

LAB 1

REG NO: 20BDS0146

NAME: VENNELA G

**SUBJECT: PRINCIPLES OF CLOUD
COMPUTING**

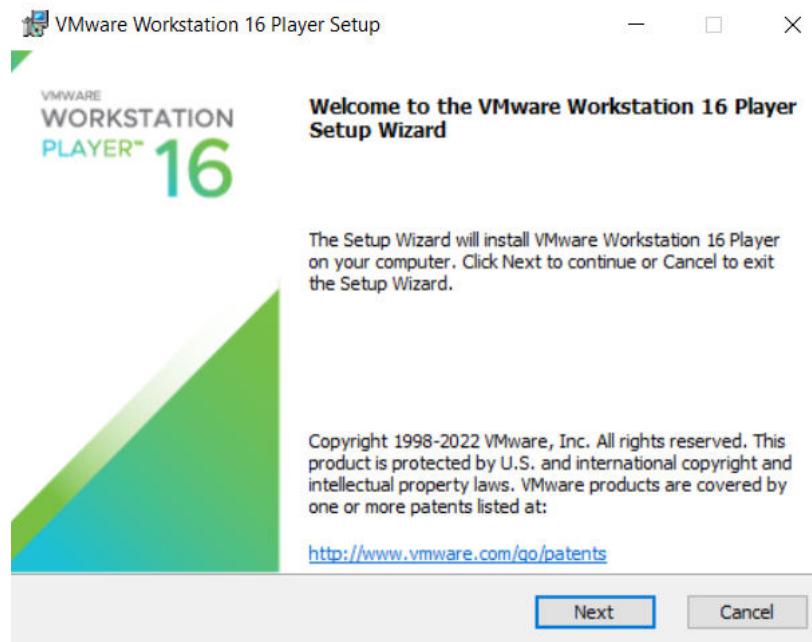
INSTALLATION OF VMWARE WORKSTATION

Step 1: Download VMware workstation 16 from the following website:

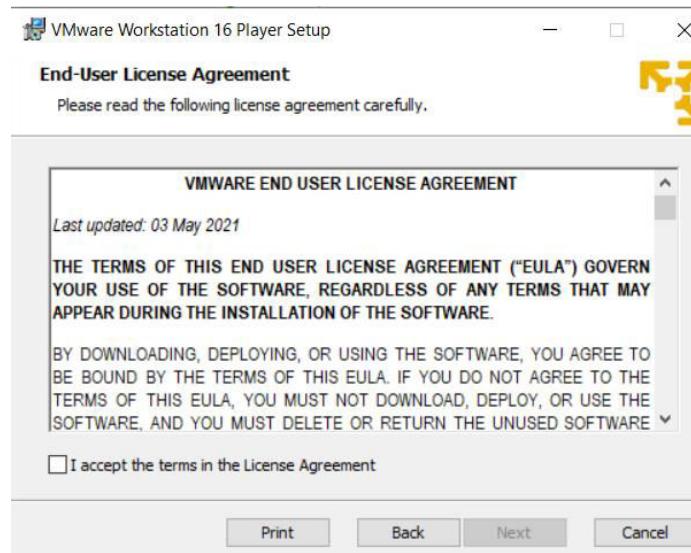
<https://download3.vmware.com/software/WKST-PLAYER-1624/VMware-player-full-16.2>

Step 2: Install the downloaded file VMware workstation player by double clicking the same.

Step 3: You will get the following screen:

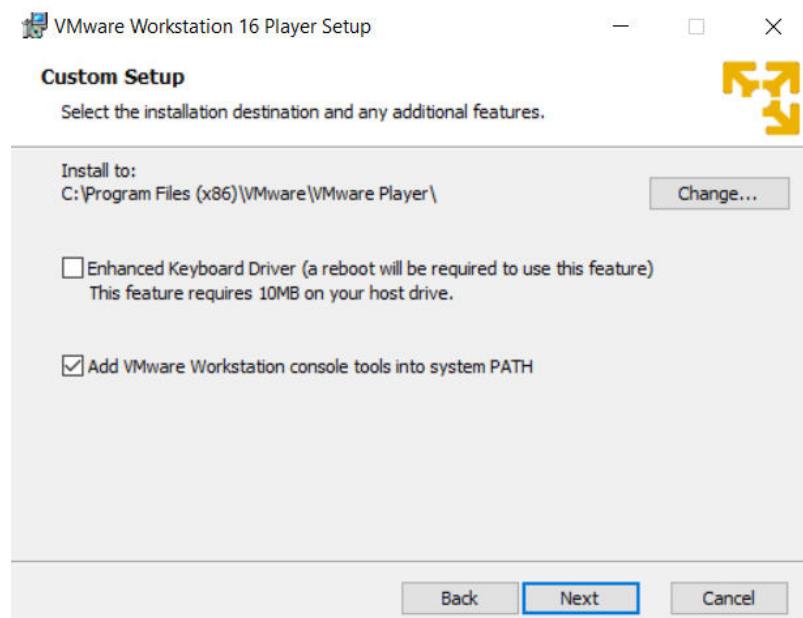


Step 4: Click Next option and then the following screen appears:

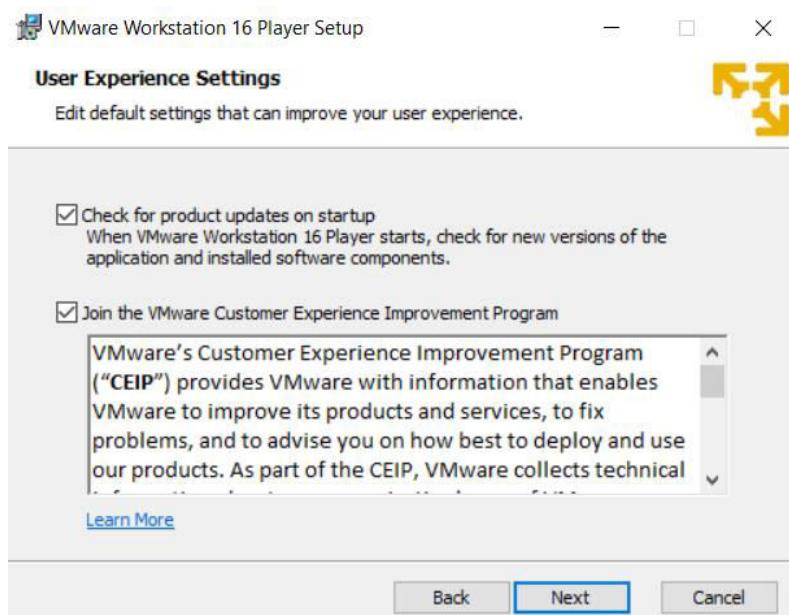


Step 5: Tick the checkbox of 'I accept the terms in the License Agreement' after reading license agreement. Then Click on Next Option.

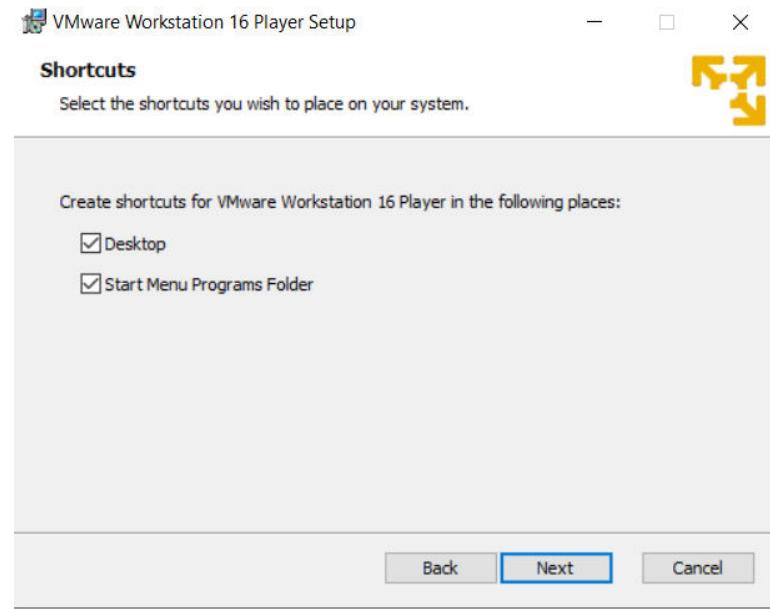
Step 6: Then window appears as follows:



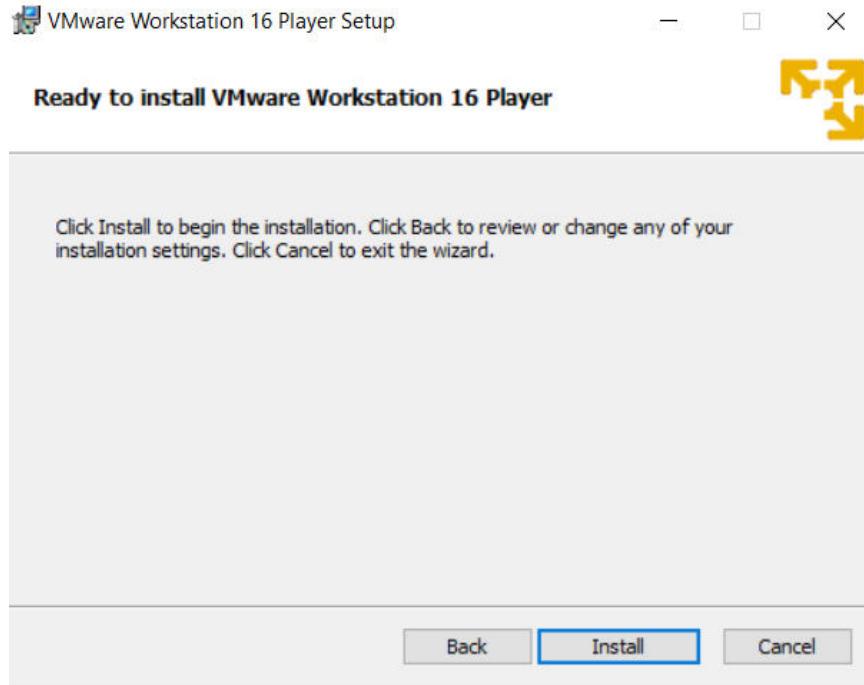
Step 7: Click on Next Option and then window appears as follows:



Step 8: Click on Next Option and then window appears as follows:



Step 9: Select shortcuts as per your requirements, and then click on Next option. Then window appears as follows:



Step 10: Then Click on Install option and then the installation process begins and then skip the license key by Skip Option and finally Click on Finish after Installation.



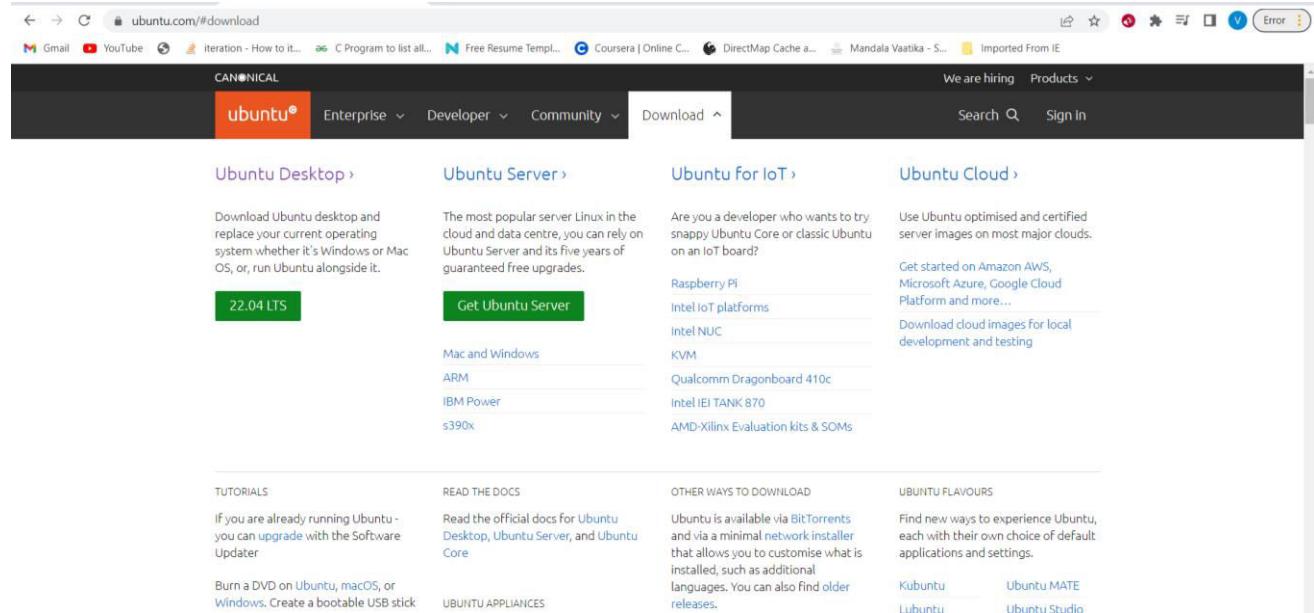
This completes the installation of VMware workstation.

INSTALLATION OF UBUNTU ON VMWARE WORKSTATION

Step 1: Download Ubuntu from the following website:

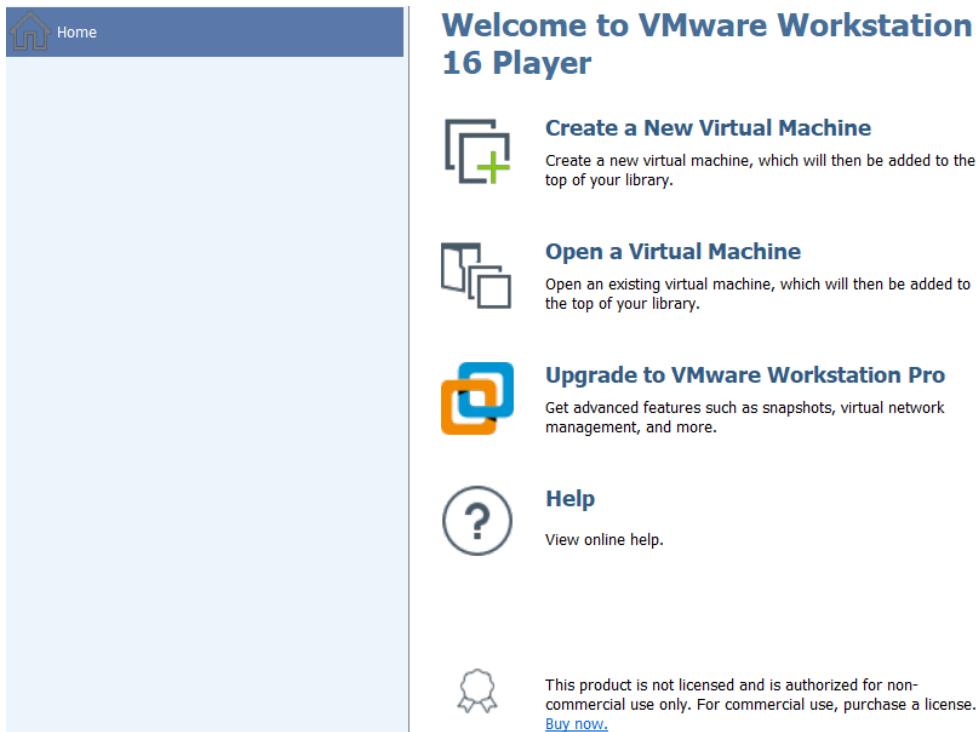
<https://ubuntu.com/#download>

Step 2: Then, Click on 22.04 LTS under Ubuntu Desktop sub menu in the window appeared. Then downloading starts.

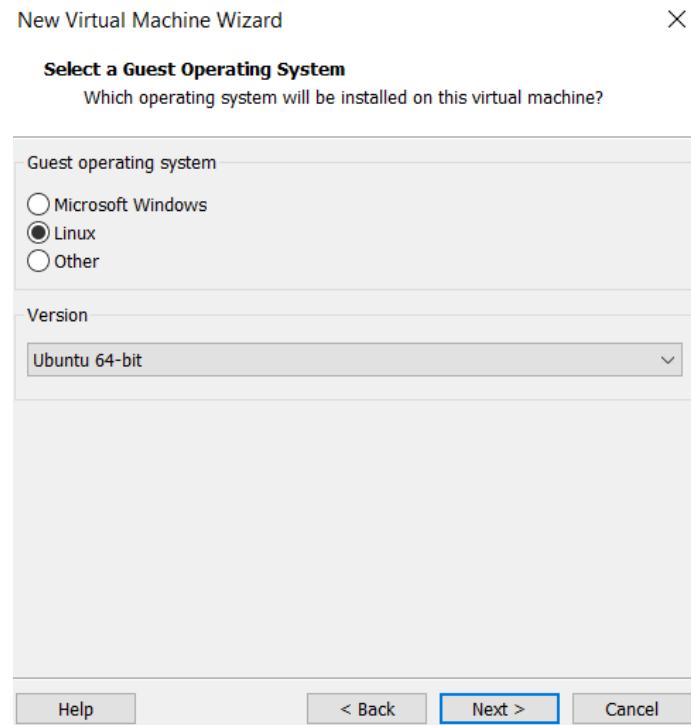


Install the downloaded file VMware workstation player by double clicking the same.

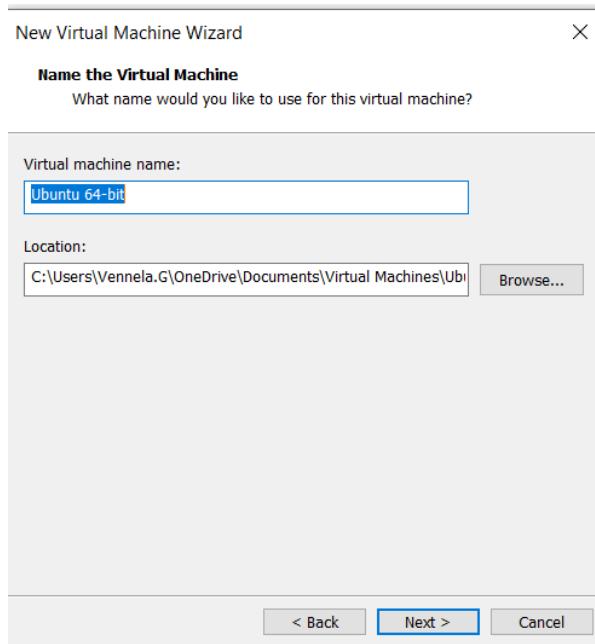
Step 3: After downloading, open VMware workstation and click on Create a New Virtual Machine.



