**Roll No:** 20BCE204
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Course: Cloud Computing
Practical No: 7

Aim: Working with an IaaS Cloud Computing: Using AWS (Amazon Web Services) to understating the following concept.Auto-scaling in amazon

Auto Scaling helps you maintain application availability and allows you to scale your Amazon EC2 capacity out or in automatically according to conditions you define. Auto Scaling can also automatically increase the number of Amazon EC2 instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs. Auto Scaling is well suited to applications that have stable demand patterns or that experience hourly, daily, or weekly variability in usage.
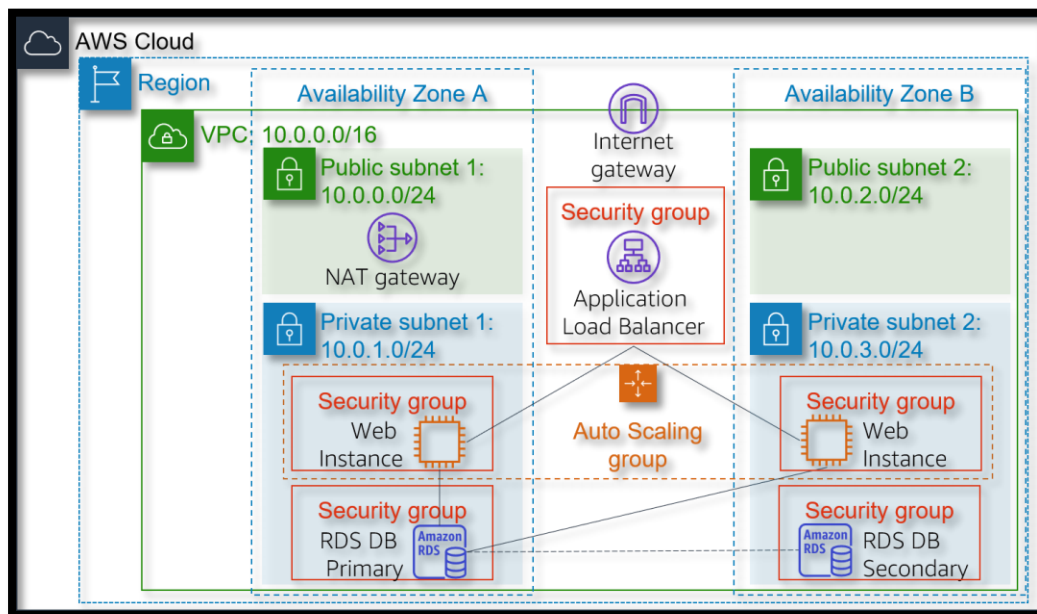
Task 1: Create a Launch Configuration and an Auto Scaling Group

1. In the left navigation pane, click Launch Configurations.

2. Click Create launch configuration

3. Configure these settings:
   - Launch configuration name: LabConfig
   - Amazon Machine Image (AMI) Choose *Web Server AMI*

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.

Launch template name and description

Launch template name - *required*

mytemplate

Must be unique to this account. Max 128 chars. No spaces or special characters like '&', '*', '@'.

Template version description

A prod webserver for MyApp

Max 255 chars

Auto Scaling guidance **Info**
Select this if you intend to use this template with EC2 Auto Scaling

☑ Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

- Instance type: Select *t3.micro*
- Choose Select an existing security group

4. Under Key pair configure:
   - Key pair options: *Choose an existing key pair*
   - Existing key pair: vockey

▼ Instance type Info

Advanced

Instance type

 All generations

```
t2.micro                                    Free tier eligible
Family: t2    1 vCPU    1 GiB Memory
On-Demand Windows pricing: 0.0162 USD per Hour
On-Demand SUSE pricing: 0.0116 USD per Hour           ▼
On-Demand RHEL pricing: 0.0716 USD per Hour
On-Demand Linux pricing: 0.0116 USD per Hour
```

Compare instance types

▼ 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

```
vockey                                      ▼
```

⟳ 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 groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

● Select existing security group   ○ Create security group

Security groups Info

```
Select security groups                     ▼
```

```
Web Security Group   sg-0fc56e4d561470ef2   ✕
VPC: vpc-0c38fe58f6d15ea6e
```

⟳ Compare security group rules

▶ **Advanced network configuration**

- Select I acknowledge...
- Click Create launch configuration

You will now create an Auto Scaling group that uses this Launch Configuration.

