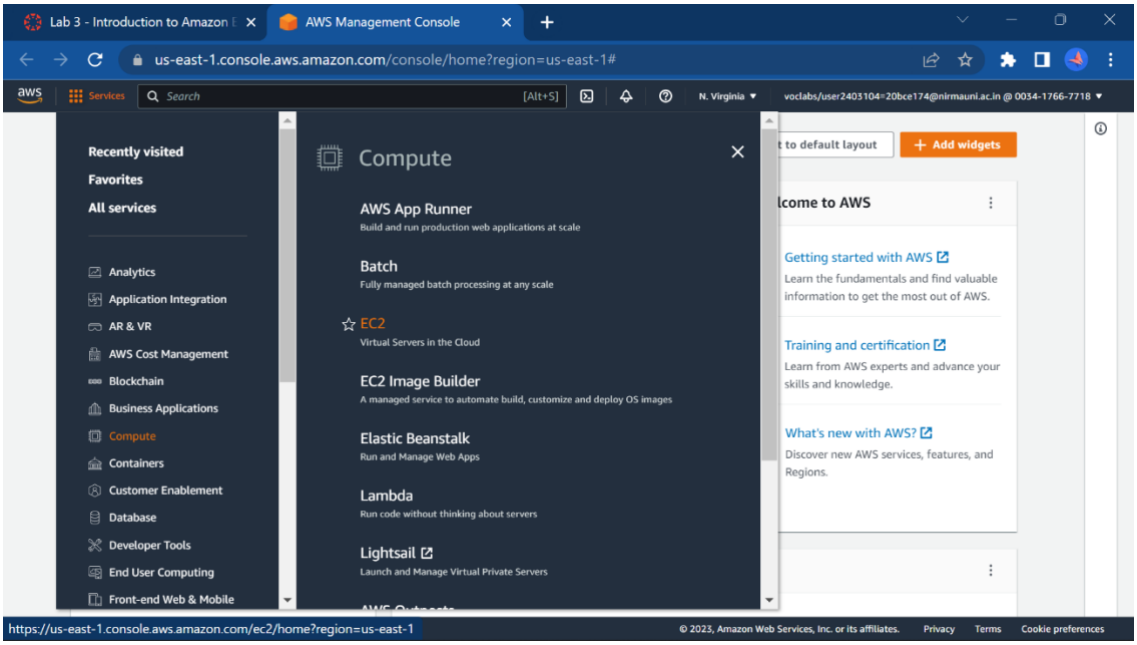
Roll No.: 20BCE204
Subject: Cloud Computing
Practical: 3
Aim:
Working with an IaaS Cloud Computing: Using AWS (Amazon Web Services) to understating the following concept. Creating the instances, do remote login and hosting the web page

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers.

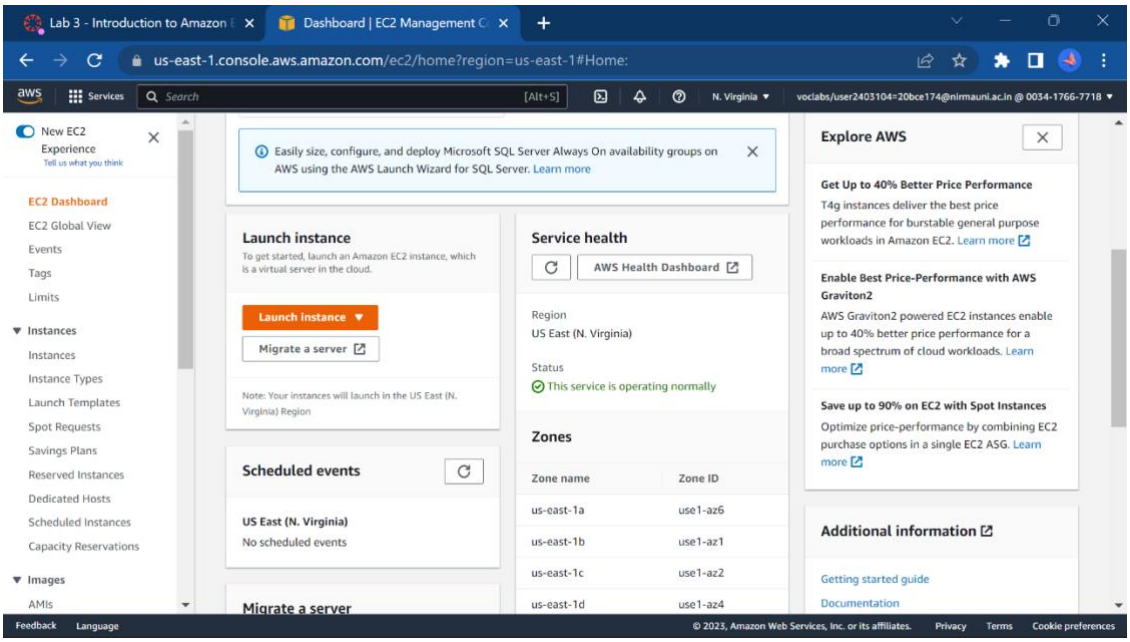
Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment

Now, let's the lab

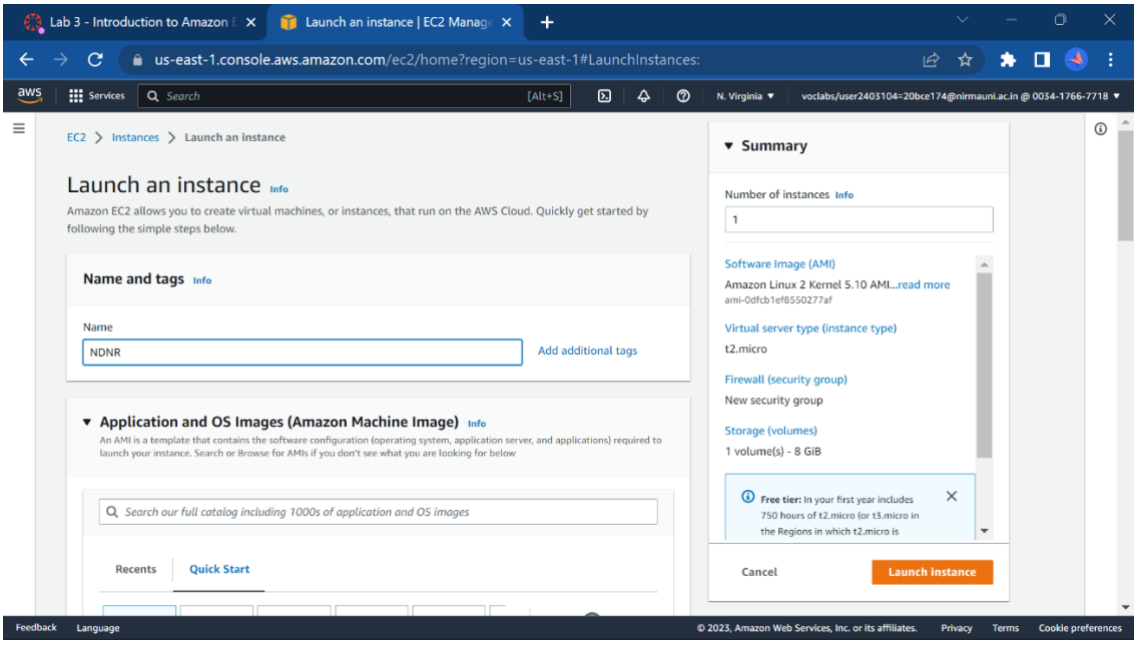
In the AWS console, go to EC2 (Services → Compute → EC2)



You will see the Dashboard of EC2 as shown below:

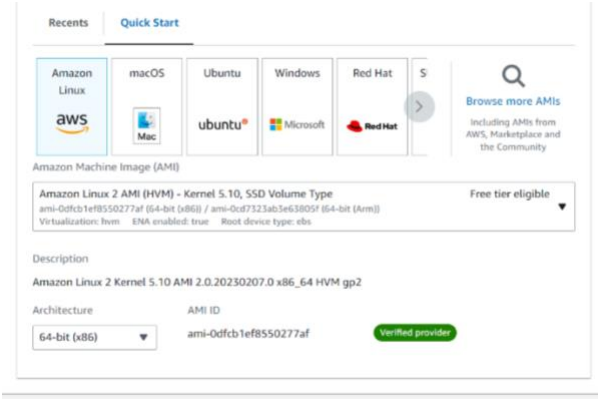


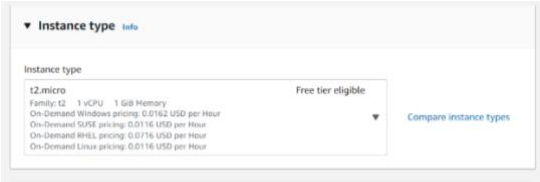
Now we will launch a new Instance of EC2 by click on *Launch Instance* button.