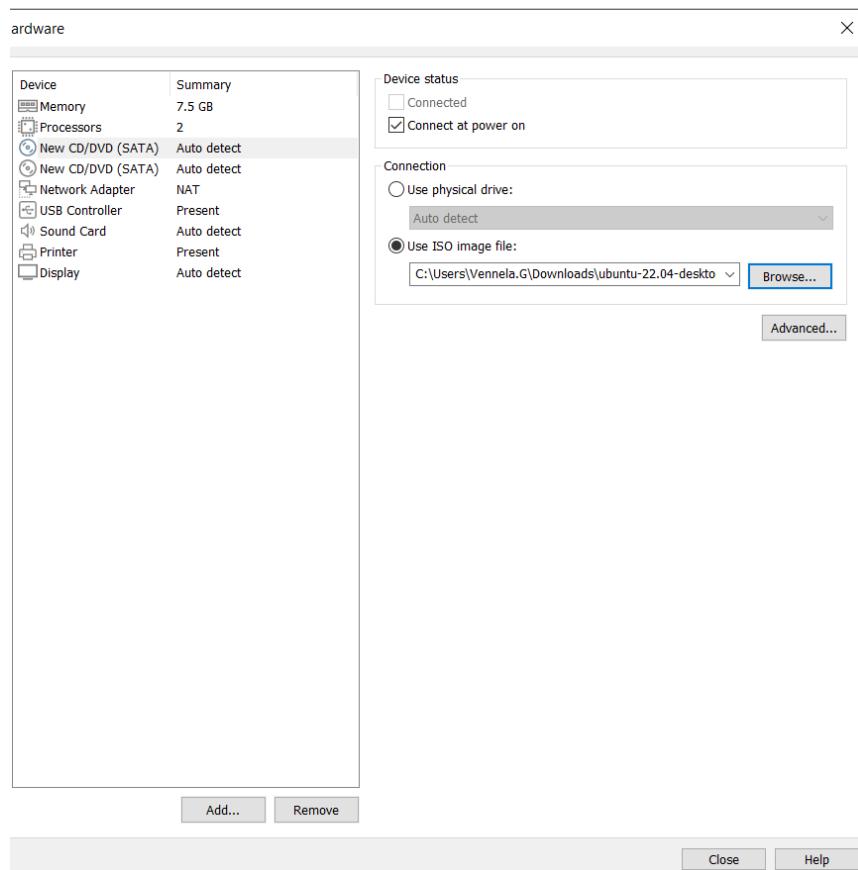
Step 4: Then window appears and then click on tick box of 'I will install Operating System later' and Click Next option and then the following screen appears and then click on tick box of Linux and Ubuntu 64-bit Version and click Next option:



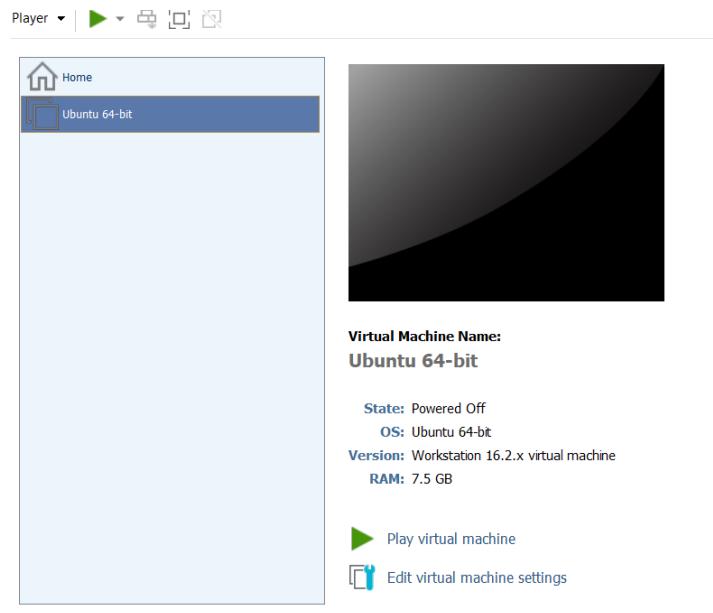
Step 5: Then again Click Next option in the window appeared:



Step 6: Then window appears as follows and then when you click on New CD/DVD option, select 'use .iso file' and browse for location of downloaded ubuntu .iso file and add and then click on close option:



Step 7: Click on Finish Option and then virtual machine created appears as follows:



This completes the installation of Ubuntu on VMware workstation.

20BDS0146

VENNELA G

PRINCIPLES OF CLOUD COMPUTING

LAB 2 ASSIGNMENT

1. Create an EC2 Instance in the Amazon Web Services and perform the following operation onto that instance. Name the instance with your RegNo.

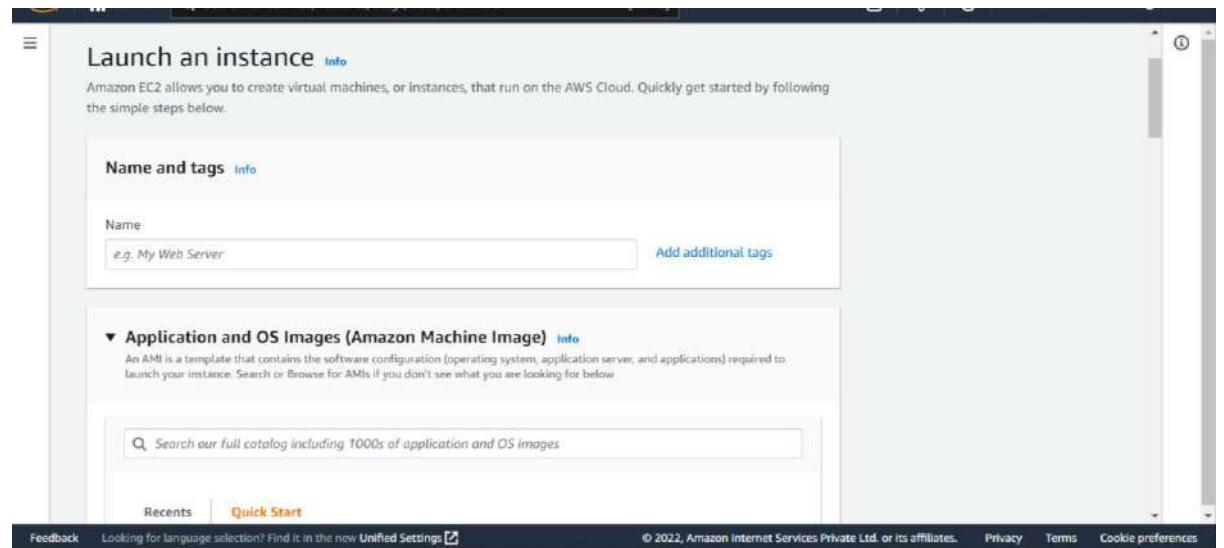
Step 1: Open aws management console in google search box and then Sign in to the pre-existing account.

The screenshot shows the AWS Free Tier landing page. At the top, there's a navigation bar with links for Contact Us, Support, English, My Account, and Sign In to the Console. Below the navigation is a search bar. The main header is "AWS Free Tier". A callout box on the right says "Startups may be eligible for AWS credits" and "AWS Activate provides eligible startups with a host of resources, including free AWS credits to spend on AWS services, and AWS Support. Sign up for Activate Today." Below the main header, there's a section titled "Types Of Offers" with a sub-section about exploring free offers across 100+ products. A large orange button at the bottom left says "Create a Free Account".

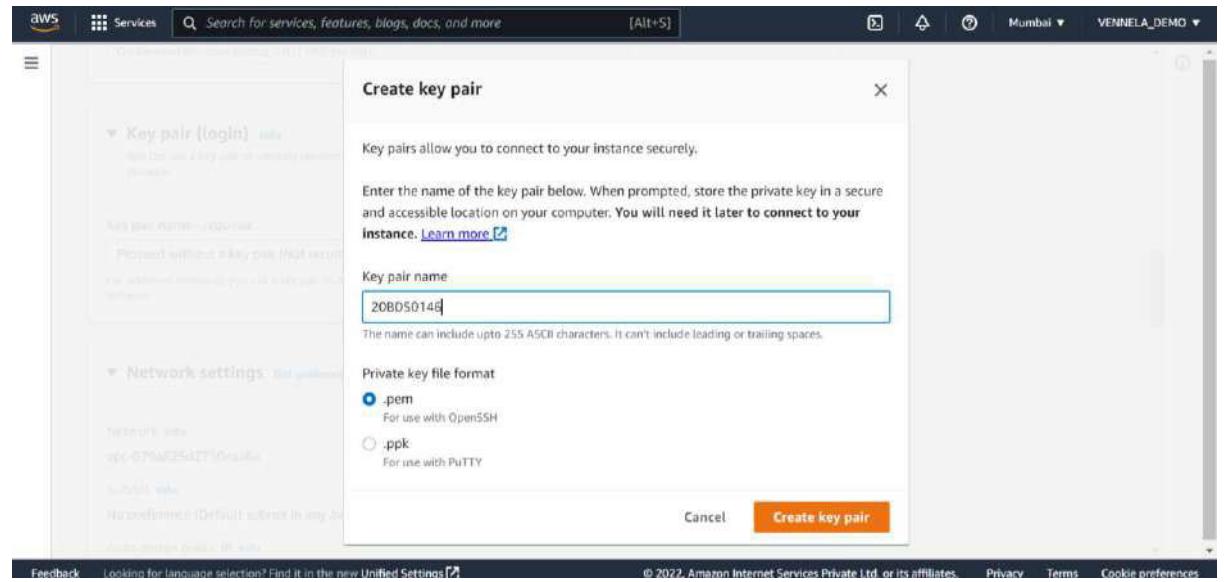
Step 2: After signing in, then type ec2 in search box, and then click on launch instance.

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with options like New EC2 Experience, EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images, and Images. The main area has tabs for Resources, Account attributes, and Explore AWS. The Resources tab shows a summary of resources: Instances (running) 0, Dedicated Hosts 0, Elastic IPs 0, Instances 1, Key pairs 3, Load balancers 0, Placement groups 0, Security groups 2, Snapshots 0, and Volumes 1. There's also a note about launching Microsoft SQL Server Always On availability groups. The Account attributes tab lists Supported platforms (VPC), Default VPC (vpc-079a825d2710ea6a), Settings, EBS encryption, Zones, EC2 Serial Console, Default credit specification, and Console experiments. The Explore AWS tab shows a message about getting up to 40% better price.

Step 3: After signing in, then type ec2 in search box, and then click on launch instance.



Step 4: Then select Windows option in Quick Start option and then click on create new key pair and then provide key pair value



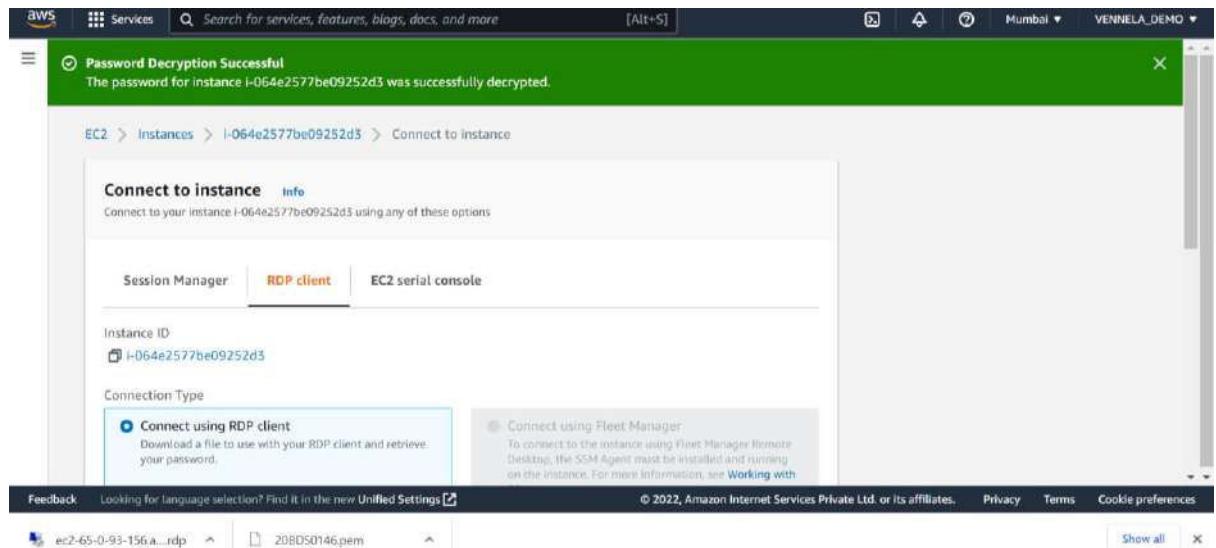
Step 5: Then click on Launch instance and then it will be successfully installed.

The screenshot shows the AWS EC2 Instances Launch an Instance page. At the top, there is a message: "You've been opted into the new launch experience. Find out more about this experience or send us feedback. You can still return to the previous version by opting-out." Below this, a success message says "Successfully initiated launch of instance (i-064e2577be09252d3)". There is a "Launch log" link. In the "Next Steps" section, there is a "Get notified of estimated charges" link and a note about creating billing alerts. The bottom of the page includes standard AWS footer links like Feedback, Privacy, Terms, and Cookie preferences.

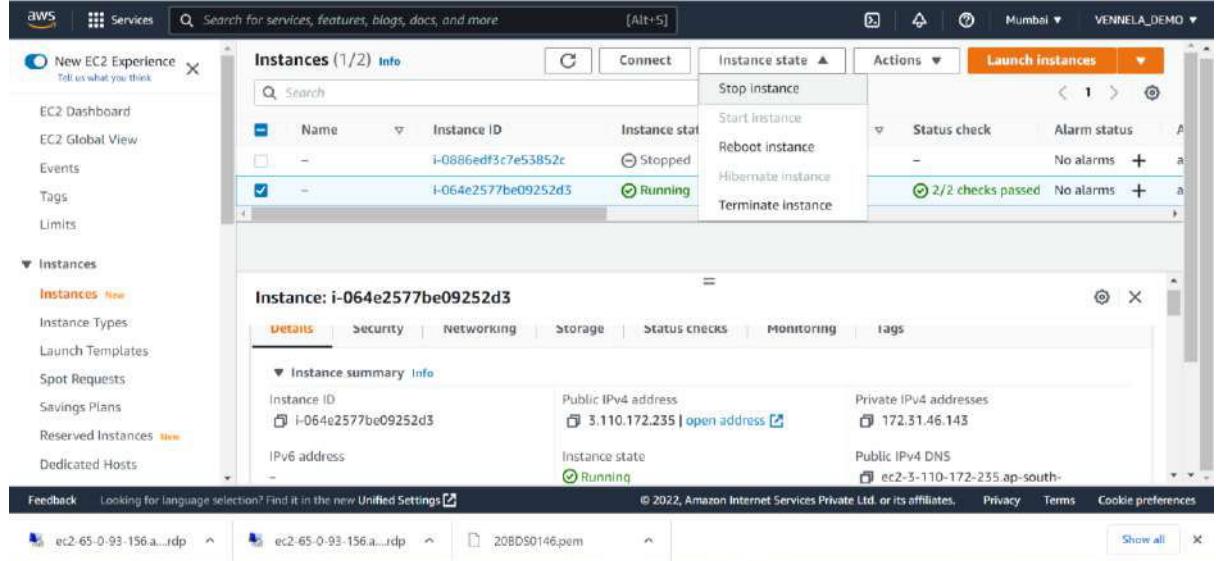
Step 6: Click on connect on the instance and then in RDP client menu, click on “Download remote desktop file” option and then click on Get password option and in this window appearing, browse to the downloaded .pem file and click on Decrypt password.

The screenshot shows the AWS EC2 Instances Key pair associated with this instance page. It displays a key pair named "20BDS0146" with a size of 1.674KB. Below the key pair, there is a "Browse" button to upload a key pair. A text area contains the RSA PRIVATE KEY content, which is a long string of characters starting with "-----BEGIN RSA PRIVATE KEY-----". The bottom of the page includes standard AWS footer links like Feedback, Privacy, Terms, and Cookie preferences.

Step 7: Then this window appears



Step 8: Then the instance will be launched and then you can stop the instance.

