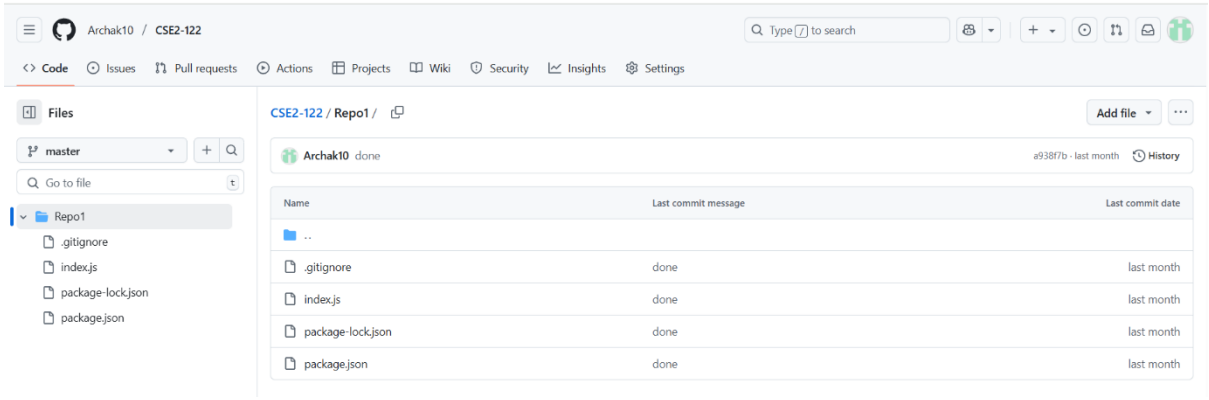
***Assignment No*: 9**

***Problem Statement*: Deploy a project from GitHub to EC2.**

***Solution*:**

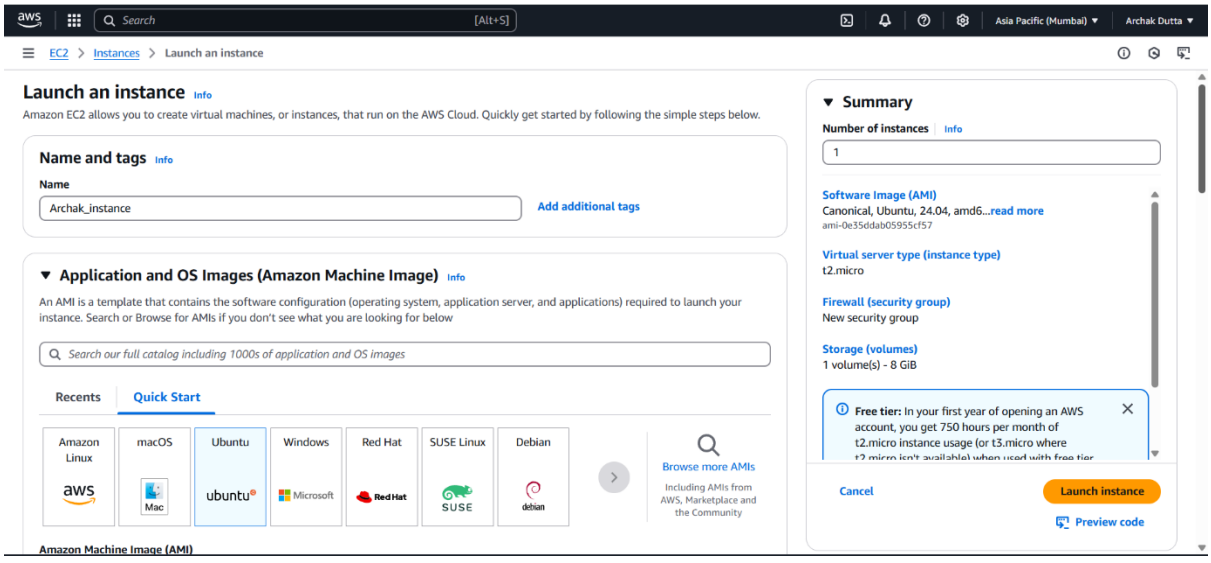
To deploy a project from GitHub to EC2, the steps are-

