

**Progressive Education Society's**  
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**Shivajinagar, Pune – 411005**  
**M.Sc. (Computer Science) Part II- Sem III**  
**2023-2024**  
**Lab on Cloud Computing-Assignments**

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**Class – M.Sc. (Computer Science) Part II- Sem III**

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**Cloud Computing Practical Assignment No 3**

**Working and Implementation of Infrastructure as a service**

Create an EC2 Linux Instance, Install an Apache Web Server and run the Hello World page by typing commands on a virtual machine.

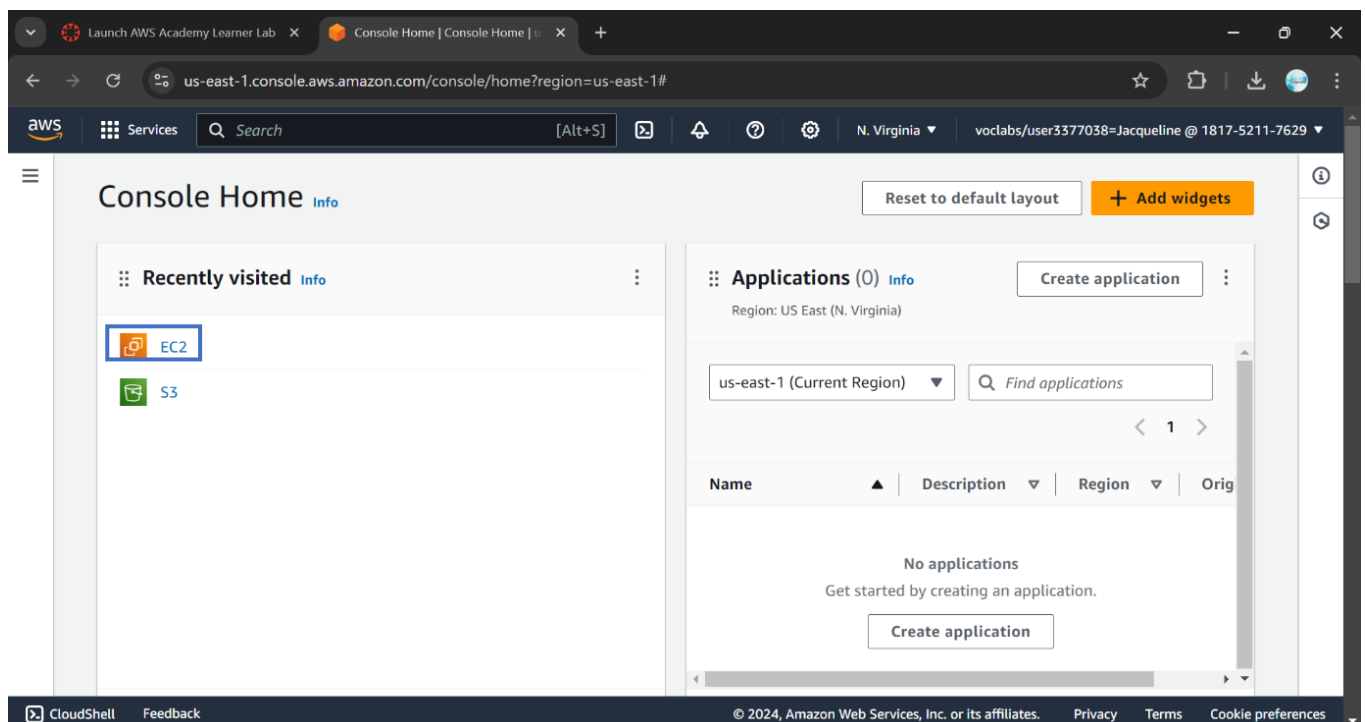
(Use AWS Platform)

Prepare a Screenshots file and write down the steps and commands used.

Make a single word or PDF file.

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Step 1: Select the Compute Service and in that select EC2.



Step 2: Then Say ‘Launch Instance’.

The screenshot shows the AWS Management Console for the EC2 service in the us-east-1 region. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Console-to-Code, and a list of Instance-related options. The main content area features a 'Resources' section with a table of EC2 resource counts, a 'Launch instance' section with a prominent orange button, and a 'Service health' section.

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:					
Instances (running)	0	Auto Scaling Groups	0	Capacity Reservations	0
Dedicated Hosts	0	Elastic IPs	0	Instances	2
Key pairs	7	Load balancers	0	Placement groups	0
Security groups	6	Snapshots	0	Volumes	0

**Launch instance**  
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

**Service health**  
AWS Health Dashboard

Step 3: Give the name to the instance.

The screenshot shows the 'Launch instance' wizard in the AWS Management Console. The first step, 'Name and tags', is active, showing a text input field with 'LINUX Web Server' and an 'Add additional tags' link. The second step, 'Application and OS Images (Amazon Machine Image)', is collapsed. The page includes a brief introduction to Amazon EC2 and a search bar for AMIs.

