ACF Lab 6:
Scale and Load Balance your Architecture

COS 20019- Cloud Computing Architecture

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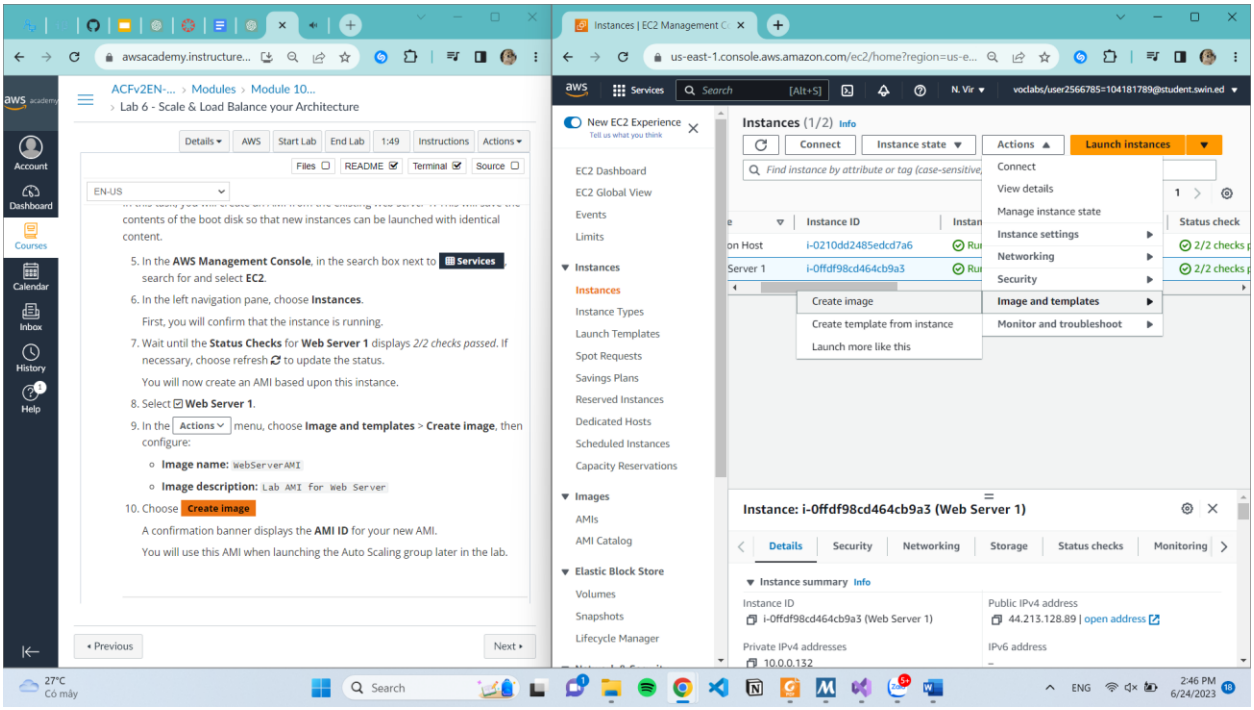
24/6/2023

This is all my step to finish ACF Lab 6, with requirements beside the screenshotted.

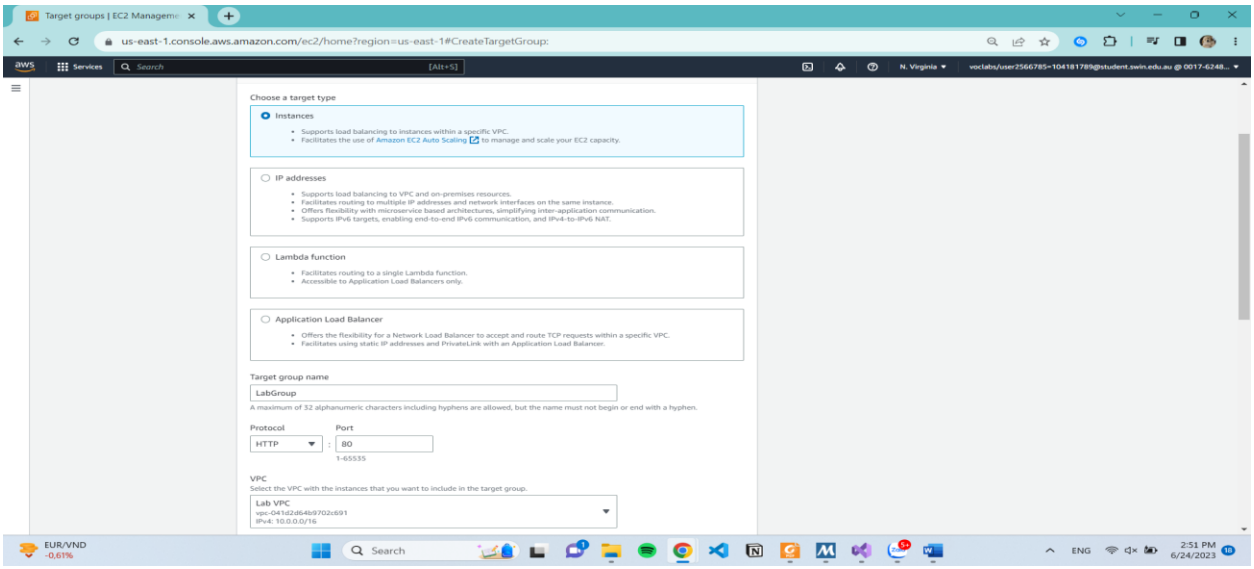
Task 1: Create an AMI for Auto Scaling

- Select **Web Server 1.**
- In the Actions menu, choose **Image and templates > Create image**, then configure:
  - **Image name**: WebServerAMI
  - **Image description**: Lab AMI for Web Server
- Choose **Create image**



