AWS Cloud & DevOps

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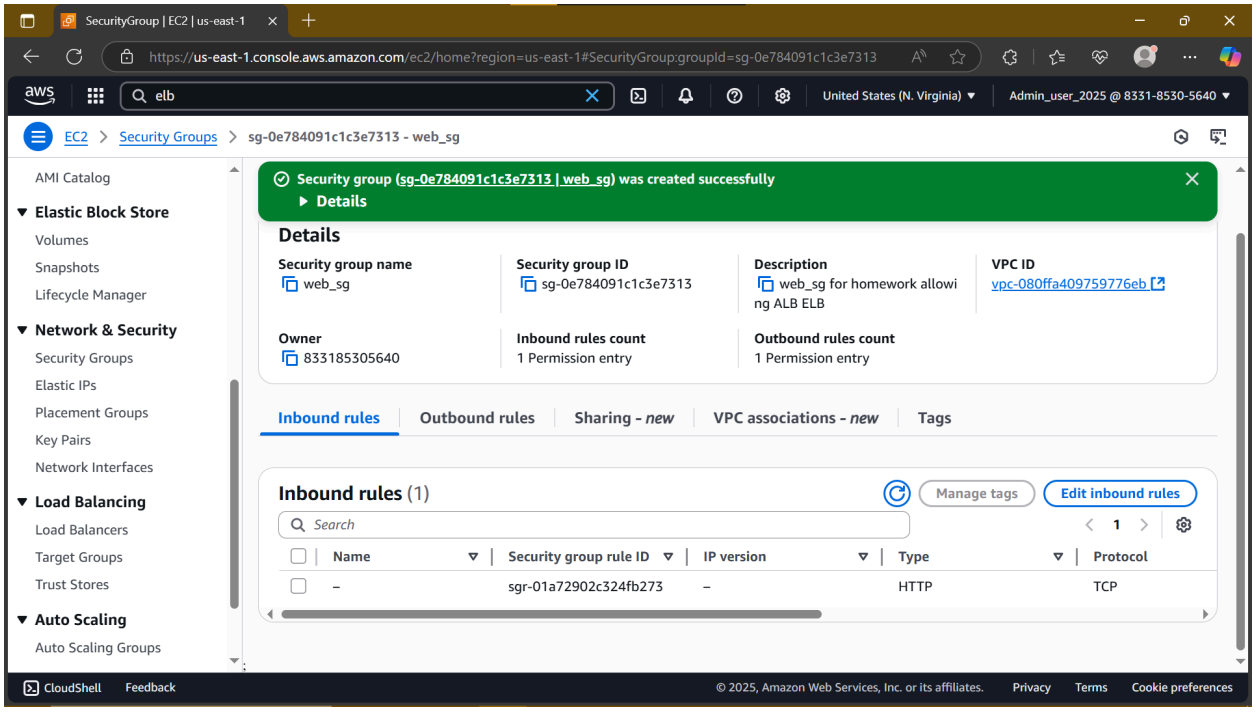
ELB Homework

Description

Elastic Load Balancer
Homework 1: Internet-facing Load Balancer with Public Subnet
Build a Highly available Website using the instructions below from today's class
NB: please read carefully the instructions and if needed refer to the video recording
find user data script at the bottom

Step 1: Create ALB and Webserver Security Group ——> "alb_sg" and "web_sg" alb_sg should allow 0.0.0.0/0 on port 80
web_sg should allow alb_sg on port 80
take screenshot showing inbound rule of web_sg



NB: please make sure you TAG your resources and note the alb_sg id

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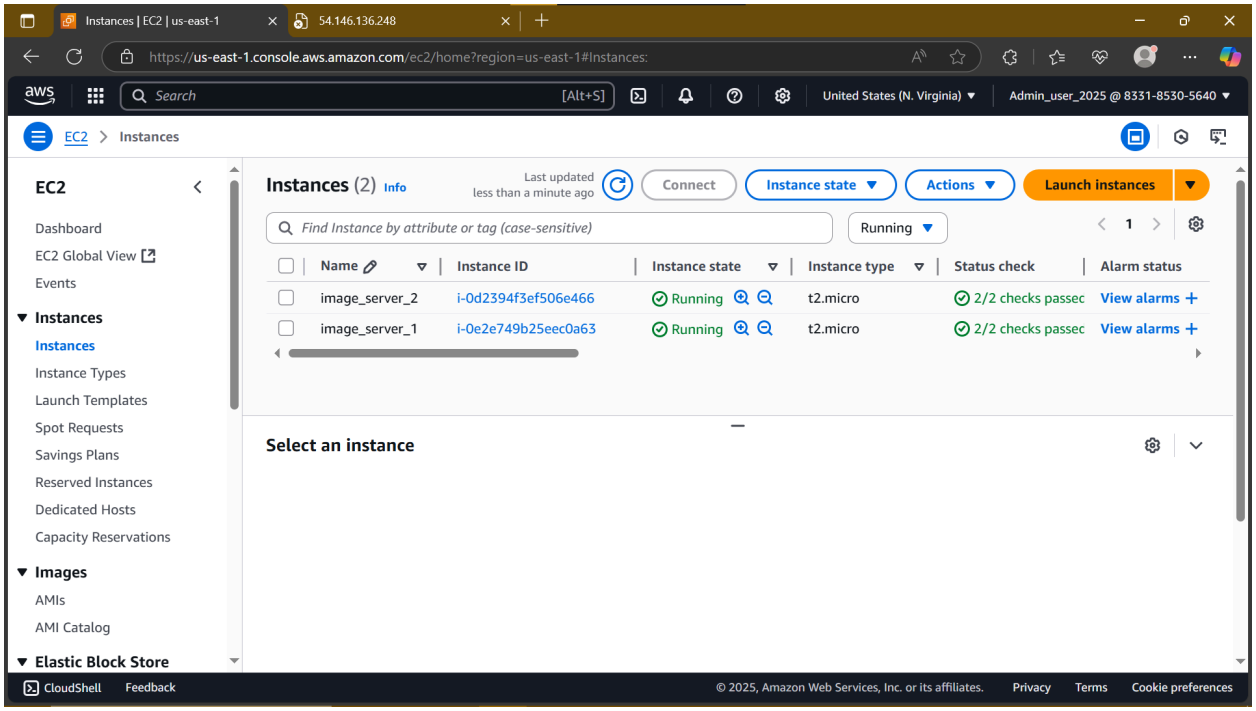
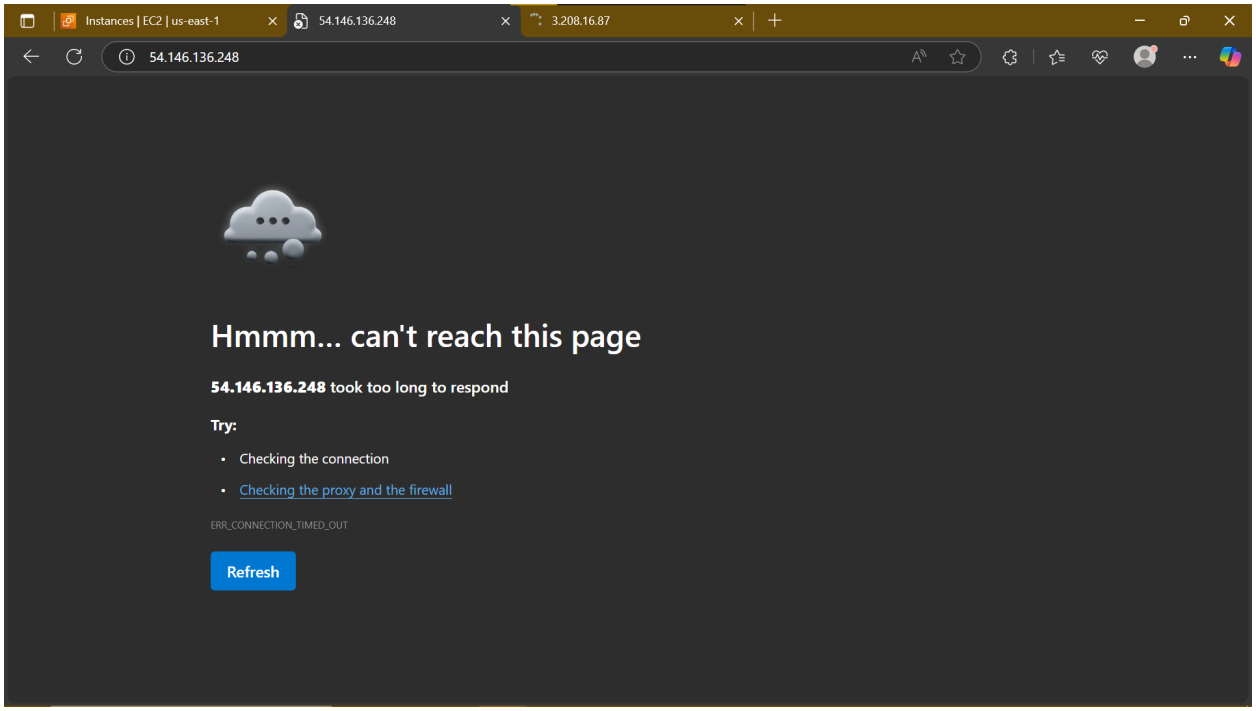
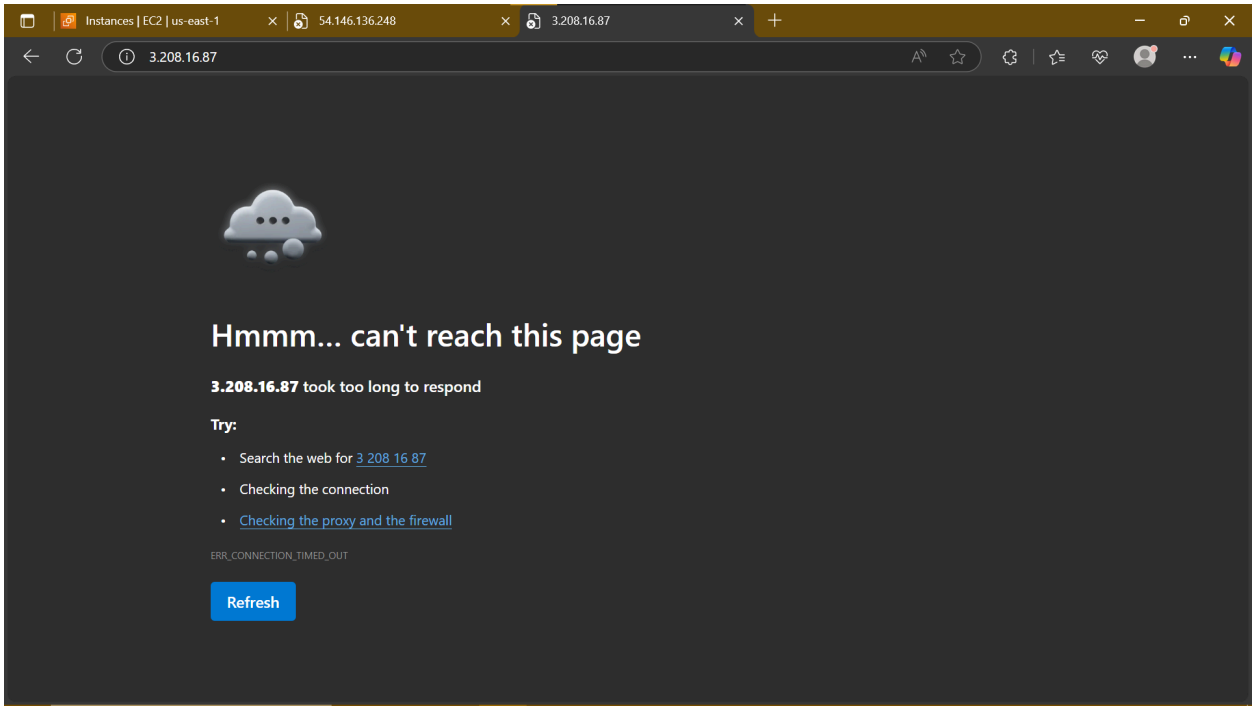
Step 2: Create your Public webservers Image ——> tag: image_server_1 and tag: image_server_2
test using public ip address
take screenshot showing timeout of both in the browser