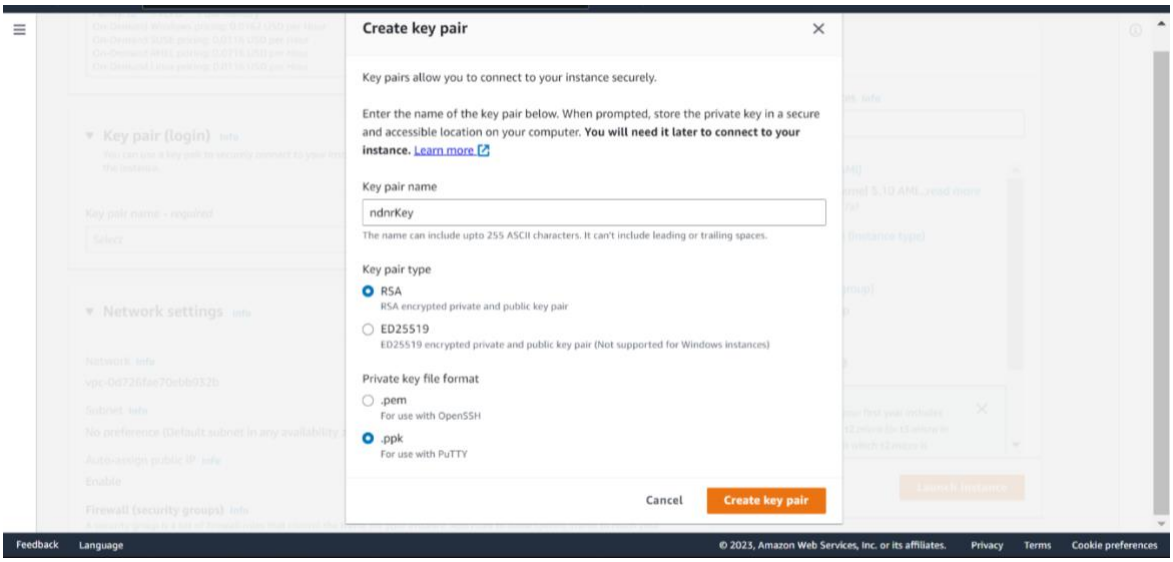
Provide the name of the instance. In our case we have given name of instance as NDNR.

Now select the configuration of your EC2 instance like Operating system (Amazon Linux), instance type (t2.mirco)

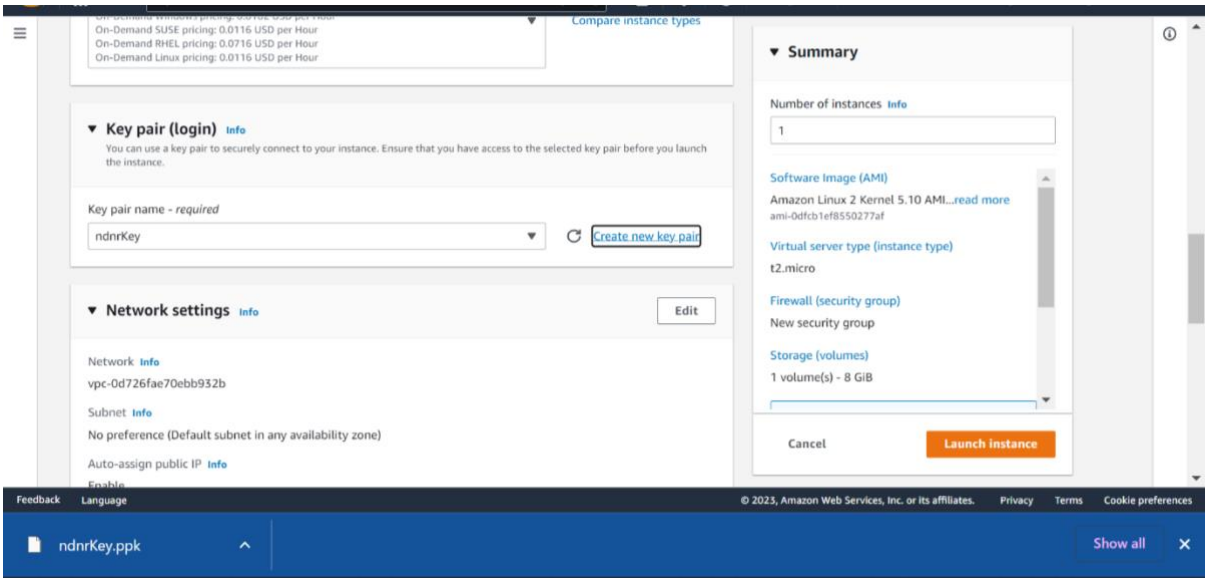




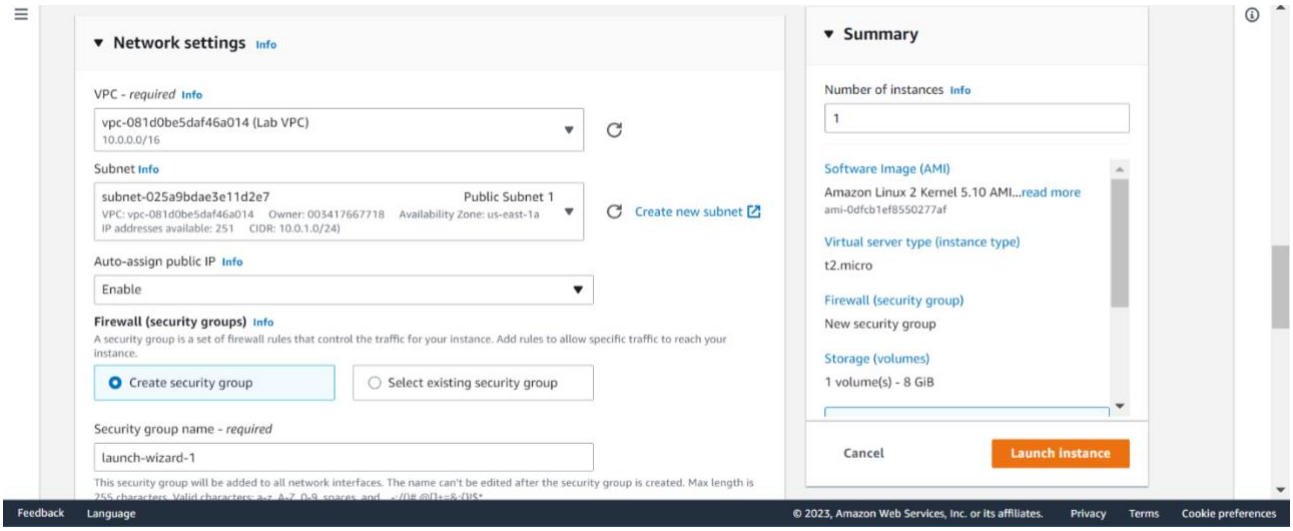
In key Pair login, we will create our new key by clicking on Create new Key Pair. To Create new key pair, we have to mention the name of the key, key pair type, and Private key format.