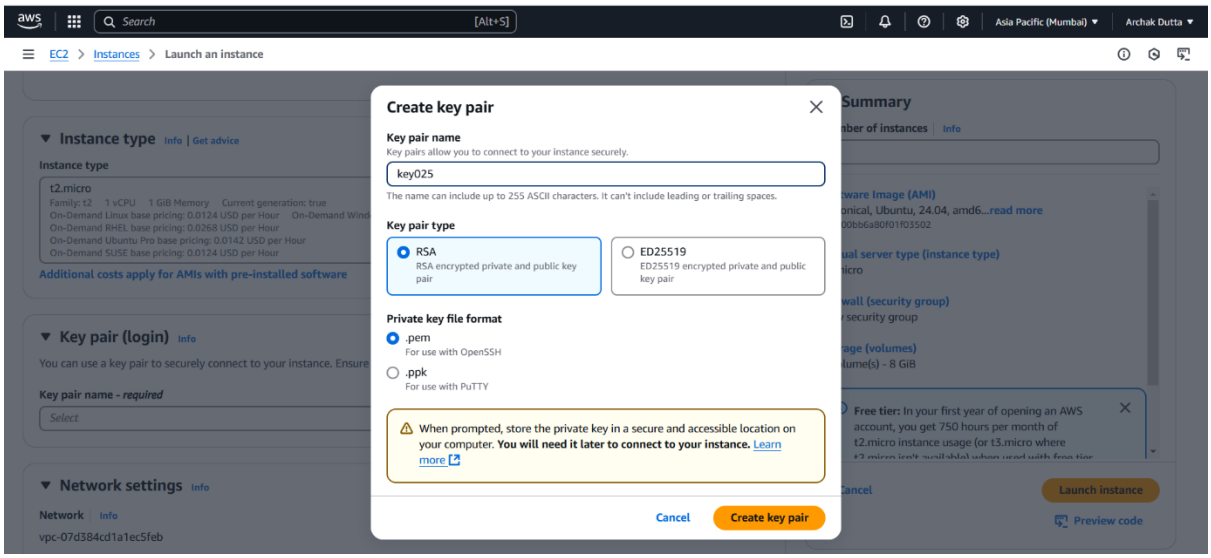
1.At first, we need to upload the required project in GitHub.

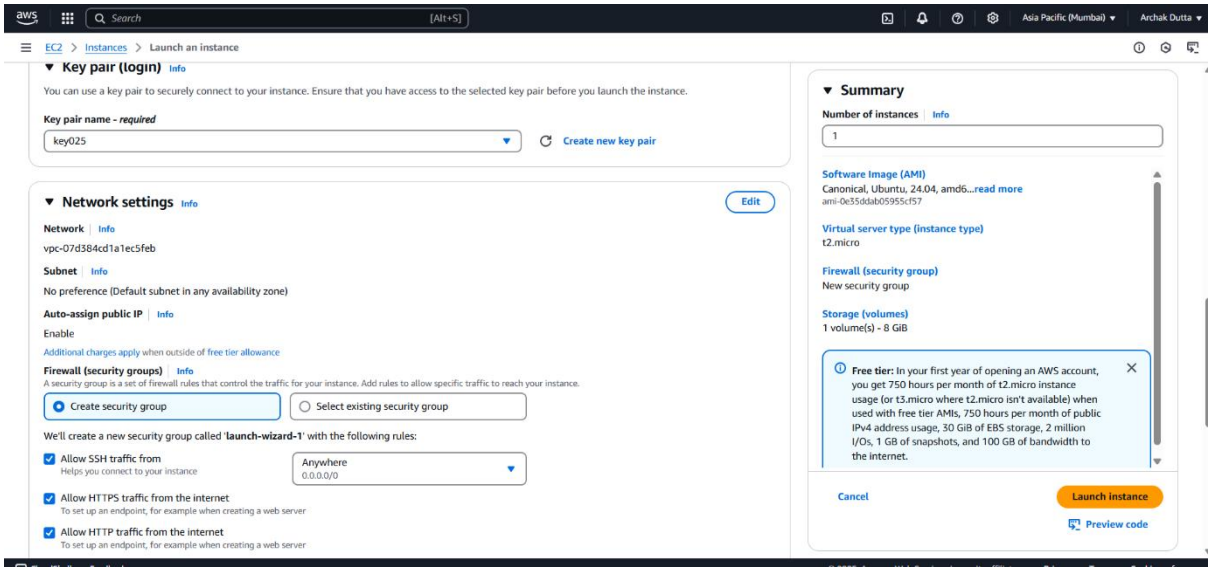


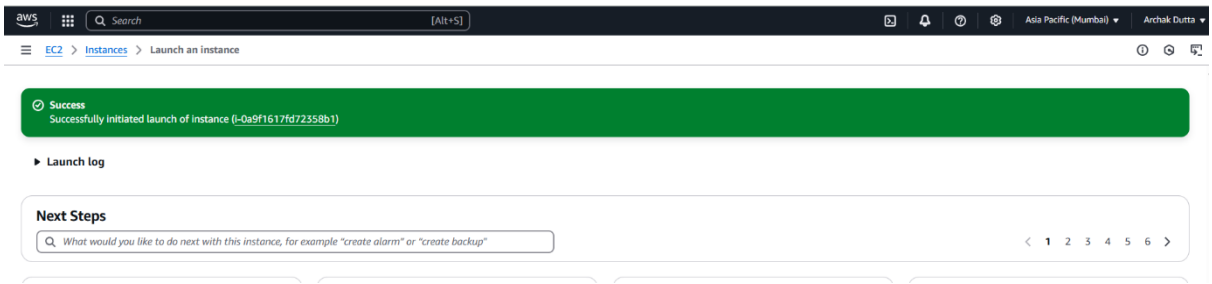
2.Login into the AWS console and open EC2 cloud service.Then follow the steps below-