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

**Name and tags** Info

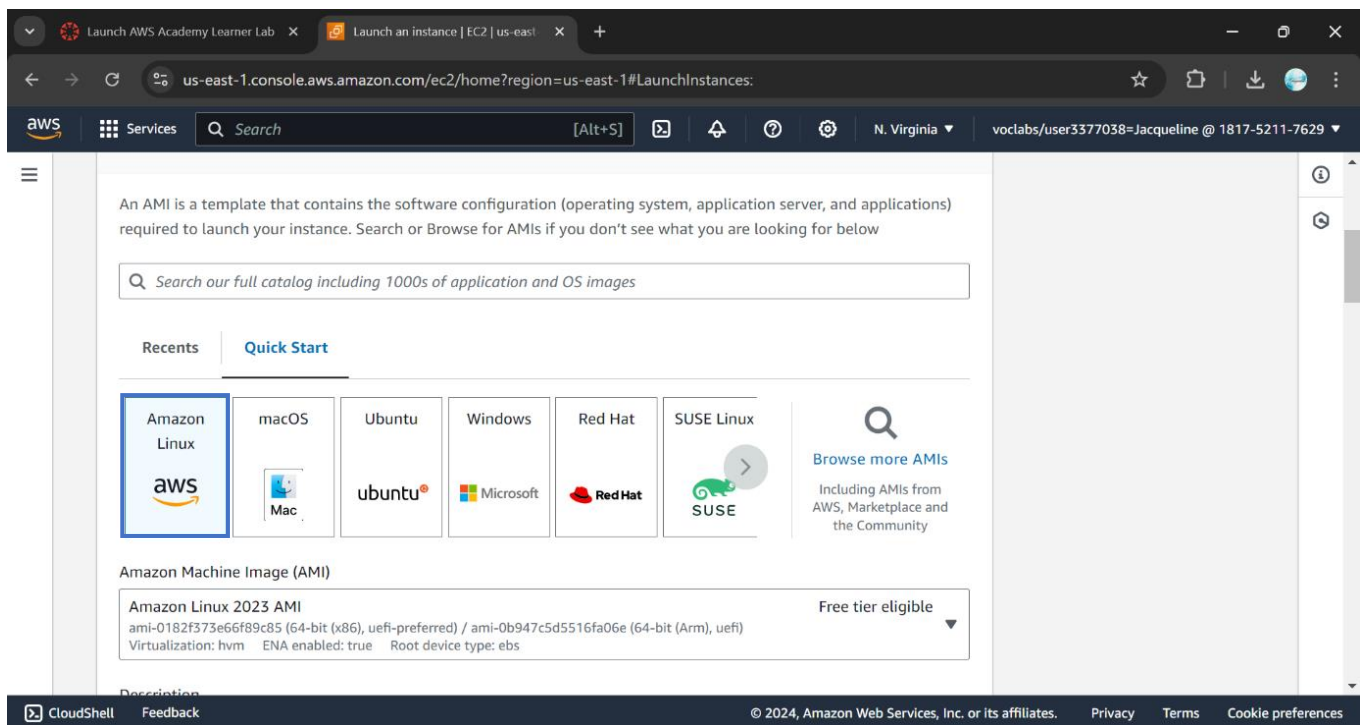
Name  
LINUX Web Server Add additional tags

▼ **Application and OS Images (Amazon Machine Image)** Info

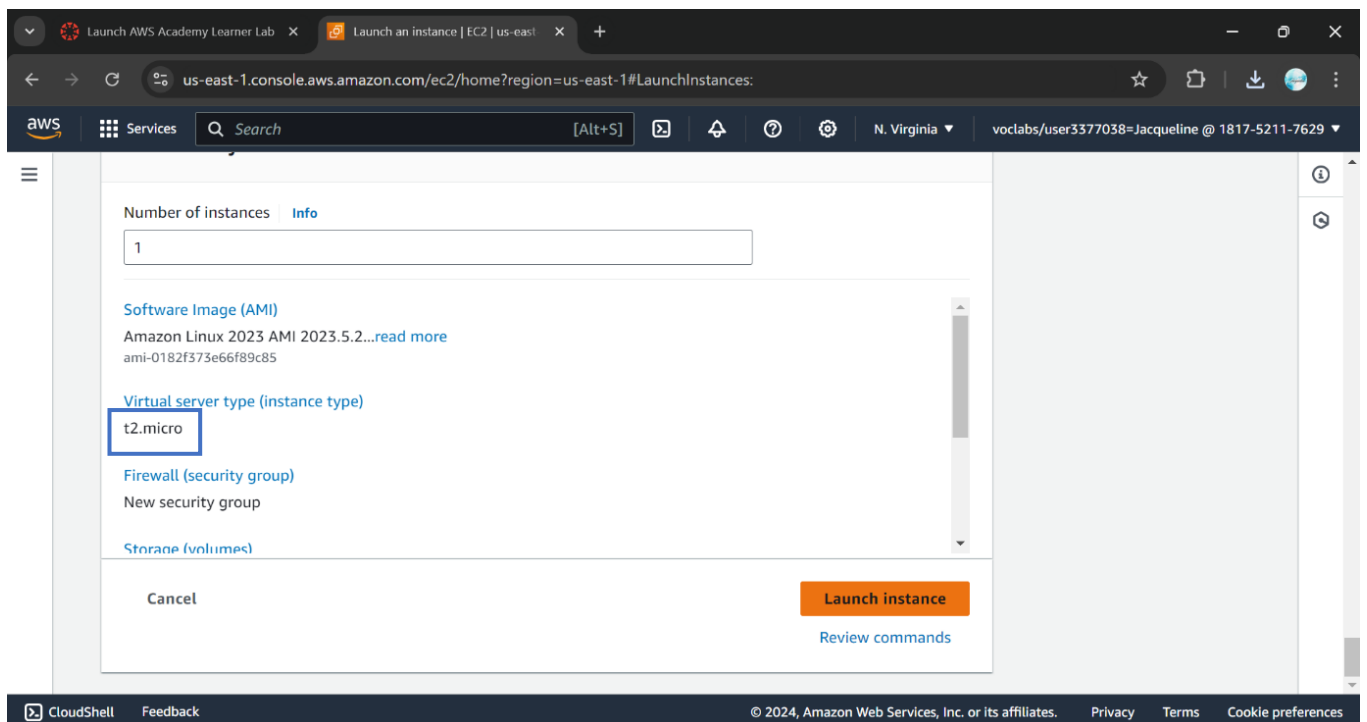
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

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

## Step 4: Select the AMI as Linux.



## Step 5: Select the instance type as 't2. micro'.



Step 6: Create Key pair by giving unique name for the key.

The screenshot shows the 'Create key pair' dialog in the AWS Management Console. The dialog is titled 'Create key pair' and has a close button (X) in the top right corner. It contains the following fields and options:

- Key pair name:** A text input field with the value 'demo'. Below it, a note states: 'Key pairs allow you to connect to your instance securely. The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.'
- Key pair type:** Two radio button options:
  - ☒ **RSA**: RSA encrypted private and public key
  - ☐ **ED25519**: ED25519 encrypted private and public key
- Private key file format:** Two radio button options:
  - ☒ **.pem**: For use with OpenSSH
  - ☐ **.ppk**: For use with PuTTY

At the bottom right of the dialog are two buttons: 'Cancel' and 'Create key pair' (highlighted in orange).