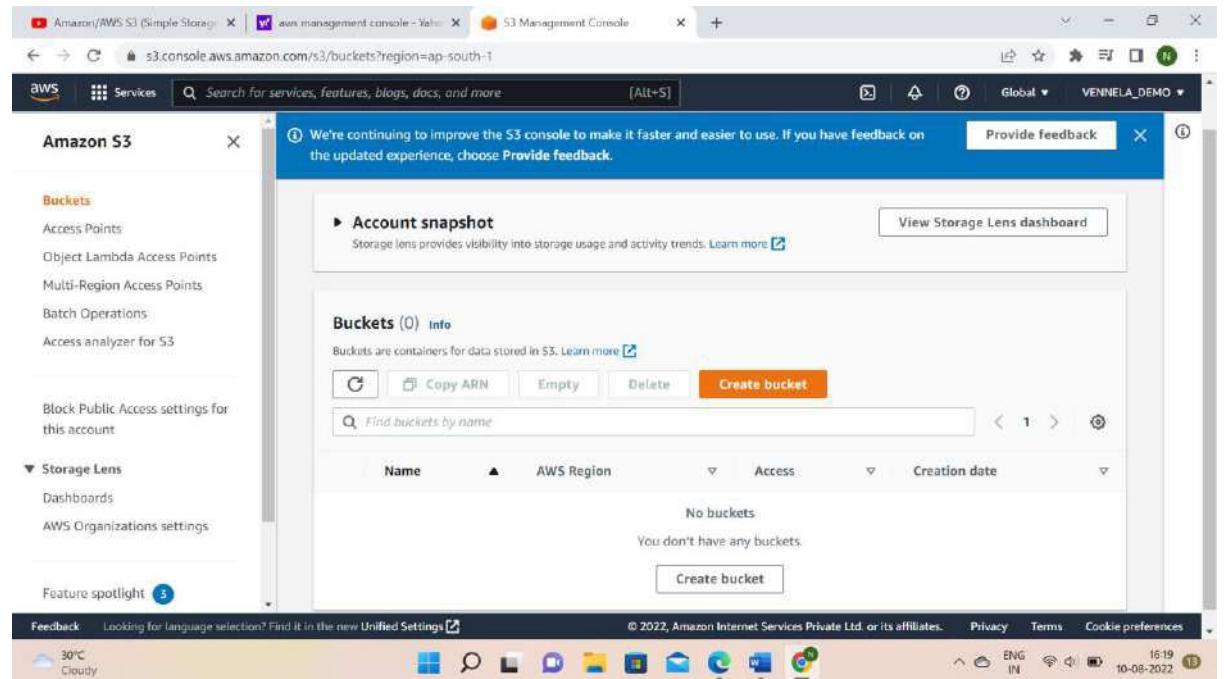


2. Create a Storage bucket using S3(Simple Storage Service) using AWS and store your c program file and your short profile text file onto the folder created in the S3 bucket.

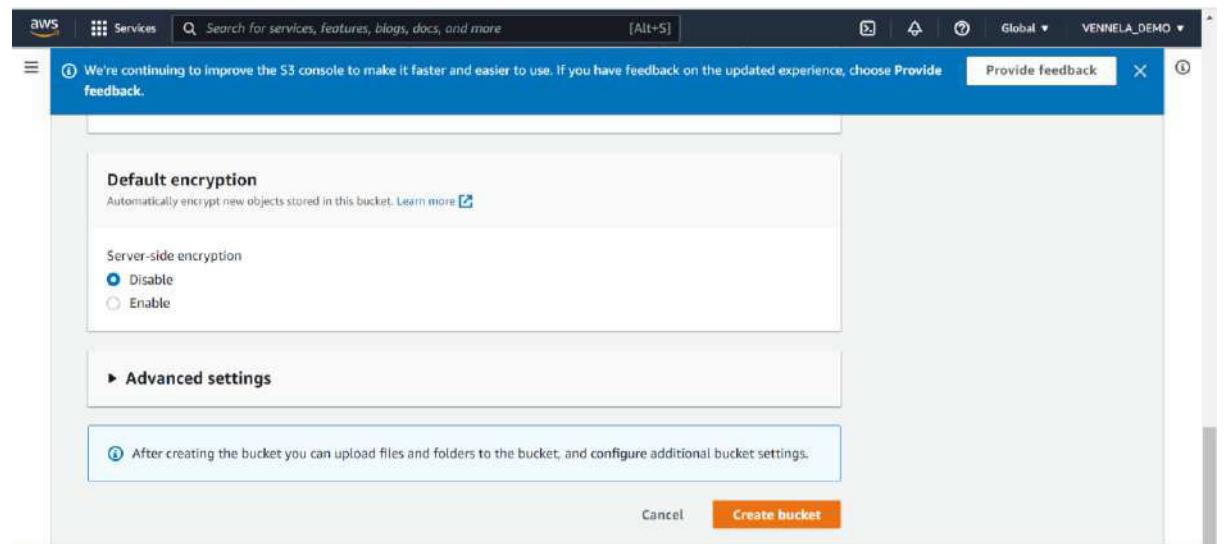
Step 1: Open aws management console in google search box and then Sign in to the pre-existing account.

The screenshot shows the AWS Free Tier landing page. At the top, there's a navigation bar with links for Contact Us, Support, English, My Account, and a prominent orange "Sign In to the Console" button. Below the navigation, there are links for Products, Solutions, Pricing, Documentation, Learn, Partner Network, AWS Marketplace, Customer Enablement, Events, Explore More, and a search icon. A sub-navigation bar for "AWS Free Tier" includes links for Overview, FAQs, and Terms and Conditions. The main content area features a large heading "AWS Free Tier" and a sub-headline "Gain free, hands-on experience with the AWS platform, products, and services". Below this, a blue call-to-action button says "Create a Free Account". To the right, a box titled "FEATURED" contains the text "Startups may be eligible for AWS credits" and "AWS Activate provides eligible startups with a host of resources, including free AWS credits to spend on AWS services, and AWS Support.", with a link "Sign up for Activate Today". At the bottom, a section titled "Types Of Offers" with a sub-note about exploring over 100 products is visible.

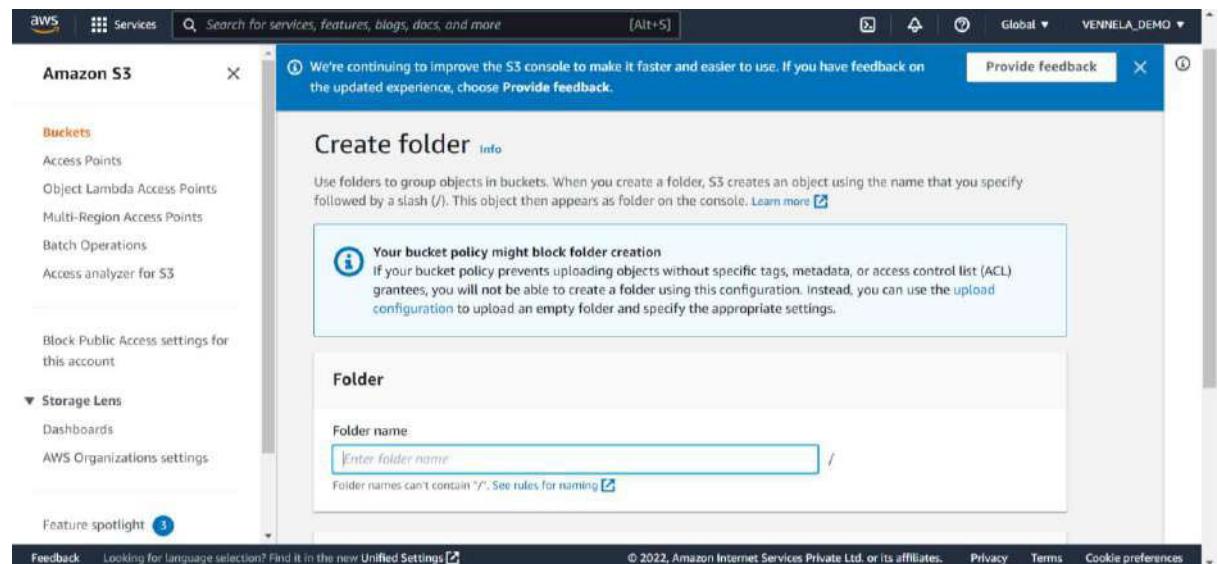
Step 2: After signing in, then type S3 in search box, and then click on launch instance.



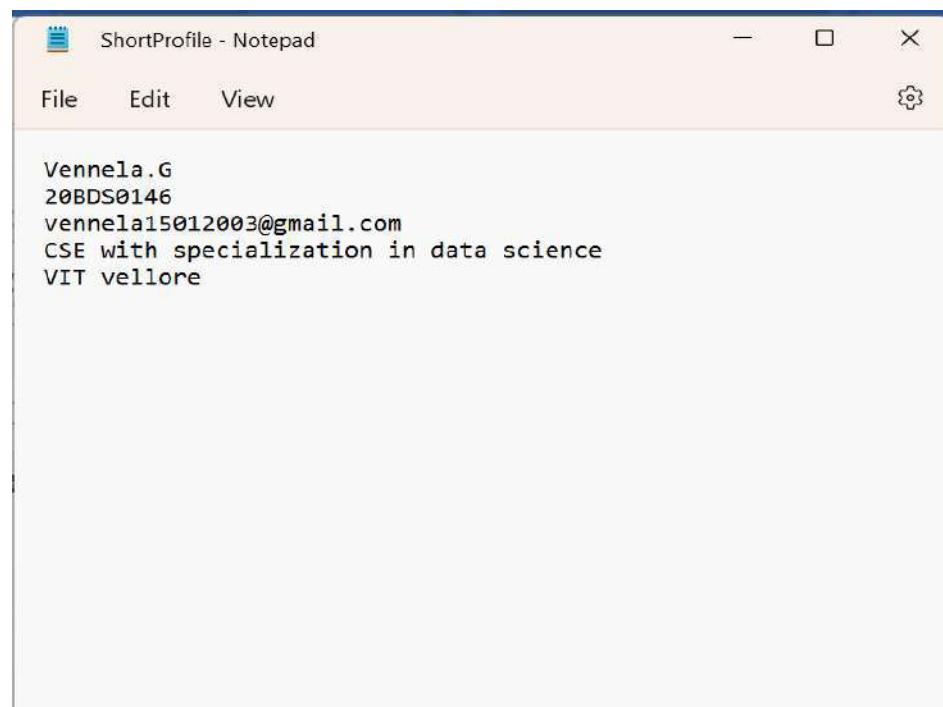
Step 3: Click on create bucket and in the window appearing type bucket name and select region and then finally click on create bucket option.



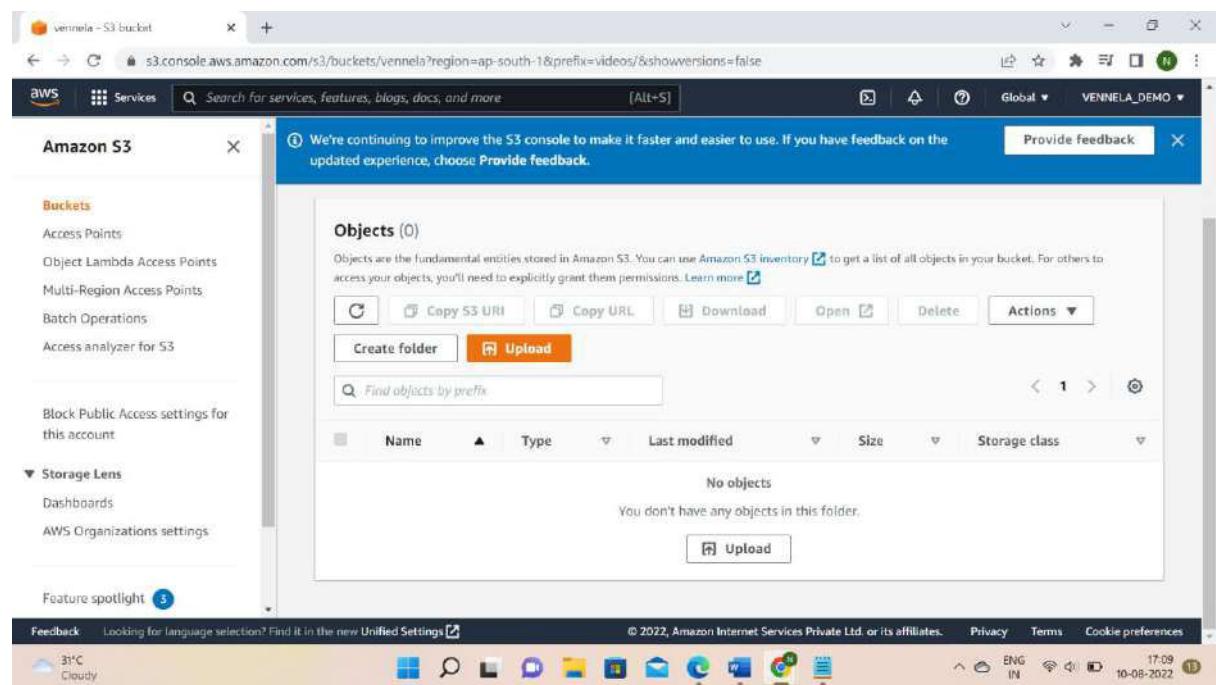
Step 4: Then double click on name of the bucket created and in the window appearing, click on create folder, then the window appears, select folder name as videos, for instance and click on Create folder:



Step 5: Create ShortProfile.txt file

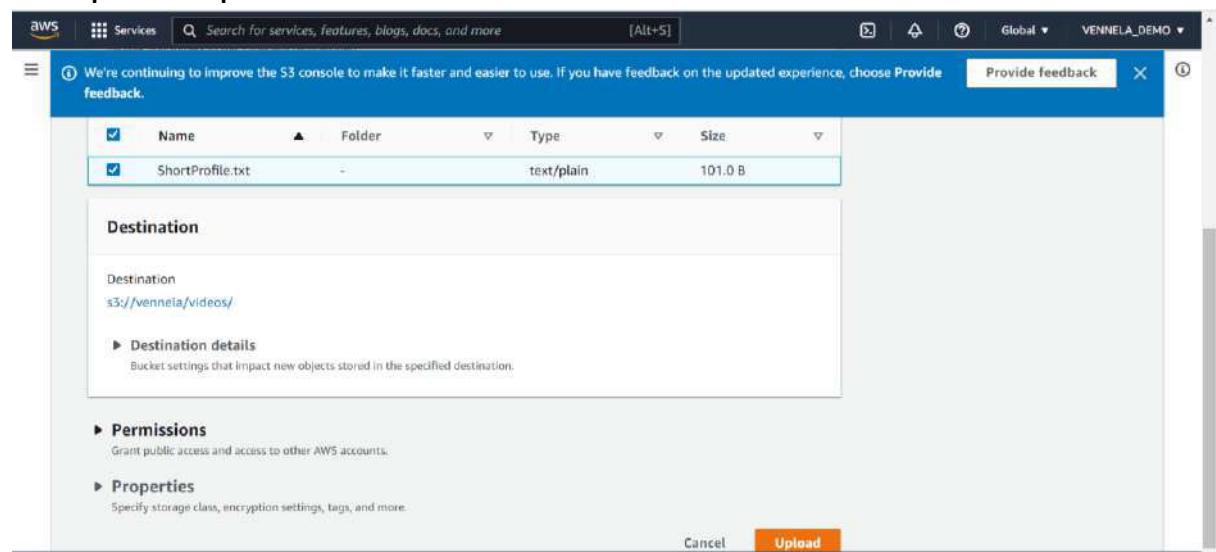


Step 6: Then in folder created, click on upload and select ShortProfile.txt



The screenshot shows the AWS S3 console interface. A new folder named 'videos' has been created within the 'vennela' bucket. The 'Upload' button is highlighted in orange, indicating it is the next step. The 'Actions' dropdown menu is open, showing options like Copy 53 URL, Copy URL, Download, Open, Delete, and Actions.

Step 7: After selecting text file, tick ShortProfile.txt and click on upload option.



The screenshot shows the 'Upload' dialog for the 'ShortProfile.txt' file. The file is selected in the list. The 'Upload' button is highlighted in orange. The 'Destination' section shows the destination as 's3://vennela/videos/'. The 'Permissions' and 'Properties' sections are also visible.

Step 8: Then window appears as follows that the file is uploaded successfully.

The screenshot shows the AWS S3 console interface. At the top, there's a blue header bar with the AWS logo, a search bar, and a message: "We're continuing to improve the S3 console to make it faster and easier to use. If you have feedback on the updated experience, choose Provide feedback." Below this, a green success banner displays the message "Upload succeeded" and "View details below." A table summarizes the upload results:

Destination	Succeeded	Failed
s3://vennela/videos/	1 File, 101.0 B (100.00%)	0 files, 0 B (0%)

Below the table, there are two tabs: "Files and folders" (which is selected) and "Configuration". Under "Files and folders", a table lists the uploaded file:

Name	Folder	Type	Size	Status
ShortProfile.txt	-	text/plain	101.0 B	Succeeded

At the bottom of the page, there are links for "Feedback", "Unified Settings", "Privacy", "Terms", and "Cookie preferences".