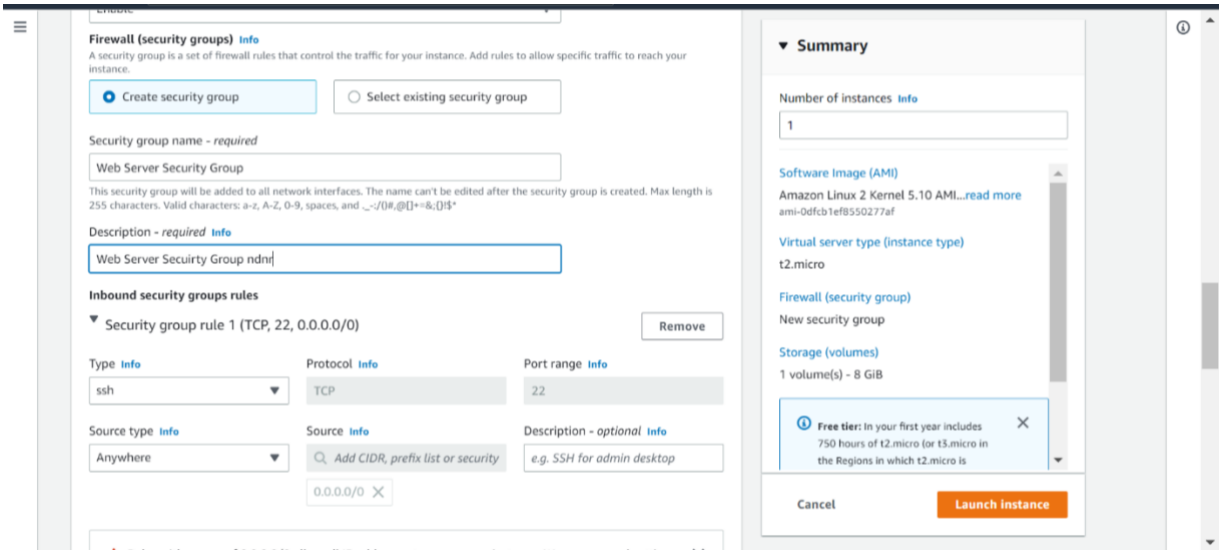


On clicking of Create Key Pair, it will select that click and will download a file of name KeyPairName.ppk or .pem as mention in private key file format.

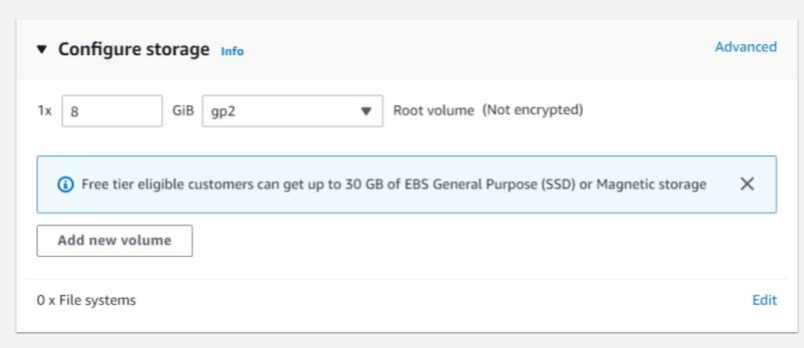


In Network Setting, specify your Security Group name and its description.

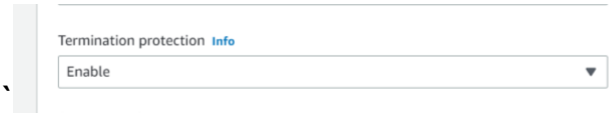




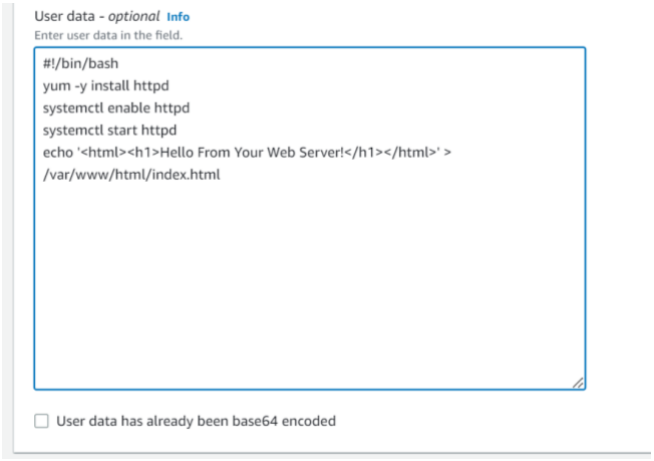
In configure storage, we will be able to see the amount of storage that will be allocated to our instance.



In advance setting, enable the termination protection feature.

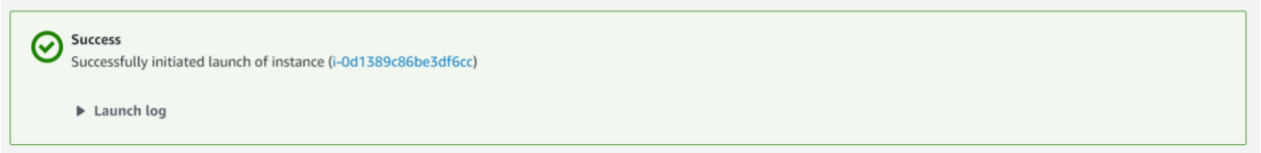


In user data, enter the below code.



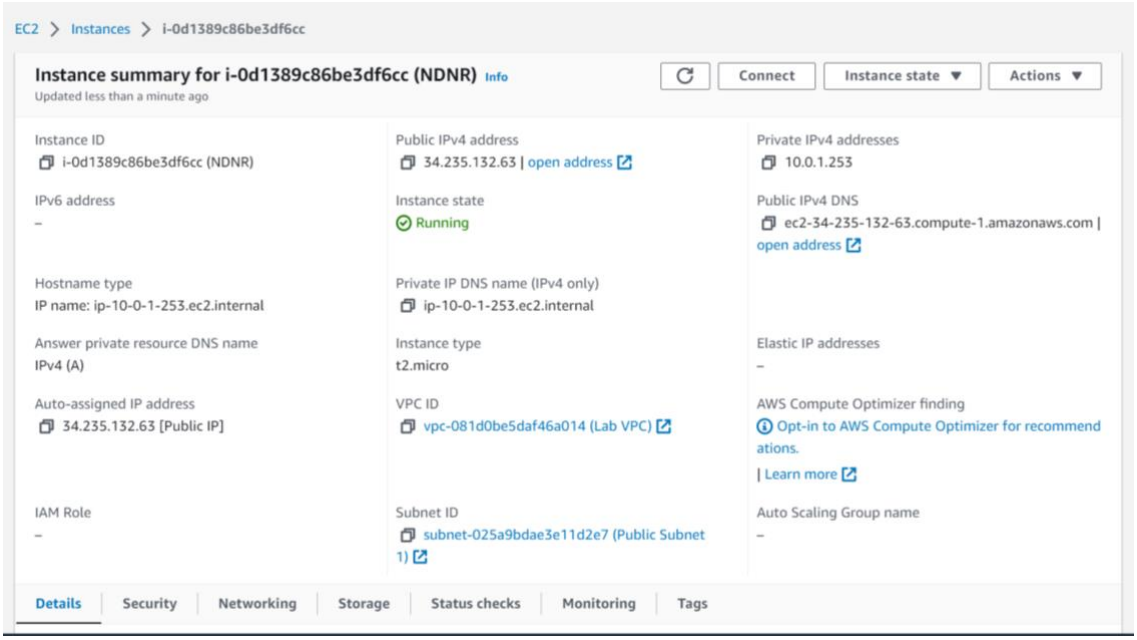
This code will run when we start our instance. This code will download the apache server for us and will create a file call *index.html* inside */var/www/html.*

Now click on the *Launch Instance* button



Now you will be able to see your instance in the *instances page* available in left navigation bar menu.