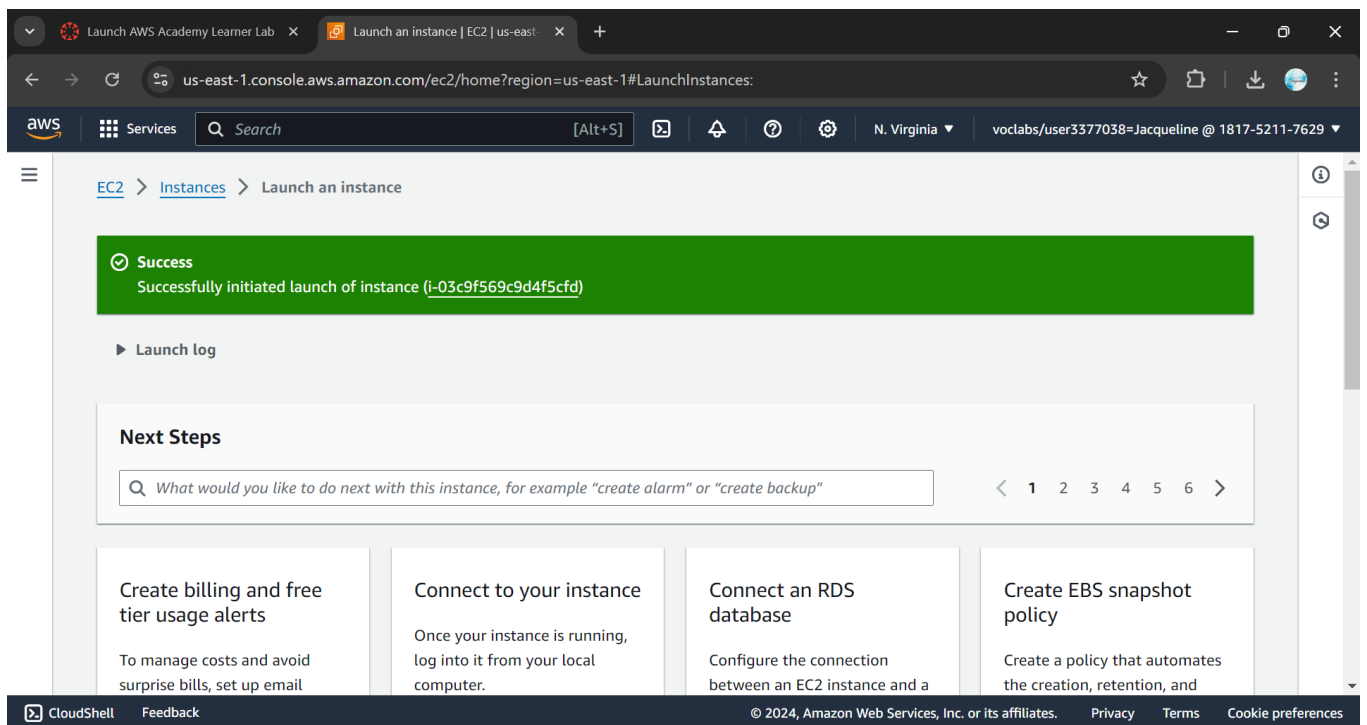
Step 7: At first don't allow the HTTP and HTTPS traffic instead launch the instance.

The screenshot shows the 'Launch instance' dialog in the AWS Management Console. The dialog is titled 'Launch instance' and has a close button (X) in the top right corner. It contains the following fields and options:

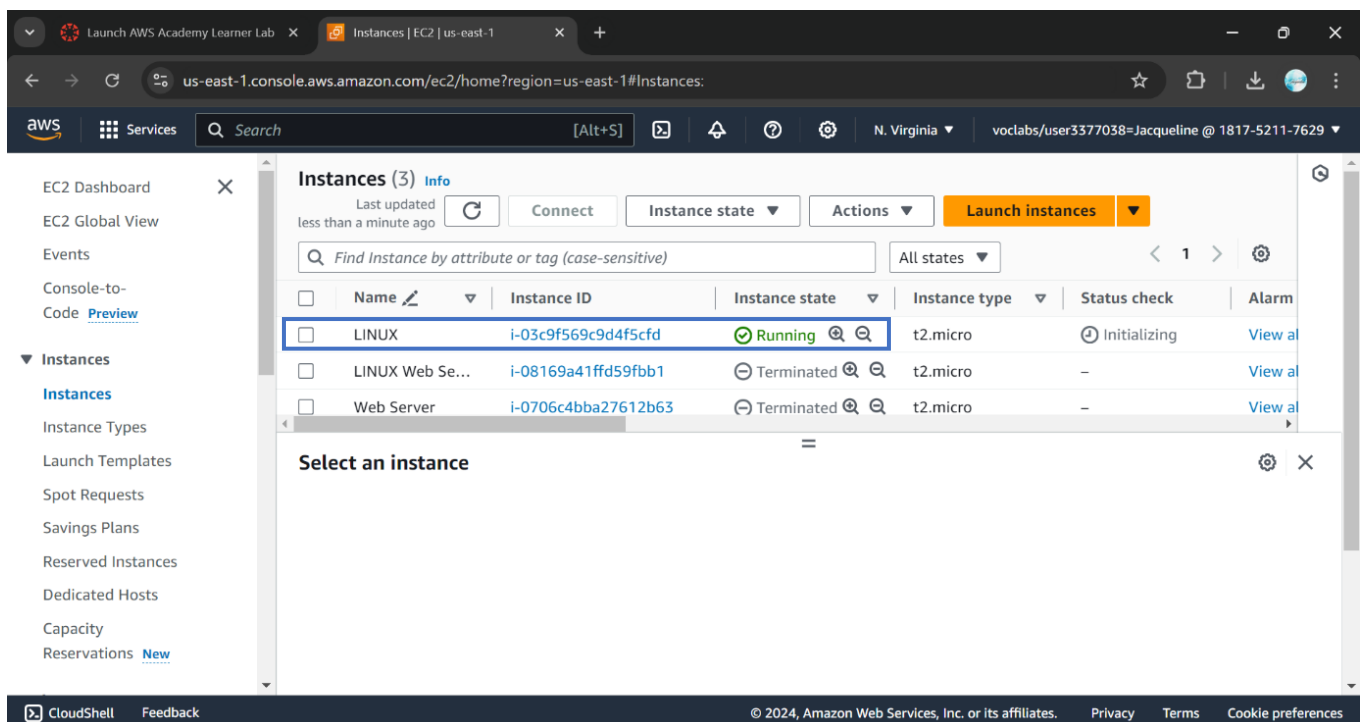
- Number of instances:** A text input field with the value '1'.
- Software Image (AMI):** A dropdown menu showing 'Amazon Linux 2023 AMI 2023.5.2...read more' with the ID 'ami-0182f373e66f89c85'.
- Virtual server type (instance type):** A dropdown menu showing 't2.micro'.
- Firewall (security group):** A dropdown menu showing 'New security group'.
- Storage (volumes):** A section for configuring storage volumes.