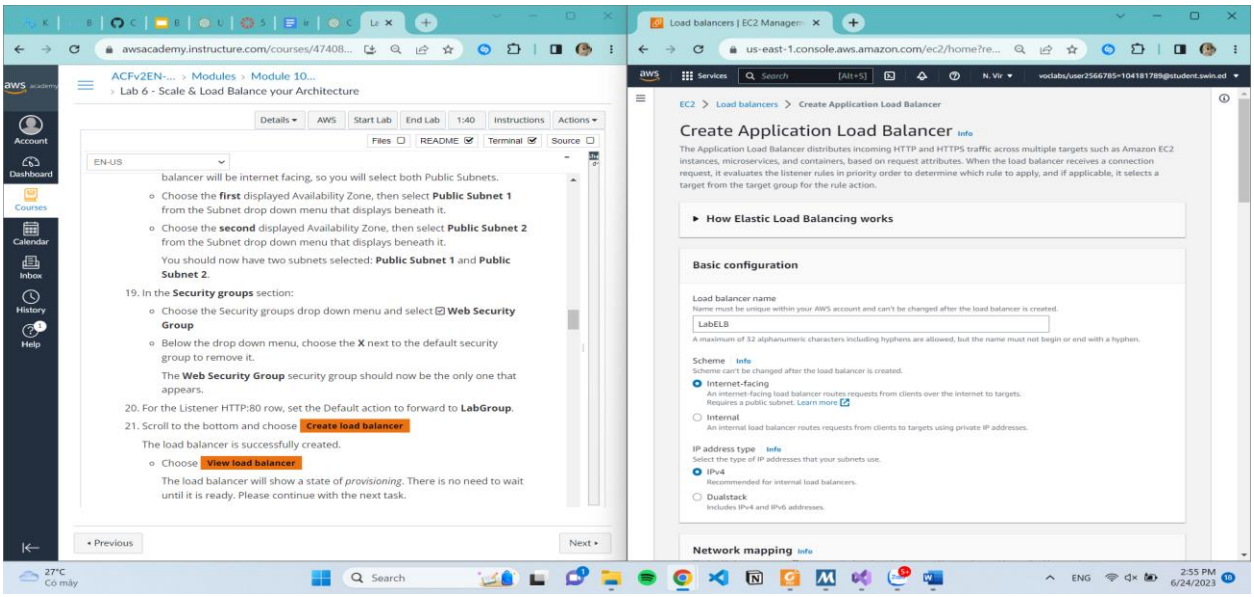
Task 2 : Create a Load Balancer

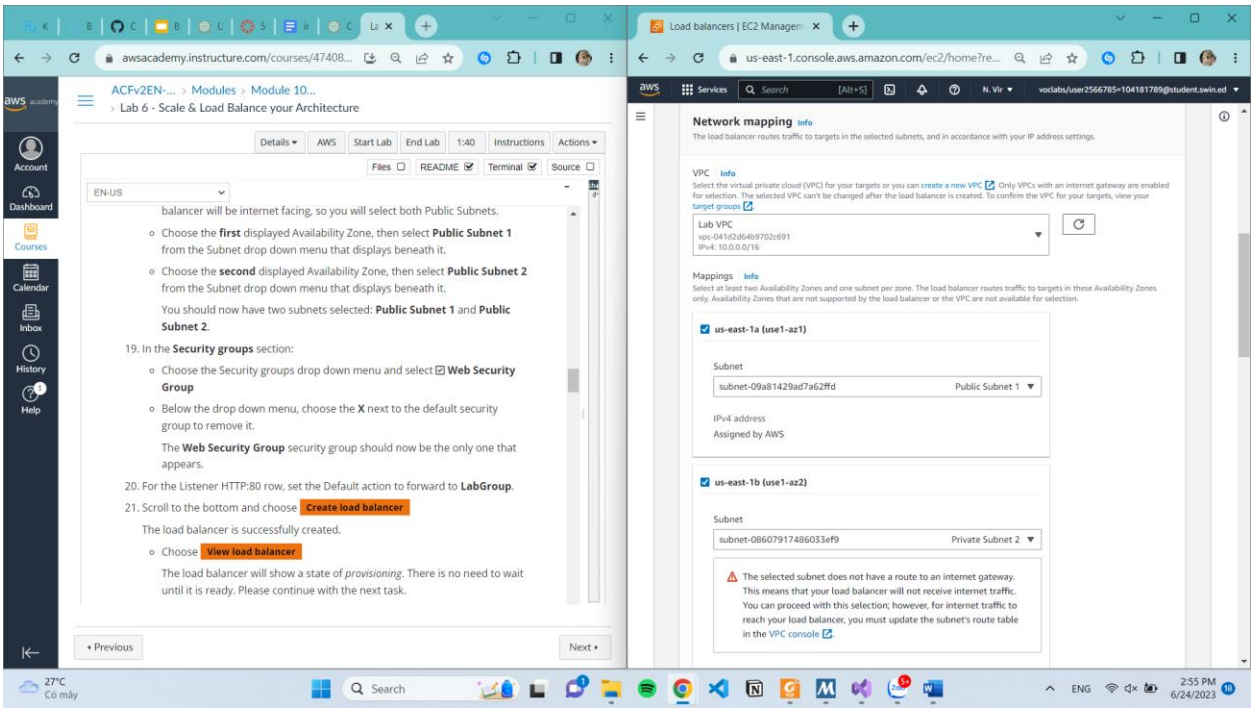
- Choose **Create target group**
- Choose a target type: **Instances**
- **Target group name**, enter: LabGroup



Create load balancer

- **Load balancer name**, enter: LabELB
- For **VPC**, choose **Lab VPC**
- Choose the **first** displayed Availability Zone, then select **Public Subnet 1**
- Choose the **second** displayed Availability Zone, then select **Public Subnet** 2




awsacademy.instructure.com/courses/47408...
ACFv2EN-... › Modules › Module 10...
Lab 6 - Scale & Load Balance your Architecture
balancer will be internet facing, so you will select both Public Subnets.
Choose the first displayed Availability Zone, then select Public Subnet 1 from the Subnet drop down menu that displays beneath it.
Choose the second displayed Availability Zone, then select Public Subnet 2 from the Subnet drop down menu that displays beneath it.
You should now have two subnets selected: Public Subnet 1 and Public Subnet 2.
19. In the Security groups section:
Choose the Security groups drop down menu and select Web Security Group
Below the drop down menu, choose the X next to the default security group to remove it.
The Web Security Group security group should now be the only one that appears.
20. For the Listener HTTP:80 row, set the Default action to forward to LabGroup.
21. Scroll to the bottom and choose Create load balancer
The load balancer is successfully created.
Choose View load balancer
The load balancer will show a state of provisioning. There is no need to wait until it is ready. Please continue with the next task.
Previous
Next
Load balancers | EC2 Managem
us-east-1.console.aws.amazon.com/ec2/home?re...
Network mapping Info
VPC Info
Lab VPC
Mappings Info
us-east-1a (use1-az1)
Subnet
subnet-09a81429ad7a62ffd
Public Subnet 1
IPv4 address
Assigned by AWS
us-east-1b (use1-az2)
subnet-08607917486033ef9
Private Subnet 2
The selected subnet does not have a route to an internet gateway. This means that your load balancer will not receive internet traffic. You can proceed with this selection; however, for internet traffic to reach your load balancer, you must update the subnet's route table in the VPC console.