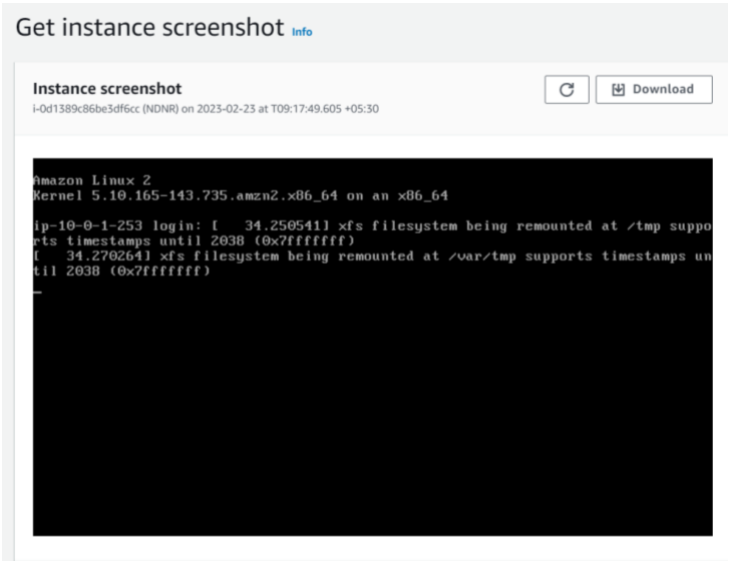
Now opening the instance, we will be able to see all the details of the instance likes its public IP, private IP, public IP DNS and various other details of instance.



When we go to Action → Monitor and troubleshoot → Get system log, there we will see that HTTP is already install by the User Data that we have mentioned at the time of launching our instance.

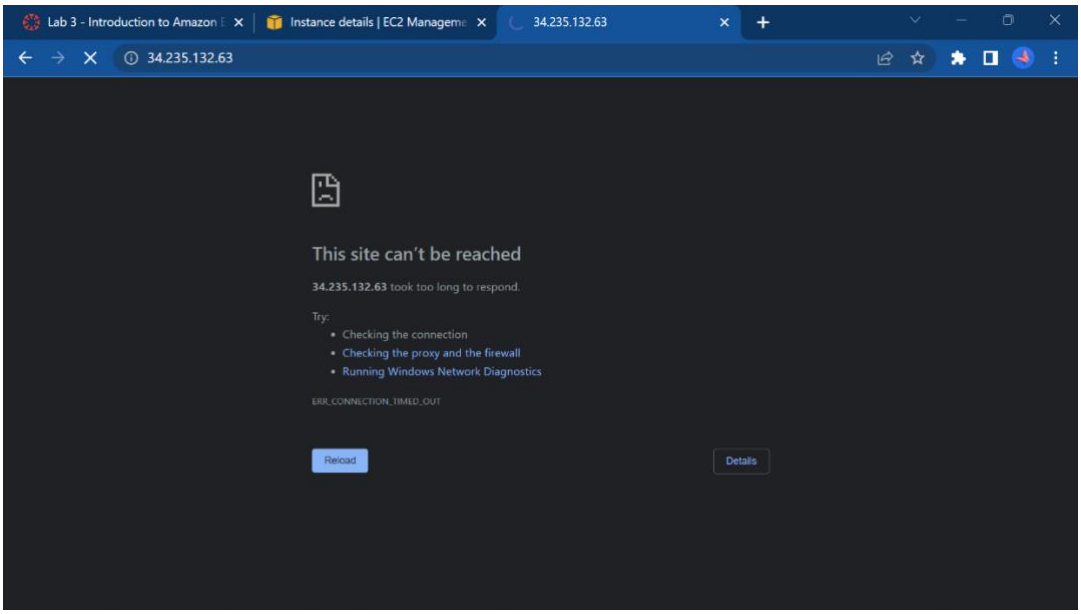
When we go to Action → Monitor and troubleshoot → Get instance screenshot.

This shows you what your Amazon EC2 instance console would look like if a screen were attached to it



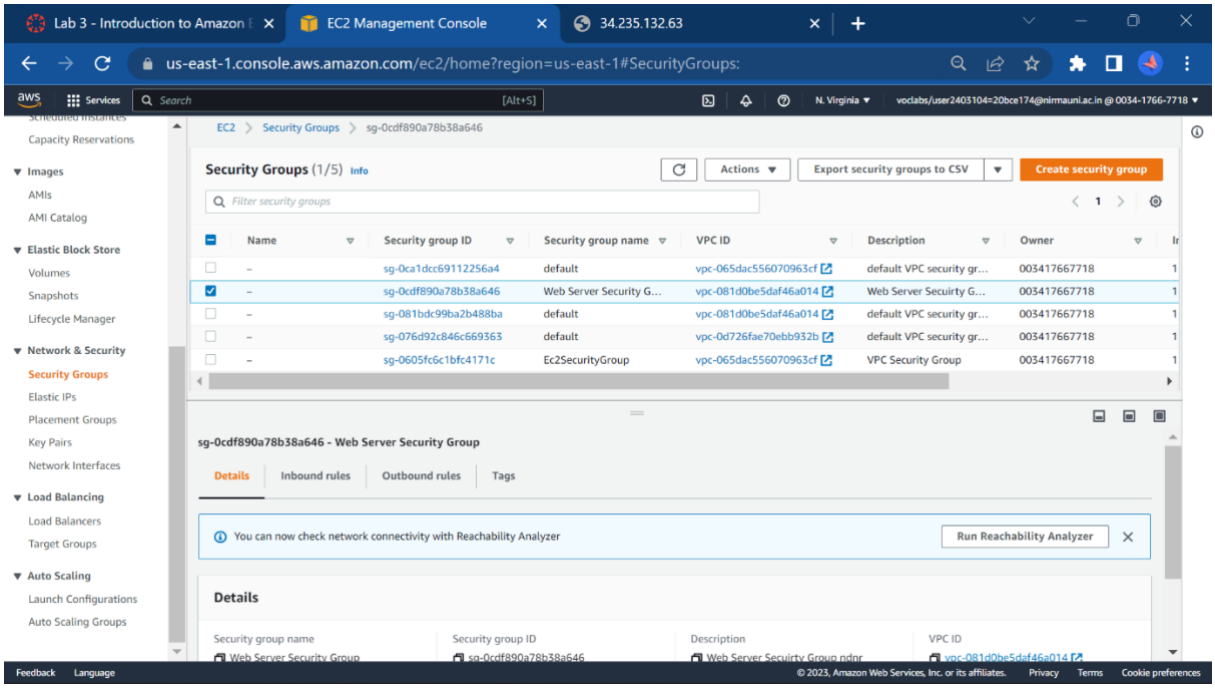
Now, Copy the Public IPv4 address of your instance to your clipboard.

Open a new tab in your web browser, paste the IP address you just copied, then press Enter.