Instances | EC2 | us-east-1
54.146.136.248
https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:
Search
[Alt+S]
United States (N. Virginia)
Admin_user_2025 @ 8331-8530-5640
EC2 > Instances
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Instances (2) Info
Last updated less than a minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
Running
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
image_server_2
i-0d2394f3ef506e466
Running
t2.micro
2/2 checks passec
View alarms
image_server_1
i-0e2e749b25eec0a63
Running
t2.micro
2/2 checks passec
View alarms
Select an instance
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences


Instances | EC2 | us-east-1
54.146.136.248
3.208.16.87
54.146.136.248
Hmmm... can't reach this page
54.146.136.248 took too long to respond
Try:
Checking the connection
Checking the proxy and the firewall
ERR_CONNECTION_TIMED_OUT
Refresh



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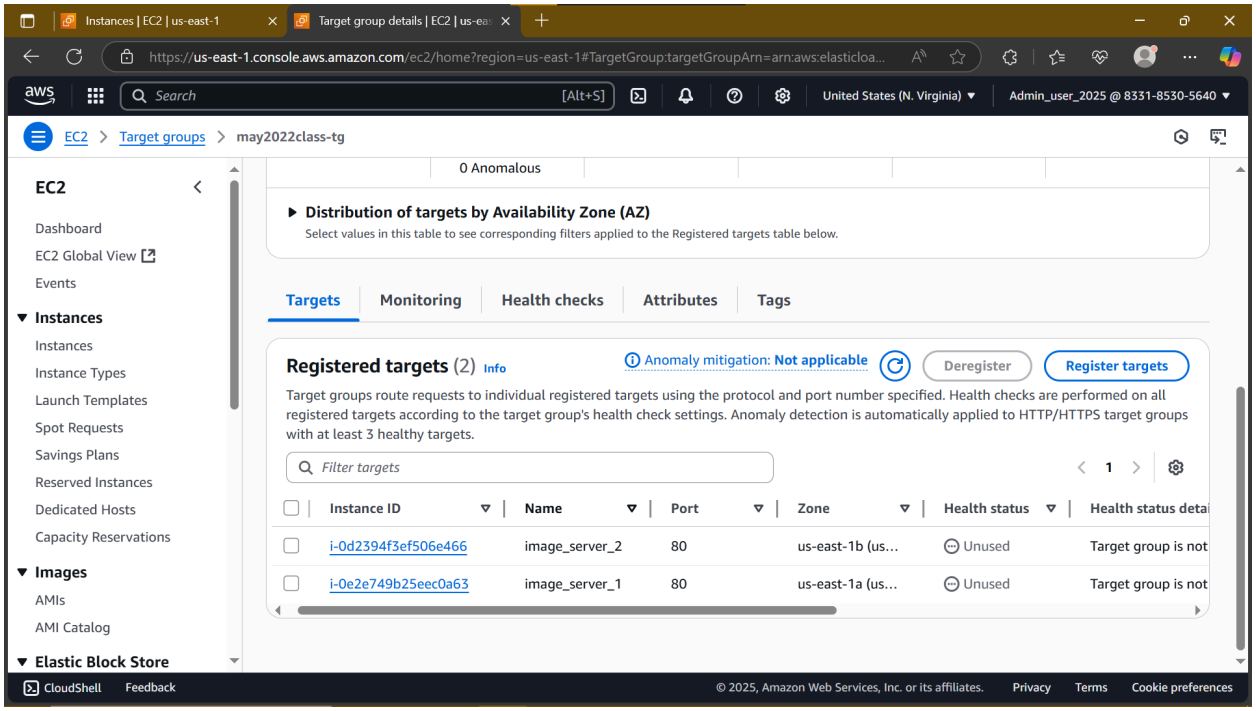
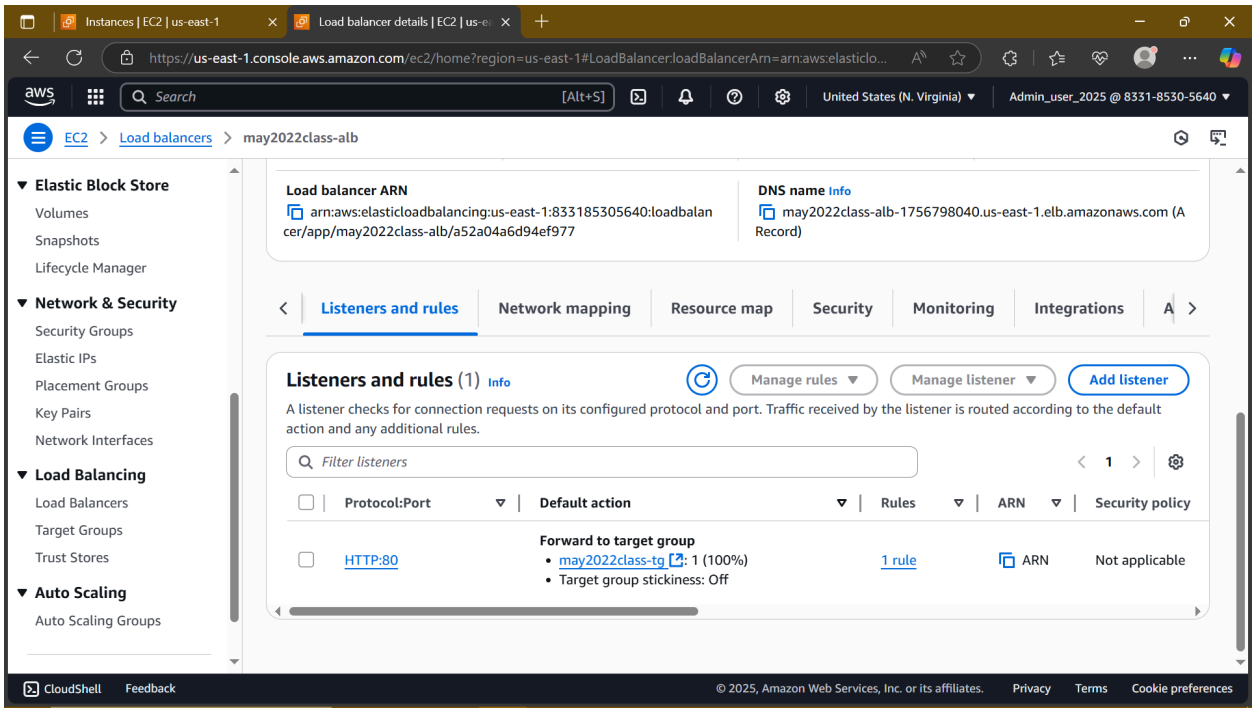
Step 3: Create Target Group with targets (Webservers) ——> name: “may2022class-tg” please observe the status

