

Program: B. Tech (CSE)

Specialization: AIML

Course Title: Cloud Computing

Name of student: Deeksha

Batch No : 09

ASSIGNMENT – 13(POST LAB)

Topic: Load Balancing & High Availability (ELB + Auto Scaling)

Scenario:

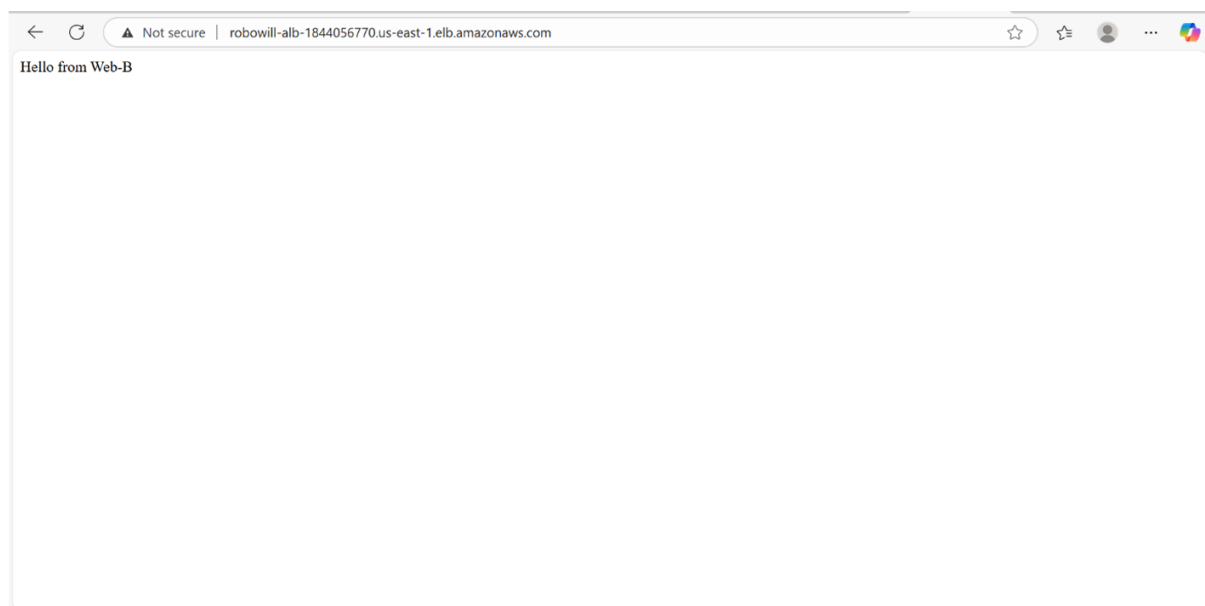
Your startup “RoboWill” has deployed a prototype e-commerce application on AWS using two EC2 web servers (web-a, web-b) running in different Availability Zones. To ensure high availability, you configured an Application Load Balancer (ALB) in front of them. During a customer demo, one of the servers crashed unexpectedly, but the application continued serving traffic.

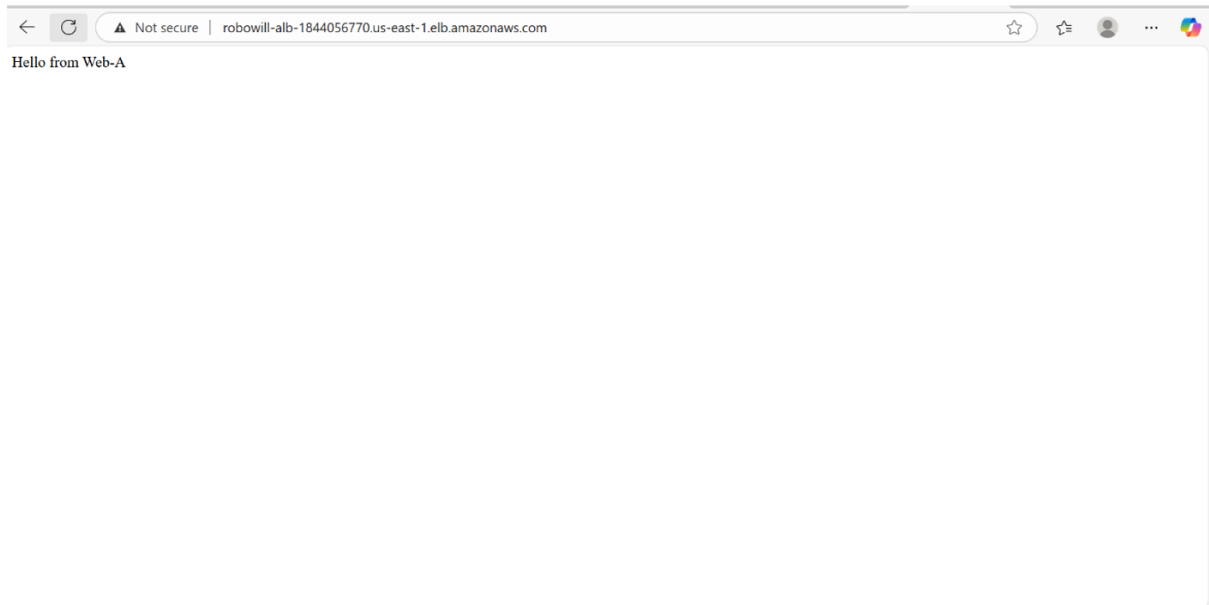
Task 1 – High Availability Test

Stop one of your web servers (web-a or web-b).