- Click on launch instance and provide a name to it.Select the operating system as Ubuntu.
- Create a new key pair and under network settings check all the three boxes to allow SSH,HTTP and HTTPS traffics and finally click on launch instances.

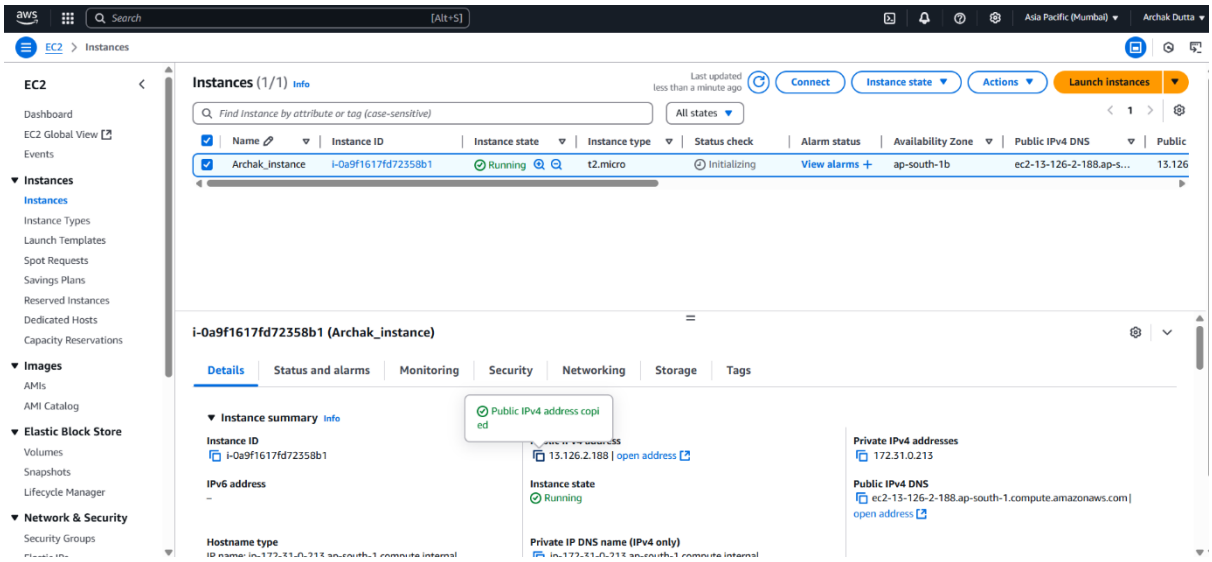




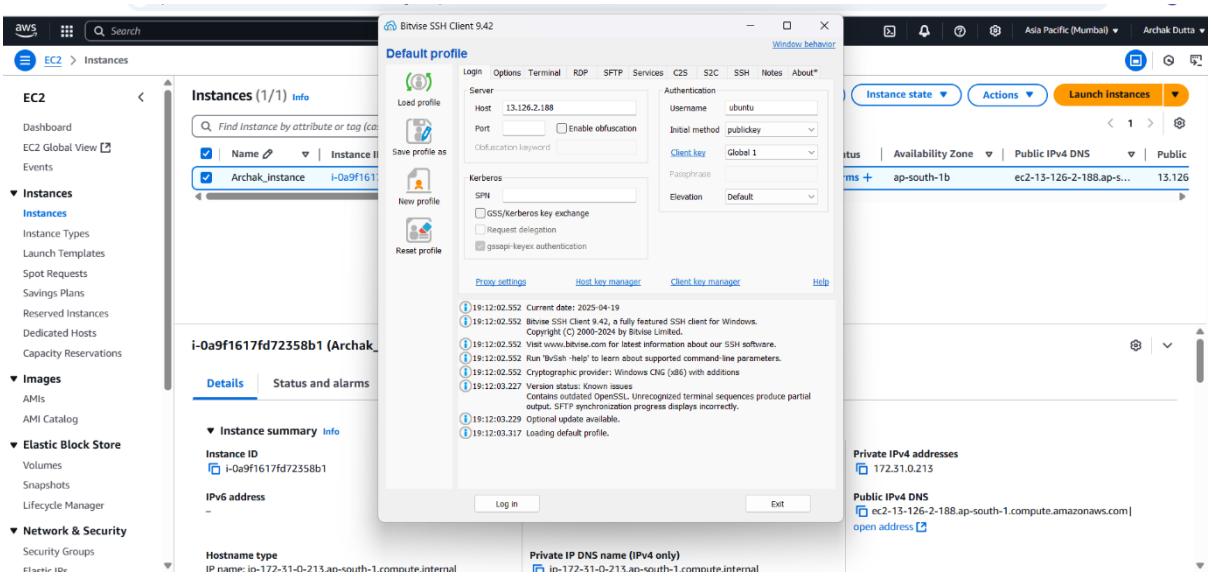


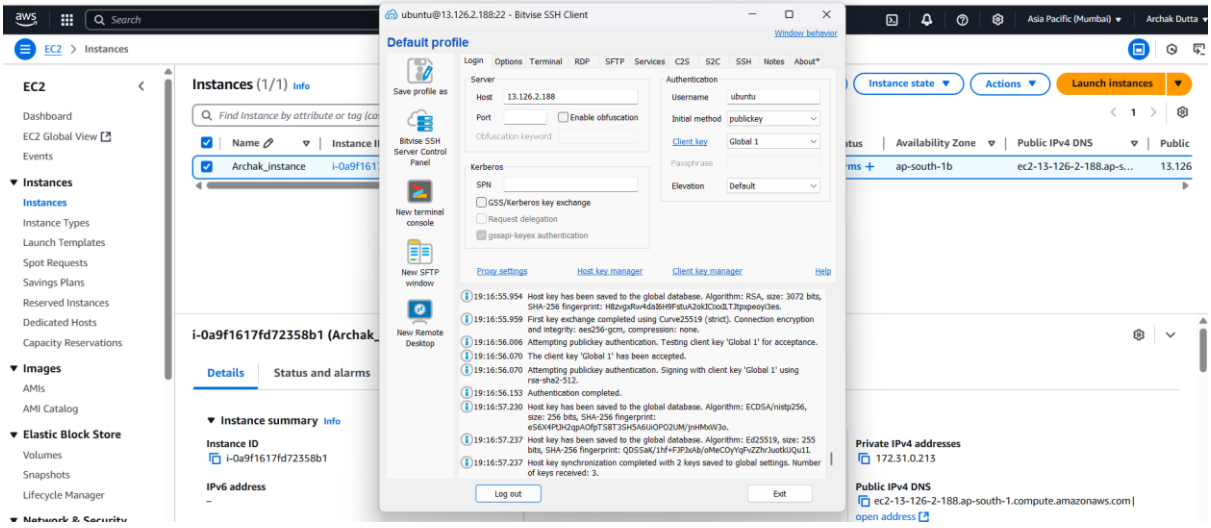


3.Now open the newly created instance in the EC2 and copy the public IPv4 address from the details section.