At the bottom of the dialog are three buttons: 'Cancel', 'Launch instance' (highlighted in orange), and 'Review commands' (a blue link).

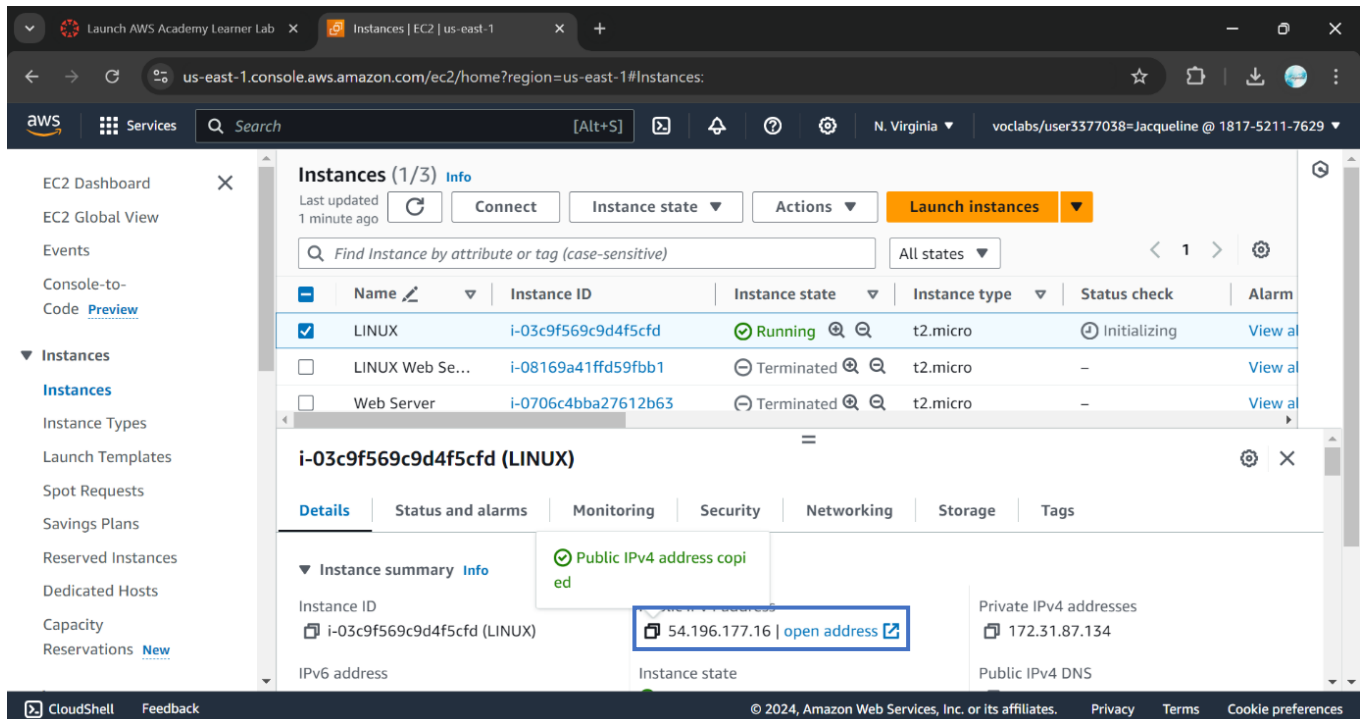
Step 8: The instance is created.



Step 9: Select the checkbox of the instance created and which should be in running state and then say connect.



Step 10: Now copy the IPv4 Address and paste it in new browser, it will not work at first but after enabling the traffic it will work.



The screenshot shows the AWS Management Console for the us-east-1 region. The 'Instances' page displays a list of EC2 instances. The first instance, 'i-03c9f569c9d4f5cfd' (LINUX), is in a 'Running' state. A tooltip indicates that the 'Public IPv4 address' has been copied, showing the address '54.196.177.16'. The address is highlighted with a blue box and a link to 'open address'.

Name	Instance ID	Instance state	Instance type	Status check	Alarm
LINUX	i-03c9f569c9d4f5cfd	Running	t2.micro	Initializing	View al
LINUX Web Se...	i-08169a41ffd59fbb1	Terminated	t2.micro	-	View al
Web Server	i-0706c4bba27612b63	Terminated	t2.micro	-	View al