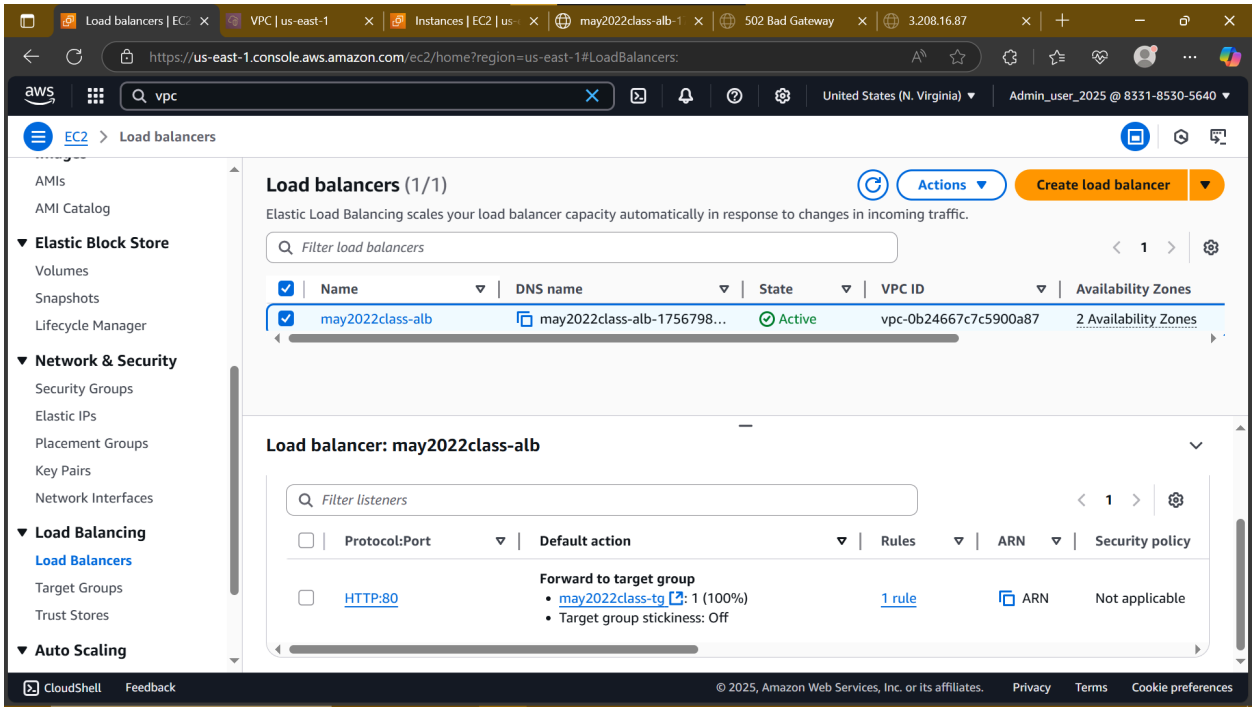
- take screenshot showing “Health status details”



Step 4: Create an Application Load Balancer (ALB) ——> name: “may2022class-alb”
listener on http (80) only

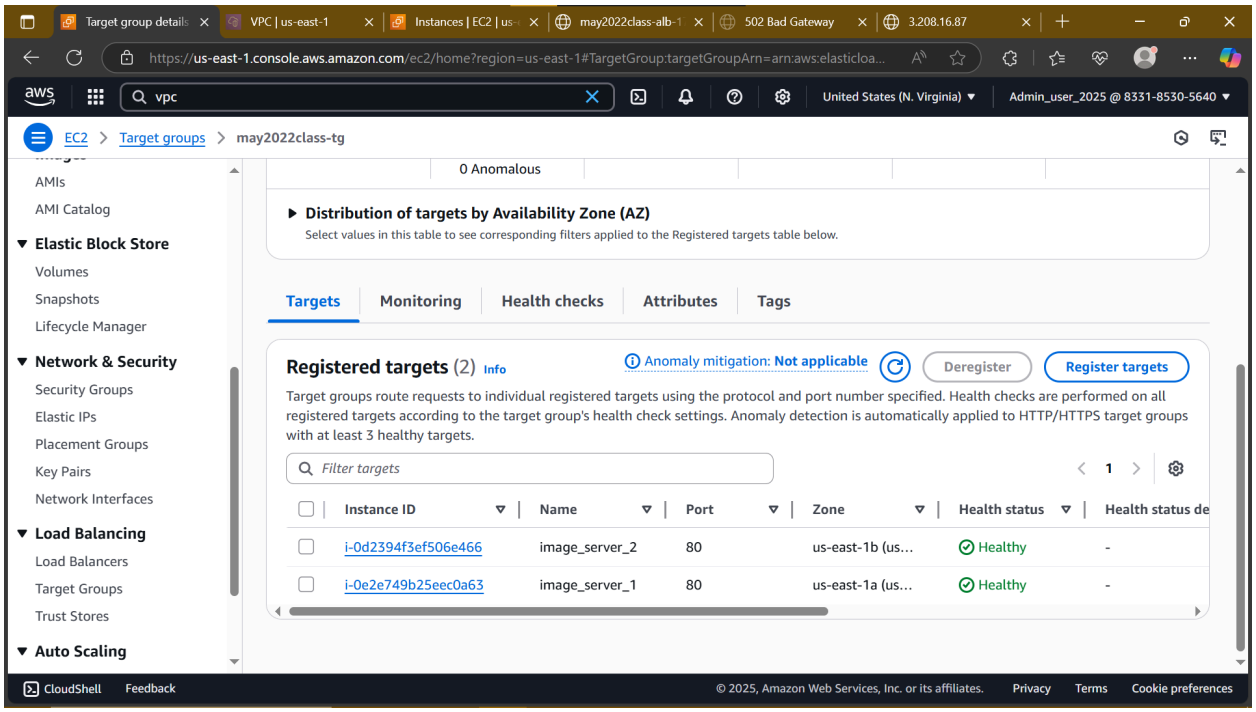


select may2022class-alb > click on Listener and take a screenshot



Step 5: Observe the target group status again in the console

- take a screenshot when it shows healthy



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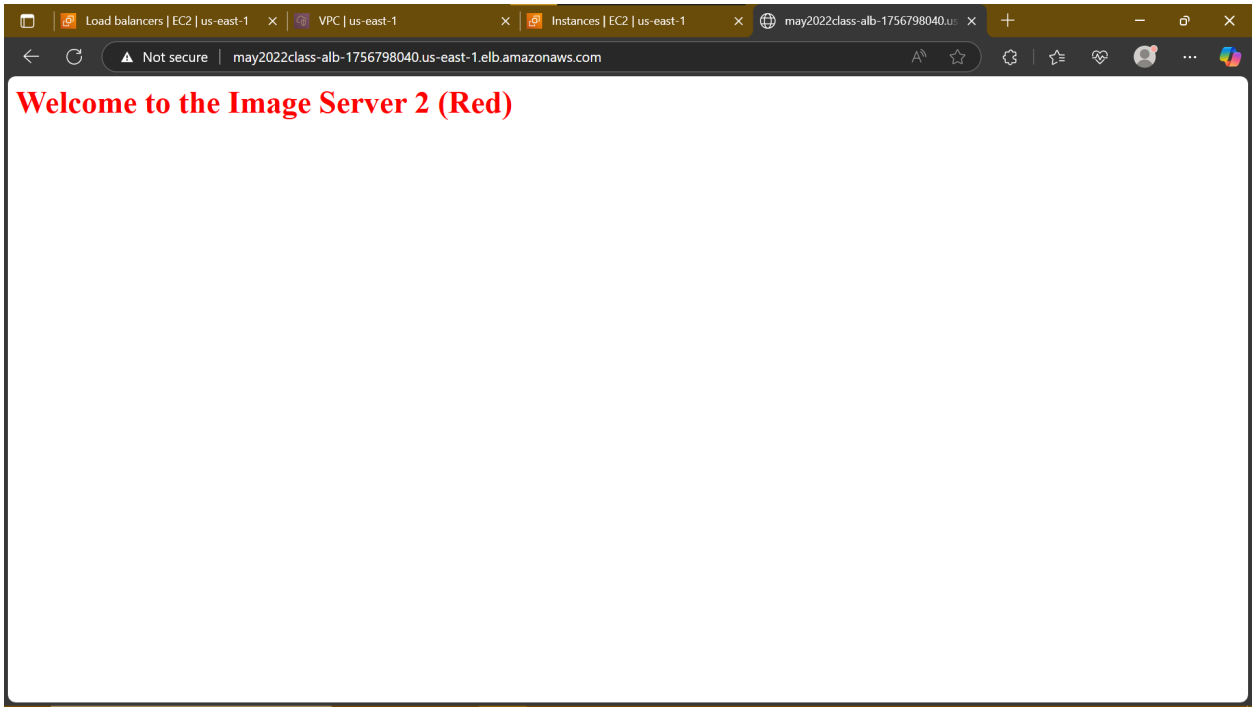
Step 6: test your website in a browser using the ALB dns name and refresh multiple time