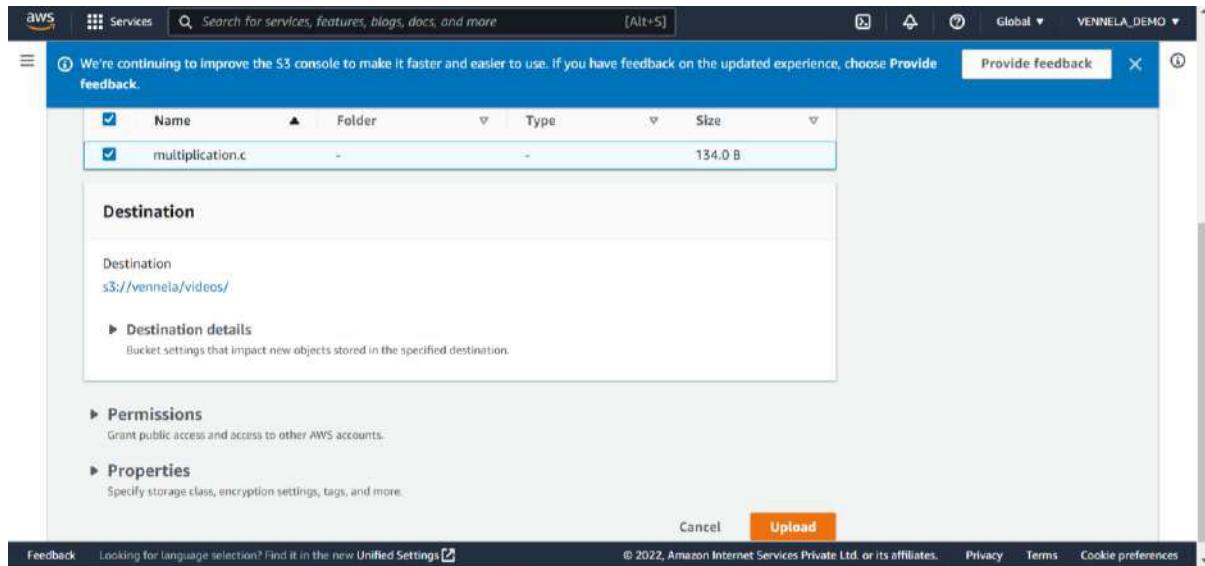
Step 9: Create multiplication.c file

The screenshot shows a Notepad window titled "multiplication - Notepad". The window contains the following C code:

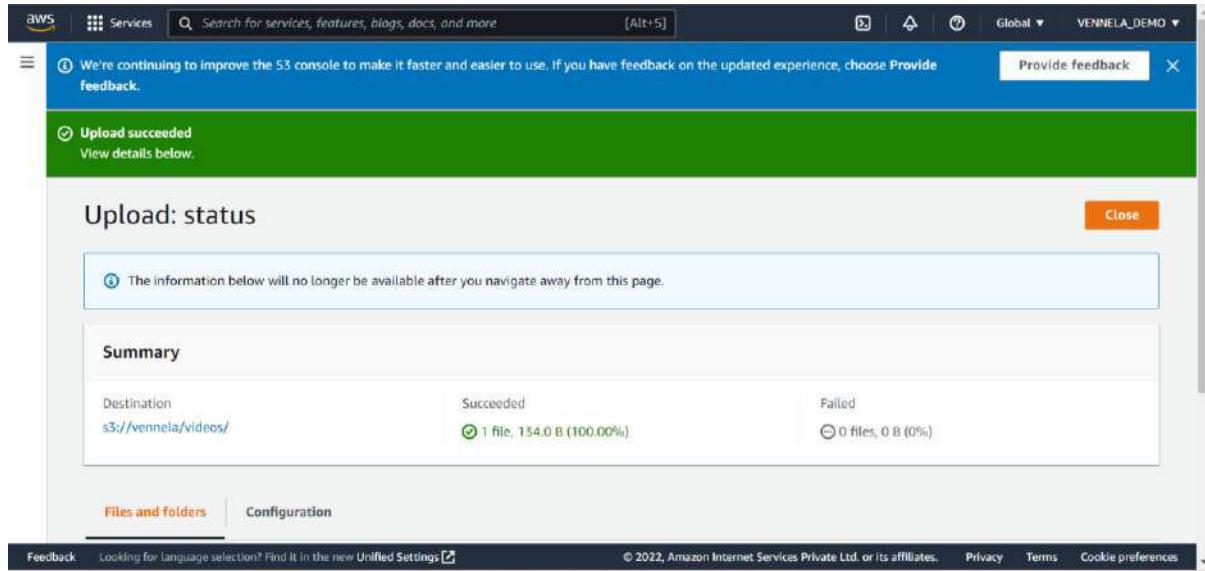
```
#include<stdio.h>

int main()
{
int num1=5,num2=10;
int res;
res=num1*num2;
printf("%d*%d=%d",num1,num2,res);
return 0;
}
```

Step 10: Then click on upload option in the videos folder created and select multiplication.c file and then click on Upload option.



Step 11: Then the window appears displaying that the file is uploaded successfully.



Step 12: The files are successfully uploaded.

The screenshot shows the AWS S3 console interface. At the top, there's a navigation bar with the AWS logo, a search bar, and various global settings. Below the navigation bar, the path is shown as "Amazon S3 > Buckets > vennela > videos/". On the right side of the path, there's a "Copy S3 URI" button. The main area is titled "Objects (2)". It contains a table with two rows of data:

	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	multiplication.c	c	August 10, 2022, 17:30:37 (UTC+05:30)	134.0 B	Standard
<input type="checkbox"/>	ShortProfile.txt	txt	August 10, 2022, 17:15:00 (UTC+05:30)	101.0 B	Standard

Below the table, there are several buttons: "Copy S3 URI", "Copy URL", "Download", "Open", "Delete", "Actions", "Create folder", and "Upload". A search bar labeled "Find objects by prefix" is also present. At the bottom of the page, there are links for "Feedback", "Unified Settings", "© 2022, Amazon Internet Services Private Ltd. or its affiliates.", "Privacy", "Terms", and "Cookie preferences".

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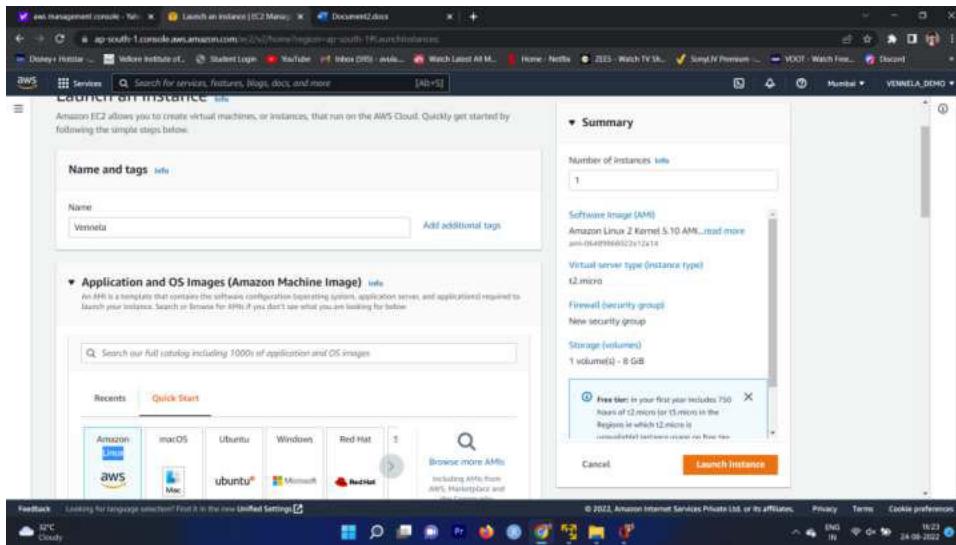
**PRINCIPLES OF CLOUD
COMPUTING**

LAB DA –3

Question 1

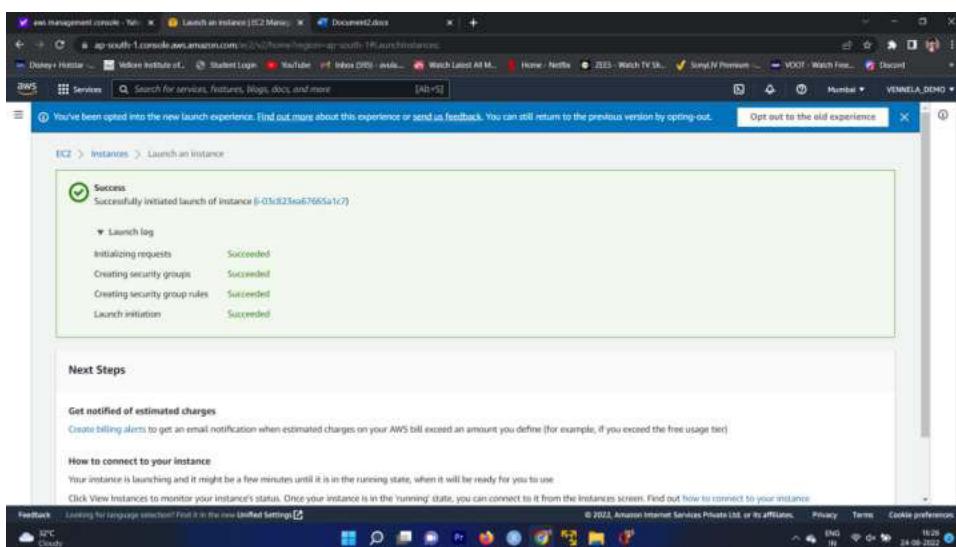
Step 1: Sign into the AWS Management Console and open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.

Step 2: Choose EC2 Dashboard, and then choose Launch instance.



Step 3: Leave the default values for the remaining sections.

Step 4: Choose Launch instance.



The screenshot shows two windows from the AWS Management Console:

- EC2 Instances Page:** This window displays a list of four EC2 instances. One instance, with the identifier i-05c823ea67665a1c7, is currently selected and highlighted in green. The status of this instance is "Running".
- 'Connect to instance' Dialog:** A modal dialog is open over the instances list. It is titled "Connect to instance" and contains the following fields:
 - EC2 Instance Connect:** Selected tab.
 - Session Manager:** Unselected tab.
 - SSH client:** Unselected tab.
 - EC2 serial console:** Unselected tab.
 - Instance ID:** Shows the instance identifier i-05c823ea67665a1c7.
 - Public IP address:** Shows the IP address 85.0.205.164.
 - User name:** Shows the user name ec2-user.
 - Note:** A note states, "In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name."
 - Buttons:** "Cancel" and "Connect" buttons.

On the Launch Status page, shown following, note the identifier for your new EC2 instance.

Step 5: Select installed instance and click on Connect and then select EC2 instance connect and click on connect.

Then

1)Install the Apache web server.

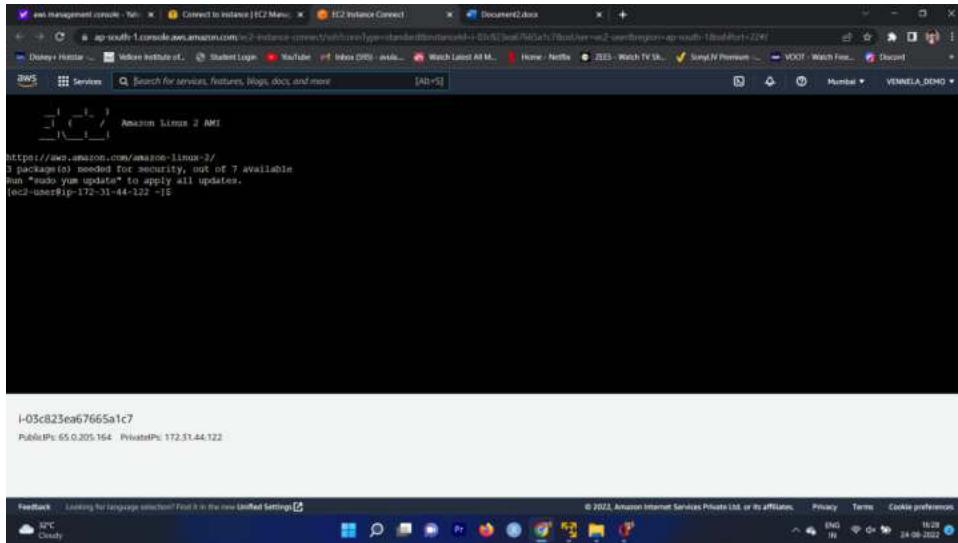
sudo yum install -y httpd

2)Start the web server with the command shown following.

```
sudo systemctl start httpd
```

3)Configure the web server to start with each system boot using the systemctl command.

```
sudo systemctl enable httpd
```



```

https://aws.amazon.com/amazon-linux-2/
3 package(s) needed for security, out of 7 available
Run 'sudo yum update' to apply all updates.

[root@ip-172-31-44-122 ~]# sudo yum update -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Transaction Check Failed - packages in wrong state:
    package chrony.x86_64 0:4.0-3.amzn2.0.2 will be updated
    package chrony.x86_64 0:4.2-0.1.amzn2.0.1 will be updated
--> Package chrony-client.x86_64 1:24.2.5-77.amzn2.1.1 will be updated
--> Package chrony-common.x86_64 1:24.2.5-77.amzn2.1.6 will be updated
--> Package chrony-libs.x86_64 1:24.2.5-77.amzn2.1.6 will be updated
--> Package chrony-libs.x86_64 1:24.2.5-77.amzn2.1.6 will be updated
--> Package chrony.x86_64 0:4.0.22-5.amzn2.0.4 will be updated
--> Package chrony.x86_64 0:4.0.22-5.amzn2.0.5 will be an update
--> Package kernel.x86_64 0:5.10.139-122.509.amzn2 will be installed
--> Package kernel-tools.x86_64 0:5.10.139-122.509.amzn2 will be updated
--> Package kernel-tools.x86_64 0:5.10.139-122.509.amzn2 will be an update

i-03c823ea67665a1c7
PublicIP: 65.0.205.164 PrivateIP: 172.31.44.122

```



```

Completed!
[root@ip-172-31-44-122 ~]# sudo yum install -y httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Transaction Check Failed - packages in wrong state:
    package httpd.x86_64 0:2.4.54-1.amzn2 will be installed
--> Processing Dependency: Httpd-tools >= 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: Httpd-filesystem >= 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: mod_httpd >= 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: mod_httpd-filesystem for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: /etc/mime.types for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil-1.so (44bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libapr-1.so (44bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil-1.so.0.0.0 for package: httpd-2.4.54-1.amzn2.x86_64
--> Package apr.x86_64 0:1.7.0-0.amzn2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Processing Dependency: apr-util-bdb(x86-64) = 1.6.1-5.amzn2.0.2 for package: apr-util-1.6.1-5.amzn2.0.2.x86_64
--> Package generic-logos-htpd.noarch 0:18.0.0-4.amzn2 will be installed
--> Package httpd-tools.x86_64 0:2.4.54-1.amzn2 will be installed
--> Package mailcap.noarch 0:2.1.4-2.amzn2 will be installed
--> Package mod_httpd.x86_64 0:1.15.19-1.amzn2.0.1 will be installed
--> Running transaction check
--> Transaction Check Failed - packages in wrong state:
    package apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Finished Dependency Resolution

i-03c823ea67665a1c7
PublicIP: 65.0.205.164 PrivateIP: 172.31.44.122

```

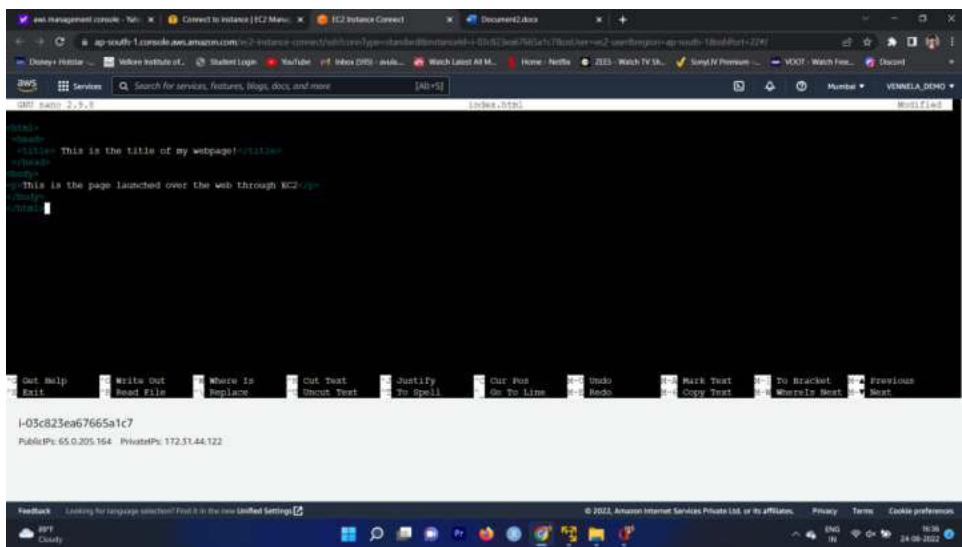


```

Completed!
[root@ip-172-31-44-122 ~]# systemctl start httpd.service
[root@ip-172-31-44-122 ~]# systemctl enable httpd.service
Failed to execute operation: No such file or directory
[root@ip-172-31-44-122 ~]# systemctl enable httpd.service
Created symlink /usr/lib/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-44-122 ~]# curl -q http://2.4.54.1.x86_64
[root@ip-172-31-44-122 ~]# cd /var/www/html
[root@ip-172-31-44-122 ~]# touch index.html
[root@ip-172-31-44-122 ~]# nano index.html
[root@ip-172-31-44-122 ~]# i-03c823ea67665a1c7
PublicIP: 65.0.205.164 PrivateIP: 172.31.44.122