5. Select the checkbox for the *LabConfig* Launch Configuration.
6. From the Actions menu, choose *Create Auto Scaling group*
7. Enter Auto Scaling group name:
   - Name: Lab Auto Scaling Group
8. Choose Next
9. On the Network page configure

Network: *Lab VPC*

Choose instance launch options Info

Choose the VPC network environment that your instances are launched into, and customize the instance types and purchase options.

Network Info

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-0b53808eb23040f52
172.31.0.0/16   Default

Create a VPC

▼ Application and OS Images (Amazon Machine Image) - required Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

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

Recents   **Quick Start**

🔘 Currently in use

🔍
Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

amzn2-ami-hvm-2.0.20230404.1-x86_64-gp2
ami-05f408238af346b4f
2023-04-11T07:52:19.000Z   architecture: 64-bit (x86)   Virtualization: hvm   ENA enabled: true
Root device type: ebs

▼

Description

Amazon Linux 2 AMI 2.0.20230404.1 x86_64 HVM gp2

Architecture   AMI ID

x86_64   ami-05f408238af346b4f   **Verified provider**

Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets ▼   C

us-east-1a | subnet-0aba284e8cb7239ef ✕
172.31.0.0/20   Default

us-east-1b | subnet-0ee74ed220509b420 ✕
172.31.80.0/20   Default

us-east-1c | subnet-018e7d63786eb459e ✕
172.31.16.0/20   Default

us-east-1d | subnet-0fa37a0c33b896943 ✕
172.31.32.0/20   Default

us-east-1e | subnet-05249d9b43c943c91 ✕
172.31.48.0/20   Default

us-east-1f | subnet-0345eef417871de4d ✕
172.31.64.0/20   Default

Create a subnet ☑

10.   Choose Next
11.   In the Load balancing - *optional* pane, choose Attach to an existing load balancer
12.   In the Attach to an existing load balancer pane, use the dropdown list to select *LabGroup*.

Configure advanced options - *optional* Info

Integrate your Auto Scaling group with other services to distribute network traffic across multiple servers using a load balancer or to establish service-to-service communications using VPC Lattice. You can also set options that give you more control over 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. [↗]

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.

autoscale-1

Load balancer scheme
Scheme cannot be changed after the load balancer is created.

○ Internal

● Internet-facing

13.   Choose Next

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	Port	Default routing (forward to)
HTTP	80	Create a target group ▾

New target group name
An instance target group with default settings will be created.

autoscale-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

14. Under Group size, configure:
   o Desired capacity: 2
   o Minimum capacity: 2
   o Maximum capacity: 4

Configure group size and scaling policies - *optional* Info

Set the desired, minimum, and maximum capacity of your Auto Scaling group. You can optionally add a scaling policy to dynamically scale the number of instances in the group.