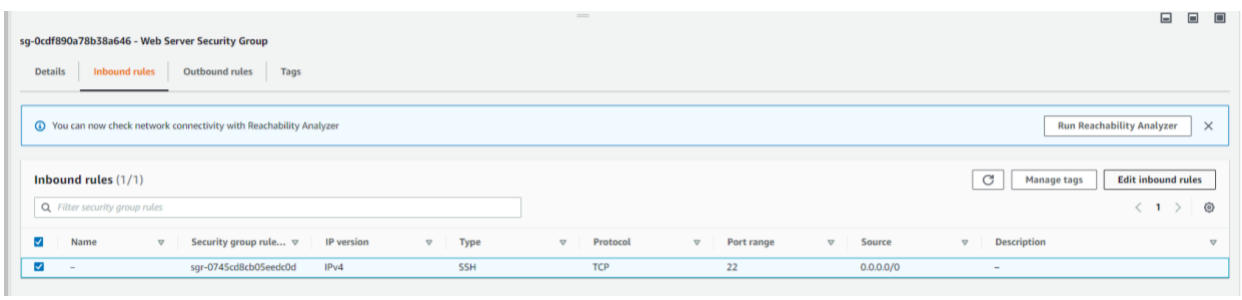


You are not currently able to access your web server because the security group is not permitting inbound traffic on port 80, which is used for HTTP web requests. We will now update the security group to permit web traffic on port 80.

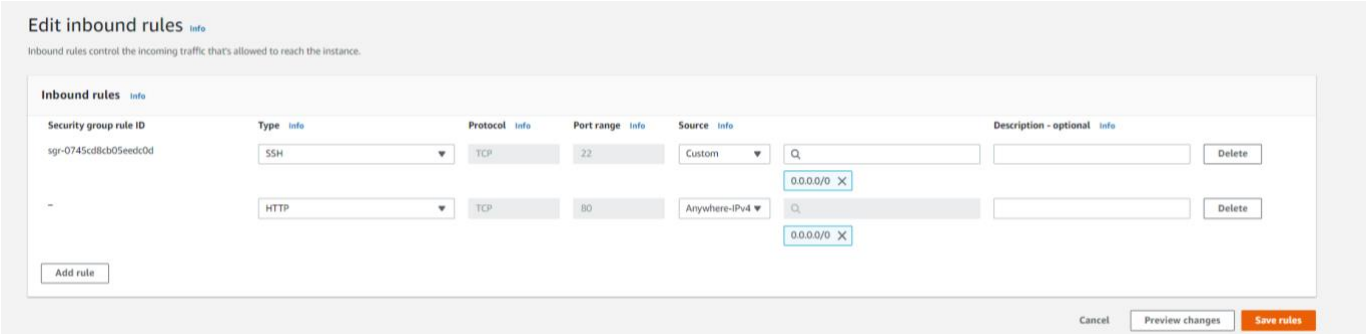
In the left navigation pane, choose Security Groups and select your security group name that you have mentioned at the time of launch.

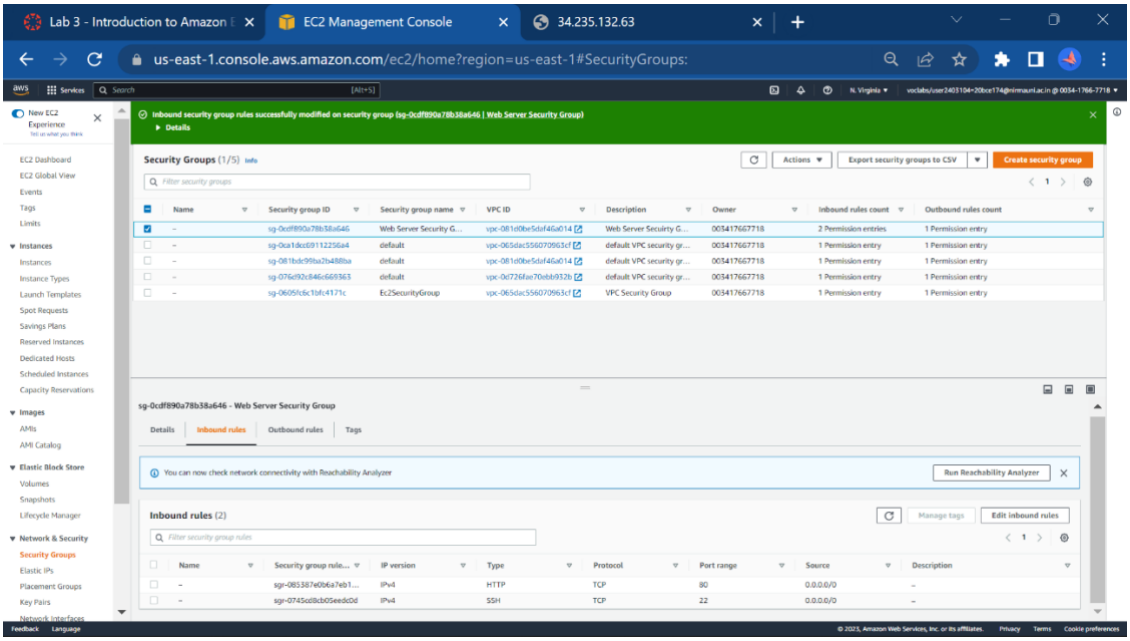


In your security ground, go to inbound rule tab.



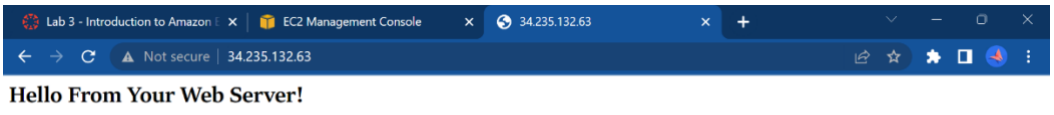
Now, click on ***Edit inbound rules*** and ***add rule.*** Inside it mention, ***http*** as type and source as ***anywhere IPv4*** and click on *Save Rules.*





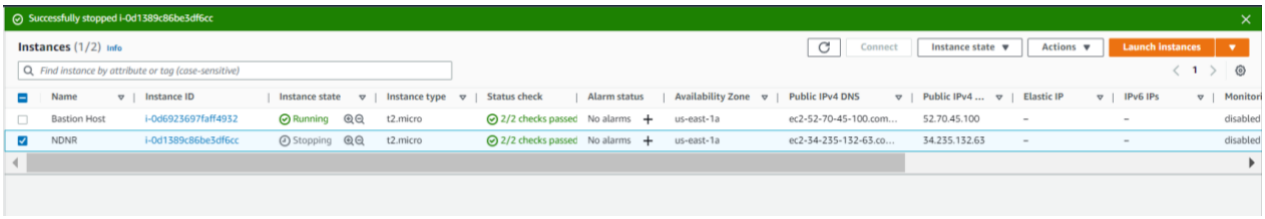
Now refresh that previous page. This time you will see a web page saying that ***hello from web server***.