**i-03c9f569c9d4f5cfd (LINUX)**

**Details** | Status and alarms | Monitoring | Security | Networking | Storage | Tags

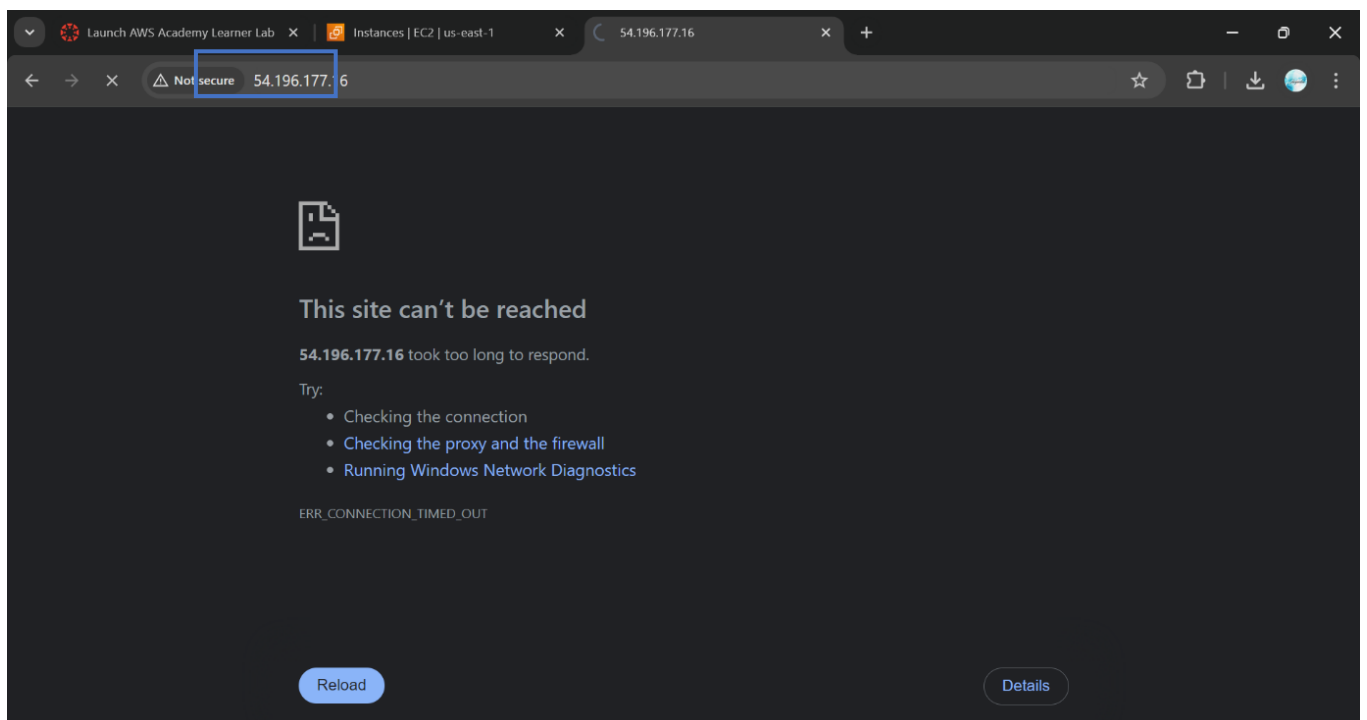
**Instance summary** Info

Instance ID: i-03c9f569c9d4f5cfd (LINUX)

Public IPv4 address: 54.196.177.16 | open address

Private IPv4 addresses: 172.31.87.134

IPv6 address: | Instance state: | Public IPv4 DNS: |



The screenshot shows a web browser window with the address bar displaying '54.196.177.16'. The page content displays a 'This site can't be reached' error message. The error message states '54.196.177.16 took too long to respond.' and lists troubleshooting steps: 'Checking the connection', 'Checking the proxy and the firewall', and 'Running Windows Network Diagnostics'.

**This site can't be reached**

54.196.177.16 took too long to respond.

Try:

- Checking the connection
- Checking the proxy and the firewall
- Running Windows Network Diagnostics

ERR\_CONNECTION\_TIMED\_OUT

Reload Details

Step 11: Say 'connect' in the EC2 console tab.

The screenshot shows the AWS Management Console interface for connecting to an EC2 instance. The browser address bar indicates the URL is `us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#ConnectToInstance:instanceId=i-03c9f569c9d4f5cfd`. The console header shows the AWS logo, 'Services' menu, a search bar, and the current region 'N. Virginia'. The main content area is titled 'i-03c9f569c9d4f5cfd (LINUX)'. Under the 'Connection Type' section, the 'Connect using EC2 Instance Connect' option is selected with a radio button. Below this, the 'Public IP address' is listed as '54.196.177.16'. The 'Username' field is populated with 'ec2-user'. A blue-bordered box contains a note: 'Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.' At the bottom right, there are 'Cancel' and 'Connect' buttons.

Step 12: The Linux instance is successfully created.

[illegible]

Step 13: Now write the commands in this instance.

[illegible]