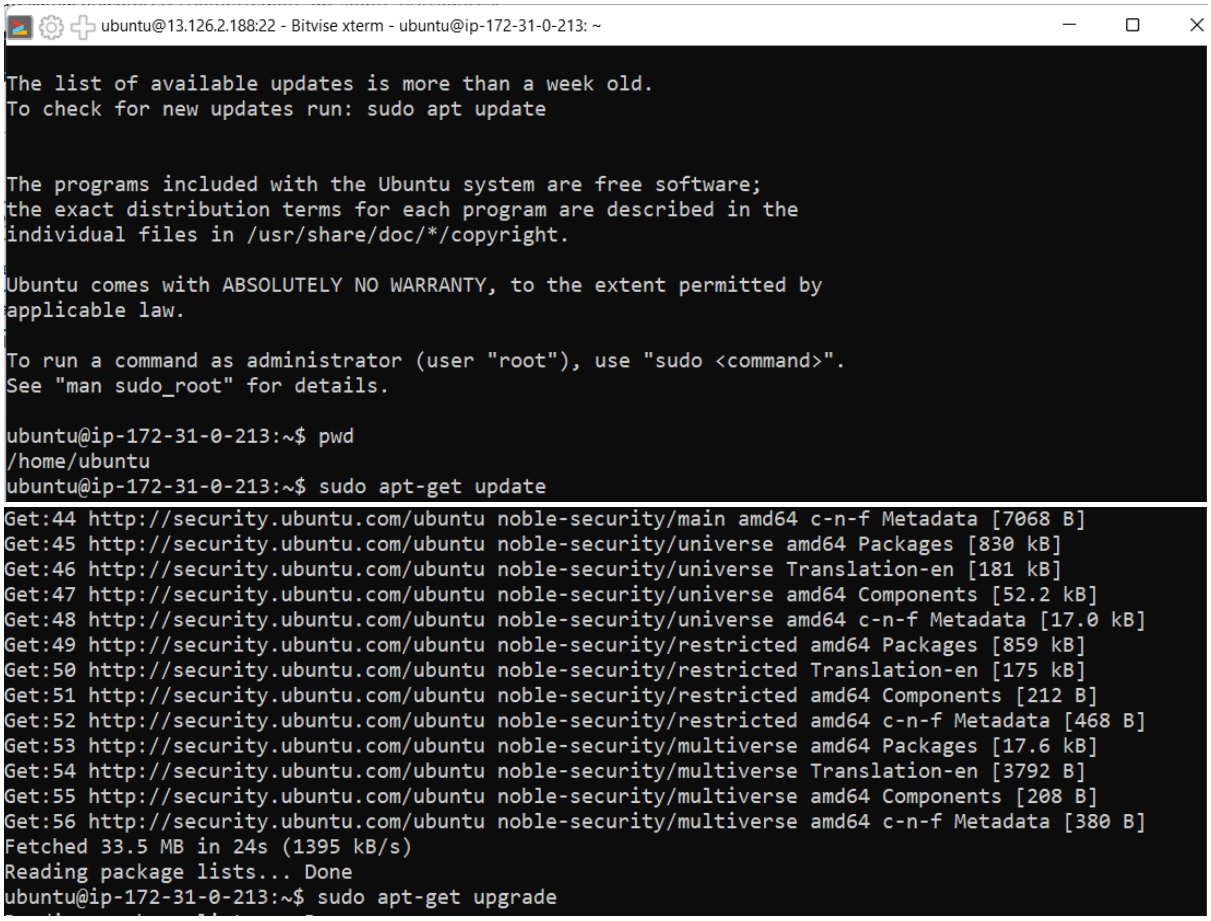


4. Open the Bitvise SSH Client and paste the IP address in host section.Thereafter set up authentication using the created key pair and login into the bitvise server.After logging in open the New terminal console.

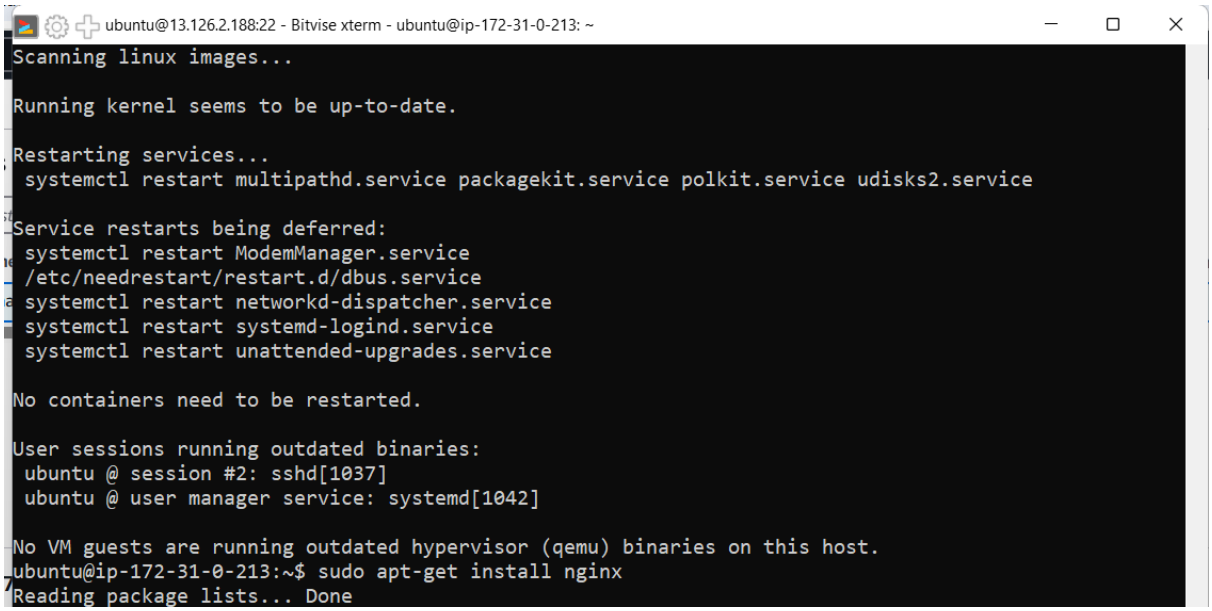




5.Then,execute **sudo apt-get update** and **sudo apt-get upgrade** in the bitvise terminal.