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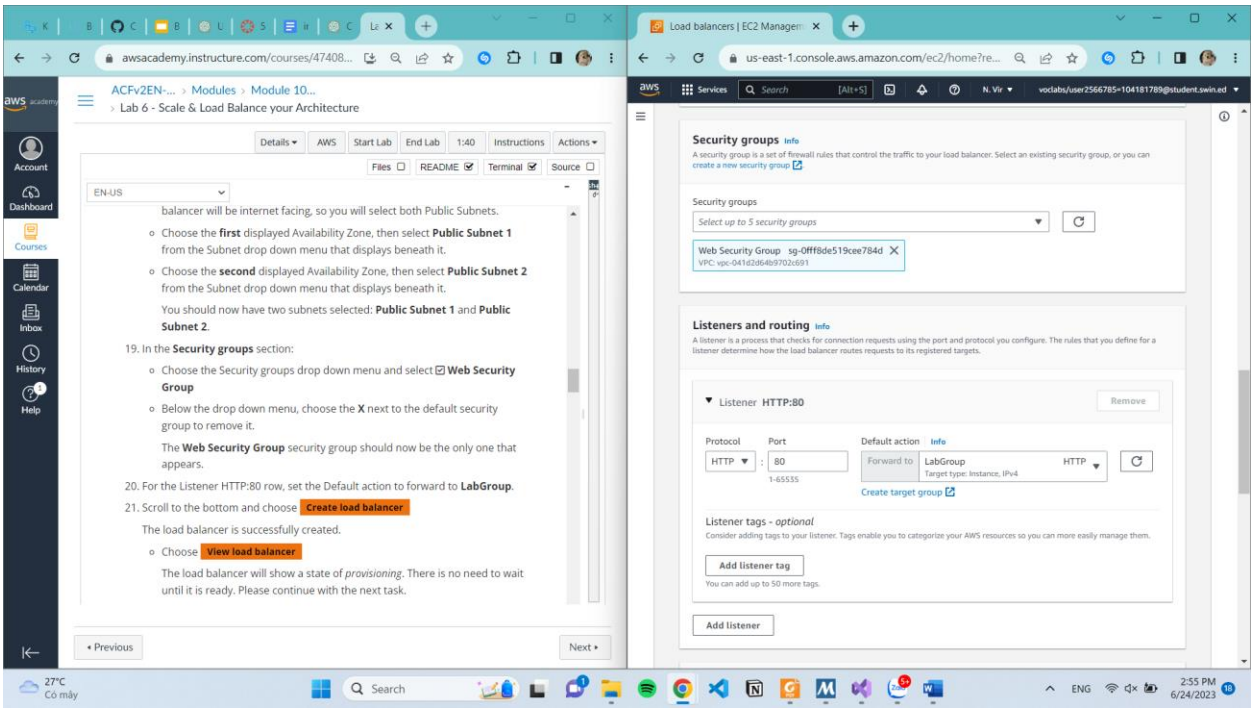
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Previous
Next
Load balancers | EC2 Managem
us-east-1.console.aws.amazon.com/ec2/home?re...
Security groups Info
Security groups
Select up to 5 security groups
Web Security Group sg-0fff8de519cee784d
Listeners and routing Info
Listener HTTP:80
Remove
Protocol
Port
Default action Info
HTTP
80
Forward to
LabGroup
Target type: Instance, IPv4
Create target group
Listener tags - optional
Add listener tag
Add listener

Task 3: Create a Launch Template and an Auto Scaling Group

Launch template name: LabConfig

Under **Auto Scaling guidance,** select *Provide guidance to help me set up a template that I can use with EC2 Auto Scaling*

