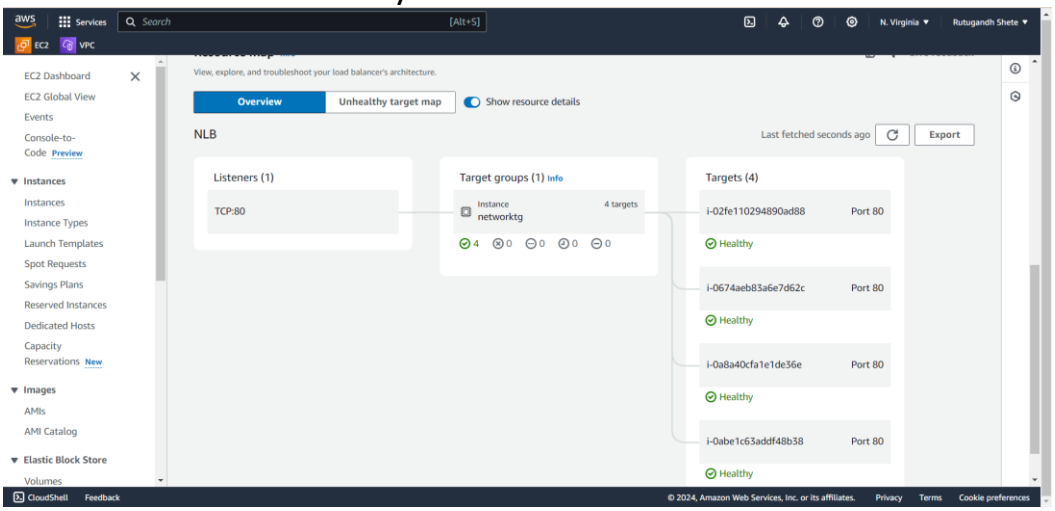
- After creating network load balancer



- Copy DNS on browser

this is IP ip-172-31-63-236

- All instances are in healthy state.



- Imagine you have a web application running on multiple EC2 instances across different Availability Zones. You would set up an NLB with a listener on port 443 (HTTPS), create a target group with your EC2 instances, and enable health checks. When users access your web application, the NLB routes the traffic to the healthiest and nearest EC2 instance, balancing the load efficiently while providing high availability.