Group size - *optional* Info

Specify the size of the Auto Scaling group by changing the desired capacity. You can also specify minimum and maximum capacity limits. Your desired capacity must be within the limit range.
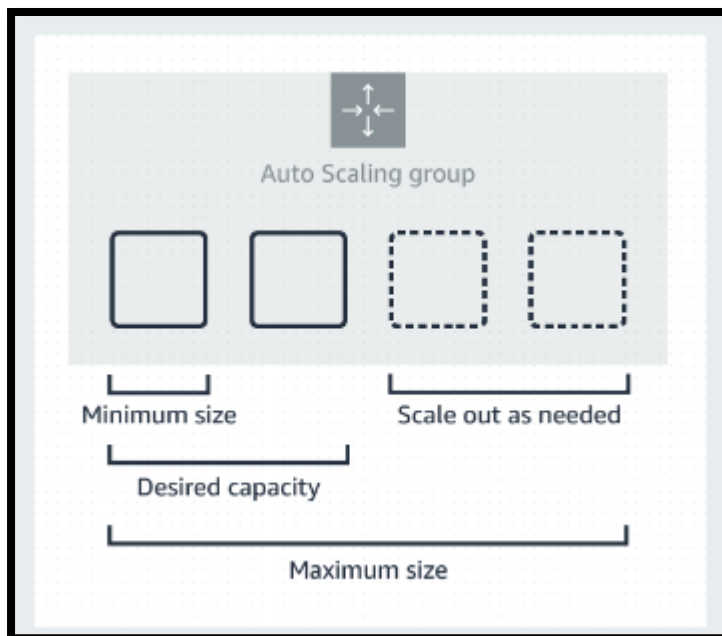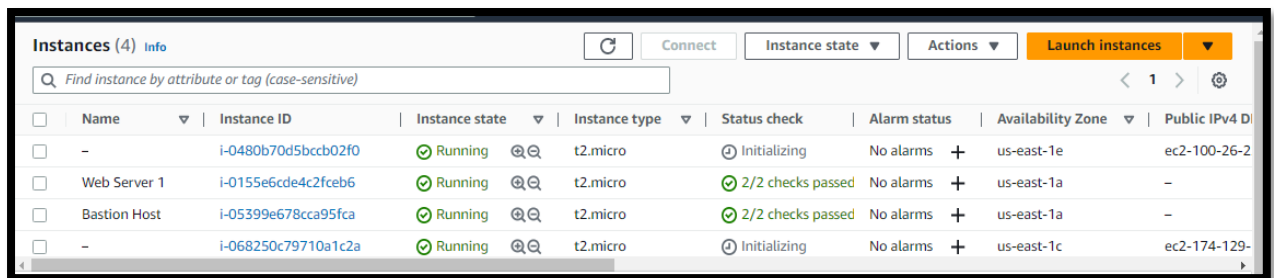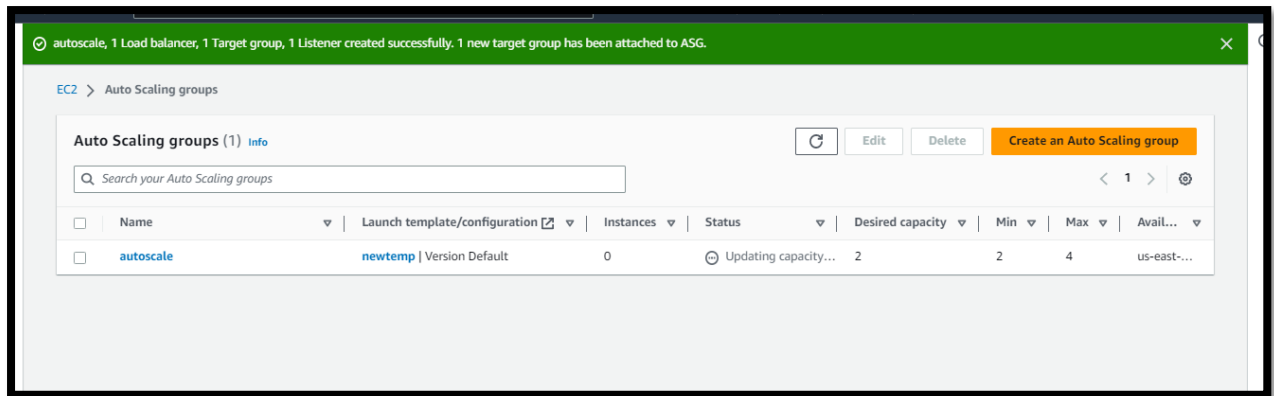
Desired capacity
2