Refresh the ALB DNS name in your browser.

Capture a screenshot showing that the other server is still serving traffic.





Explain briefly how ALB rerouted requests automatically.

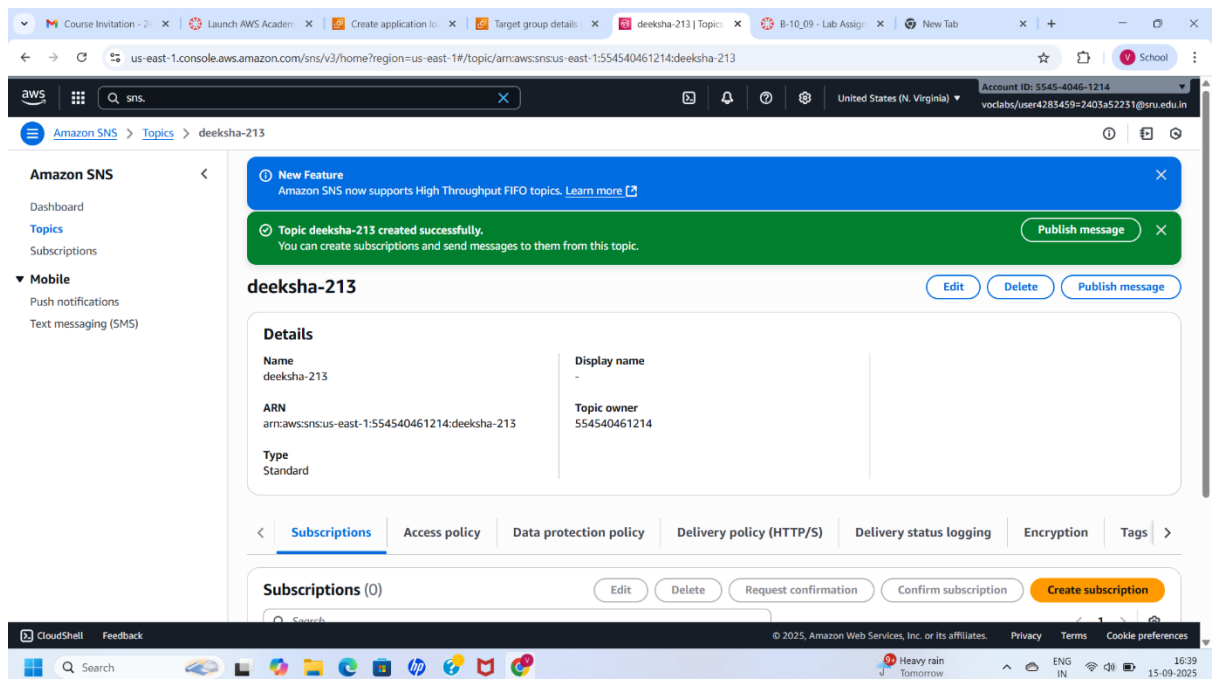
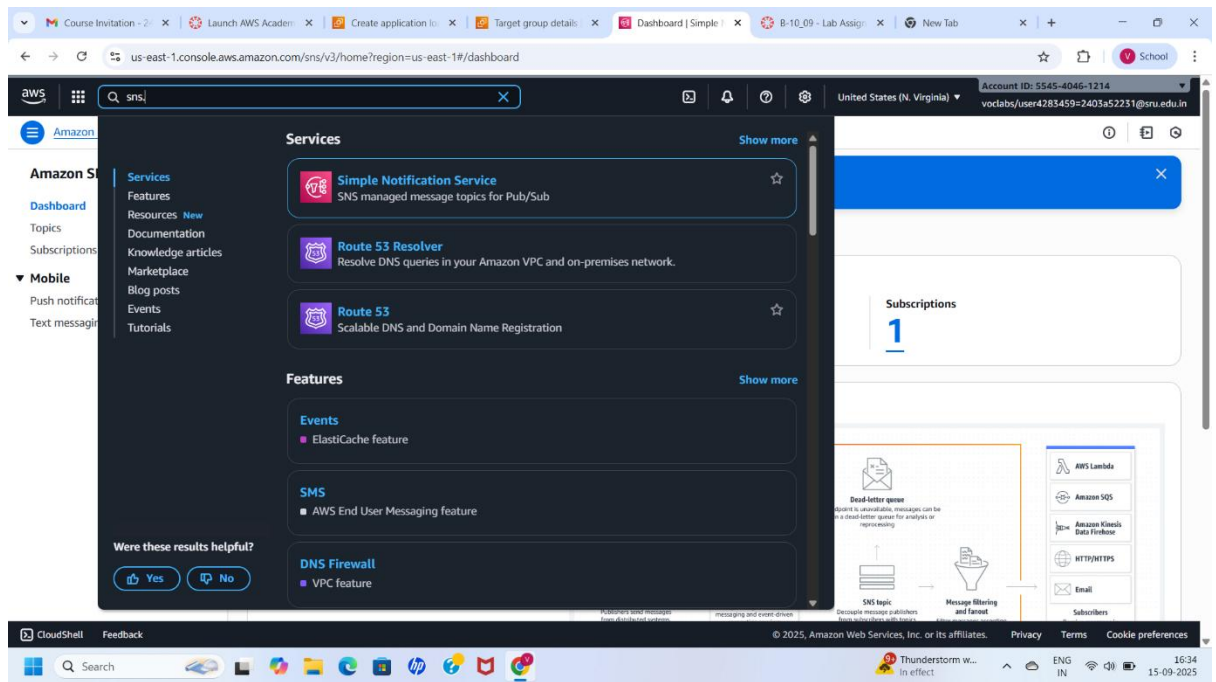
When one web server (say web-a) is stopped, the Application Load Balancer (ALB) automatically detects it as unhealthy through health checks. ALB then stops sending requests to the failed server and reroutes all incoming traffic to the healthy server (web-b).