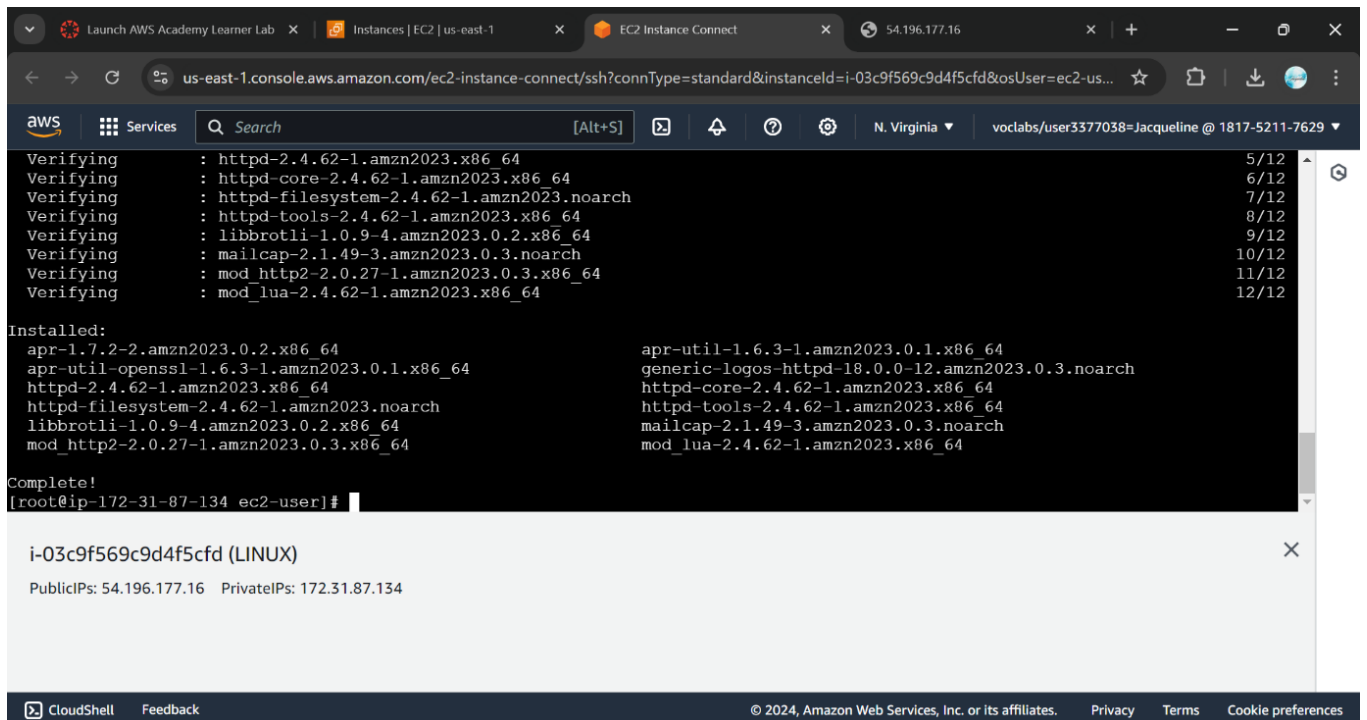
```
aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3377038=Jacqueline @ 1817-5211-7629

Total download size: 2.3 M
Installed size: 6.9 M
Downloading Packages:
(1/12): apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64.rpm                255 kB/s | 17 kB    00:00
(2/12): apr-util-1.6.3-1.amzn2023.0.1.x86_64.rpm                      1.3 MB/s | 98 kB    00:00
(3/12): generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch.rpm         794 kB/s | 19 kB    00:00
(4/12): httpd-2.4.62-1.amzn2023.x86_64.rpm                           2.3 MB/s | 48 kB    00:00
(5/12): httpd filesystem-2.4.62-1.amzn2023.noarch.rpm                 618 kB/s | 14 kB    00:00
(6/12): httpd-core-2.4.62-1.amzn2023.x86_64.rpm                      29 MB/s | 1.4 MB    00:00
(7/12): httpd-tools-2.4.62-1.amzn2023.x86_64.rpm                     3.0 MB/s | 81 kB    00:00
(8/12): mailcap-2.1.49-3.amzn2023.0.3.noarch.rpm                      1.4 MB/s | 33 kB    00:00
(9/12): libbrotli-1.0.9-4.amzn2023.0.2.x86_64.rpm                    9.0 MB/s | 315 kB   00:00
(10/12): apr-1.7.2-2.amzn2023.0.2.x86_64.rpm                         724 kB/s | 129 kB   00:00
(11/12): mod_lua-2.4.62-1.amzn2023.x86_64.rpm                        2.6 MB/s | 61 kB    00:00
(12/12): mod_http2-2.0.27-1.amzn2023.0.3.x86_64.rpm                  972 kB/s | 166 kB    00:00
-----
Total                                                                    5.8 MB/s | 2.3 MB    00:00
Running transaction check
Transaction check succeeded.

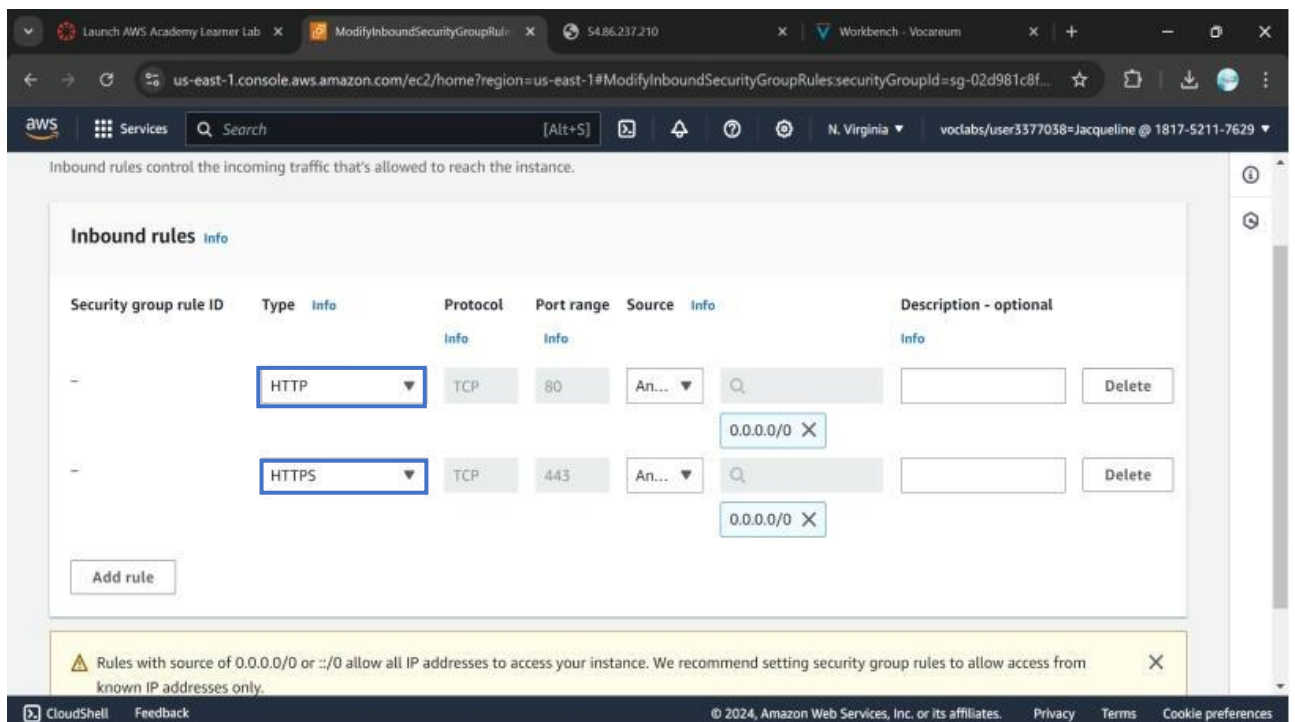
i-03c9f569c9d4f5cfd (LINUX)

PublicIPs: 54.196.177.16  PrivateIPs: 172.31.87.134
```