```

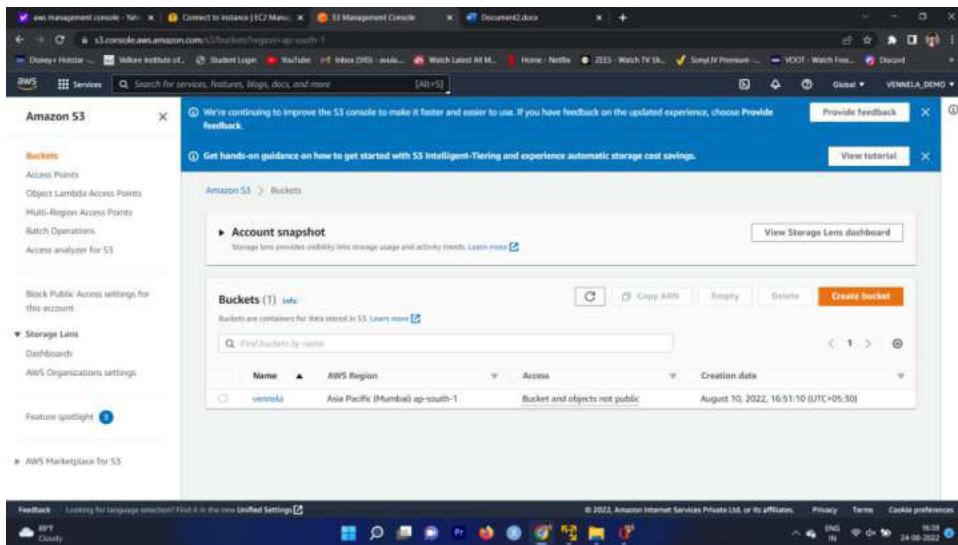




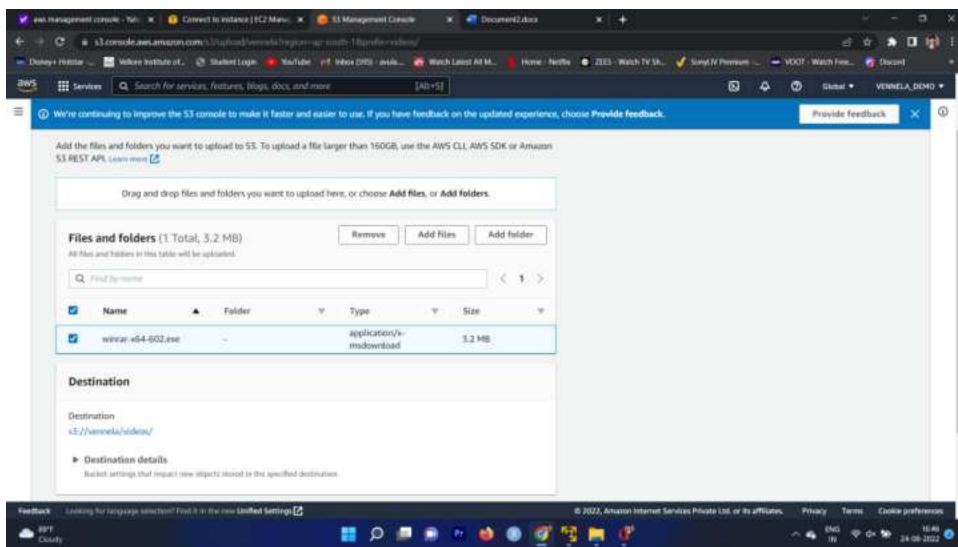
QUESTION 2

Step 1: Sign in to the AWS Management Console and open the Amazon S3 console

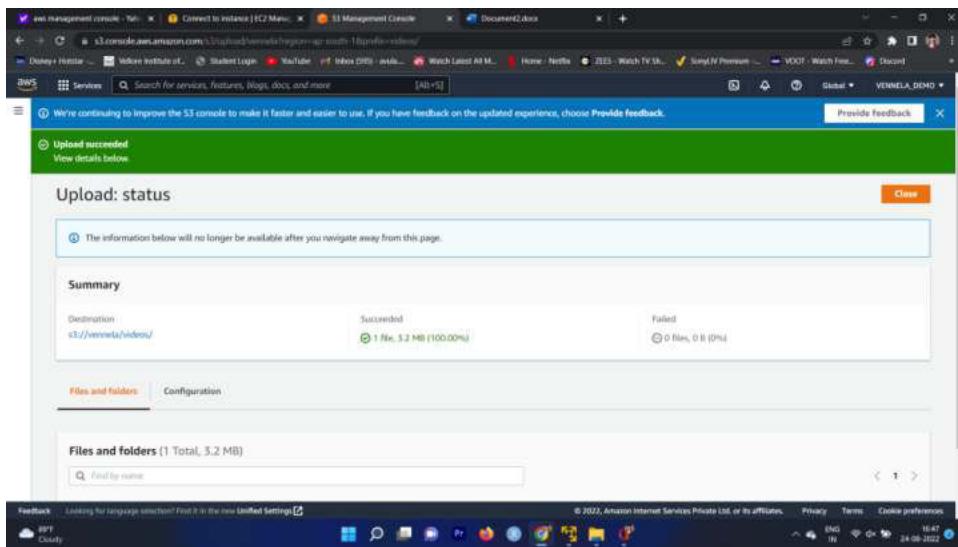
Step 2: Choose Create bucket.



Step 3: Select zip file and upload here



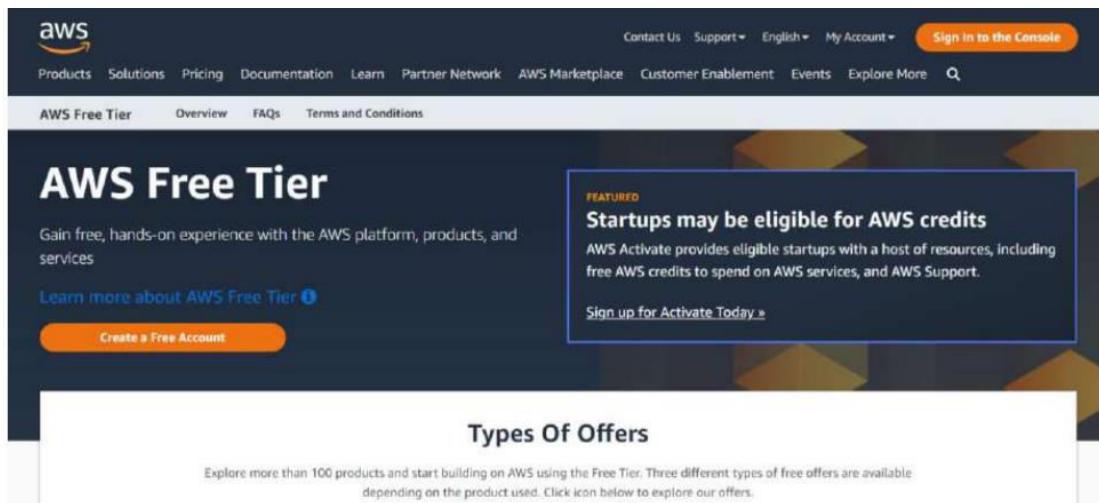
Step 4: The file is successfully uploaded and tested for working in /var/www/ folder



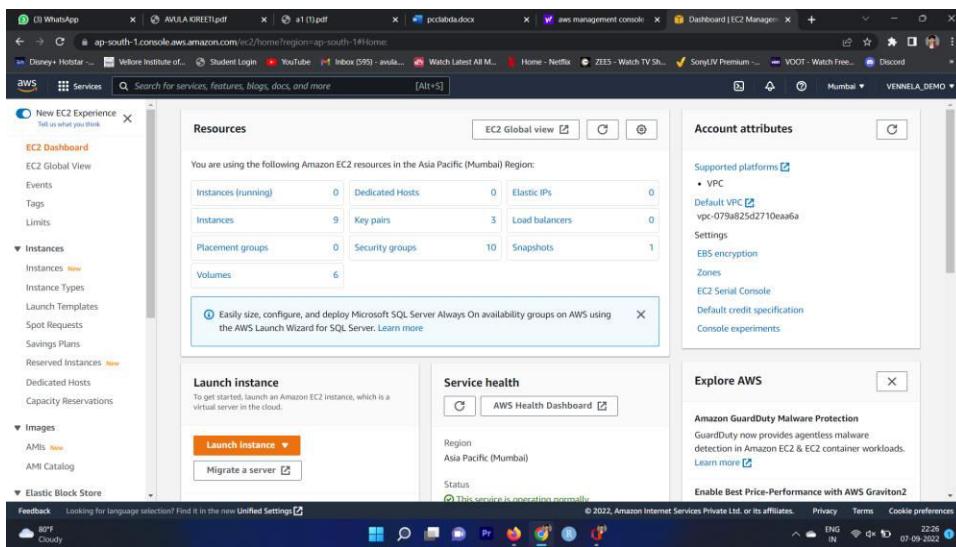
1.

3. Create a Load balancer using AWS and Test its running with sample set of web servers.

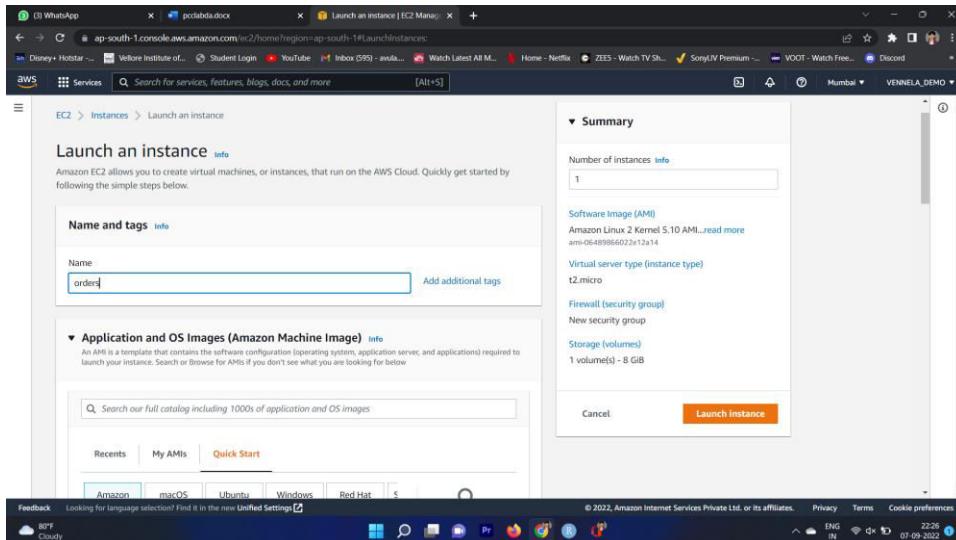
Step 1: Open aws management console in google search box and then Sign in to the pre-existing account.



Step 2: After signing in, then type ec2 in search box, and then click on launch instance.

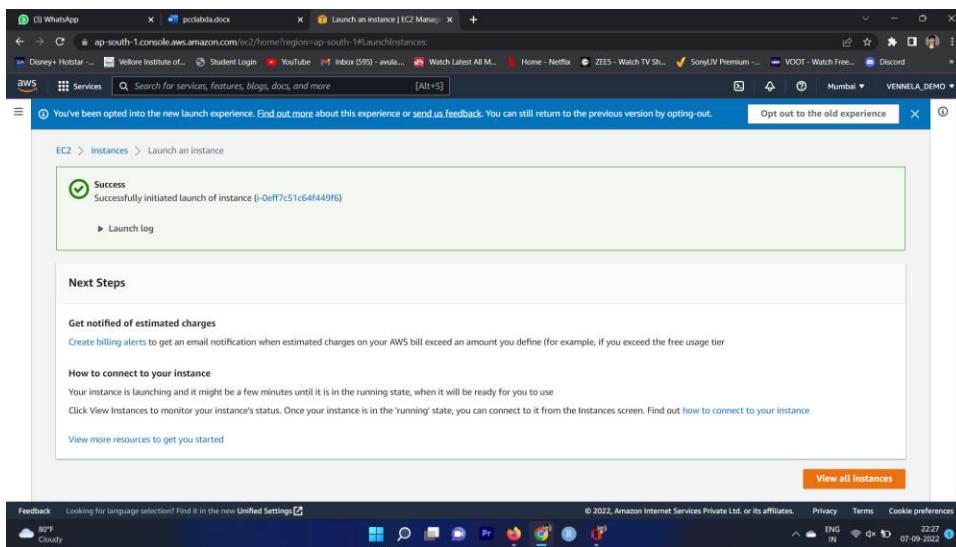


Step 3: After signing in, then type ec2 in search box, and then click on launch instance.

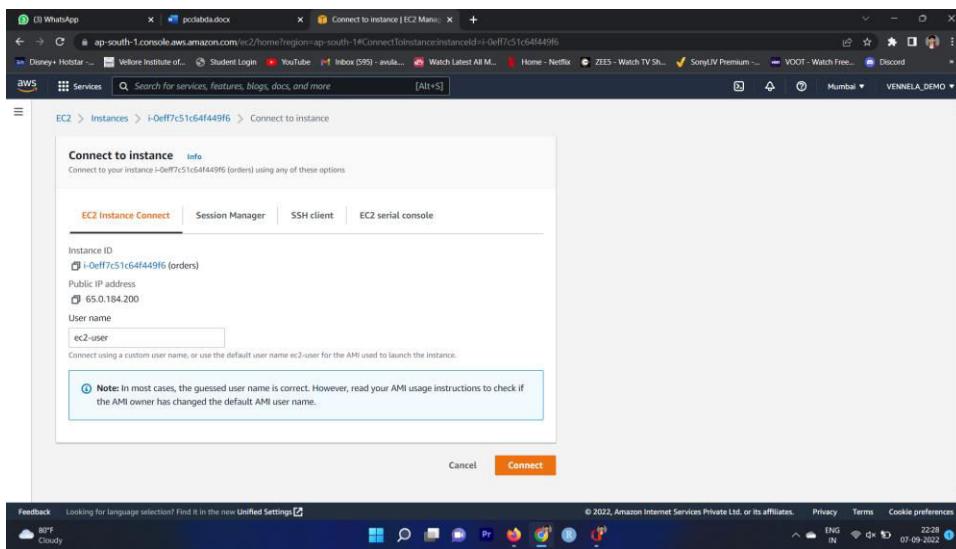


Step 4: Give name as Orders and select existing key and click on create instance

Step 5: The instance is successfully created.



Step 6: The instance is in running by default and then click on Connect



Step 5: Type the following commands in shell

```
i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIPs: 172.31.38.10

https://aws.amazon.com/amazon-linux-2/
3 package(s) needed for security, out of 8 available
Run "sudo yum update" to apply all updates.
(ec2-user@ip-172-31-38-10 ~)$
```

```
Last login: Wed Sep 7 16:59:09 2022 from ec2-13-233-177-5.ap-south-1.compute.amazonaws.com
[ec2-user@ip-172-31-38-10 ~]$ sudo su
[root@ip-172-31-38-10 ~]# yum install httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.54-1.amzn2 will be installed
--> Processing Dependency: httpd-tools = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: system-logos-httd for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: /etc/manpage.types for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil1.so.0 (64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libapr-1.so.0 (64bit) for packages: httpd-2.4.54-1.amzn2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.7.0-9.amzn2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed

i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIPs: 172.31.38.10
```

```
Feedback Looking for language selection? Find it in the new Unified Settings
Cloudy
© 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences
22:29 IN 07-09-2022
```

```

Installing : mailcap-2.1.41-2.amzn2.noarch
Installed   : mailcap-2.1.41-19.amzn2.x86_64
Installing : httpd-tools-2.4.54-1.amzn2.x86_64
Verifying   : apr-util-1.4.1-5.amzn2.x86_64
Verifying   : apr-util-bdb-1.6.1-5.amzn2.x86_64
Verifying   : httpd-tools-2.4.54-1.amzn2.x86_64
Verifying   : mod_http-1.15-19-1.amzn2.x86_64
Verifying   : httpd-2.4.54-1.amzn2.x86_64
Verifying   : mailcap-2.1.41-2.amzn2.noarch
Verifying   : generic-logos-httpd-16.0.0-4.amzn2.noarch
Verifying   : httpd-filesystem-2.4.54-1.amzn2.noarch
Verifying   : apr-1.7.0-9.amzn2.x86_64
7/9
8/9
9/9
1/9
2/9
3/9
4/9
5/9
6/9
7/9
8/9
9/9

Installed:
httpd.x86_64 0:2.4.54-1.amzn2

Dependency Installed:
apr.x86_64 0:1.7.0-9.amzn2      apr-util.x86_64 0:1.6.1-5.amzn2.0.2  apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2  generic-logos-httpd.noarch 0:18.0.0-4.amzn2
httpd-filesystem.noarch 0:2.4.54-1.amzn2  httpd-tools.x86_64 0:2.4.54-1.amzn2  mailcap.noarch 0:2.1.41-2.amzn2  mod_http2.x86_64 0:1.15.19-1.amzn2.0.1

Complete!
[root@ip-172-31-38-10 ec2-user]# sudo systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-38-10 ec2-user]# sudo systemctl start httpd
[root@ip-172-31-38-10 ec2-user]# curl -I http://12.31.38.10/html/index.html
[root@ip-172-31-38-10 html]# vim index.html

```

i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIPs: 172.31.38.10

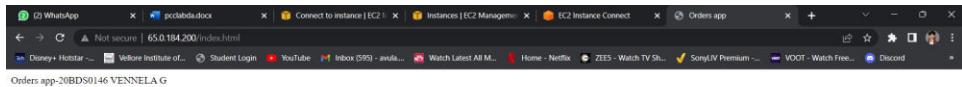

```

<html>
<head><title>Orders app</title>
</head>
<body><p>Orders app-20BDS0146 VENNELA G</p></body>
</html>

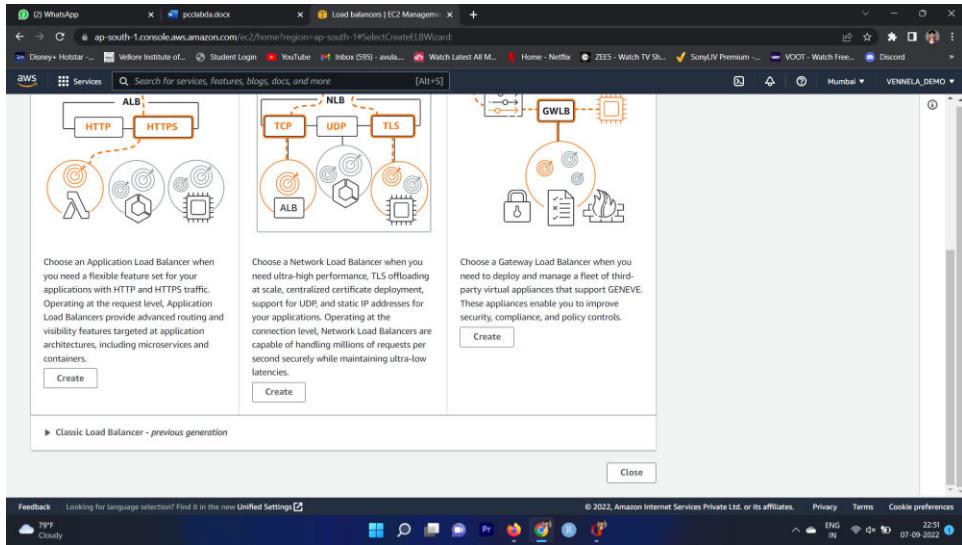
```

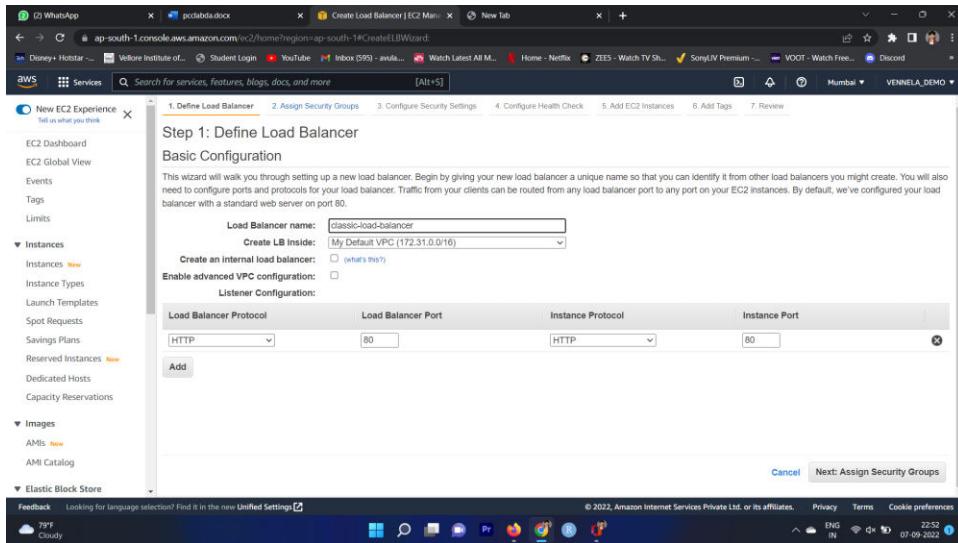
i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIPs: 172.31.38.10