Amazon Machine Image (AMI): choose Web Server AMI

Instance type: choose t2.micro

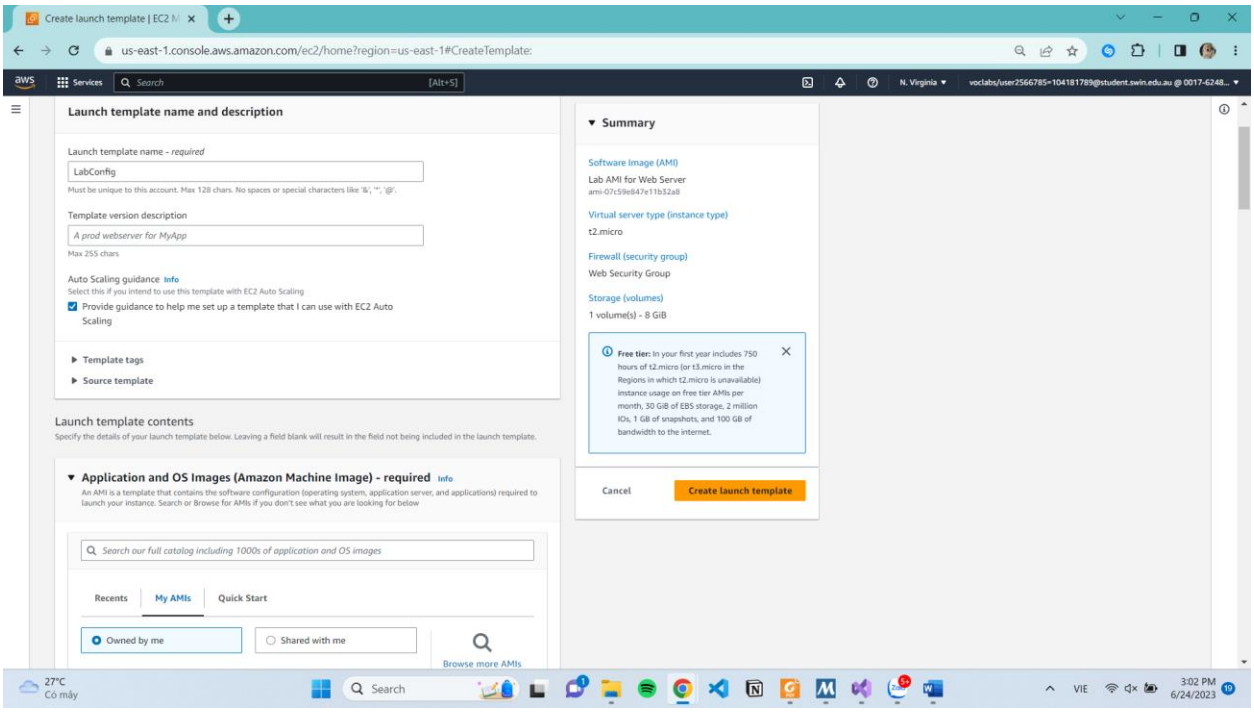
Key pair name: choose vockey

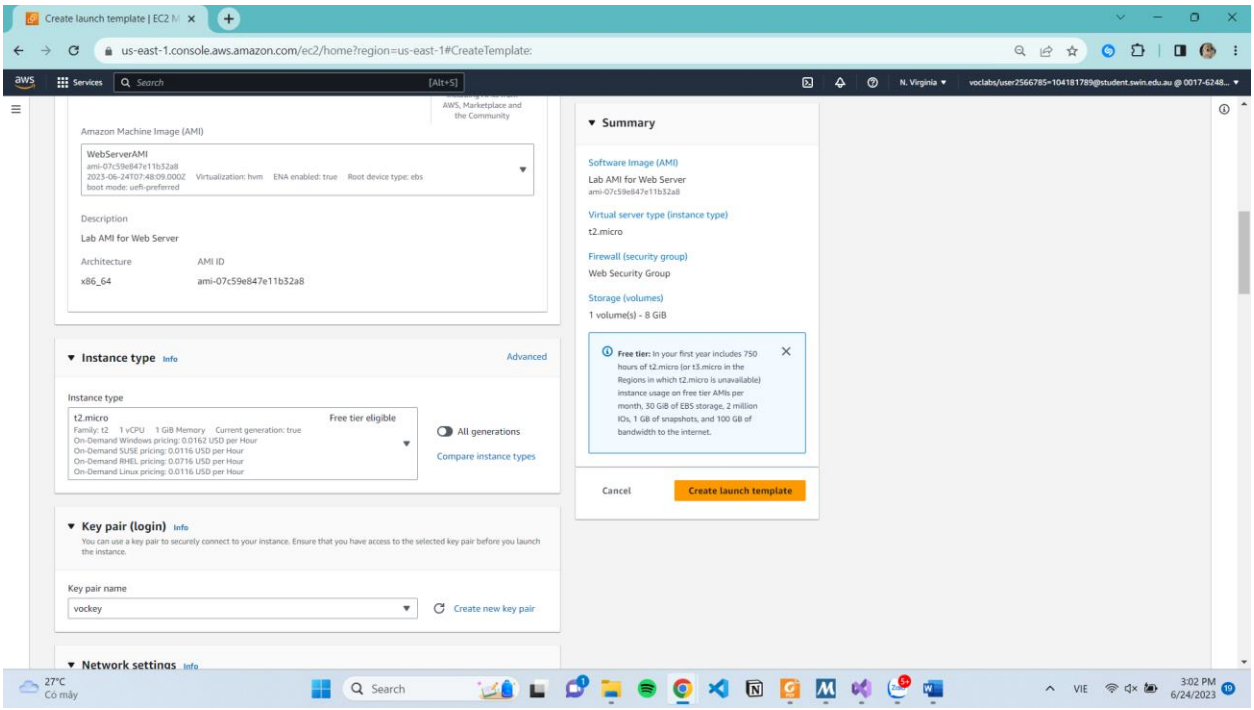
Firewall (security groups): choose Select existing security group

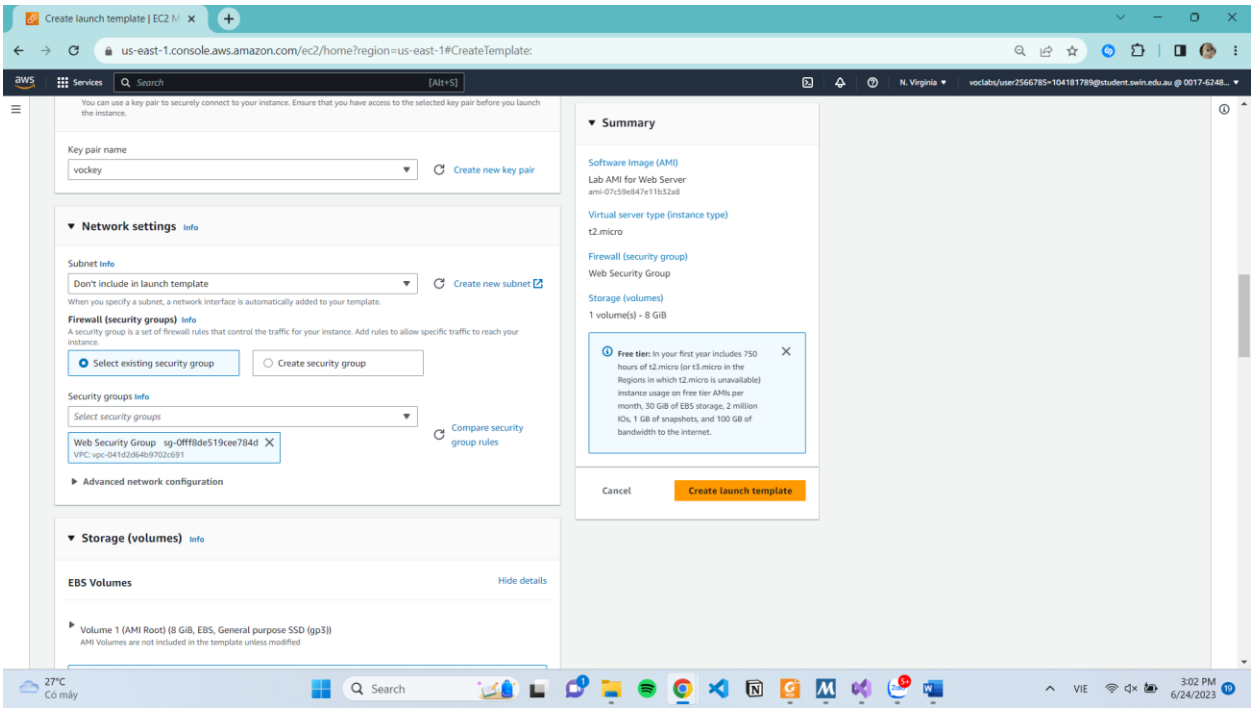
Security groups: choose Web Security Group

Scroll down to the **Advanced details** area and expand it.