The public IP is displaying us a webpage which we created using ***User data*** inside ***/var/www/html*** as ***index.html.***

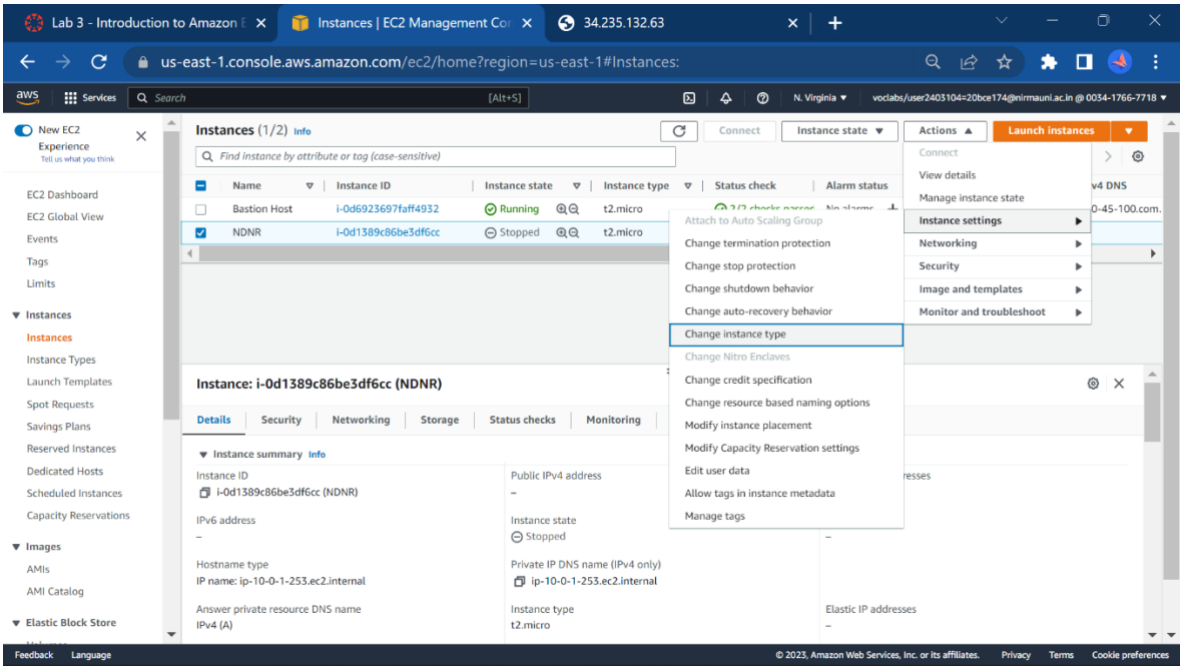


Now let's resize our instance from t2.mirco to t2.small.

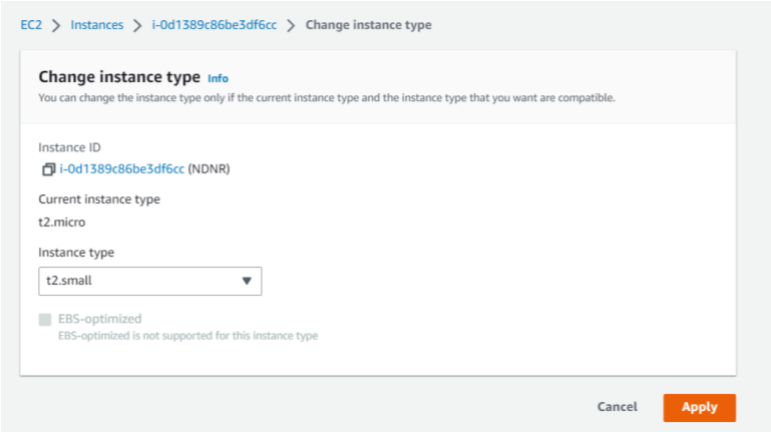
For this we have to first stop our instance from ***instance state*** button available on top right corner.



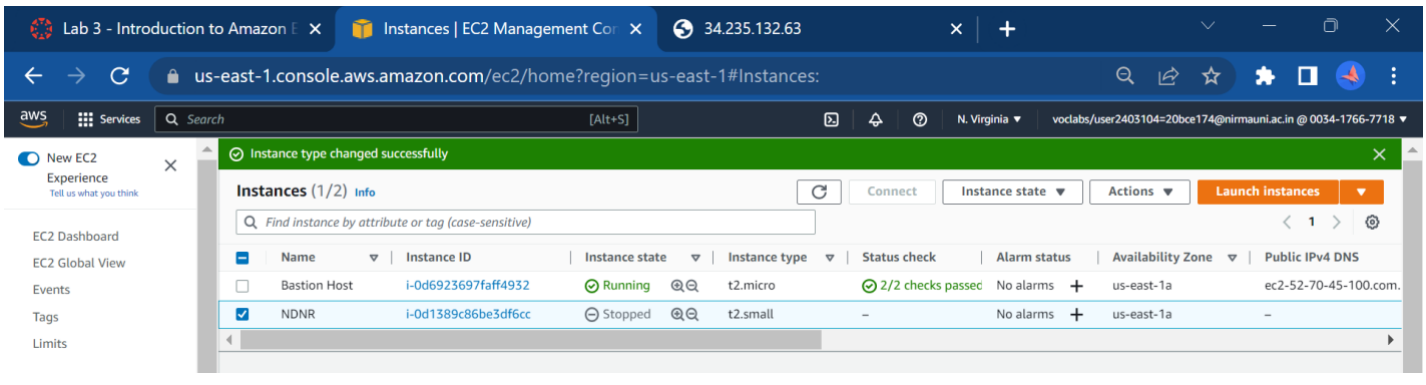
It will some time to stop the instance. After that, go to *action → instance setting → change instance type.*



Select the required instance type from pool of instance type available to you.

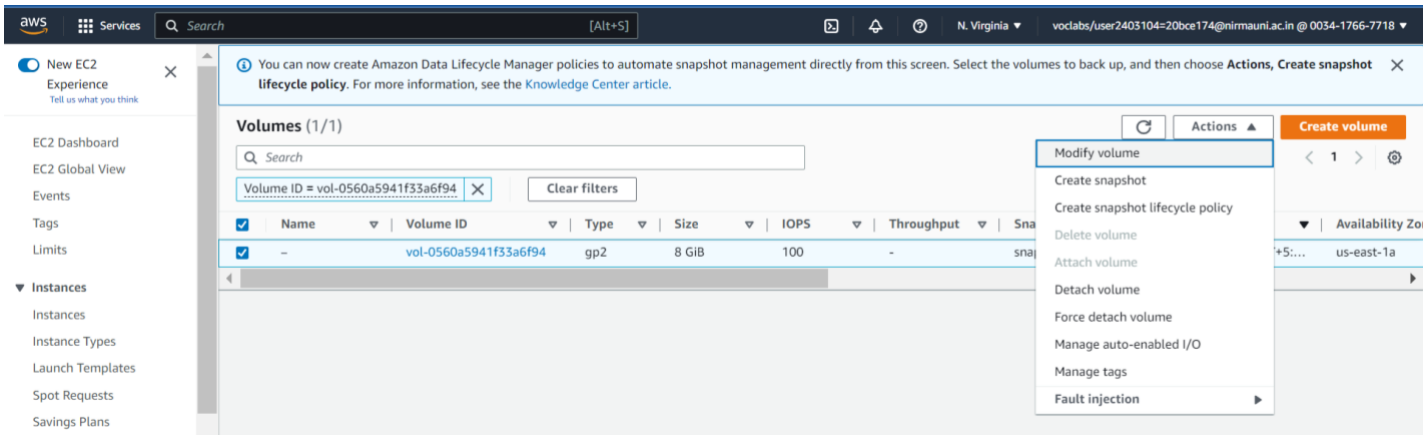


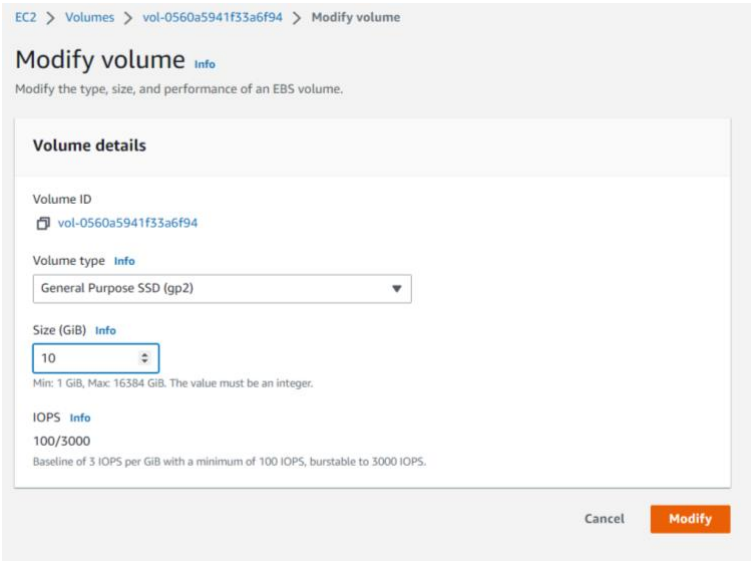
At the dashboard, the change in instance type will be reflected under instance state column.