Step 6: The public IPV4 address along with html page is typed in the search box, html page is displayed as follows:

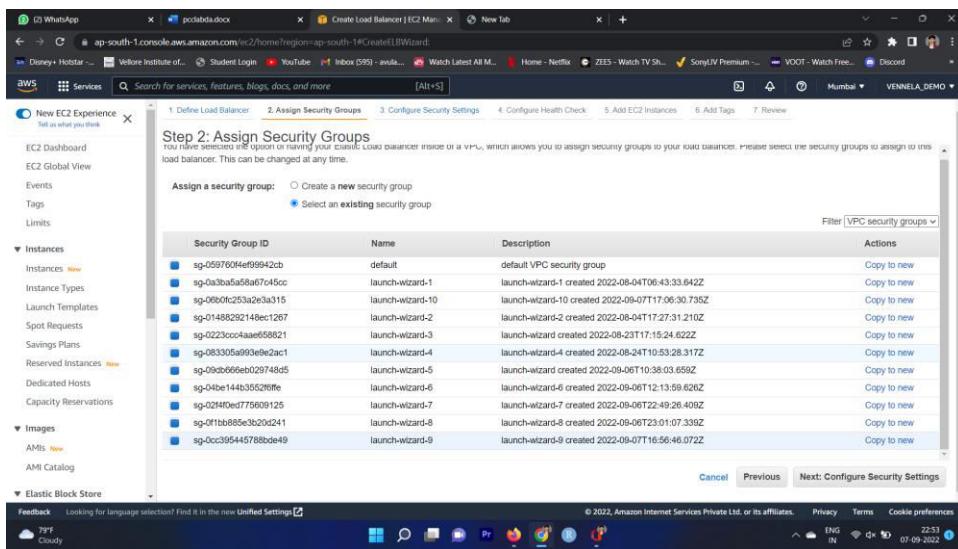


Step 7: Click on Load balancer and select create classic load balancer. The page is displayed as follows:





Step 8: Assign security groups as follows:



Step 9: Add EC2 instances as follows:

Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-079a825d2710eaa6a (172.31.0.0/16)

ID	Status	Launch Wizard	Region	Subnet	CIDR Block
i-01f88d073cc244bb	stopped	launch-wizard-3	ap-south-1b	subnet-0cd4e20...	172.31.0.0/20
i-03c823ea67665a1c7	stopped	launch-wizard-4	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20
i-0d72d74485ada4d	stopped	launch-wizard-5	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20
i-0d8ae3bce5cd75838	stopped	launch-wizard-5	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20
<input checked="" type="checkbox"/> i-0eff7c51c64449f6	orders	running	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20
i-075654b8041cb1e8	Payments	running	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20

Availability Zone Distribution

1 instance in ap-south-1a

Enable Cross-Zone Load Balancing (i)
 Enable Connection Draining (i) 300 seconds

Cancel Previous Next: Add Tags

Step 10: Review the load balancer details and click on create option.

Step 7: Review

Please review the load balancer details before continuing

Define Load Balancer

Load Balancer name: classic-load-balancer
Scheme: internet-facing
Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)

Configure Health Check

Ping Target: HTTP-80/index.html
Timeout: 5 seconds
Interval: 30 seconds
Unhealthy threshold: 2
Healthy threshold: 10

Add EC2 Instances

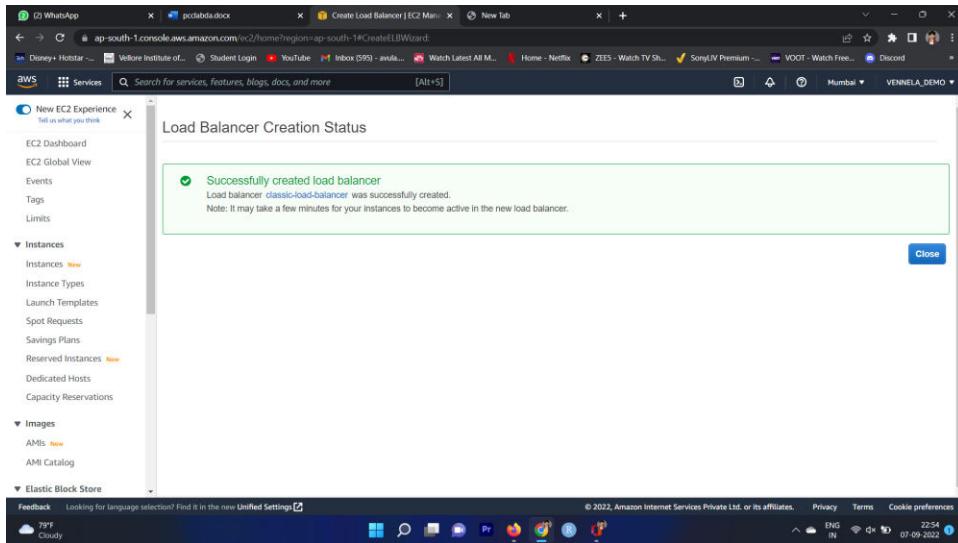
Cross-zone load balancing: Enabled
Connection Draining: Enabled, 300 seconds
Instances: i-0eff7c51c64449f6 (orders)

VPC Information

VPC: vpc-079a825d2710eaa6a
Subnets: subnets-0cf0462e010013713, subnets-0cf0462e010013714, subnets-0110e2960fadfeec

Create

Step 11: Load balancer is successfully created.



Step 12: The load balancer details are displayed on screen as follows:

The screenshot shows the 'Create Load Balancer' and 'Actions' tabs selected in the EC2 Management Console. Below is a table of existing load balancers:

Name	DNS name	State	VPC ID	Availability Zones	Type	Create
classic-load-balancer	classic-load-balancer-18764...	Active	vpc-079e825d2710ea6fa	ap-south-1a, ap-south-1b	classic	Septen
my-load-balancer	my-load-balancer-20539895...	Active	vpc-079e825d2710ea6fa	ap-south-1b, ap-south-1a	application	Septen

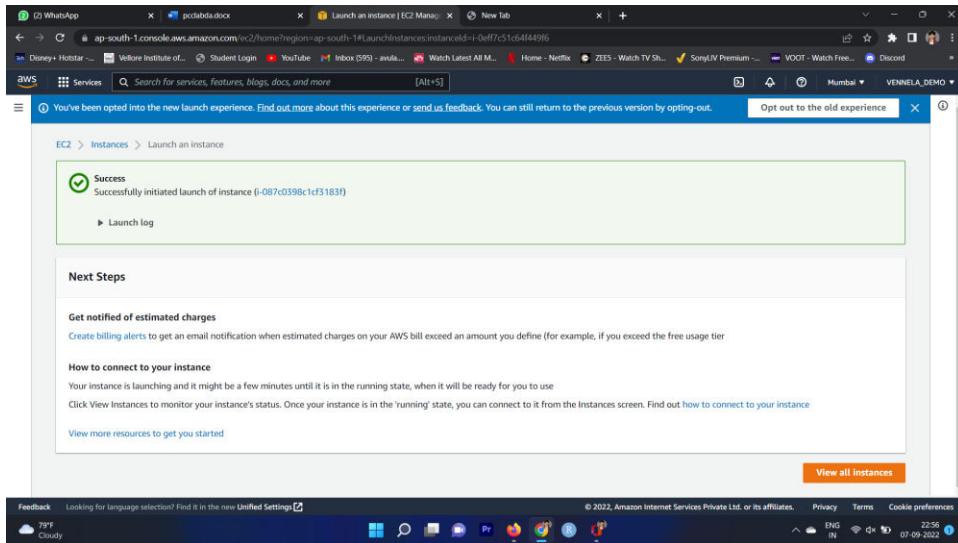
A detailed view of the 'classic-load-balancer' is shown in a modal window, including sections for Basic Configuration, Instances, Health check, Listeners, Monitoring, Tags, and Migration.

Step 13: On right click of Orders in instances, select Images and templates and click on Launch more like this and then in the window appearing, click on launch instances.

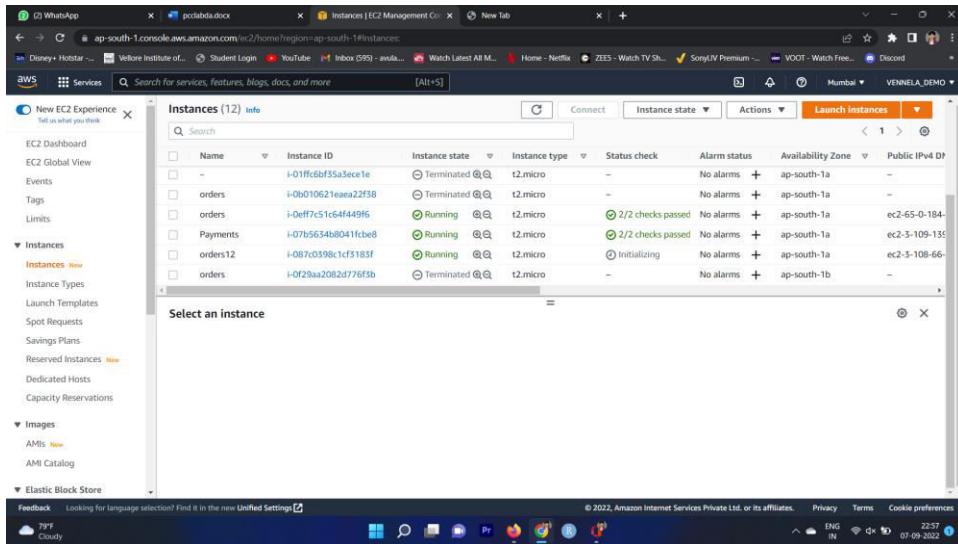
The screenshot shows the AWS EC2 Instances page. A context menu is open over the 'orders' instance, specifically over the 'Image and templates' section. The 'Launch more like this' button is highlighted. The 'Launch instances' button is also visible at the top of the instance details panel.

The screenshot shows the 'Launch instance' wizard. The 'Summary' panel indicates 1 instance will be launched. The software image is set to 'Amazon Linux 2 Kernel 5.10 AMI'. The virtual server type is 't2.micro'. The 'Launch instance' button is prominently displayed at the bottom right.

Step 14: The instance similar to Orders is successfully created



Step 15: The orders12 instance is created similar to order instance



Step 16: In the classic load balancer, In instances option , select orders12 instance also

Add and Remove Instances

The table below lists all your running EC2 instances. Check the boxes in the Select column to add those instances to this load balancer.

Warning: Uncheckung instances and clicking save will remove these instances from your load balancer.

Select	Name	State	VPC ID	Availability Zones	Type		
<input type="checkbox"/>	i-03c329ea57665a1c7	stopped	launch-wizard-4	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20	
<input type="checkbox"/>	i-0d72d4f4ada4fd	stopped	launch-wizard-5	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20	
<input type="checkbox"/>	i-0d8ac3c8ec5d575838	stopped	launch-wizard-5	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20	
<input checked="" type="checkbox"/>	i-0efffc51c6444496	orders	running	launch-wizard-9	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20
<input type="checkbox"/>	i-07b5634b8041fcbe8	Payments	running	launch-wizard-10	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20
<input checked="" type="checkbox"/>	i-087c0398c1cf5183f	orders12	running	launch-wizard-8, launch-wizard-10, def...	ap-south-1a	subnet-0cf0462e...	172.31.32.0/20

Availability Zone Distribution

2 Instances in ap-south-1a

Cancel Save

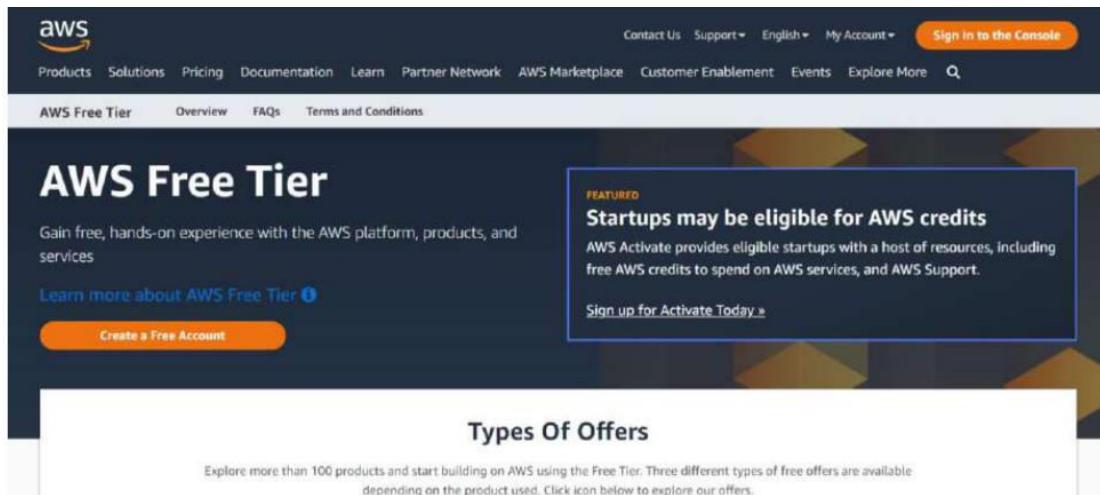
Step 17: On typing load balancer DNS in search box, the output appears as follows and on refreshing the same index.html appears.

classic-load-balancer-197642667.ap-south-1.elb.amazonaws.com

Orders app-20BD50146 VENNELA G

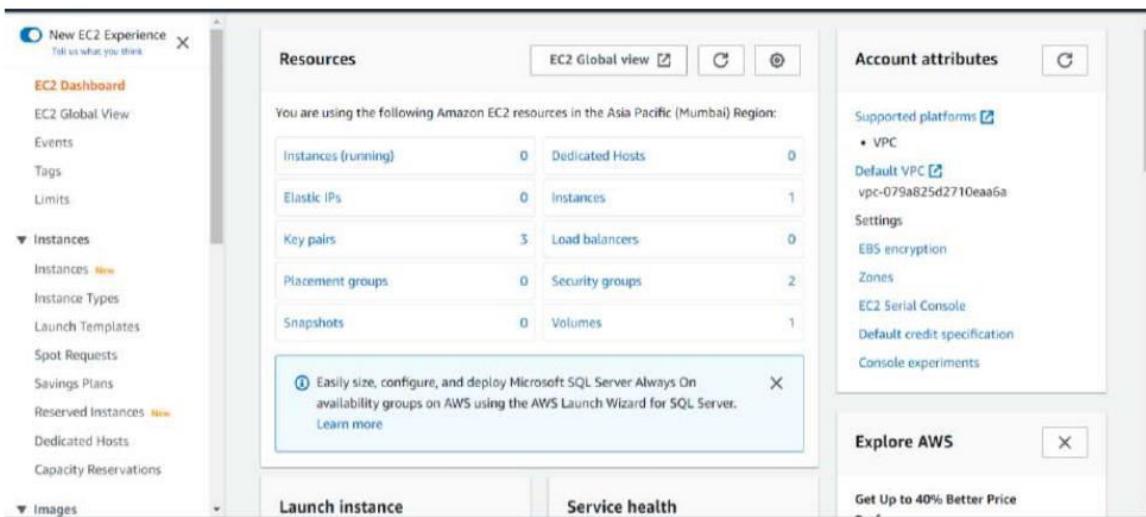
4. Develop an application elastic load balancer for two different web applications.

Step 1: Open aws management console in google search box and then Sign in to the pre-existing account.



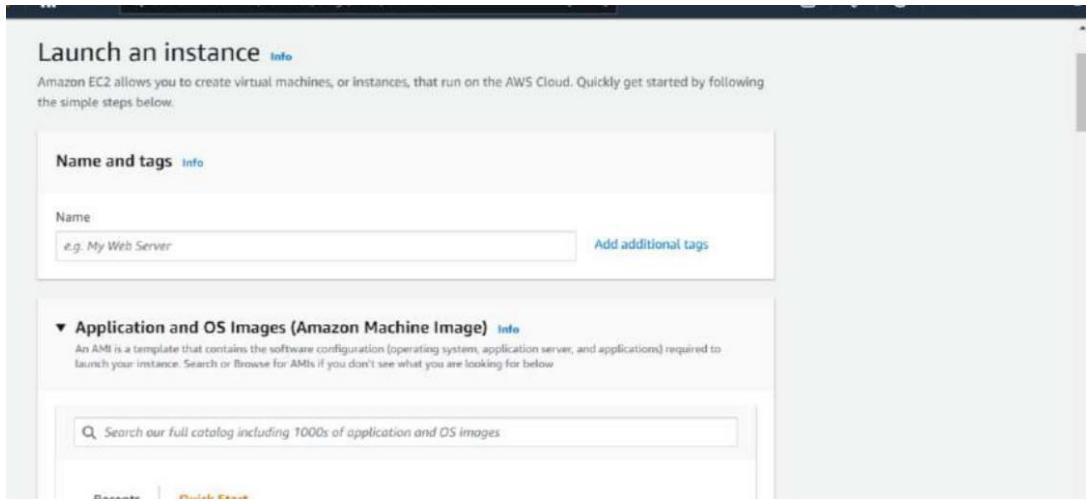
The screenshot shows the AWS Free Tier landing page. At the top, there's a navigation bar with links for Products, Solutions, Pricing, Documentation, Learn, Partner Network, AWS Marketplace, Customer Enablement, Events, Explore More, and a search bar. A prominent orange button on the right says "Sign in to the Console". Below the navigation, there are links for AWS Free Tier, Overview, FAQs, and Terms and Conditions. The main heading is "AWS Free Tier". A sub-section titled "FEATURED" highlights "Startups may be eligible for AWS credits" and mentions "AWS Activate provides eligible startups with a host of resources, including free AWS credits to spend on AWS services, and AWS Support." It includes a link "Sign up for Activate Today ». Below this, there's a button "Create a Free Account". A large central box is titled "Types Of Offers" and contains the text: "Explore more than 100 products and start building on AWS using the Free Tier. Three different types of free offers are available depending on the product used. Click icon below to explore our offers." There are three small circular icons representing different offer types.