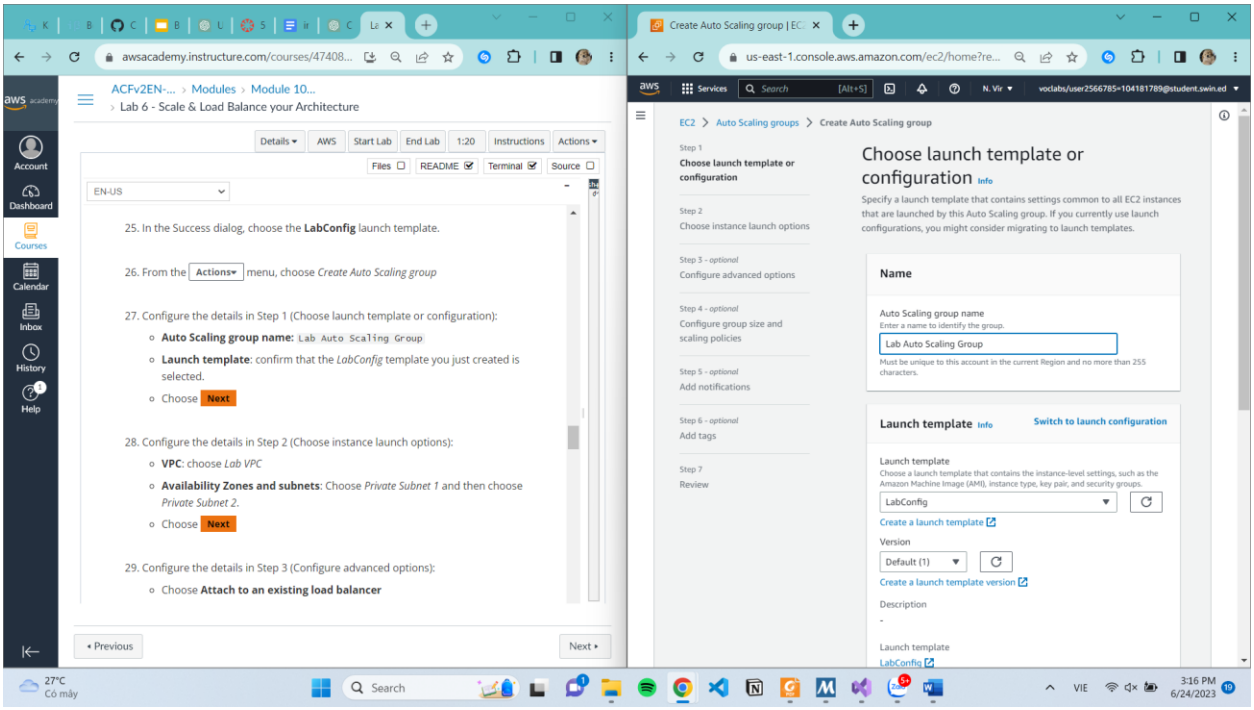
Scroll down to **the Detailed CloudWatch monitorin**g setting. Select **Enable**