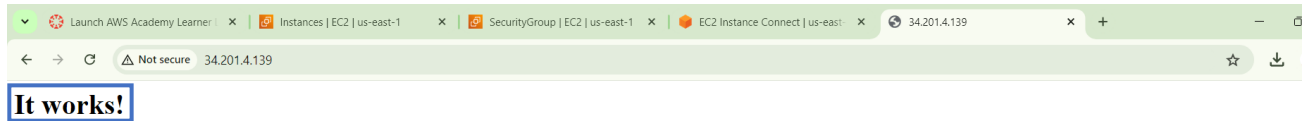




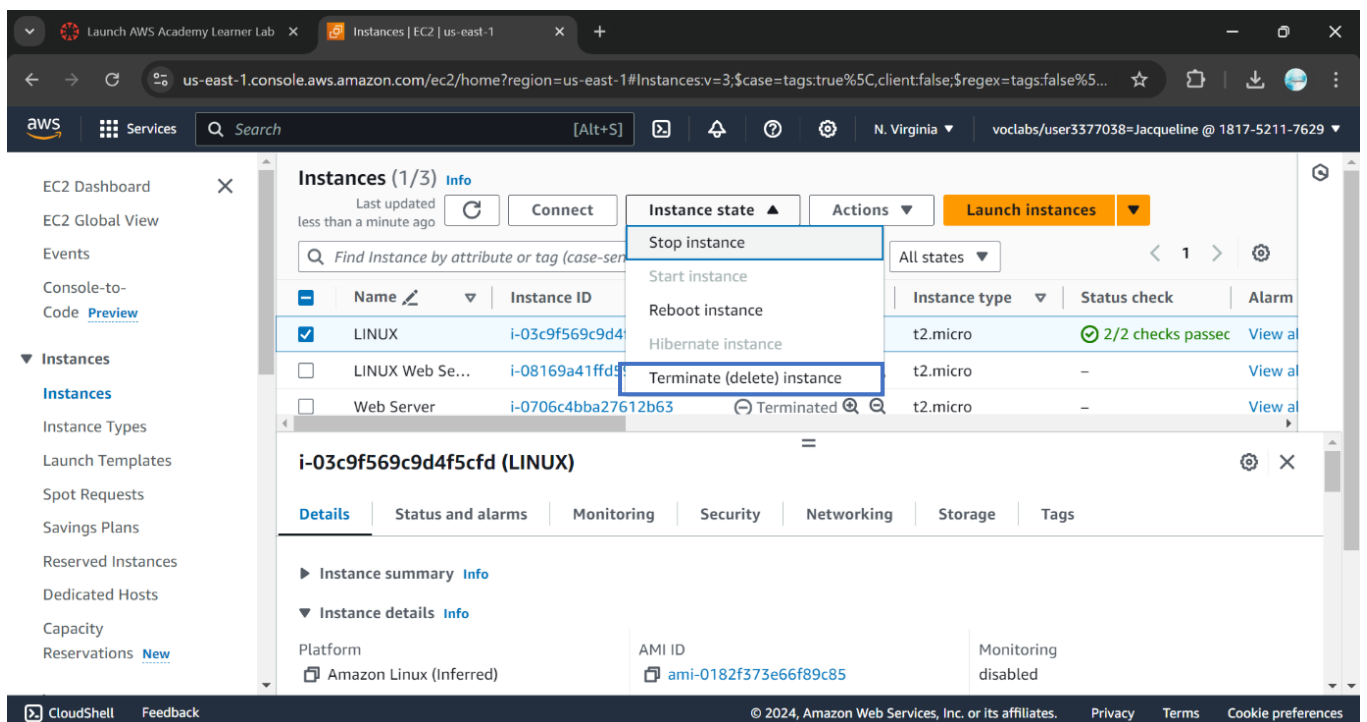
Step 14 Now select the type as 'HTTP' and source as 'AnywhereIPv4' and again say add rule to add next rule for 'HTTPS' as type and 'AnywhereIPv4' as source and they select save rules.



Step 16: Now go back to the browser where the IPv4 address was copied earlier and refresh the page.



Step 17: Now terminate the instances



Launch AWS Academy Learner Lab x Instances | EC2 | us-east-1 x +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:v=3,\$case=tags:true%5C,client:false,\$regex=tags:false%5...

aws Services Search [Alt+S] N. Virginia voclabs/user3377038=Jacqueline @ 1817-5211-7629

EC2 Dashboard x  
EC2 Global View  
Events  
Console-to-Code [Preview](#)

▼ Instances  
Instances  
Instance Types  
Launch Templates  
Spot Requests  
Savings Plans  
Reserved Instances  
Dedicated Hosts  
Capacity  
Reservations [New](#)

Instances (1/3) Info  
Last updated 1 minute ago  
Connect Instance state Actions Launch instances

**Terminate (delete) instance?**

⚠ On an EBS-backed instance, the default action is for the root EBS volume to be deleted when the instance is terminated. Storage on any local drives will be lost.

Are you sure you want to terminate these instances?

Instance ID	Termination protection
i-03c9f569c9d4f5cfd (LINUX)	⊙ Disabled

To confirm that you want to delete the instances, choose the terminate button below. Instances with termination protection enabled will not be terminated. Terminating the instance cannot be undone.

Cancel **Terminate (delete)**

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Launch AWS Academy Learner Lab x Instances | EC2 | us-east-1 x +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:v=3,\$case=tags:true%5C,client:false,\$regex=tags:false%5...

aws Services Search [Alt+S] N. Virginia voclabs/user3377038=Jacqueline @ 1817-5211-7629

EC2 Dashboard x  
EC2 Global View  
Events  
Console-to-Code [Preview](#)

▼ Instances  
Instances  
Instance Types  
Launch Templates  
Spot Requests  
Savings Plans  
Reserved Instances  
Dedicated Hosts  
Capacity  
Reservations [New](#)

Instances (3) Info  
Last updated less than a minute ago  
Connect Instance state Actions Launch instances

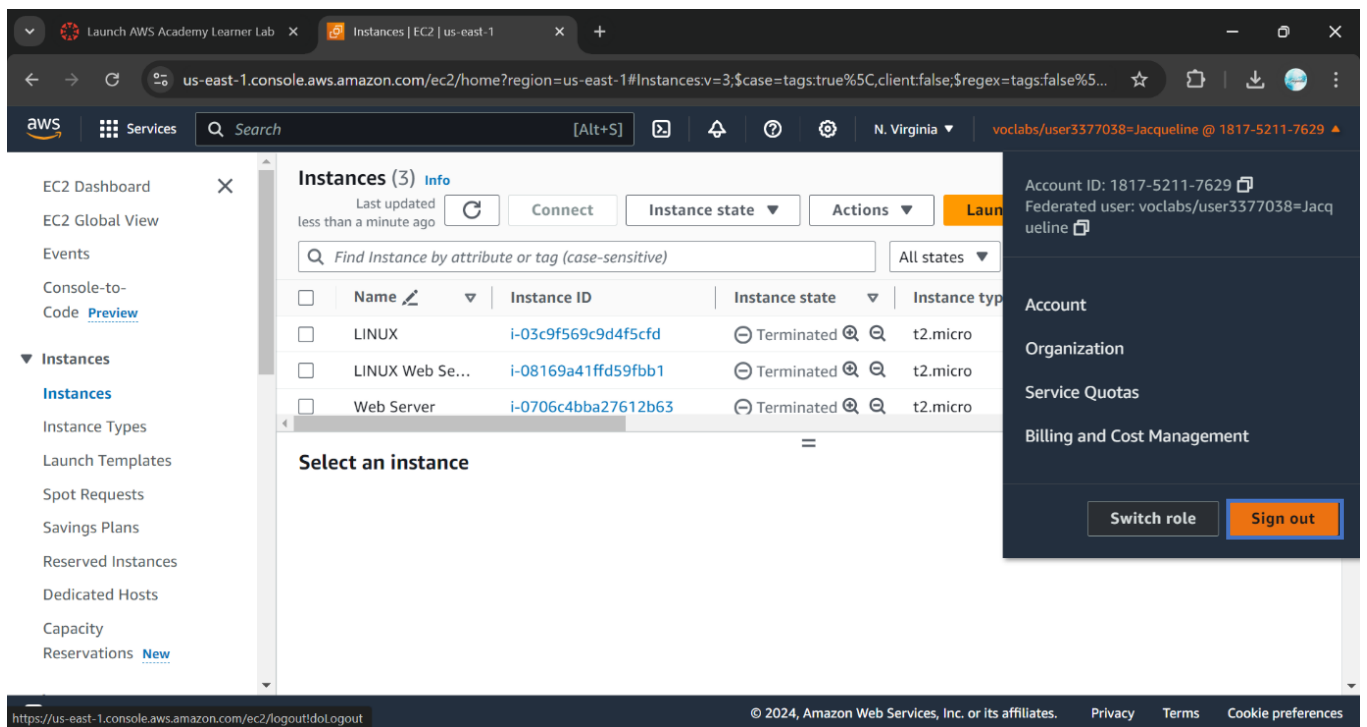
Find Instance by attribute or tag (case-sensitive) All states < 1 > ⚙