- take screenshots of both Blue and Red



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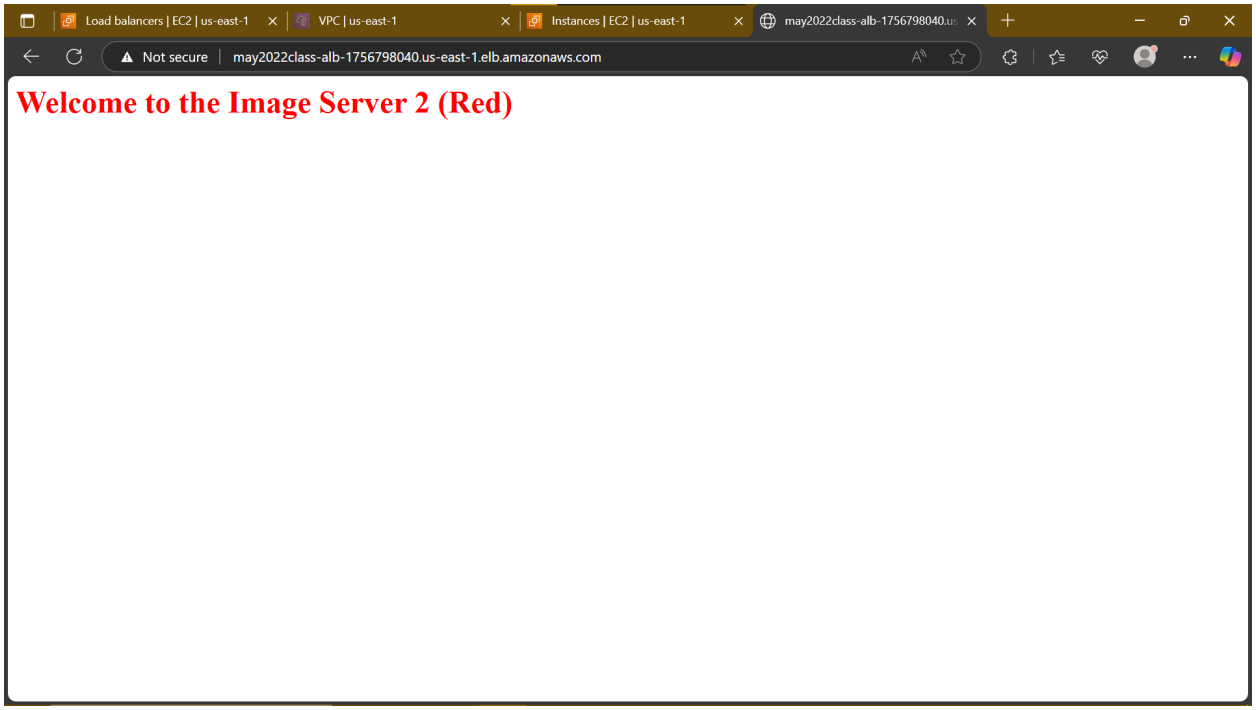
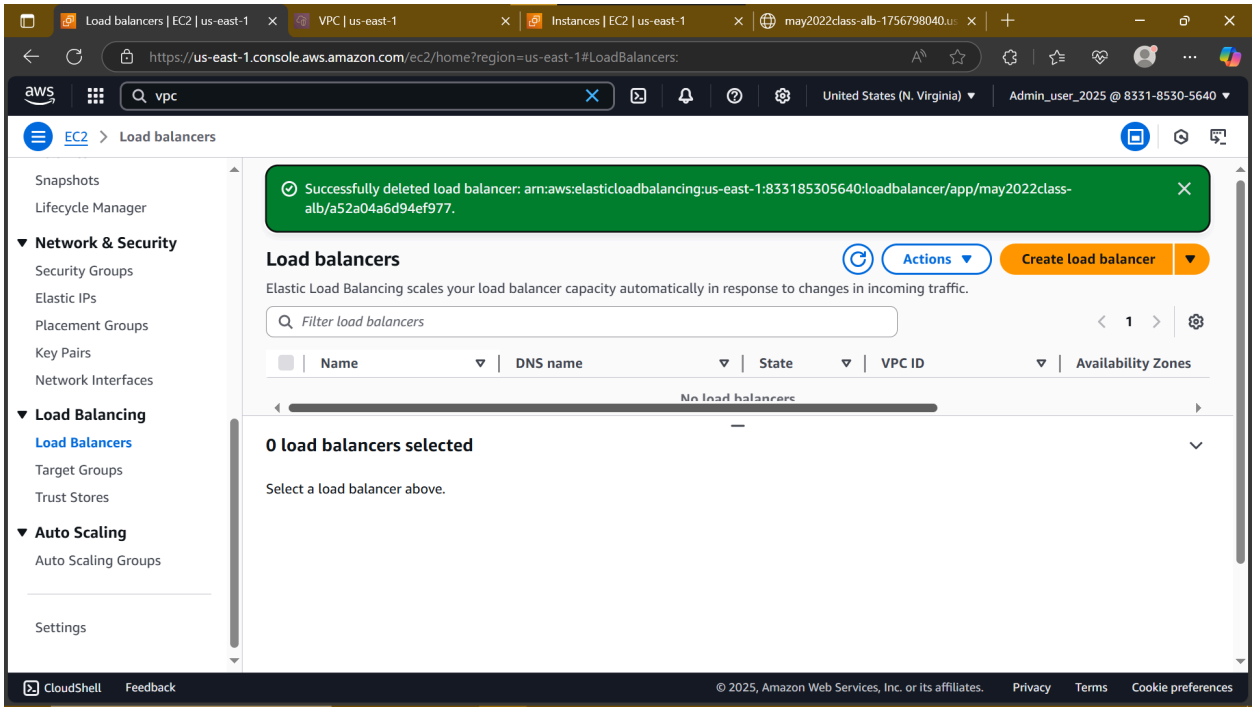
Step 7: stop webserver 1 and test again to see which server is now responding
take a screenshot



Step 8: clean up your environment by deleting in the reverse order that you created all resources



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Step 9: clean up your environment by deleting in the reverse order that you created all resources

User Data Script used for the homework
SERVER 1 USER DATA (Public us-east-1a)

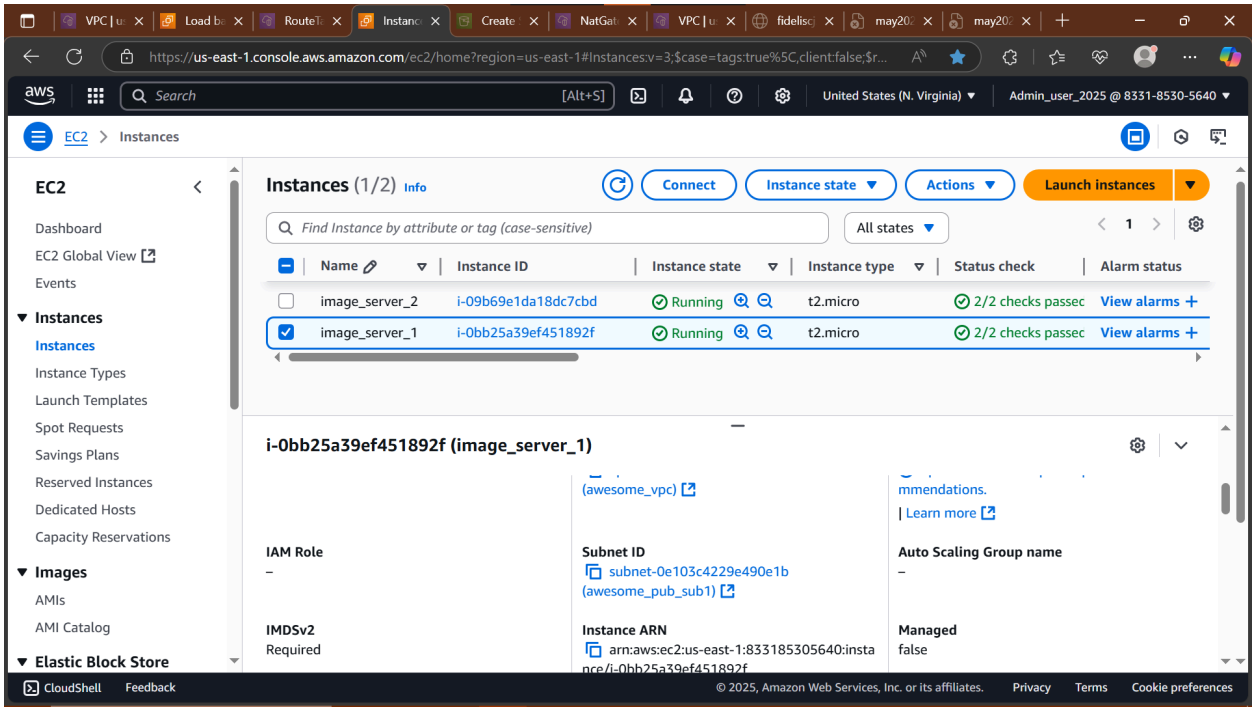
```
#!/bin/bash
yum update -y
yum install httpd -y
echo '<html><body><h1 style="color:Blue;">Welcome to the Image Server 1
(Blue)</h1></body></html>' > /var/www/html/index.html
sudo systemctl start httpd
sudo systemctl enable httpd
```