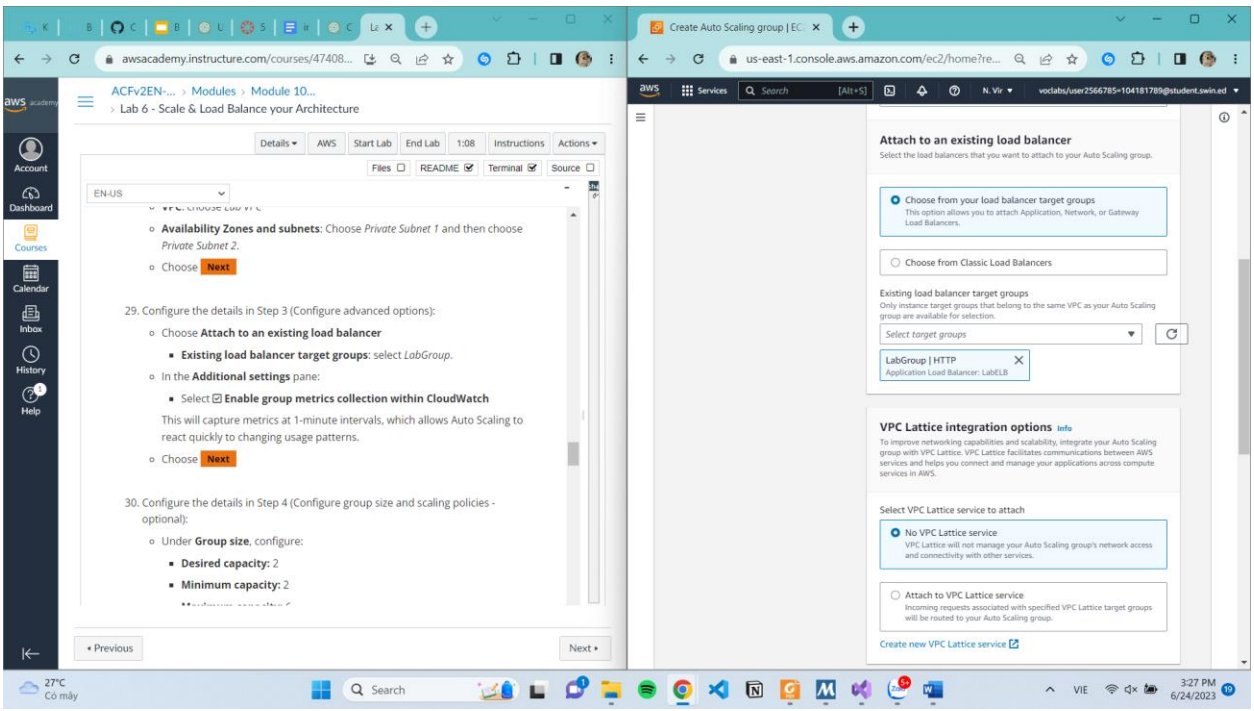


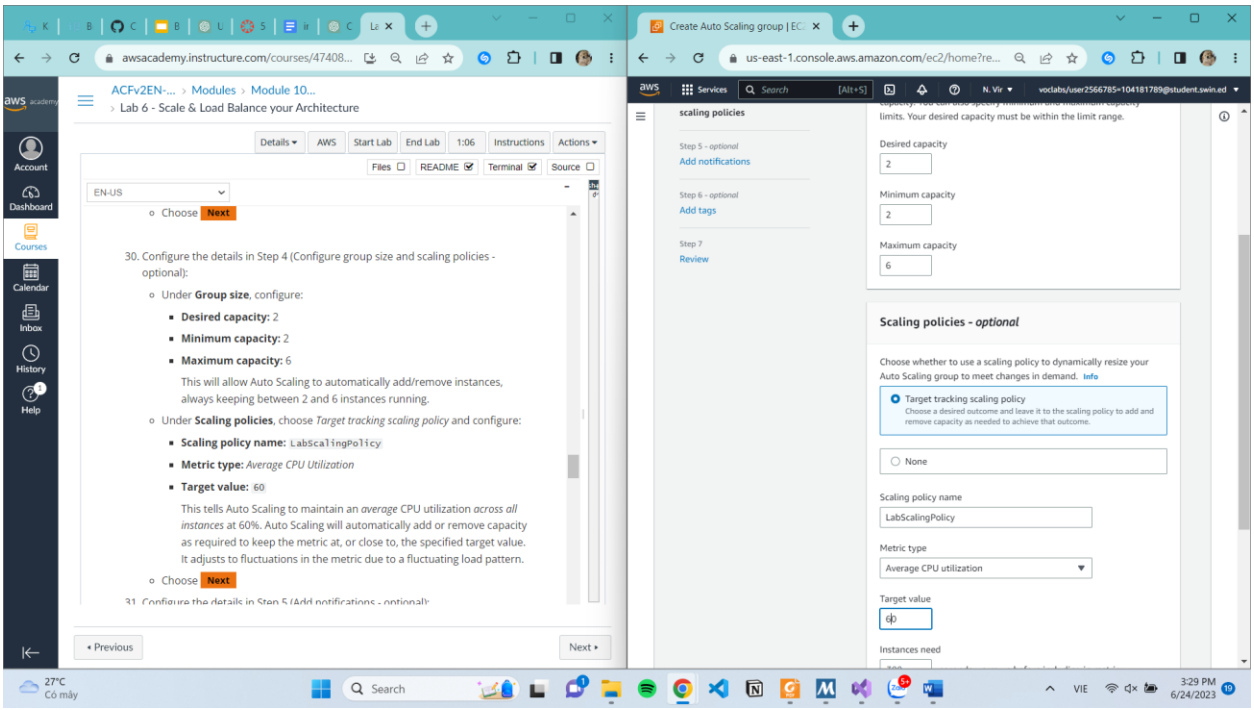

Create launch template | EC2
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTemplate:
Amazon Machine Image (AMI)
WebServerAMI
Description
Lab AMI for Web Server
Architecture
x86_64
AMI ID
ami-07c59e847e11b32a8
Instance type
Advanced
t2.micro
Free tier eligible
All generations
Compare instance types
Key pair (login)
Key pair name
vockey
Create new key pair
Network settings
Summary
Software Image (AMI)
Lab AMI for Web Server
Virtual server type (instance type)
t2.micro
Firewall (security group)
Web Security Group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Create launch template

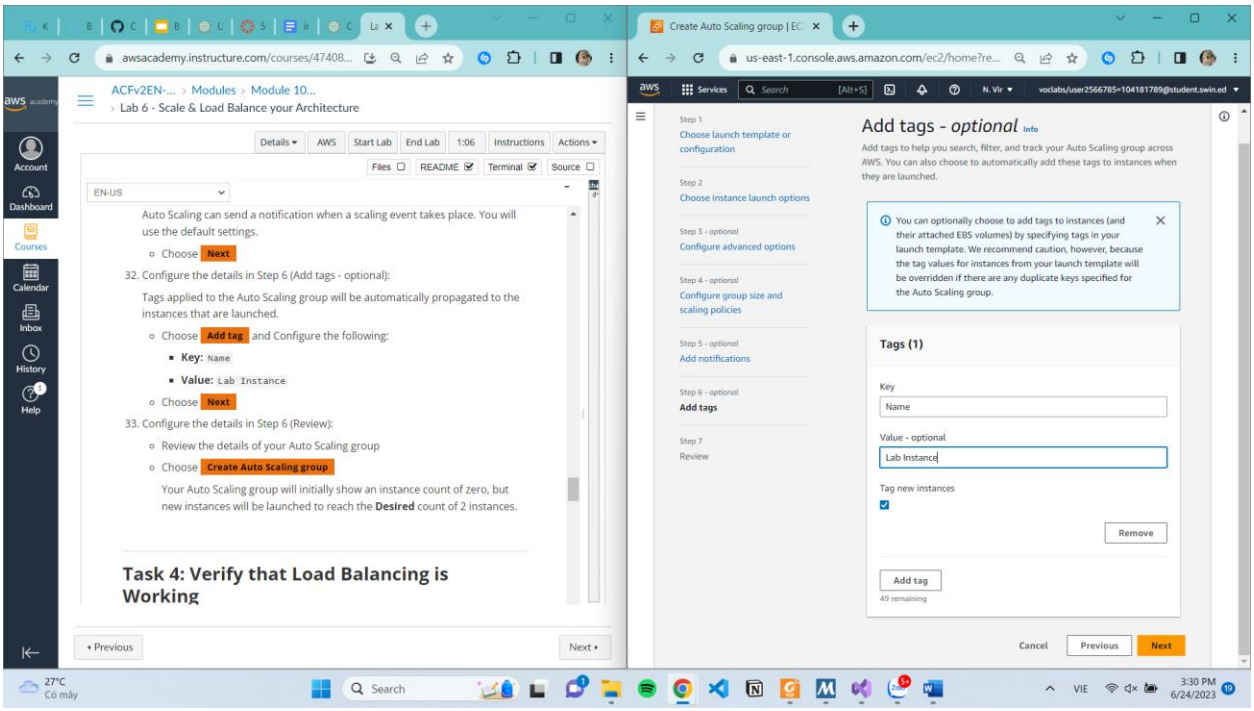

Create launch template | EC2
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTemplate:
Key pair name
vockey
Create new key pair
Network settings
Subnet
Don't include in launch template
Create new subnet
Firewall (security groups)
Select existing security group
Create security group
Security groups
Web Security Group sg-0fff8de519cee784d
Compare security group rules
Advanced network configuration
Storage (volumes)
EBS Volumes
Hide details
Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp3))
Summary
Software Image (AMI)
Lab AMI for Web Server
Virtual server type (instance type)
t2.micro
Firewall (security group)
Web Security Group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Create launch template