Minimum capacity
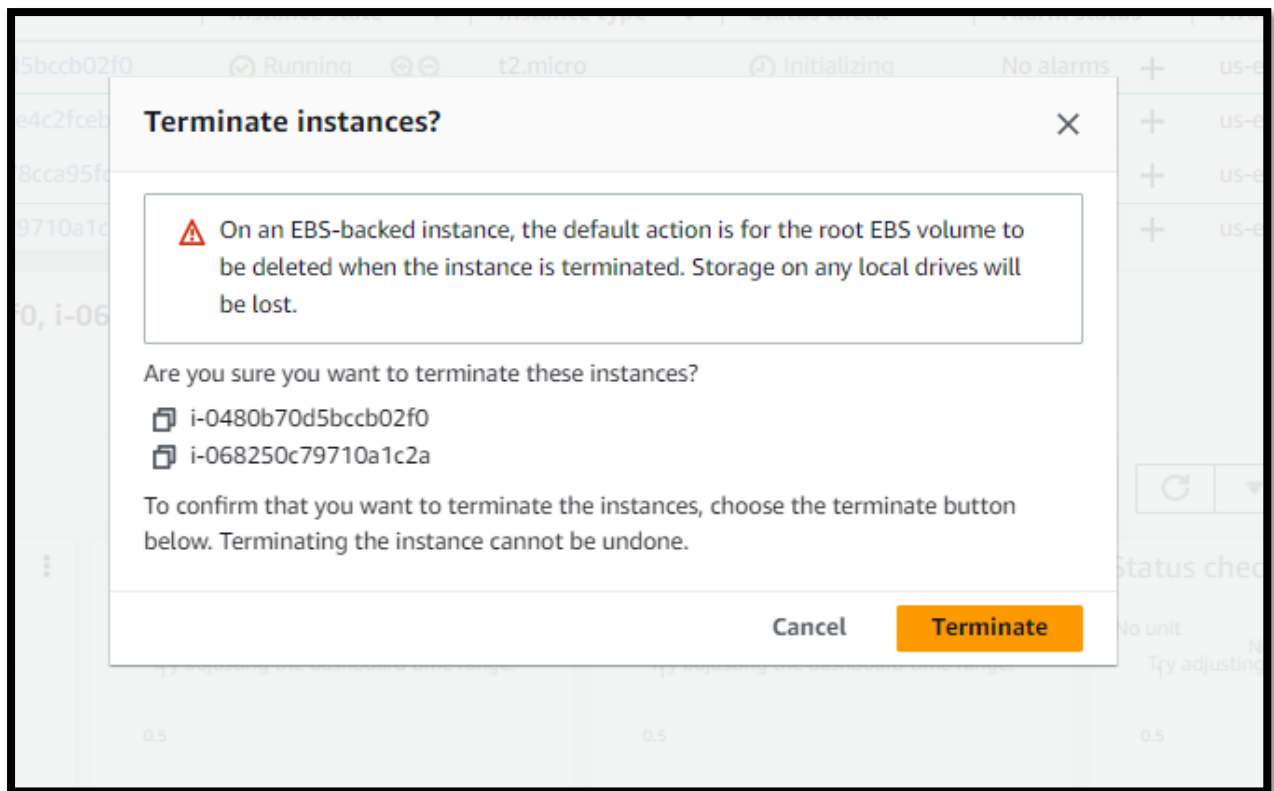2

Maximum capacity
4 ↕

15. Choose Next

Your Auto Scaling group will initially show an instance count of zero, but new instances will be launched to reach the Desired count of 2 instances.
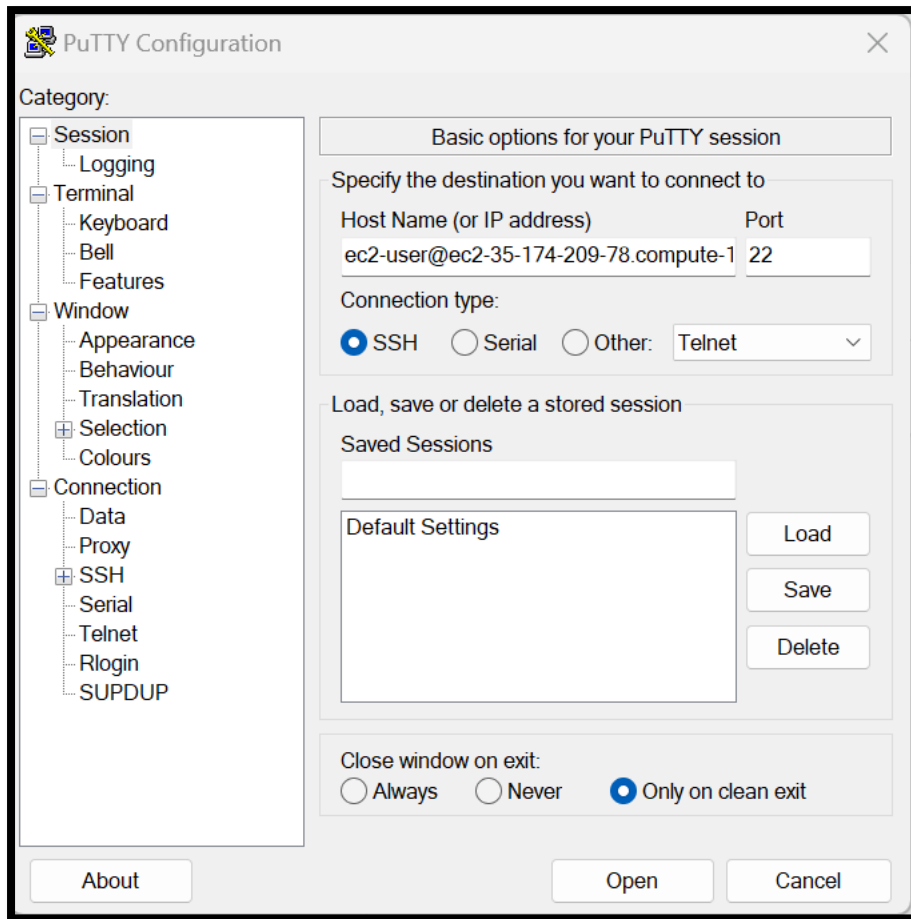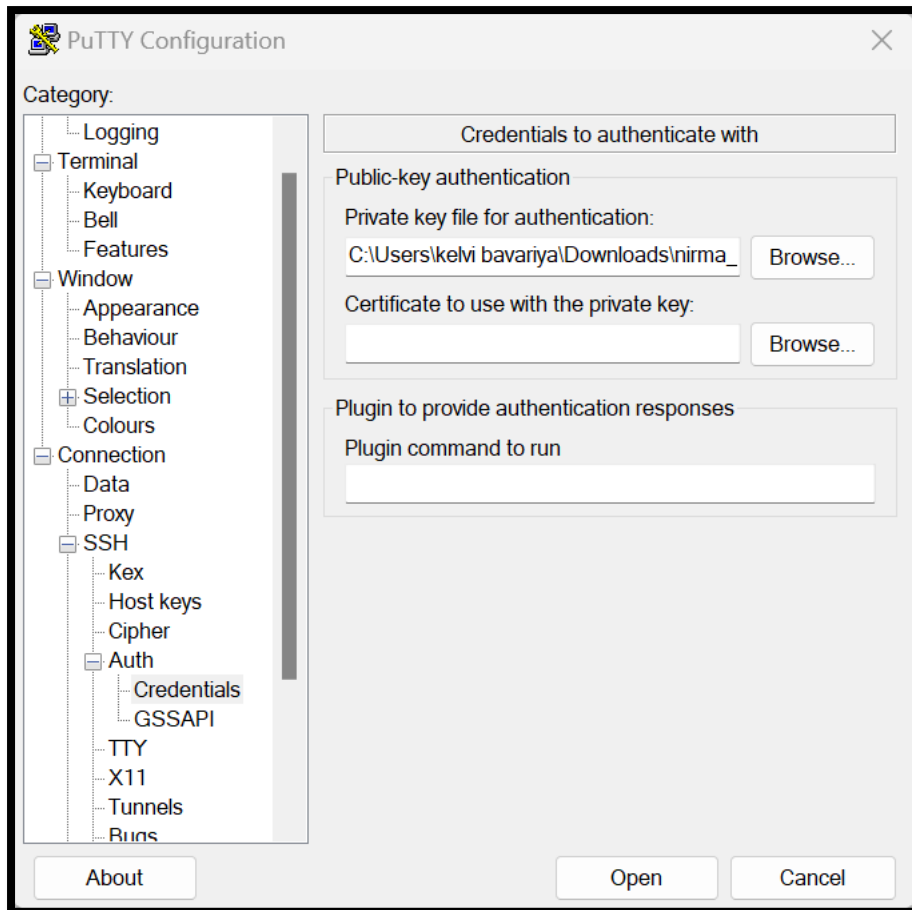
Task 2: Test Auto Scaling

1. Terminating the running instances will create 2 more new intstances by autoscaling features.

2. Also we can check whether the newly created instances properly work or not .
3. For that we will remotely access the website using those newly created instances.