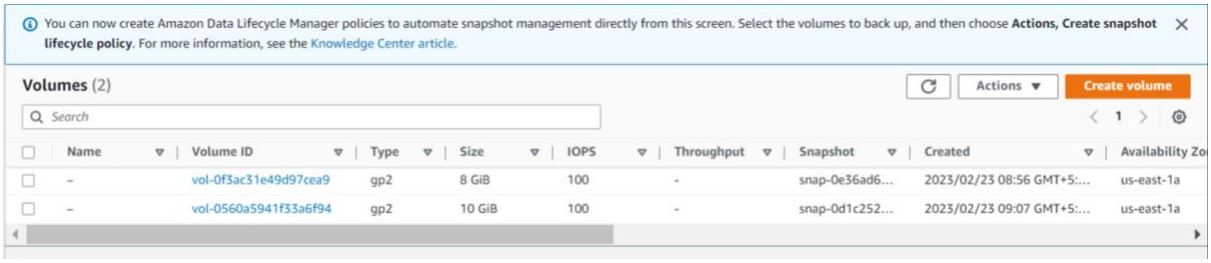


Inside the ***Storage*** tab, we will be able to change the storage size of our instance.

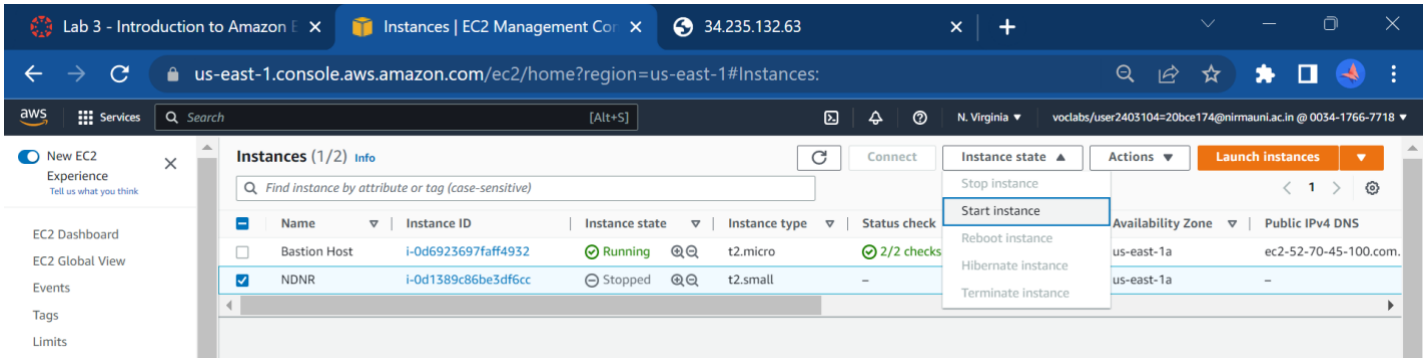
Under the ***Action*** , click on ***modify volume*** and change the size to 10GiB



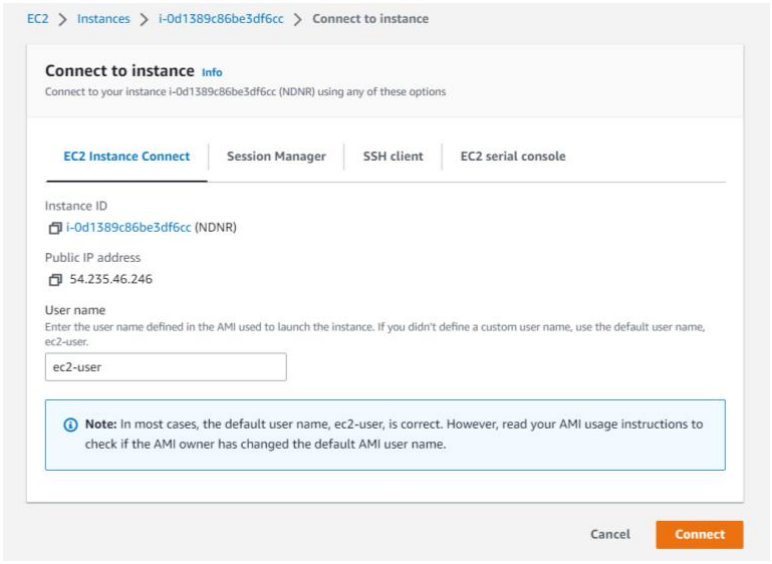




Now let's start our instance once again from ***instance state***.

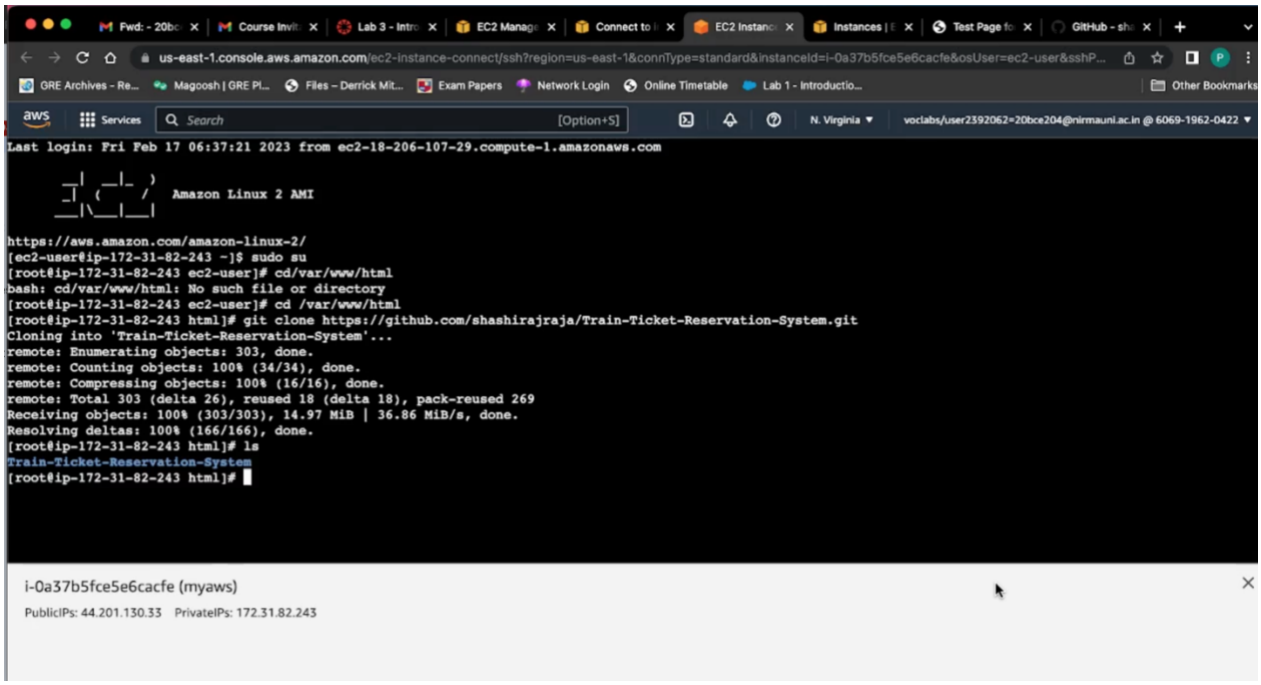


Now let's host a website on our EC2. Inside our instance click on *Connect* and again click on *Connect*.