Create Auto Scaling group

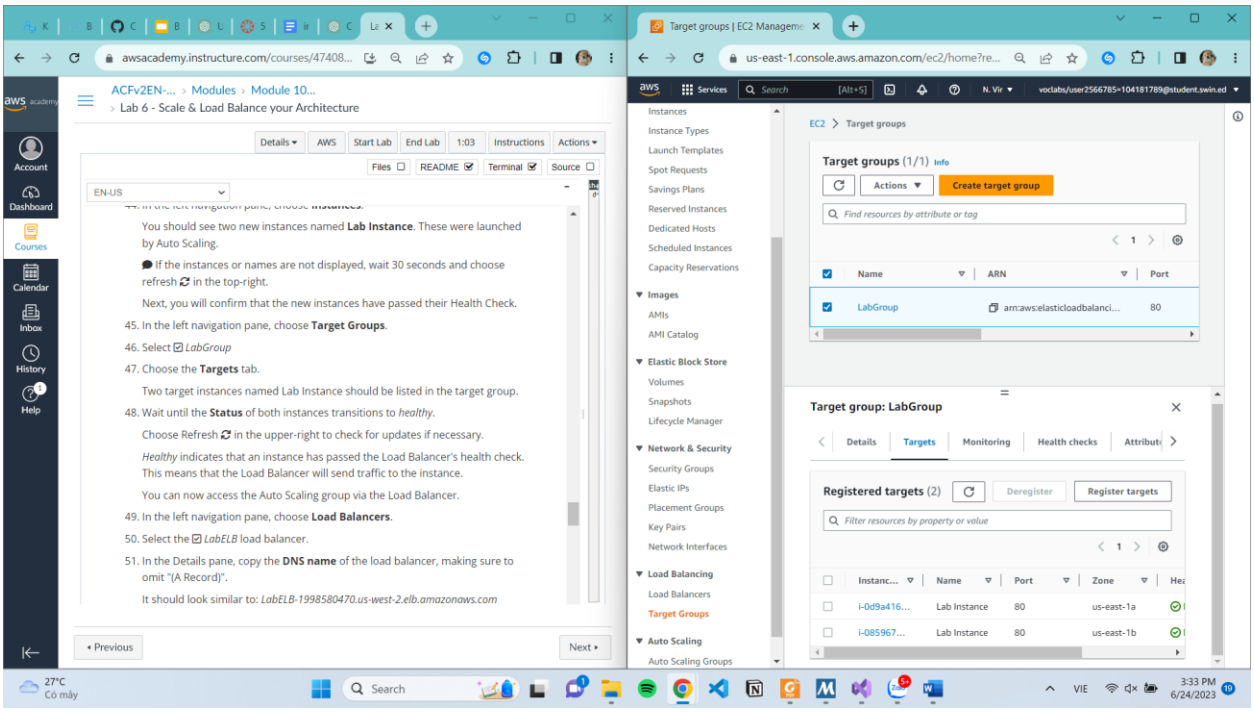








Task 4: Verify that Load Balacing is Working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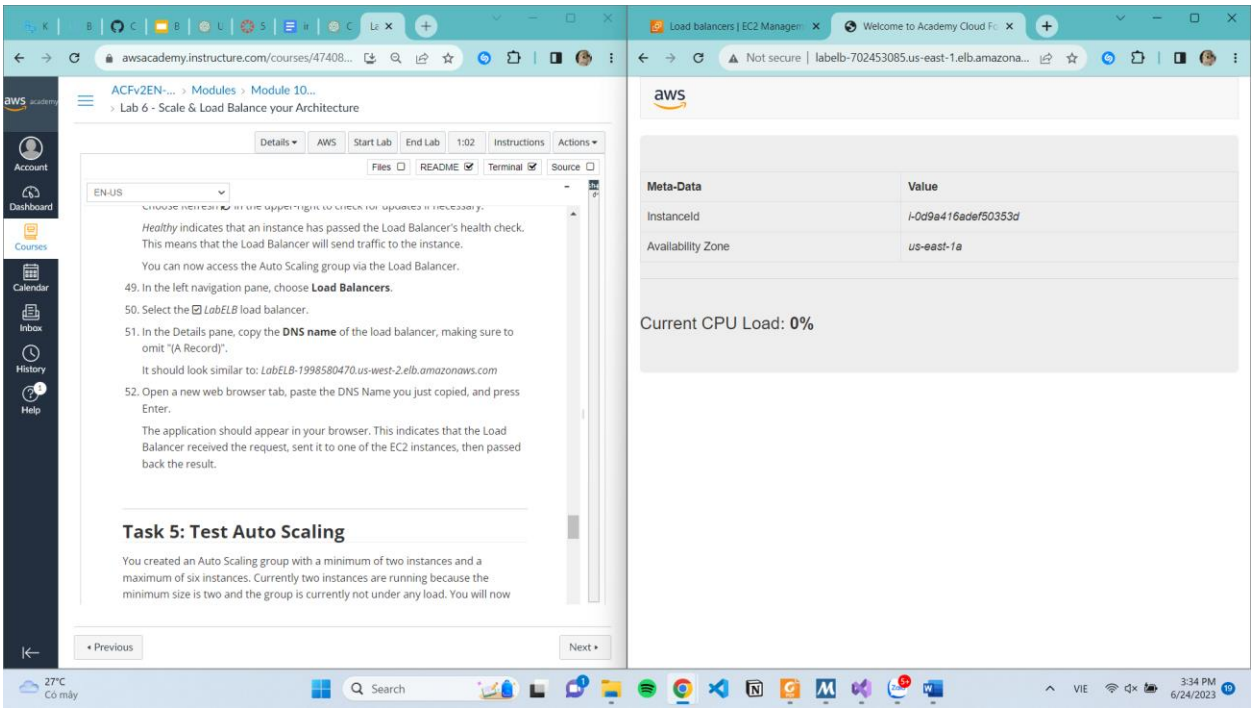
Lab 6 - Scale & Load Balance your Architecture
You should see two new instances named Lab Instance. These were launched by Auto Scaling.
If the instances or names are not displayed, wait 30 seconds and choose refresh in the top-right.
Next, you will confirm that the new instances have passed their Health Check.
45. In the left navigation pane, choose Target Groups.
46. Select LabGroup
47. Choose the Targets tab.
Two target instances named Lab Instance should be listed in the target group.
48. Wait until the Status of both instances transitions to healthy.
Choose Refresh in the upper-right to check for updates if necessary.
Healthy indicates that an instance has passed the Load Balancer's health check. This means that the Load Balancer will send traffic to the instance.
You can now access the Auto Scaling group via the Load Balancer.
49. In the left navigation pane, choose Load Balancers.
50. Select the LabELB load balancer.
51. In the Details pane, copy the DNS name of the load balancer, making sure to omit "(A Record)".