6.Now execute **sudo apt-get install nginx** for setting up the web server and thereby execute **nginx -v** to view the installed edition.



```
 ubuntu @ user manager service: systemd[1042]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-0-213:~$ nginx -v
nginx version: nginx/1.24.0 (Ubuntu)
ubuntu@ip-172-31-0-213:~$
```

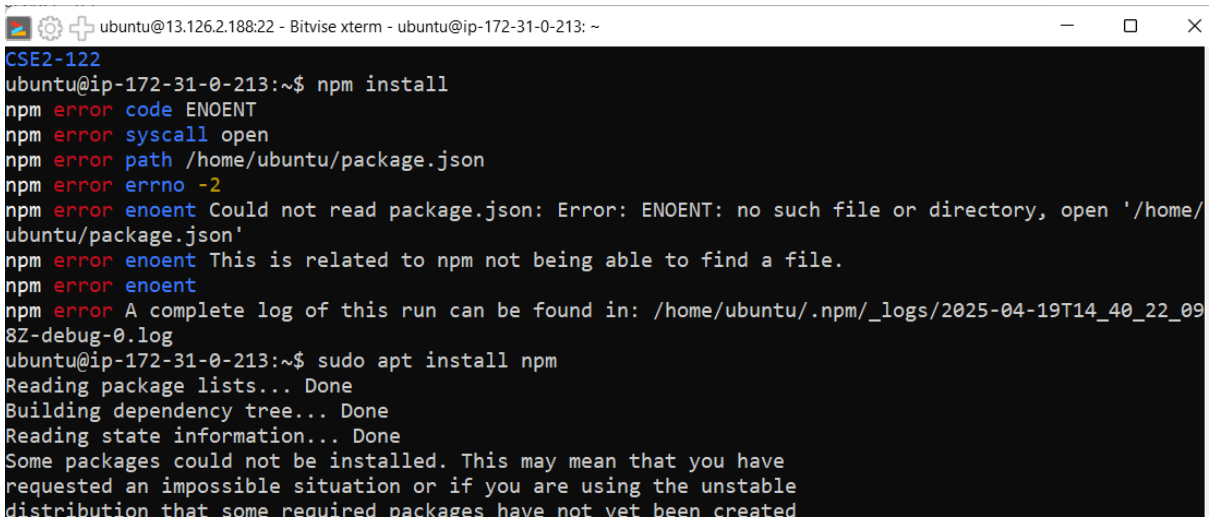
7.Now load the NodeJS form the given address(version) using the command **curl -sL** https://deb.node.source.com/setup_18.x| **sudo -E bash - .**Therebt install NodeJS using **sudo apt-get install nodejs.**Execute **node -v** to view the installed nginx version.

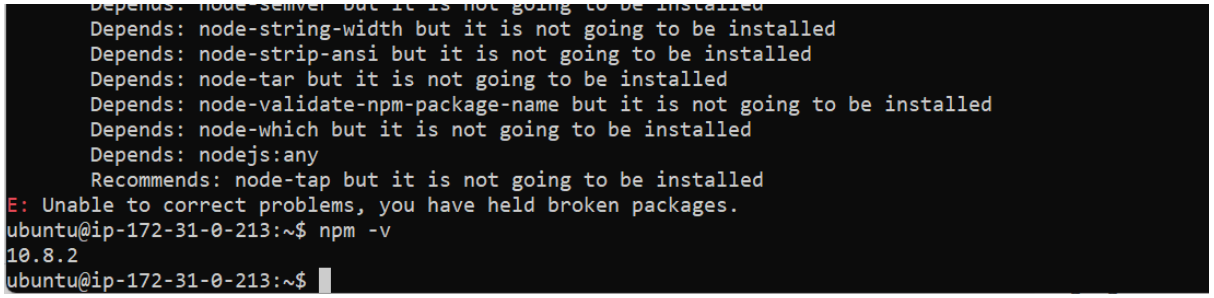
```
ubuntu@13.126.2.188:22 - Bitvise xterm - ubuntu@ip-172-31-0-213: ~
Scanning linux images...

Running kernel seems to be up-to-date.

Restarting services...

Service restarts being deferred:
 /etc/needrestart/restart.d/dbus.service
 systemctl restart networkd-dispatcher.service
 systemctl restart systemd-logind.service
 systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
 ubuntu @ session #2: sshd[1037]
 ubuntu @ user manager service: systemd[1042]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-0-213:~$ nginx -v
nginx version: nginx/1.24.0 (Ubuntu)
ubuntu@ip-172-31-0-213:~$ curl -sL https://deb.nodesource.com/setup_18.x | sudo -E bash -
2025-04-19 14:09:26 - Installing pre-requisites
2025-04-19 14:09:33 - Repository configured successfully.
2025-04-19 14:09:33 - To install Node.js, run: apt-get install nodejs -y
2025-04-19 14:09:33 - You can use N|solid Runtime as a node.js alternative
2025-04-19 14:09:33 - To install N|solid Runtime, run: apt-get install nsolid -y

ubuntu@ip-172-31-0-213:~$ sudo apt install nodejs
```