PuTTY Configuration

Category:

- Session
  - Logging
- Terminal
  - Keyboard
  - Bell
  - Features
- Window
  - Appearance
  - Behaviour
  - Translation
  - Selection
  - Colours
- Connection
  - Data
  - Proxy
  - SSH
  - Serial
  - Telnet
  - Rlogin
  - SUPDUP

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address)   Port

ec2-user@ec2-35-174-209-78.compute-1   22

Connection type:

◉ SSH   ○ Serial   ○ Other: Telnet ▾

Load, save or delete a stored session

Saved Sessions

Default Settings   Load

                                              Save

                                              Delete

Close window on exit:
○ Always   ○ Never   ◉ Only on clean exit

About   Open   Cancel

4. Performing same steps as in aws (same commands).

5. Finally website is hosted using putty software on remote dekstop.
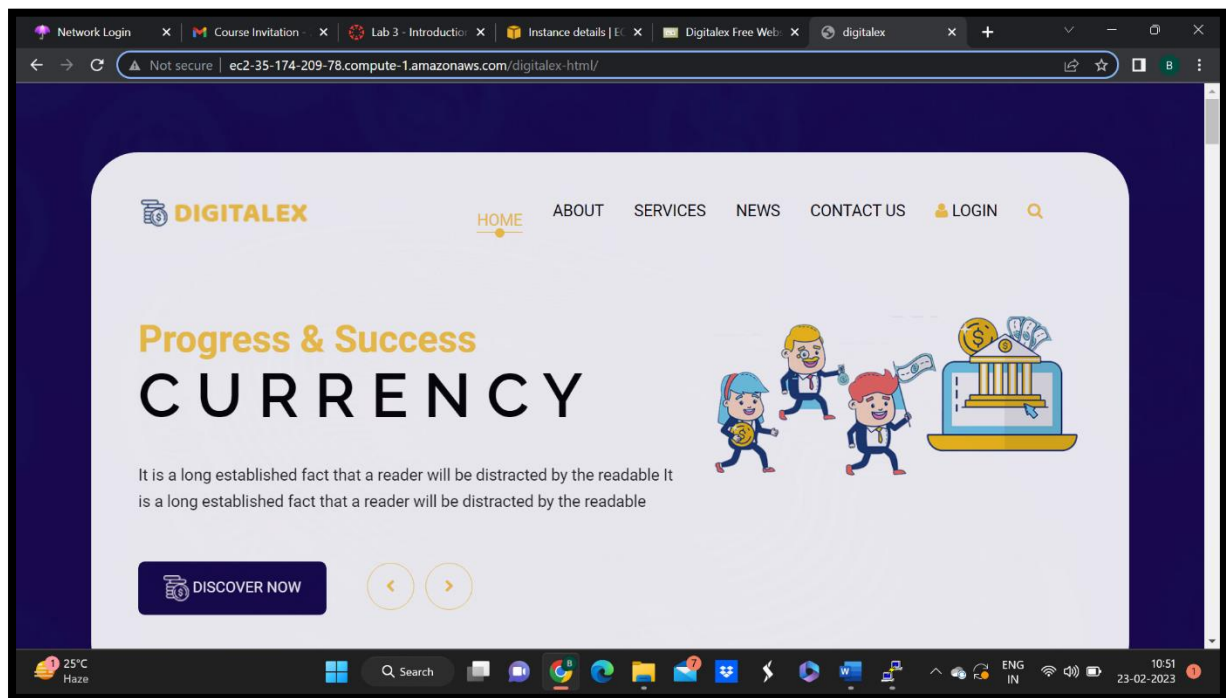
CONCLUSION :-

- AWS Auto Scaling continually monitors your applications to make sure that they are operating at your desired performance levels.
- .When demand spikes, AWS Auto Scaling automatically increases the capacity of constrained resources so you maintain a high quality of service.
- We have learnt how to auto scale the instances for balancing the traffic.
- Also we have verife it by remotely accessing the website.