This ensures continuous availability without manual intervention.

Task – 2:

Steps to Get Email Alert When web-a CPU > 50%

1. Create SNS Topic
 - o Go to SNS → Topics → Create Topic.
 - o Type: Standard.
 - o Name: robowill-alerts.
 - o Create.



2. Subscribe Your Email
 - o Inside topic, click Create Subscription.
 - o Protocol: Email.
 - o Endpoint: enter your email ID.
 - o Check inbox → Confirm Subscription (must click confirm).



Simple Notification Service

Subscription confirmed!

You have successfully subscribed.

Your subscription's id is:

arn:aws:sns:us-east-1:788647263734:robowill-alerts:d3d16382-bfd8-45e8-b193-cf847d59c4cf

If it was not your intention to subscribe, [click here to unsubscribe](#).

3. Create CloudWatch Alarm

- o Go to CloudWatch → Alarms → Create Alarm.
- o Choose metric: EC2 → Per-Instance Metrics → web-a →
- o CPUUtilization.
- o Condition:
 - ♣ Greater than or equal to 50%
 - ♣ For 2 consecutive periods of 1 minute.
- o Actions: Send notification to SNS → robowill-alerts.
- o Create alarm.

The screenshot shows the AWS CloudWatch Alarms console. A green banner at the top indicates "Successfully created alarm CPU morethan 50 percentage." with a "View alarm" button. Below the banner, the "Alarms (0)" section is visible, showing a table with columns for Name, State, Last state update (UTC), Conditions, and Actions. The table is currently empty, displaying "No alarms" and "No alarms to display". A "Create alarm" button is visible at the bottom of the table. The left sidebar contains navigation links for CloudWatch, Favorites and recents, Dashboards, AI Operations, Alarms, In alarm, All alarms, Billing, Logs, Metrics, Application Signals (APM), Network Monitoring, and Insights. The footer shows "CloudShell", "Feedback", and copyright information for Amazon Web Services, Inc. or its affiliates, along with links for Privacy, Terms, and Cookie preferences.

```
Need to get 18.1 kB of archives.  
After this operation, 52.2 kB of additional disk space will be used.  
get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 stress amd64 1.0.7-1 [18.1 kB]  
Fetched 18.1 kB in 0s (618 kB/s)  
Selecting previously unselected package stress.  
(Reading database ... 72441 files and directories currently installed.)  
Preparing to unpack ../stress_1.0.7-1_amd64.deb ...  
Unpacking stress (1.0.7-1) ...  
Setting up stress (1.0.7-1) ...  
Processing triggers for man-db (2.12.0-4build2) ...  
Scanning processes...  
Scanning linux images...  
  
Running kernel seems to be up-to-date.  
  
No services need to be restarted.  
  
No containers need to be restarted.  
  
No user sessions are running outdated binaries.  
  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
ubuntu@ip-152-0-1-112:~$ stress --cpu 2 --timeout 120  
stress: info: [3609] dispatching hogs: 2 cpu, 0 io, 0 vm, 0 hdd
```

i-071f481cef615f25e (web-a and web-b)

PublicIPs: 34.204.53.20 PrivateIPs: 152.0.1.112

- o Run stress to push CPU > 50%:
- o stress --cpu 2 --timeout 120
- o Wait ~2–3 mins → CloudWatch alarm will go to ALARM state.
- o You'll receive an email alert from SNS.