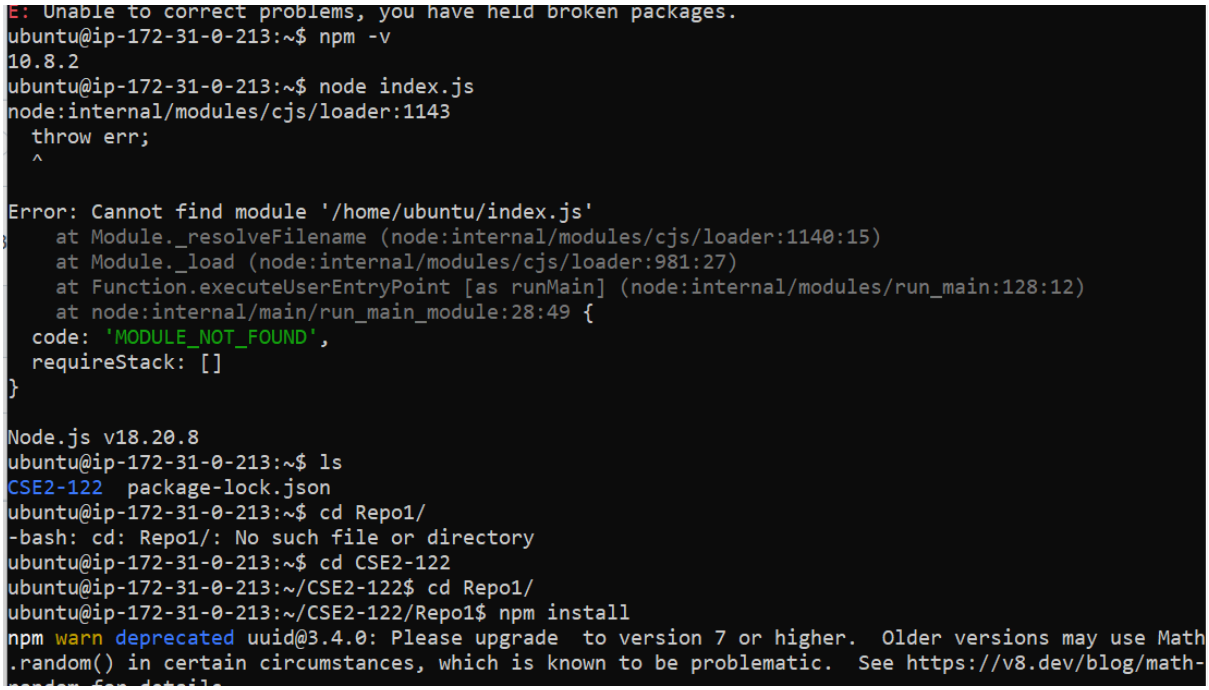
```
No containers need to be restarted.

User sessions running outdated binaries:
 ubuntu @ session #2: sshd[1037]
 ubuntu @ user manager service: systemd[1042]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-0-213:~$ node -v
v18.20.8
ubuntu@ip-172-31-0-213:~$
```

8.Now clone the GitHub repository from GitHub using **git clone** paste the link of the repository(**https://github.com/Archak10/CSE2-122.git**).

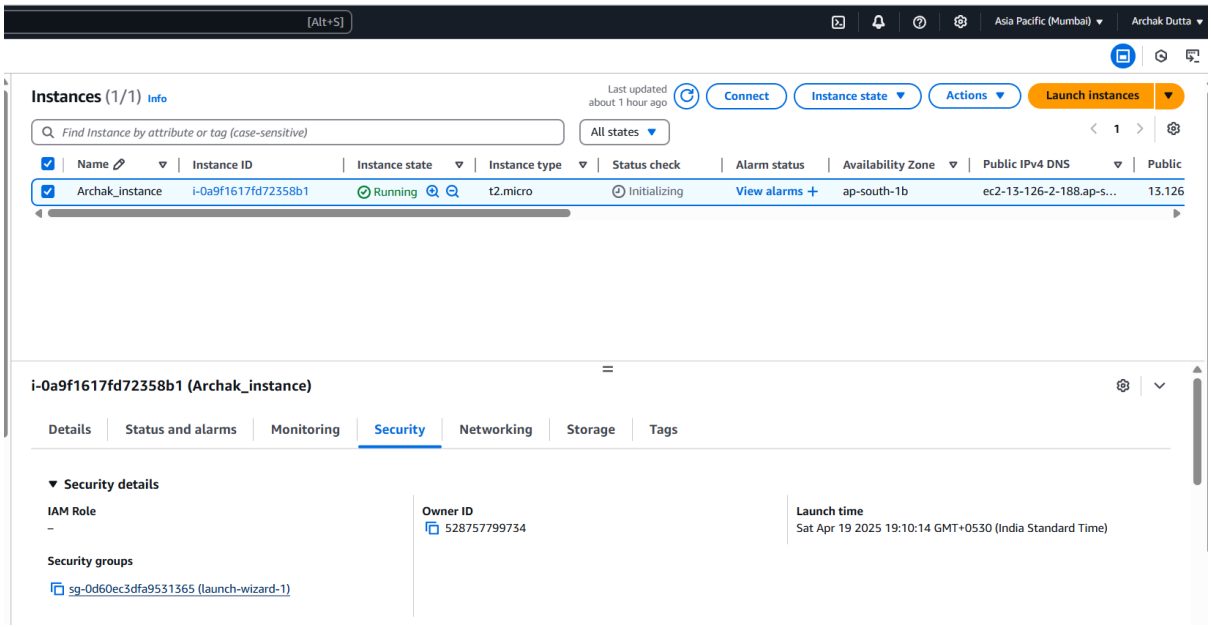
```
ubuntu@ip-172-31-0-213:~$ git clone https://github.com/Archak10/CSE2-122.git
Cloning into 'CSE2-122'...
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 7 (delta 0), reused 7 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (7/7), 48.12 KiB | 8.02 MiB/s, done.
ubuntu@ip-172-31-0-213:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-0-213:~$ ls
CSE2-122
```