It should look similar to: LabELB-1998580470.us-west-2.elb.amazonaws.com
Target groups (1/1)
Create target group
LabGroup
Target group: LabGroup
Registered targets (2)
Lab Instance
Lab Instance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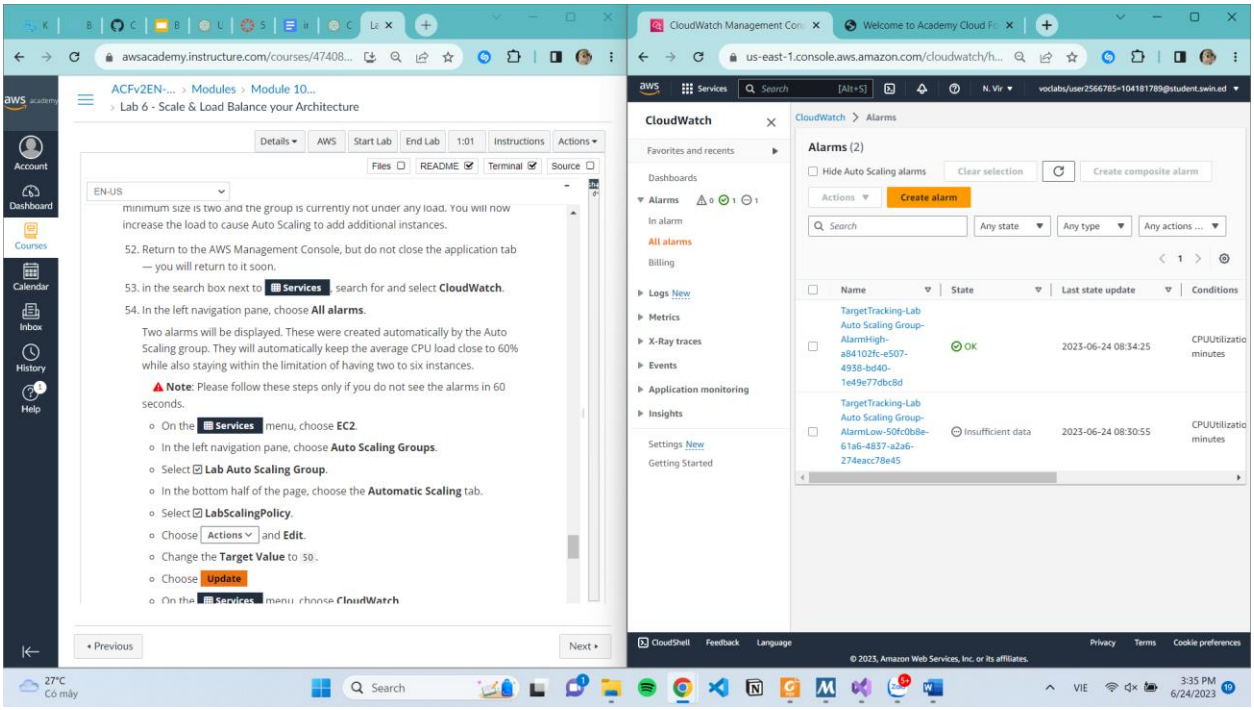
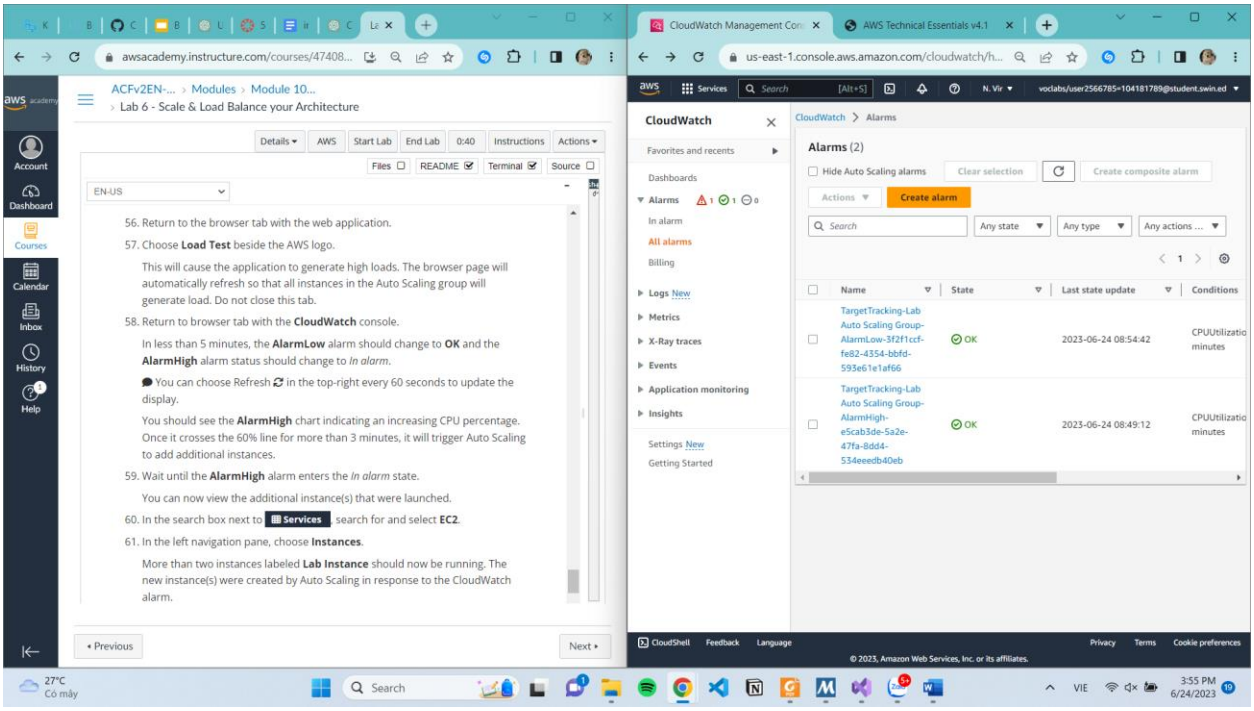
50. Select the LabELB load balancer.
51. In the Details pane, copy the DNS name of the load balancer, making sure to omit "(A Record)".
It should look similar to: LabELB-1998580470.us-west-2.elb.amazonaws.com
52. Open a new web browser tab, paste the DNS Name you just copied, and press Enter.
The application should appear in your browser. This indicates that the Load Balancer received the request, sent it to one of the EC2 instances, then passed back the result.
Task 5: Test Auto Scaling
You created an Auto Scaling group with a minimum of two instances and a maximum of six instances. Currently two instances are running because the minimum size is two and the group is currently not under any load. You will now
Meta-Data
Value
InstanceId
i-0d9a416adef50353d
Availability Zone
us-east-1a
Current CPU Load: 0%

Task 5: Test Auto Scaling





Task 6: Terminate WebServer 1