SERVER 2 USER DATA (Public us-east-1b)

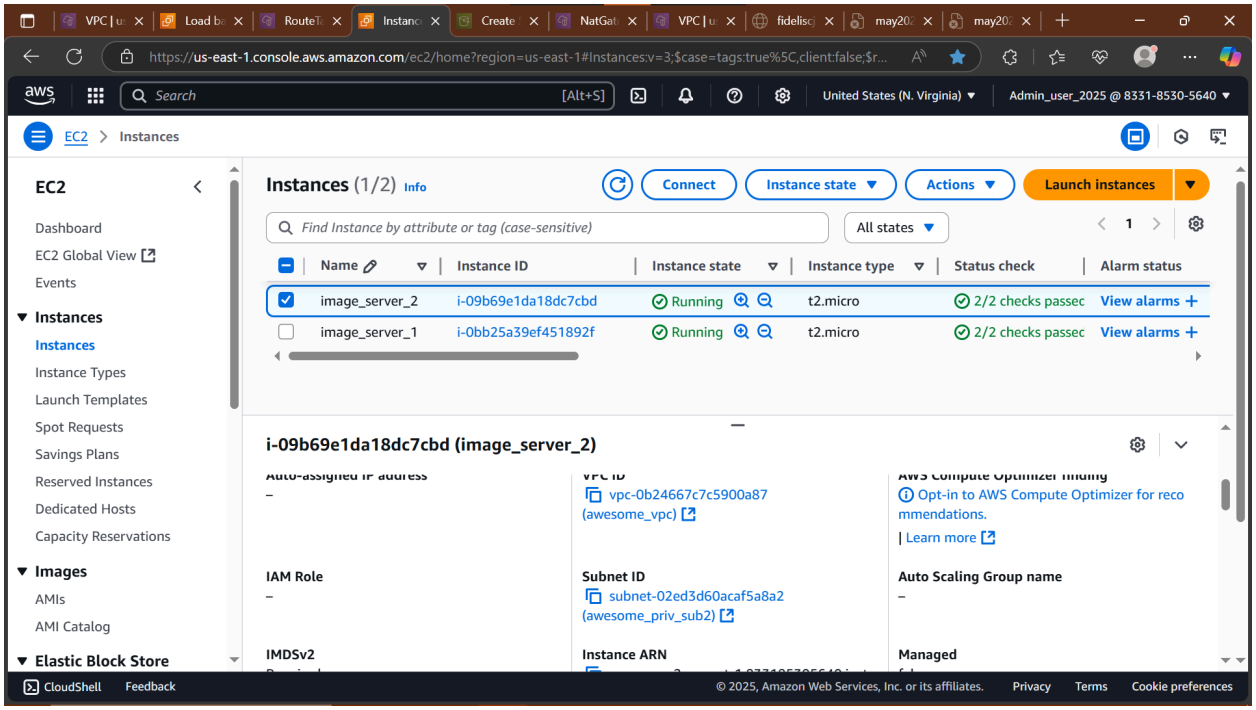
```
#!/bin/bash
yum update -y
yum install httpd -y
echo '<html><body><h1 style="color:Red;">Welcome to the Image Server 2
(Red)</h1></body></html>' > /var/www/html/index.html
systemctl start httpd
systemctl enable httpd
```

Homework 2: Internet-facing Load Balancer with Private Subnet

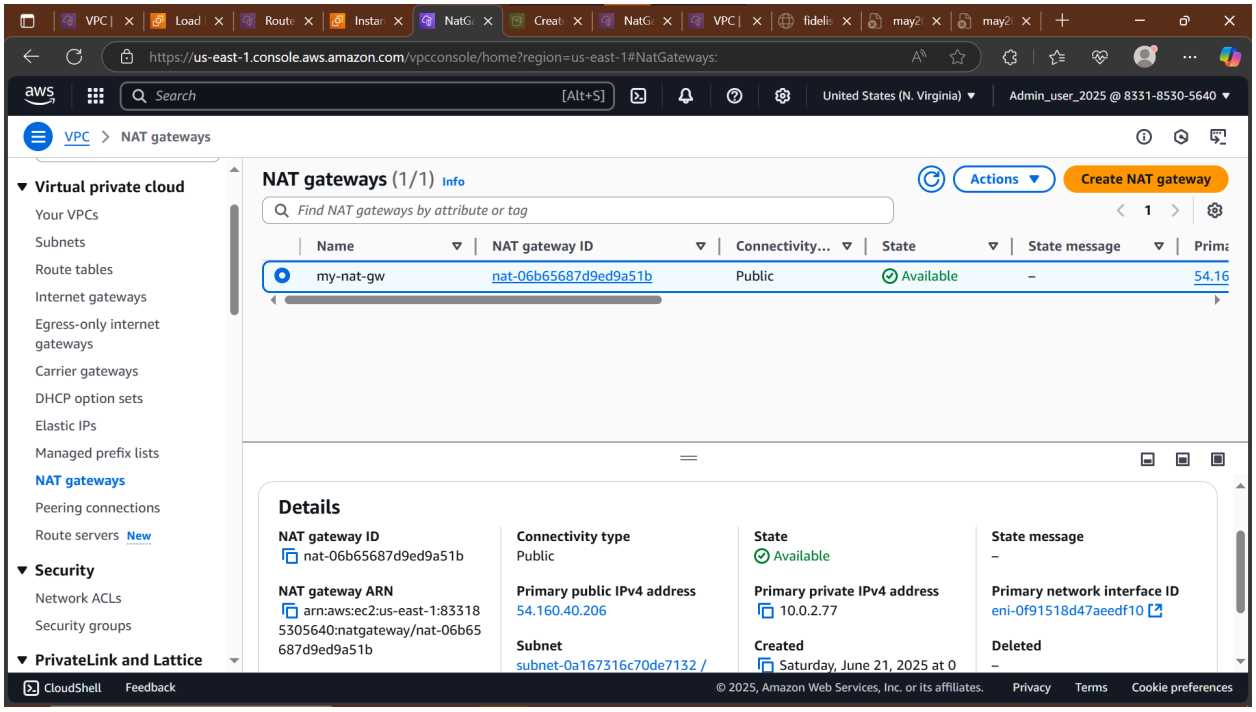
Repeat All step in Homework 1 except step 2, create your EC2 Instance in the Private Subnet
NB: read step 2 in Homework 1 carefully
use any resource to make this to work



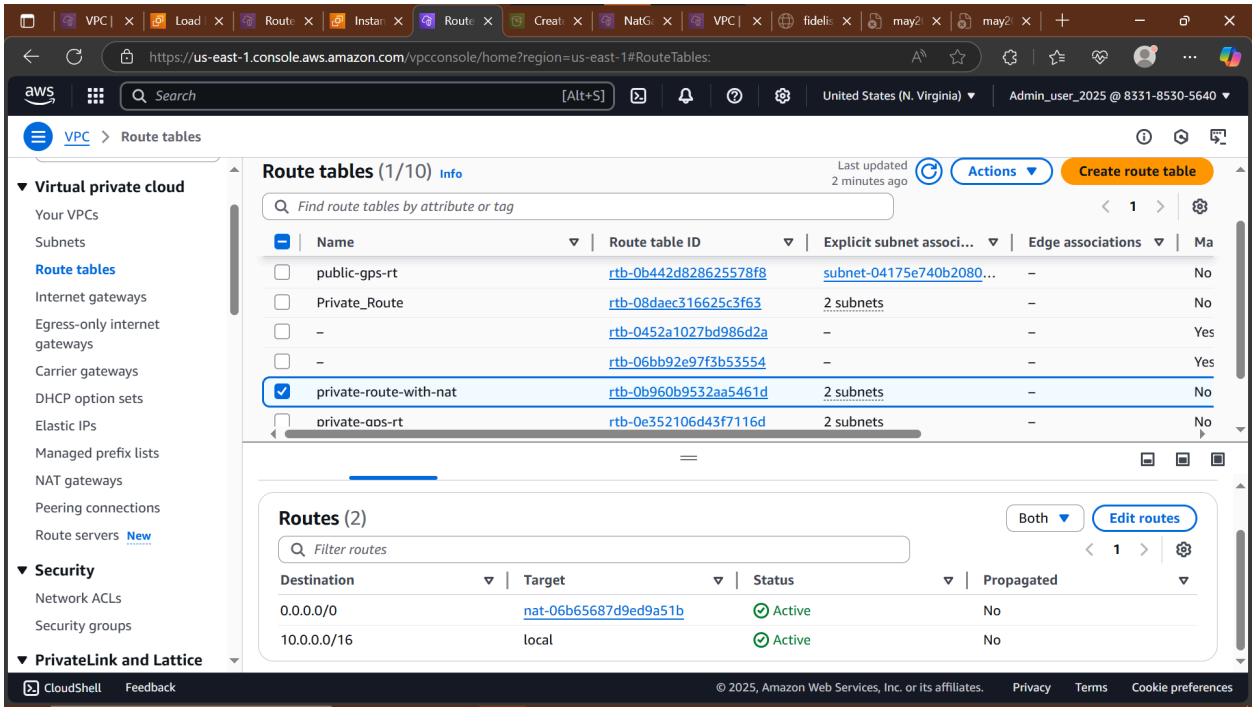
Instance 1 (image_server_1) created on a public subnet