Step 2: After signing in, then type ec2 in search box, and then click on launch instance.

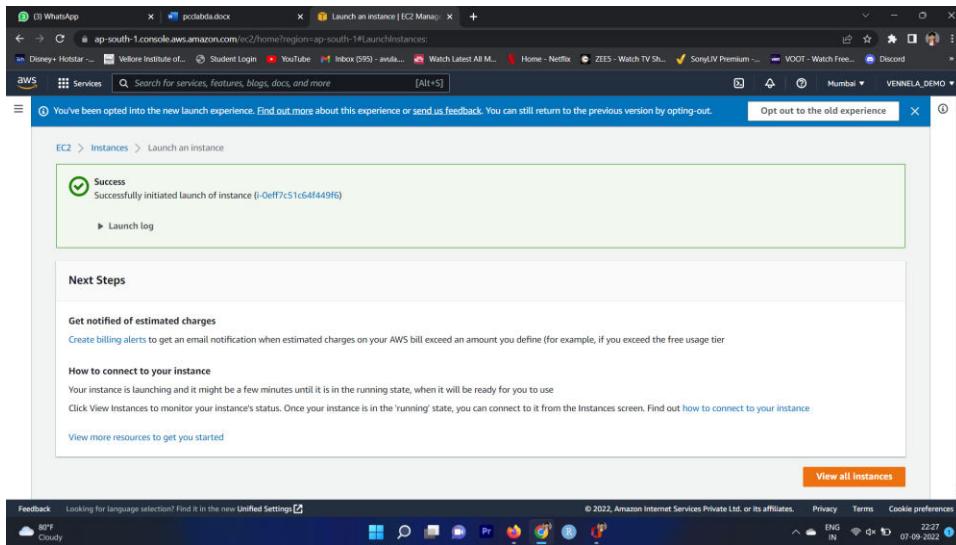


The screenshot shows the EC2 Dashboard. On the left, there's a sidebar with links for EC2 Global View, Events, Tags, Limits, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), and Images. The main area is titled "Resources" and shows a table of EC2 resources: Instances (running) 0, Dedicated Hosts 0, Elastic IPs 0, Instances 1, Key pairs 3, Load balancers 0, Placement groups 0, Security groups 2, Snapshots 0, and Volumes 1. A callout box over the resource table says: "Easily size, configure, and deploy Microsoft SQL Server Always On availability groups on AWS using the AWS Launch Wizard for SQL Server. Learn more". Below the resources is a button "Launch instance". To the right, there's a section titled "Account attributes" listing Supported platforms (VPC), Default VPC (vpc-079a825d2710eaa6a), Settings (EBS encryption, Zones, EC2 Serial Console, Default credit specification, Console experiments), and an "Explore AWS" section with a link "Get Up to 40% Better Price".

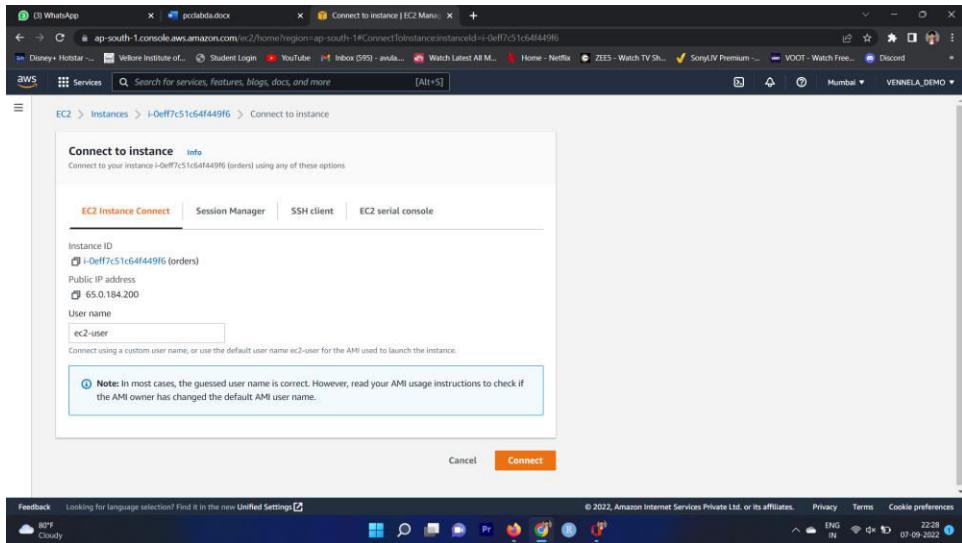
Step 3: After signing in, then type ec2 in search box, and then click on launch instance.



Step 4: Give name as Orders and select existing key and click on create instance and instance is successfully created



Step 5: The instance is in running by default and then click on Connect



Step 6: Type the following commands in shell

```
i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIPs: 172.31.38.10

https://aws.amazon.com/amazon-linux-2/
3 package(s) needed for security, out of 8 available
Run "sudo yum update" to apply all updates.
(ec2-user@ip-172-31-38-10 ~)$
```

```
Last login: Wed Sep 7 16:59:09 2022 from ec2-13-233-177-5.ap-south-1.compute.amazonaws.com
[ec2-user@ip-172-31-38-10 ~]$ sudo su
[root@ip-172-31-38-10 ~]# yum install httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.54-1.amzn2 will be installed
--> Processing Dependency: httpd-tools = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: system-logos-httd for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: /etc/manpage.types for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil1.so.0 (64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libapr-1.so.0 (64bit) for packages: httpd-2.4.54-1.amzn2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.7.0-9.amzn2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed

i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIPs: 172.31.38.10
```

```
Feedback Looking for language selection? Find it in the new Unified Settings
Cloudy
© 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences
22:29
ING IN 07-09-2022
Disney+ Hotstar... Vellore Institute of... Student Login YouTube Inbox (595) - avail... Watch Latest All M... Home - Netflix ZEE5 - Watch TV Sh... SonyLIV Premium... VOOT - Watch Free... Discord
aws Services Q Search for services, features, blogs, docs, and more [Alt+S]
[ec2-user@ip-172-31-38-10 ~]$
```

```

Installing : mailcap-2.1.41-2.amzn2.noarch
Installing : mod_http-1.15.19-1.amzn2.0.1.x86_64
Installing : httpd-tools-2.4.54-1.amzn2.x86_64
Verifying : apr-util-1.4.1-5.amzn2.0.2.x86_64
Verifying : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64
Verifying : httpd-tools-2.4.54-1.amzn2.x86_64
Verifying : mod_http-1.15.19-1.amzn2.0.1.x86_64
Verifying : httpd-1.15.19-1.amzn2.x86_64
Verifying : generic-logos-httd-16.0.0-4.amzn2.noarch
Verifying : httpd-filesystem-2.4.54-1.amzn2.noarch
Verifying : apr-1.7.0-9.amzn2.x86_64

Installed:
httpd.x86_64 0:2.4.54-1.amzn2

Dependency Installed:
apr.x86_64 0:1.7.0-9.amzn2           apr-util.x86_64 0:1.6.1-5.amzn2.0.2   apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2   generic-logos-httd.noarch 0:18.0.0-4.amzn2
httpd-filesystem.noarch 0:2.4.54-1.amzn2  httpd-tools.x86_64 0:2.4.54-1.amzn2  mailcap.noarch 0:2.1.41-2.amzn2  mod_http2.x86_64 0:1.15.19-1.amzn2.0.1

Complete!
[root@ip-172-31-38-10 ec2-user]# sudo systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-38-10 ec2-user]# sudo systemctl start httpd
[root@ip-172-31-38-10 ec2-user]# curl -I http://127.0.0.1:80/html/
[root@ip-172-31-38-10 html]# vim index.html

```

i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIP: 172.31.38.10

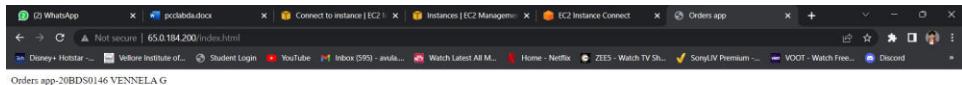

```

<html>
  <head><title>Orders app</title>
  </head>
  <body><p>Orders app-20BDS0146 VENNELA G</p></body>
</html>

```

i-0eff7c51c64f449f6 (orders)
PublicIP: 65.0.184.200 PrivateIP: 172.31.38.10

Step 7: The public IPV4 address along with html page is typed in the search box, html page is displayed as follows:



Step 8: Click on launch instance.

The screenshot shows the 'Launch an instance' wizard on the AWS Management Console. The first step, 'Set instance details', is displayed. In the 'Name and tags' section, there is a 'Name' input field with the placeholder 'e.g. My Web Server'. Below the input field is a link to 'Add additional tags'. In the 'Application and OS Images (Amazon Machine Image)' section, there is a note: '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.' A search bar is present with the placeholder 'Search our full catalog including 1000s of application and OS images'. At the bottom of the screen, the AWS navigation bar is visible.

Step 9: Give name as Payments and select existing key and click on create instance and then instance is successfully created.

The screenshot shows the 'Launch an instance' step of the AWS EC2 wizard. The 'Summary' section indicates 1 instance. The 'Software image (AMI)' is set to Amazon Linux 2 Kernel 5.10 AMI. The 'Virtual server type (instance type)' is t2.micro. The 'Storage (volumes)' section shows 1 volume(s) - 8 GiB. The 'Launch Instance' button is highlighted in orange.

Name and tags

Name: Payment

Application and OS Images (Amazon Machine Image)

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

Recent AMIs | My AMIs | Quick Start

Feedback Looking for language selection? Find it in the new Unified Settings

Feedback Looking for language selection? Find it in the new Unified Settings

The screenshot shows the 'Success' step of the AWS EC2 wizard. It displays a green success message: "Successfully initiated launch of instance (i-07b5654b8041fcbe8)". A "Launch log" link is available. The "Next Steps" section includes links for "Get notified of estimated charges", "How to connect to your instance", and "View more resources to get you started". The "View all instances" button is highlighted in orange.

Success

Successfully initiated launch of instance (i-07b5654b8041fcbe8)

▶ Launch log

Next Steps

Get notified of estimated charges
Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier)

How to connect to your instance
Your instance is launching and it might be a few minutes until it is in the running state, when it will be ready for you to use
Click View Instances to monitor your instance's status. Once your instance is in the 'running' state, you can connect to it from the Instances screen. Find out how to connect to your instance

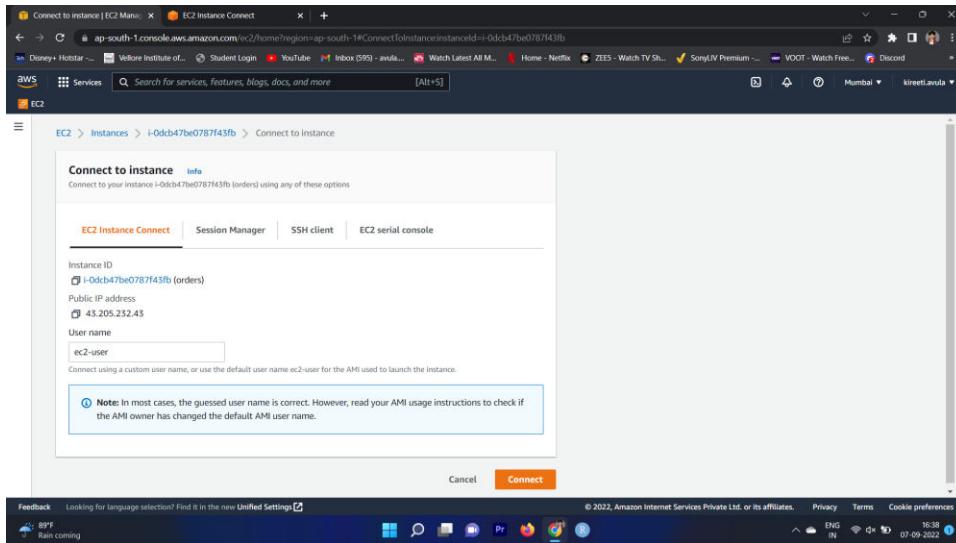
View more resources to get you started

View all instances

Feedback Looking for language selection? Find it in the new Unified Settings

Feedback Looking for language selection? Find it in the new Unified Settings

Step 10: The instance is in running by default and then click on Connect



Step 11: Type the following commands in shell

```

https://aws.amazon.com/amazon-linux-2/
3 package(s) needed for security, run 'sudo yum update' to install all updates.
[ec2-user@ip-172-31-43-242 ~]$ sudo su
[root@ip-172-31-43-242 ec2-user]# yum install httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:4.54-1.amzn2 will be installed
--> Processing Dependency: httpd-tools <= 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: system-logos-htpd for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil1.so.0.0.0 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil1.so.0.0.0 (64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libapr-1.so.0.0 (64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.6.1-9.amzn2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Processing Dependency: apr-util-bdb(x86-64) = 1.6.1-5.amzn2.0.2 for package: apr-util-1.6.1-5.amzn2.0.2.x86_64

i-07b5634b8041fcbe8 (Payments)
PublicIPs: 3.109.139.94 PrivateIPs: 172.31.43.242

Feedback Looking for language selection? Find it in the new Unified Settings
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77°F Cloudy
ING IN ☰ 10 07-09-2022 22:39

```

The screenshot shows a Windows desktop environment with several open windows:

- Terminal Window:** Shows the command line interface with the user root@ip-172-31-43-242: ~#.
- Browsers:** There are four browser tabs visible:
 - WhatsApp
 - pclabda.docx
 - Connect to instance | EC2 Man...
 - EC2 Instance Connect
- System Tray:** Shows icons for battery, signal strength, and system status.
- Taskbar:** Shows the Start button, task switcher, and system icons.

The terminal window contains the following text:

```

Installing : mailcap-2.1.41-2.amzn2.noarch 7/79
Installed : mod_httpd-1.15-19.1.amzn2.0.1.x86_64 8/79
Installing : httpd-tools-2.4.54-1.amzn2.x86_64 9/79
Verifying : apr-util-1.4.1-5.amzn2.0.2.x86_64 1/79
Verifying : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64 2/79
Verifying : httpd-tools-2.4.54-1.amzn2.x86_64 3/79
Verifying : mod_httpd-1.15-19.1.amzn2.0.1.x86_64 4/79
Verifying : httpd-tools-2.4.54-1.amzn2.x86_64 5/79
Verifying : generic-logos-httpsd-16.0.0-4.amzn2.noarch 6/79
Verifying : httpd-filesystem-2.4.54-1.amzn2.noarch 7/79
Verifying : apr-1.7.0-9.amzn2.x86_64 8/79
Installed:
httpd.x86_64 0:2.4.54-1.amzn2 9/79

Dependency Installed:
apr.x86_64 0:1.7.0-9.amzn2     apr-util.x86_64 0:1.6.1-5.amzn2.0.2  apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2  generic-logos-httpsd.noarch 0:16.0.0-4.amzn2
httpd-filesystem.noarch 0:2.4.54-1.amzn2  httpd-tools.x86_64 0:2.4.54-1.amzn2  mailcap.noarch 0:2.1.41-2.amzn2  mod_httpd.x86_64 0:1.15.19-1.amzn2.0.1

Complete!
root@ip-172-31-43-242:~# sudo systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
root@ip-172-31-43-242:~# sudo systemctl start httpd
[root@ip-172-31-43-242 ~]# curl -v http://127.0.0.1/
[root@ip-172-31-43-242 ~]# vim index.html

```

i-07b5634b8041fcbe8 (Payments)
PublicIPs: 3.109.139.94 PrivateIPs: 172.31.43.242

The browser window shows the following content:

```

<html>
  <head>
    <title>Payments</title>
  </head>
  <body><p>Payments app- 20B0SD0146 VENNELA G</p></body>
</html>

```

i-07b5634b8041fcbe8 (Payments)
PublicIPs: 3.109.139.94 PrivateIPs: 172.31.43.242

The browser window shows the following content:

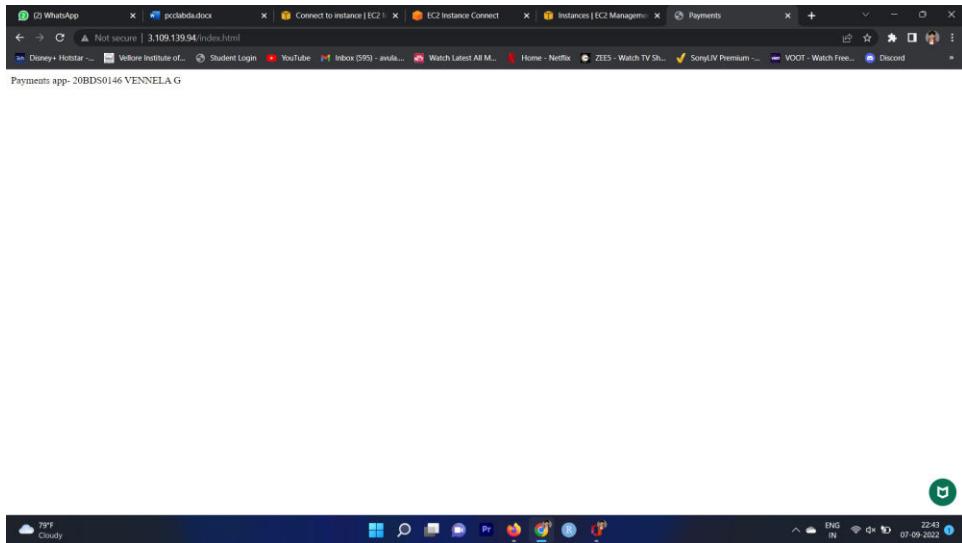
```

<html>
  <head>
    <title>Payments</title>
  </head>
  <body><p>Payments app- 20B0SD0146 VENNELA G</p></body>
</html>

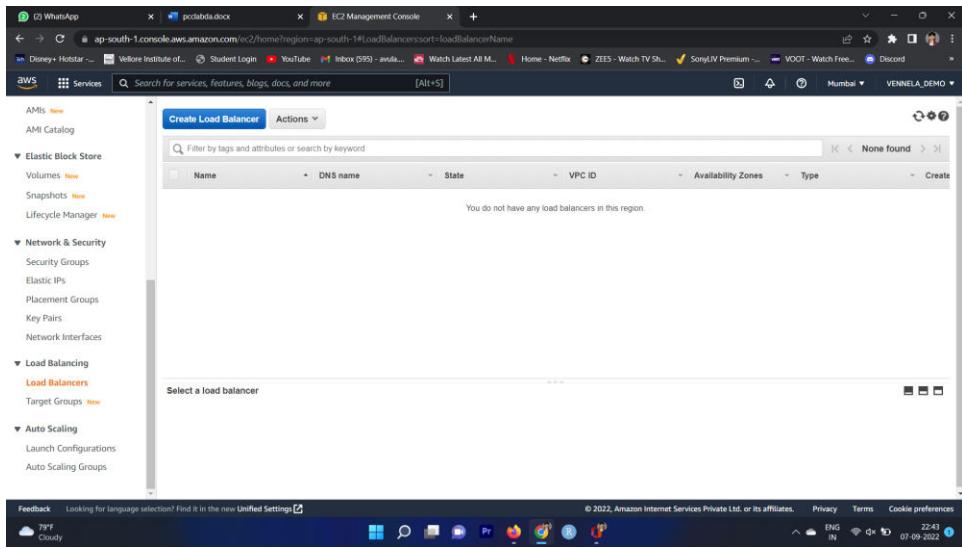
```

i-07b5634b8041fcbe8 (Payments)
PublicIPs: 3.109.139.94 PrivateIPs: 172.31.43.242

Step 12: The public IPV4 address along with html page is typed in the search box, html page is displayed as follows:



Step 13: In load balancer, create application load balancer and give name of load balancer as follows in the window appearing and click on Create



Create Application Load Balancer

Basic configuration

Load balancer name: my-load-balancer

Scheme: Internet-facing

IP address type: IPv4

Listeners and routing

Listener HTTP:80: Forward to Target-group (sg-06bf0fc253a2e3a315)

Add-on services - optional

Successfully created load balancer: my-load-balancer

Step 14: The load balancer is successfully created.