This will open a new window, which shows command line of our instance.

We will first update our system using command *sudo yum update*.



Now we will clone a website from our GitHub repo.

Commands:

Sudo su

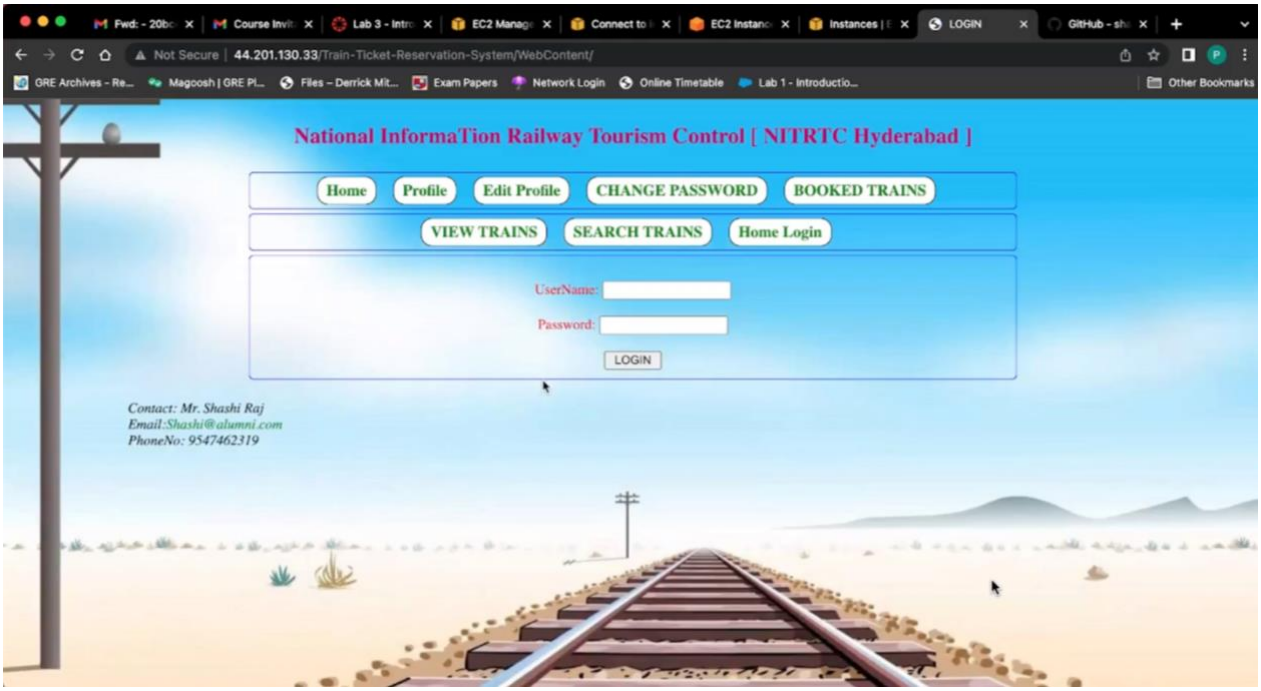
cd /var/www/html

sudo git clone github link

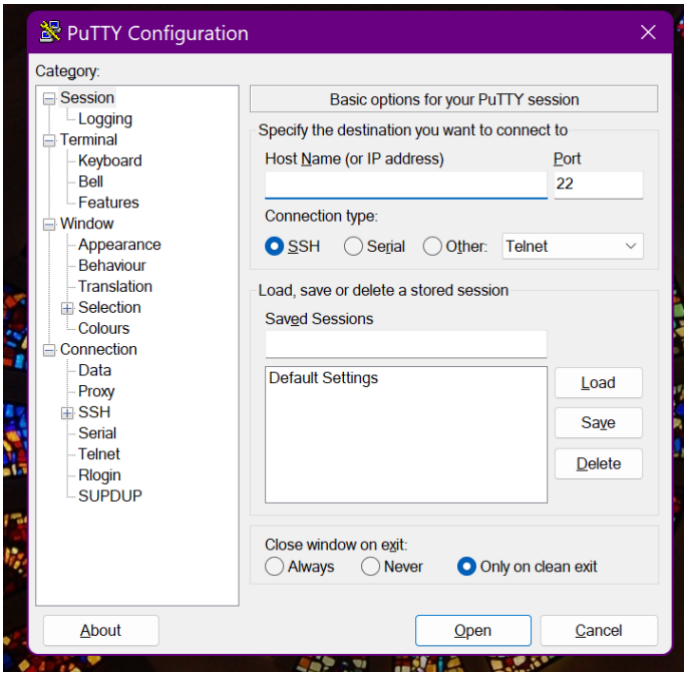
cd RepositoryName

ls

Now we have a clone of our website inside our EC2 instance and now we can access it using *Public IPv4 DNS* 44.201.130.33



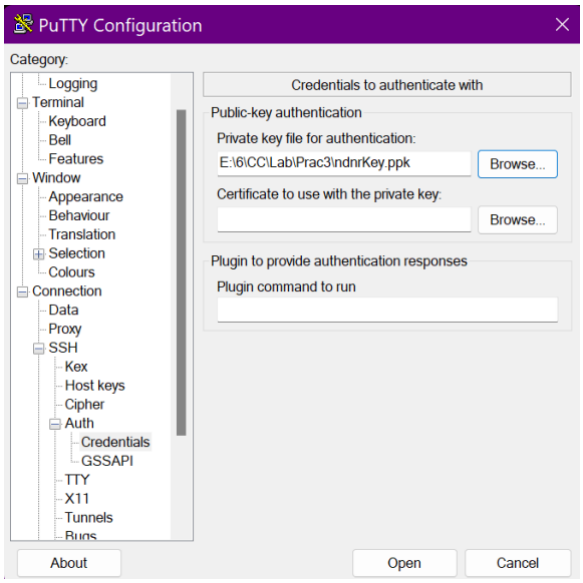
Now let's see how we can remotely access this files and instance without login it on AWS. For this we are required to downlaod a software called *Putty.*



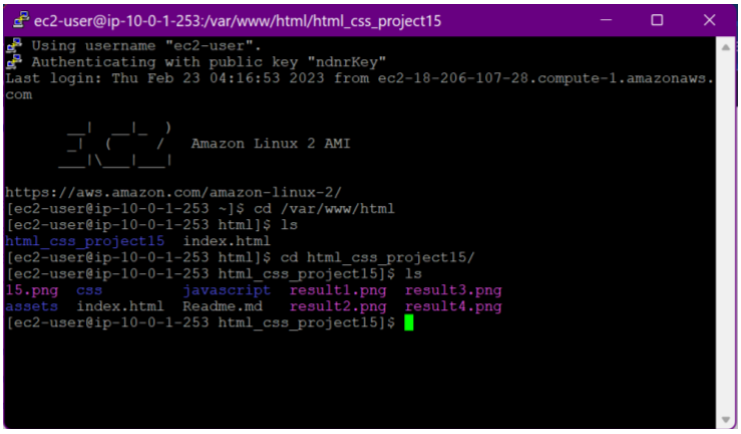
Enter the hostname as *ec2-user@PublicIPv4DNSLink.*

Now, we have to verify ourself. This will be done by using the key that we have download as .ppk or .pem

We will upload that key inside *SSH → Auth → Credentials*



Click on *Open.*



As you can we that we can access our files from our system remotely without login in AWS.

Conclusion :

In this practical I have learnt about the Amazon Elastic Compute Cloud service. I have created a virtual machine in the AWS cloud and configured it. I have learnt how to use Putty to connect with the VM and do the operations like hosting a website.