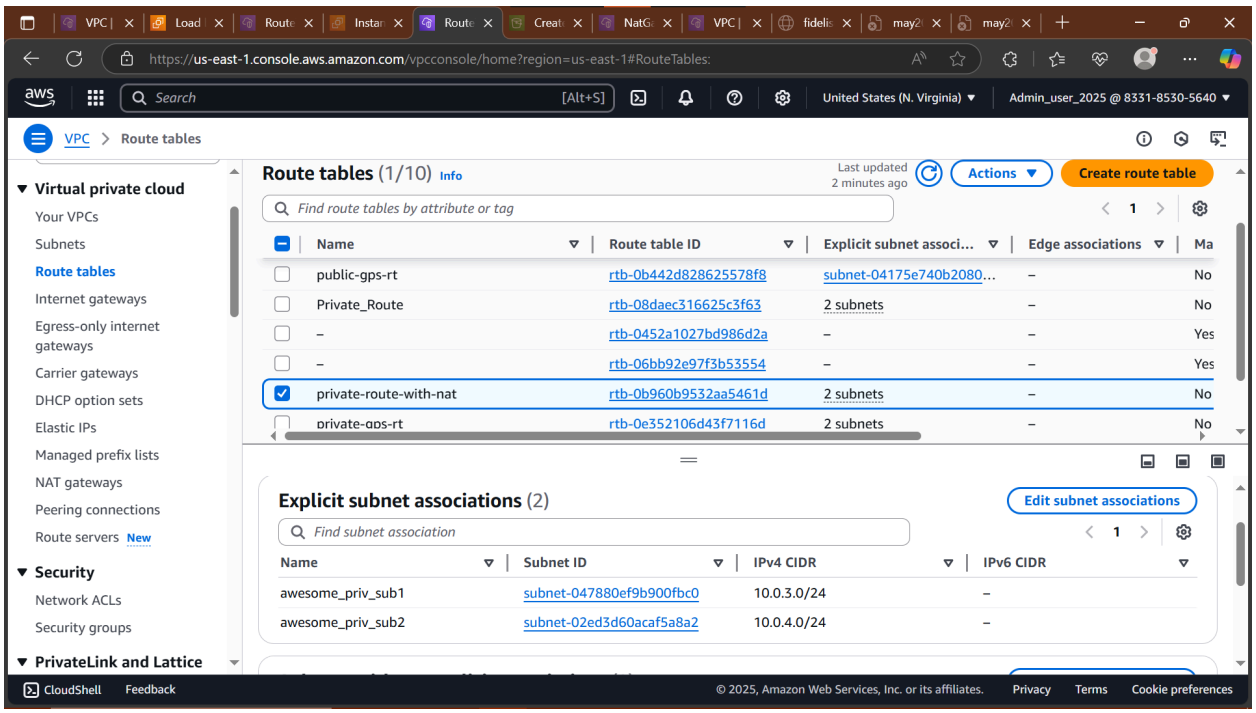
Instance 2 (image_server_2) created on a private subnet



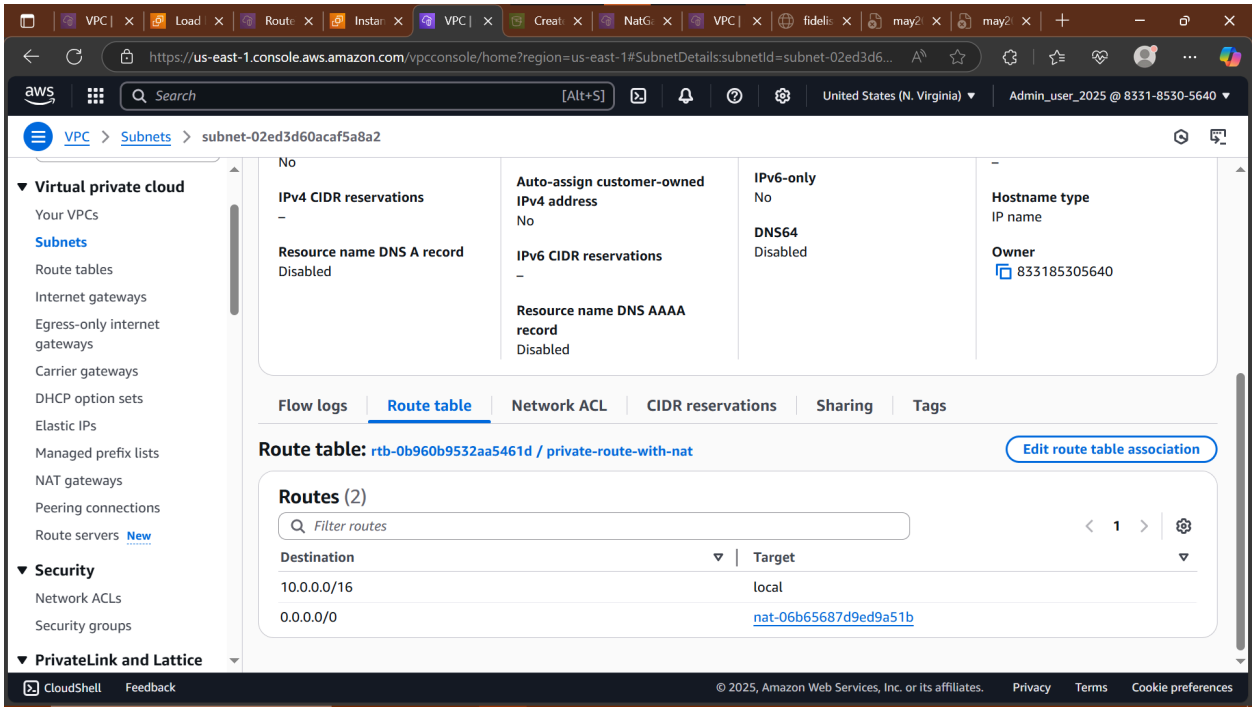
NAT gateway created on a public subnet with associated elastic IP



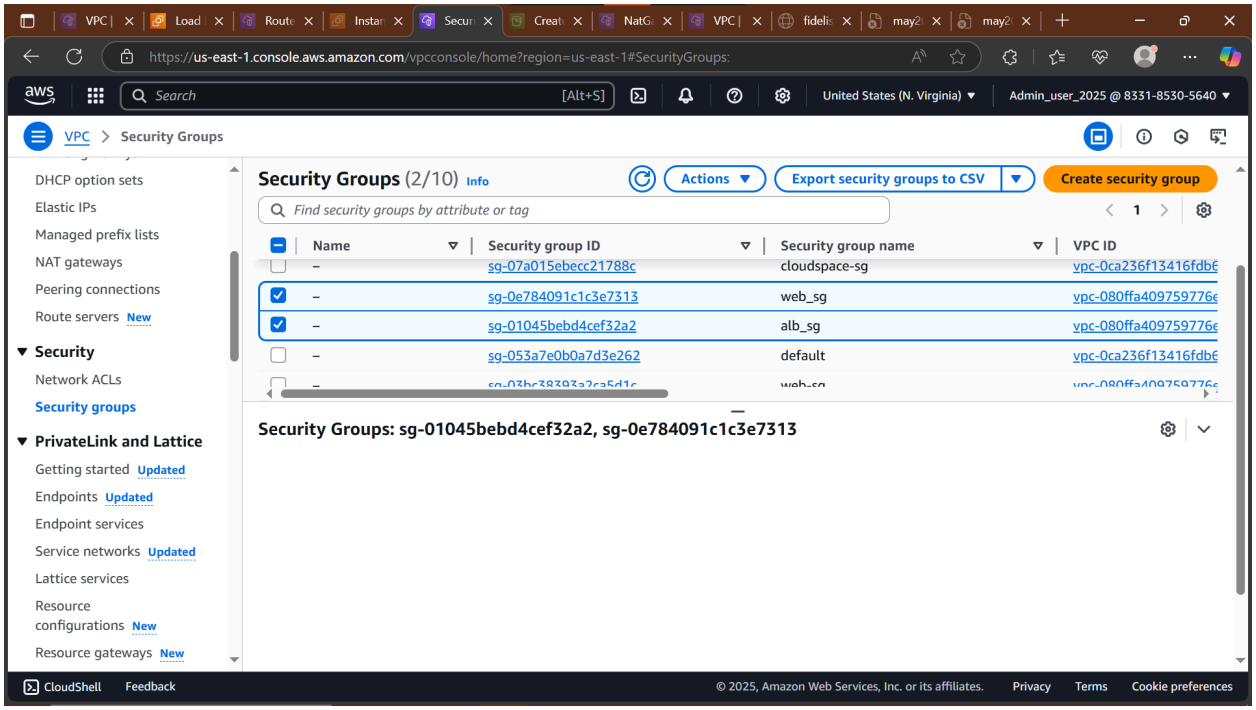
The NAT gateway associated with a route table