Suggested next steps

- Review, customize, or enable attributes for your load balancer and listeners using the **Description** and **Listeners** tabs within **my-load-balancer**.
- Discover other services that you can integrate with your load balancer. Visit the **Integrated services** tab within **my-load-balancer**.

View load balancer

Step 15: In target groups, create a target group with name targetgroup1 and register orders and payments instances in this target group.

Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration

Choose a target type

- Instances
 - Supports load balancing to instances within a specific VPC.
 - Facilitates the use of Amazon EC2 Auto Scaling to manage and scale your EC2 capacity.
- IP addresses
 - Supports load balancing to VPC and on-premises resources.
 - Facilitates routing to multiple IP addresses and network interfaces on the same instance.
 - Offers flexibility with microservice based architectures, simplifying inter-application communication.
 - Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.
- Lambda function
 - Facilitates routing to a single Lambda function.
 - Accessible to Application Load Balancers only.

Register targets

This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Available instances (2)

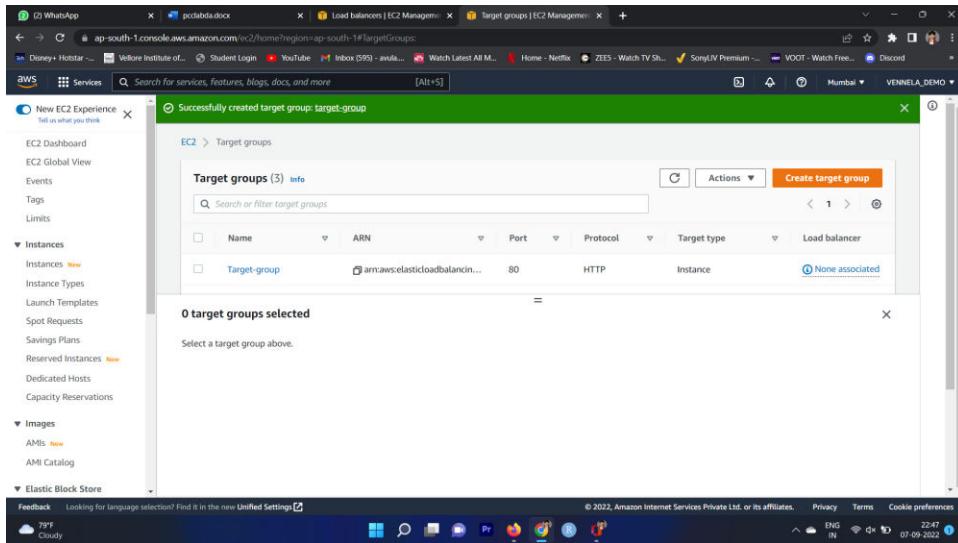
Instance ID	Name	State	Security groups	Zone	Subnet ID
i-0eff7c51c64f449f6	orders	running	launch-wizard-9	ap-south-1a	subnet-0cf0462e5100d5713
i-0756534b8041fcbe8	Payments	running	launch-wizard-10	ap-south-1a	subnet-0cf0462e5100d5713

Ports for the selected instances

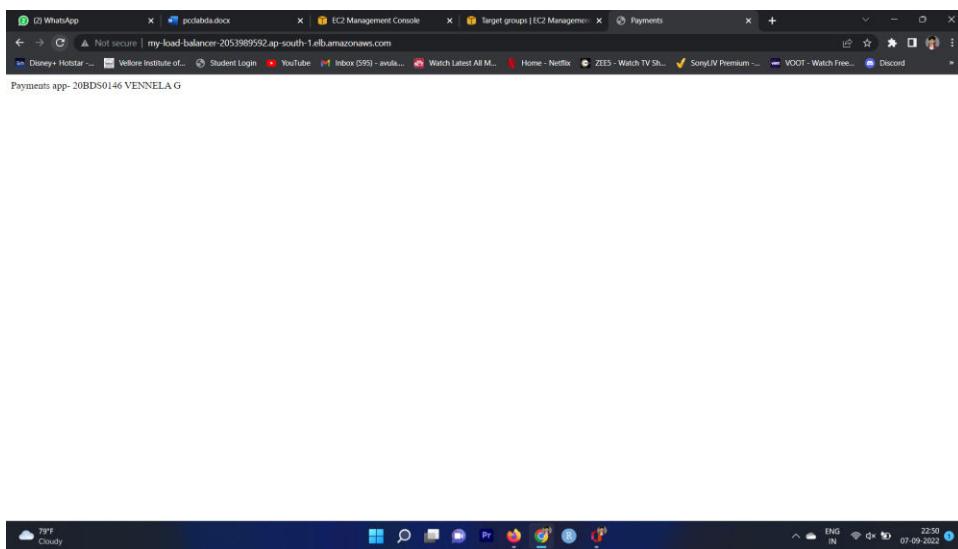
Ports for routing traffic to the selected instances.

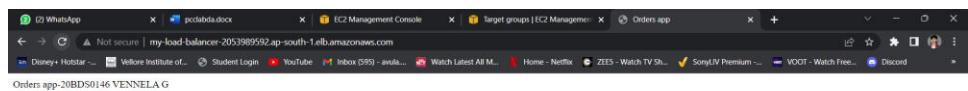
80
1-65535 (separate multiple ports with commas)

Review targets



Step 16: Using load balancer's DNS , type it in search box and refresh the page to view index.html output for both orders and payments page created.

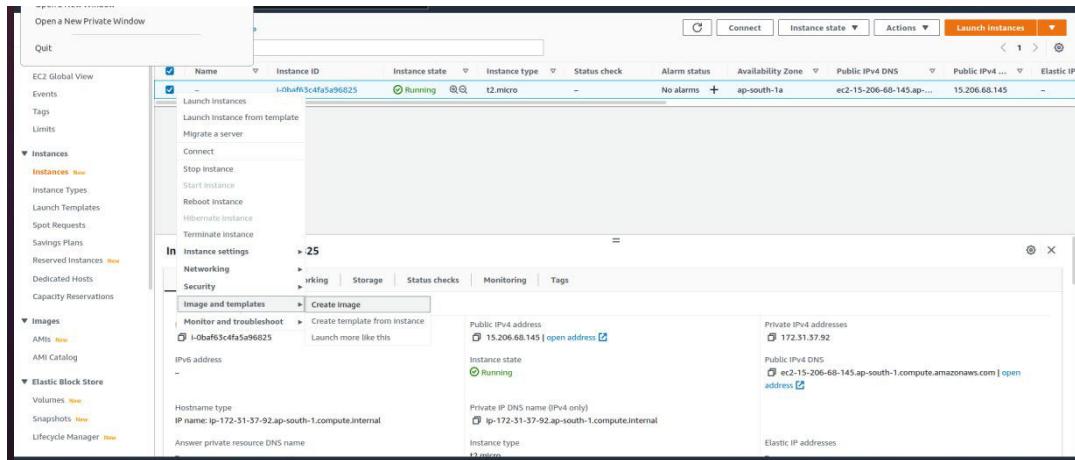




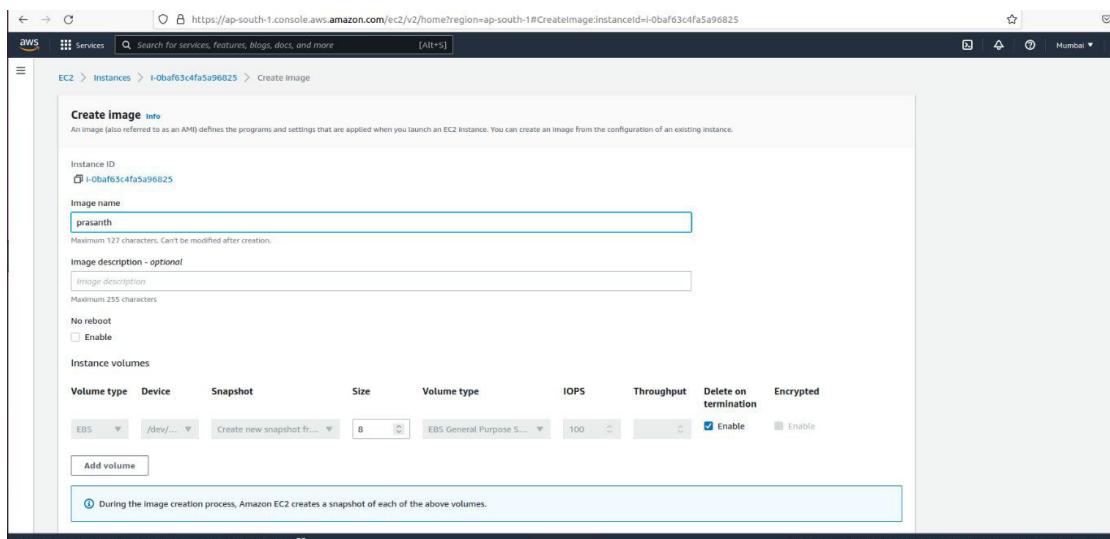
5. Implement the Concept of Virtual Machine Migration from one Amazon Region into another region.

Step 1: Create an AMI from an Amazon EC2 Instance

- Right-click the instance you want to use as the basis for your AMI and choose create image from context menu



- In the Create Image dialog box, type a unique name and description, and then choose Create Image.



- AMI first appears, it may be in a pending state, but after a few moments it appears in available state

- Share it with your friend and ask your friend to do the same.

On the destination AWS account

- Should be in the same region as like source AWS account
- Launch instances-> Go to My AMI's -> click on shared AMI -> Select the image
Choose the same instance type as like source

- Choose the same instance type as like source Configure instance details

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of Instances	<input type="text" value="1"/>	Launch into Auto Scaling Group
Purchasing option	<input type="checkbox"/> Request Spot instances	
Network	vpc-0e41a7276e919a2fb (default)	<input type="button" value="Create new VPC"/>
Subnet	No preference (default subnet in any Availability Zone)	<input type="button" value="Create new subnet"/>
Auto-assign Public IP	<input type="checkbox"/> Use subnet setting (Enable)	
Hostname type	<input type="checkbox"/> Use subnet setting (IP name)	
DNS Hostname	<input type="checkbox"/> Enable IP name IPv4 (A record) DNS requests <input checked="" type="checkbox"/> Enable resource-based IPv4 (A record) DNS requests <input type="checkbox"/> Enable resource-based IPv6 (AAAA record) DNS requests	
Placement group	<input type="checkbox"/> Add instance to placement group	
Capacity Reservation	<input type="button" value="Open"/>	
Domain join directory	<input type="button" value="No directory"/> <input type="button" value="Create new directory"/>	
IAM role	<input type="button" value="None"/> <input type="button" value="Create new IAM role"/>	
Shutdown behavior	<input type="button" value="Stop"/>	

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add S](#)

d) Choose the same instance type as like source Configure instance details

Step 2: Choose an Instance Type

<input type="checkbox"/>	g5	g5.2xlarge	96	384	1 x 3800 (SSD)	Yes	50 Gigabit	Yes	
<input type="checkbox"/>	g5	g5.4xlarge	192	768	2 x 3800 (SSD)	Yes	100 Gigabit	Yes	
<input type="checkbox"/>	i3	i3.large	2	15.3	1 x 475 (SSD)	Yes	Up to 10 Gigabit	Yes	
<input type="checkbox"/>	i3	i3.xlarge	4	30.5	1 x 950 (SSD)	Yes	Up to 10 Gigabit	Yes	
<input type="checkbox"/>	i3	i3.2xlarge	8	61	1 x 1900 (SSD)	Yes	Up to 10 Gigabit	Yes	
<input type="checkbox"/>	i3	i3.4xlarge	16	122	2 x 1900 (SSD)	Yes	Up to 10 Gigabit	Yes	
<input type="checkbox"/>	i3	i3.6xlarge	32	244	4 x 1900 (SSD)	Yes	10 Gigabit	Yes	
<input type="checkbox"/>	i3	i3.8xlarge	64	488	8 x 1900 (SSD)	Yes	25 Gigabit	Yes	
<input checked="" type="checkbox"/>	i3	i3.meta	72	512	8 x 1900 (SSD)	Yes	25 Gigabit	Yes	
<input type="checkbox"/>	i3en	i3en.large	2	16	1 x 1250 (SSD)	Yes	Up to 25 Gigabit	Yes	
<input type="checkbox"/>	i3en	i3en.xlarge	4	32	1 x 2500 (SSD)	Yes	Up to 25 Gigabit	Yes	
<input type="checkbox"/>	i3en	i3en.2xlarge	8	64	2 x 2500 (SSD)	Yes	Up to 25 Gigabit	Yes	
<input type="checkbox"/>	i3en	i3en.3xlarge	12	96	1 x 7500 (SSD)	Yes	Up to 25 Gigabit	Yes	
<input type="checkbox"/>	i3en	i3en.6xlarge	24	192	2 x 7500 (SSD)	Yes	25 Gigabit	Yes	
<input type="checkbox"/>	i3en	i3en.12xlarge	48	384	4 x 7500 (SSD)	Yes	50 Gigabit	Yes	

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Instance Details](#)

e) Add storage

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more about storage options in Amazon EC2.](#)

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/vvda	snap-0ae2baeb0d3b6459	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted
ephemeral0	/dev/nvme0n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted
ephemeral1	/dev/nvme1n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted
ephemeral2	/dev/nvme2n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted
ephemeral3	/dev/nvme3n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted
ephemeral4	/dev/nvme4n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted
ephemeral5	/dev/nvme5n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted
ephemeral6	/dev/nvme6n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted
ephemeral7	/dev/nvme7n1	N/A	1900	SSD (NVMe AMI required)	N/A	N/A	N/A	Hardware Encrypted

[Add New Volume](#)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

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f) Add tags

Amazon Services Search for services, features, blogs, docs, and more [AI+5]

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 5: Add Tags

This tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A tag can be applied to volumes, instances or both. Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	(128 characters maximum)	Value	(256 characters maximum)	Instances	Volumes	Network Interfaces
This resource currently has no tags						
Choose the Add tag button or click to add a Name tag. Make sure your IAM policy includes permissions to create tags.						
Add Tag (Up to 50 tags maximum)						

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g) Configure security group

Services Search for services, features, blogs, docs, and more [Alt+S]

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

6. Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow internet traffic to reach your instance, add rules that allow to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

Assign a security group: Create a new security group Select an existing security group

Security group name: launch-wizard-5
Description: launch-wizard-5 created 2022-08-21T14:52:24.722+05:30

Protocol	Port Range	Source	Description
TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

Rule

Warning
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel Previous Next

h) Review Instance launch and launch

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click Launch to assign a key pair to your instance and complete the launch process.

AMI Details

JITENDRA - ami-00a365746bb659210
Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)
i3.metal	-	72	512

Security Groups

Security group name: launch-wizard-5
Description: launch-wizard-5 created 2022-08-21T14:52:24.722+05:30

Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ECDSS5119 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI.

Choose an existing key pair
Select a key pair
20BCE | RSA

I acknowledge that I have access to the corresponding private key file, and that without this file, I won't be able to log into my instance.

Cancel Launch Instances

age restrictions.

Don't show me this again

Edit AMI

Edit instance type

Edit security groups

Cancel Previous Launch

Launch Status

Launch Failed	
You have requested more vCPU capacity than your current vCPU limit of 32 allows for the instance bucket that the specified instance type belongs to. Please visit http://aws.amazon.com/contact-us/ec2-request to request an adjustment to this limit.	
Hide launch log	
Creating security groups	Successful (sg-0f93ba7a5f5856a05)
Authorizing inbound rules	Successful
Initiating launches	Failure: Retry

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