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm
<input type="checkbox"/>	LINUX	i-03c9f569c9d4f5cfd	⊖ Terminated	t2.micro	-	<a href="#">View al</a>
<input type="checkbox"/>	LINUX Web Se...	i-08169a41ffd59fbb1	⊖ Terminated	t2.micro	-	<a href="#">View al</a>
<input type="checkbox"/>	Web Server	i-0706c4bba27612b63	⊖ Terminated	t2.micro	-	<a href="#">View al</a>

Select an instance

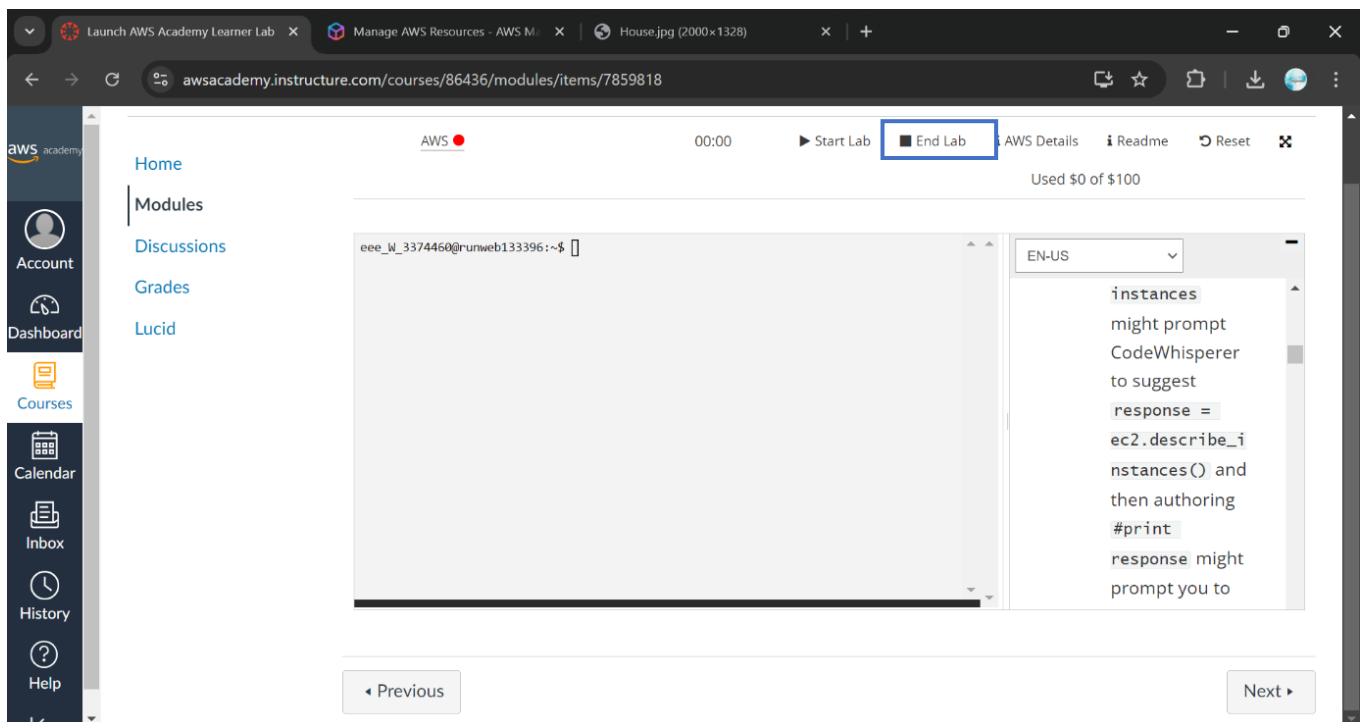
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## Step 18: Click Sign out



The screenshot shows the AWS Management Console for the us-east-1 region. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Console-to-Code, and Instances. The main content area displays the 'Instances (3)' page, which includes a search bar and a table of instances. The table lists three instances, all with a state of 'Terminated'. A 'Sign out' button is highlighted in the top right corner of the console interface.

Name	Instance ID	Instance state	Instance type
LINUX	i-03c9f569c9d4f5cfd	Terminated	t2.micro
LINUX Web Se...	i-08169a41ffd59fbb1	Terminated	t2.micro
Web Server	i-0706c4bba27612b63	Terminated	t2.micro



The screenshot shows the AWS Academy Learner Lab interface. The top bar includes a navigation menu with links for Home, Modules, Discussions, Grades, and Lucid. The main content area displays a lab interface with a terminal window and a list of instances. The 'End Lab' button is highlighted in the top right corner of the lab interface.

Terminal output:

```
eee_w_3374460@runweb133396:~$
```

Instances list:

- instances
- might prompt
- CodeWhisperer
- to suggest
- response =
- ec2.describe\_i
- stances() and
- then authoring
- #print
- response might
- prompt you to