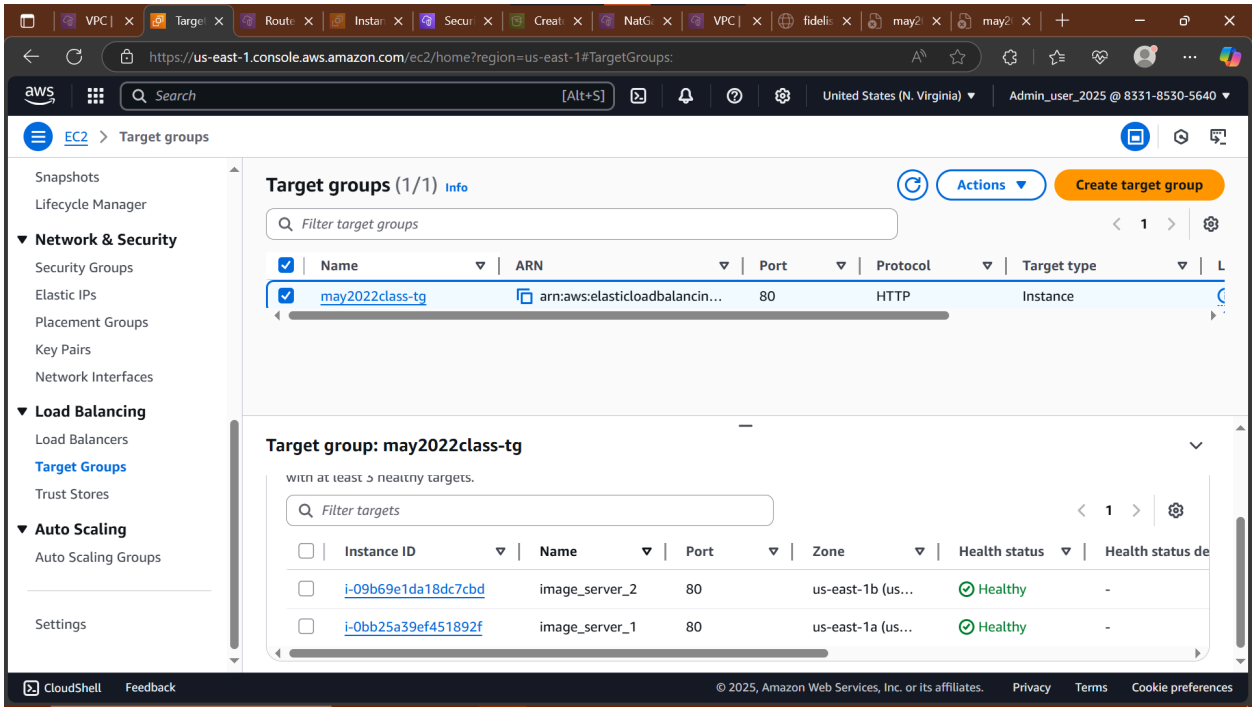
The route table associated with the private subnets



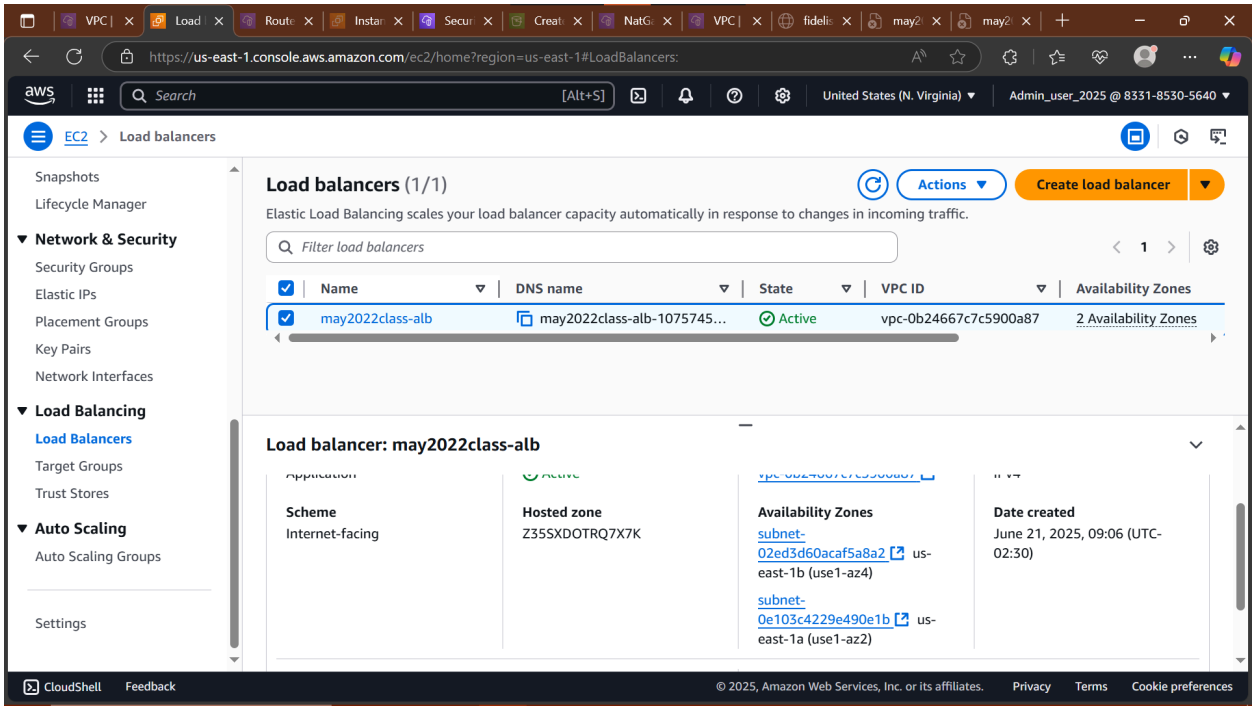
The private subnet attached to a NAT gateway



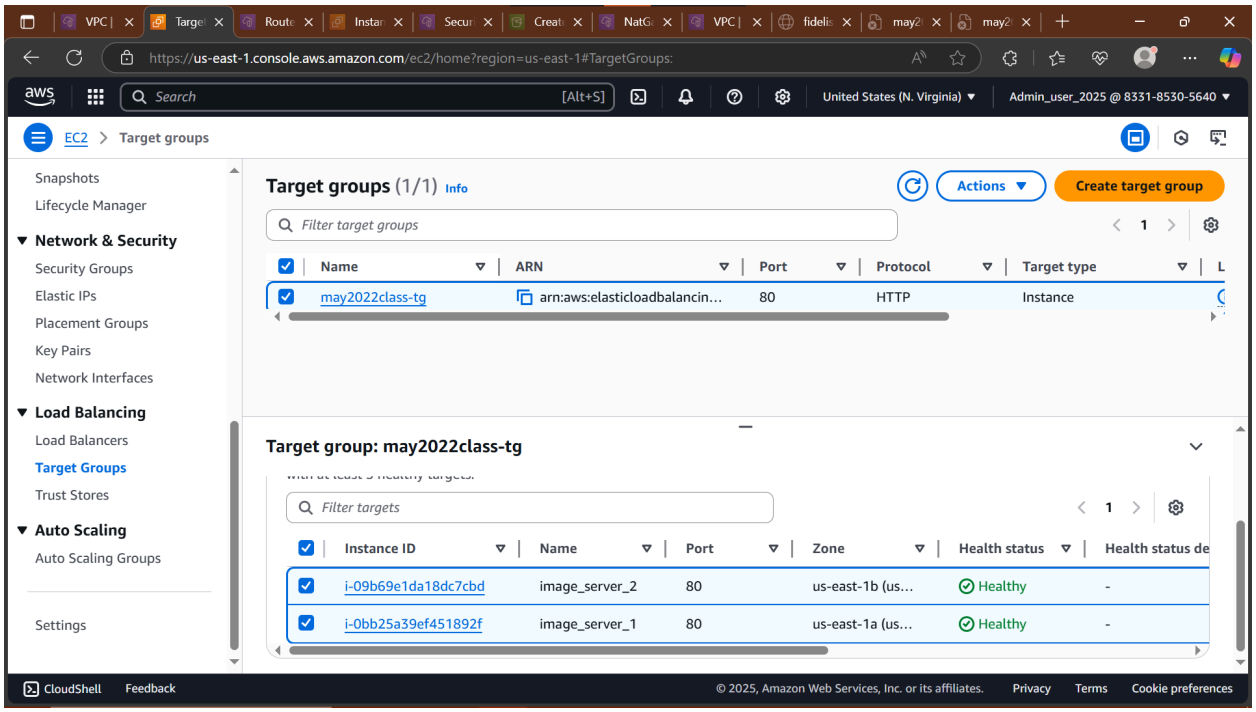
The two security groups of homework 1 in use