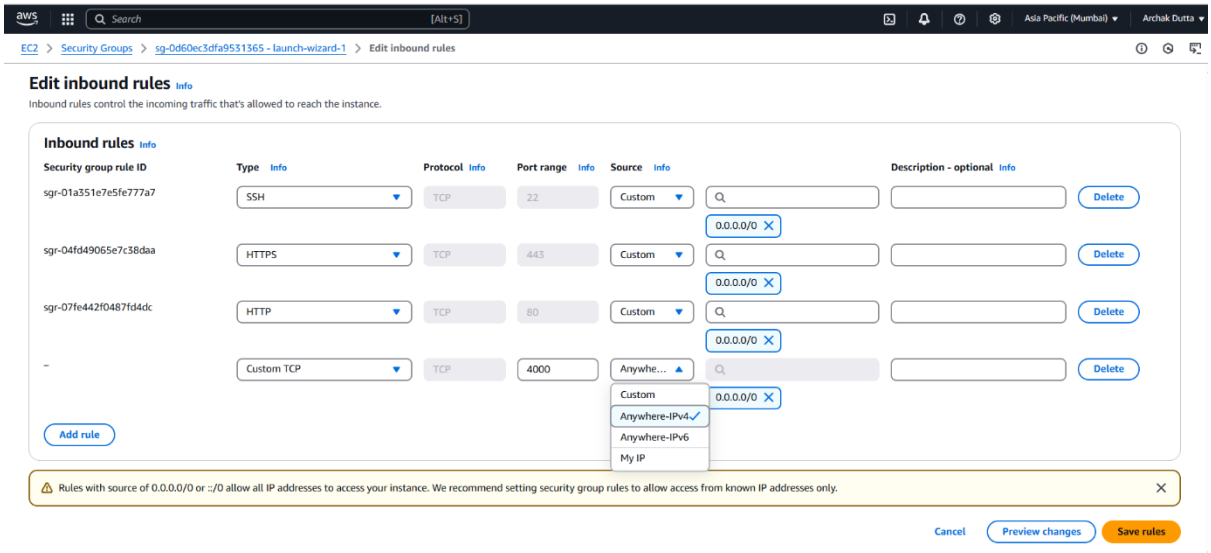




9.Now go back to the created EC2 instance and go to its security section.Then click on the link in the security groups and click on edit inbound rules.



10.Click on add rule and select the type of new rule **custom TCP** ,Port range **4000** ,Source **0.0.0.0** or **anywhere IPv4** and click on save rules.



11.Open the Bitvise SSH Client terminal console and start the server using **node index.js** command.

```
ubuntu@ip-172-31-0-213:~/CSE2-122/Repo1$ ls
index.js  node_modules  package-lock.json  package.json
ubuntu@ip-172-31-0-213:~/CSE2-122/Repo1$ node index.js
Started server
```

12.Copy and paste the public IPv4 address of the created EC2 instance in an incognito web browser.

13.Now put the IP address as IP address:4000(13.126.2.188:4000).

The commands used in this assignment are as follows:

1.sudo apt-get update

2.sudo apt-get upgrade

3.nginx -v

4.curl -sL https://deb.nodesource.com/setup_18.x | sudo -E bash –

5.sudo apt install nodejs

6.git clone https://github.com/Archak10/CSE2-122.git

7.npm install

8.npm -v

9.node index.js