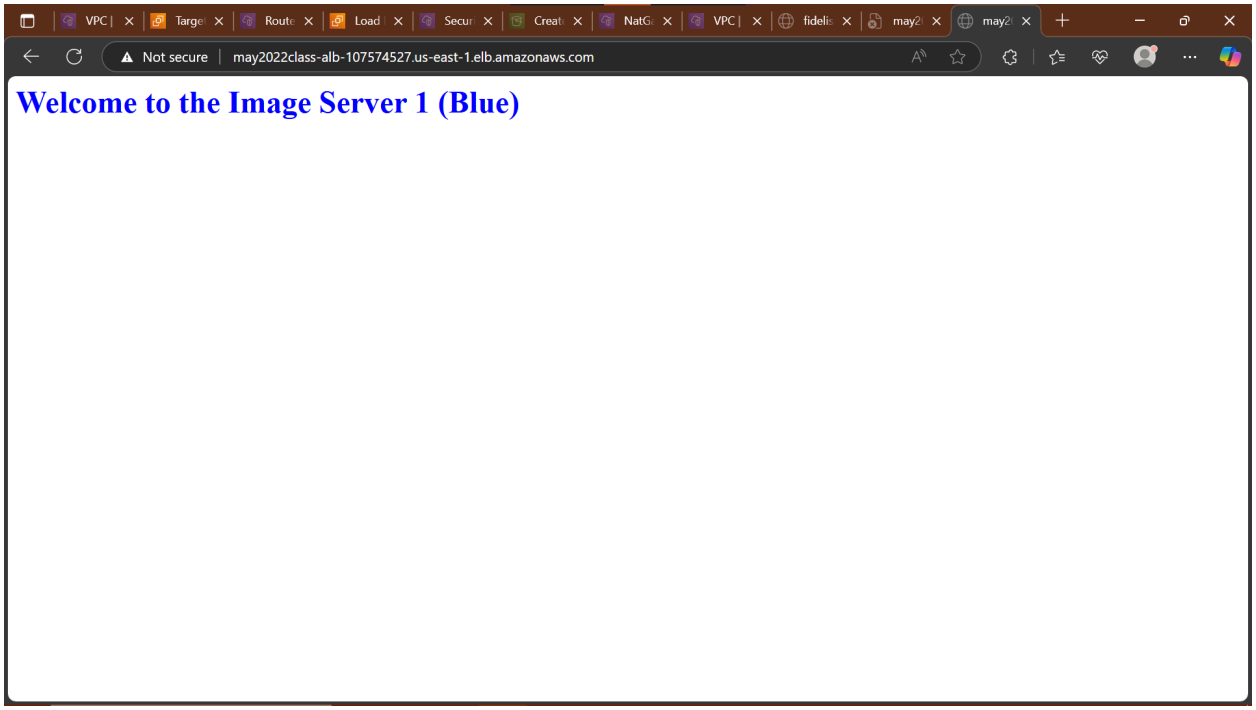
Target group



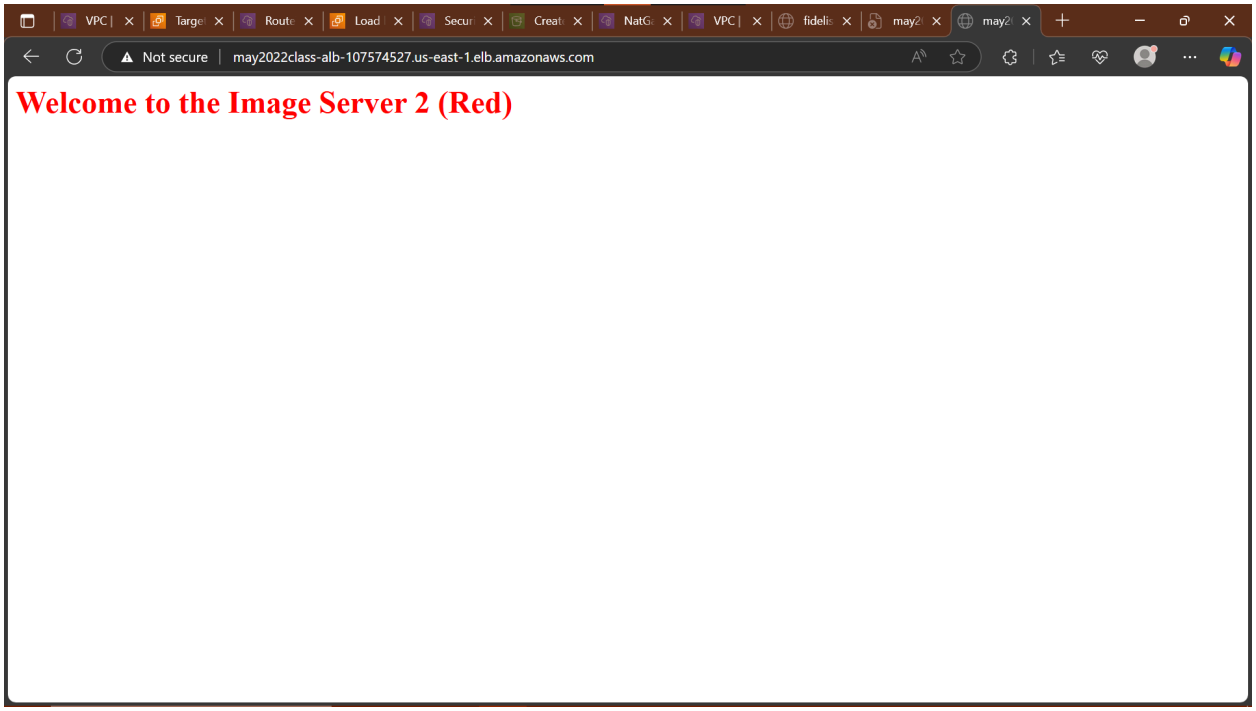
Load balancer showing the two subnets in different AZs (public and private subnets)



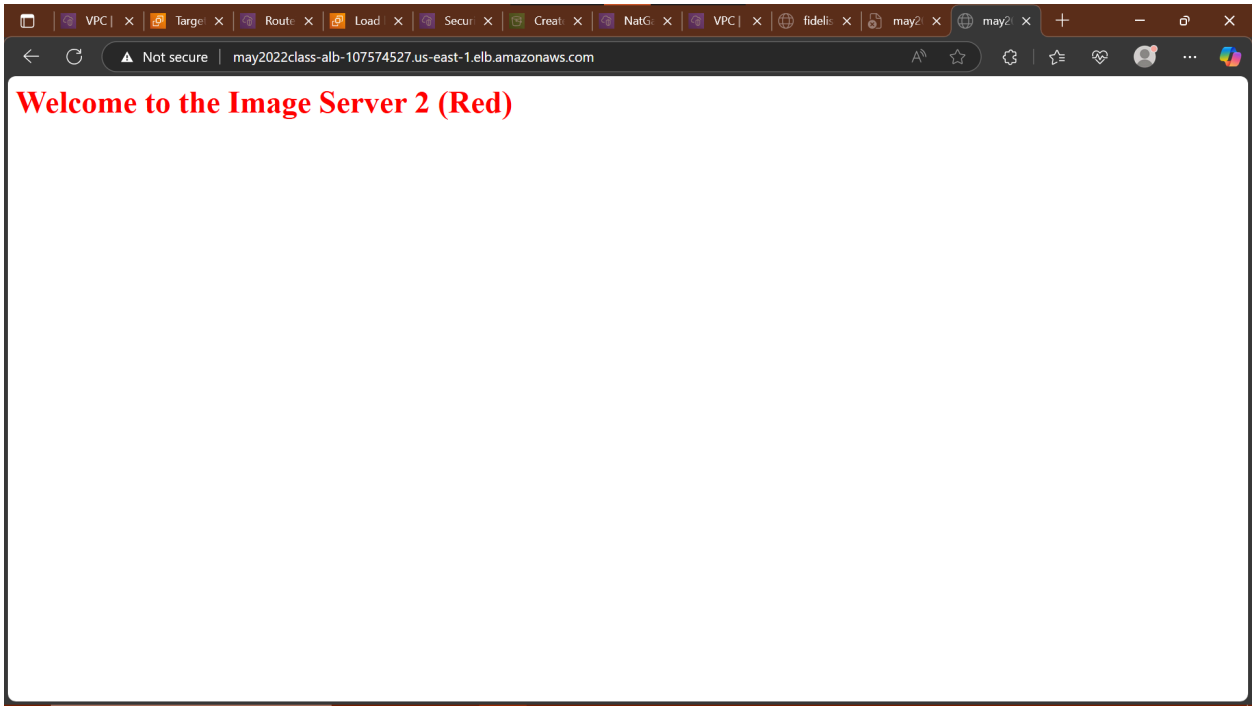
Healthy and working



Instance 1 working



Instance 2 working



Instance 1 stopped, only instance 2 working