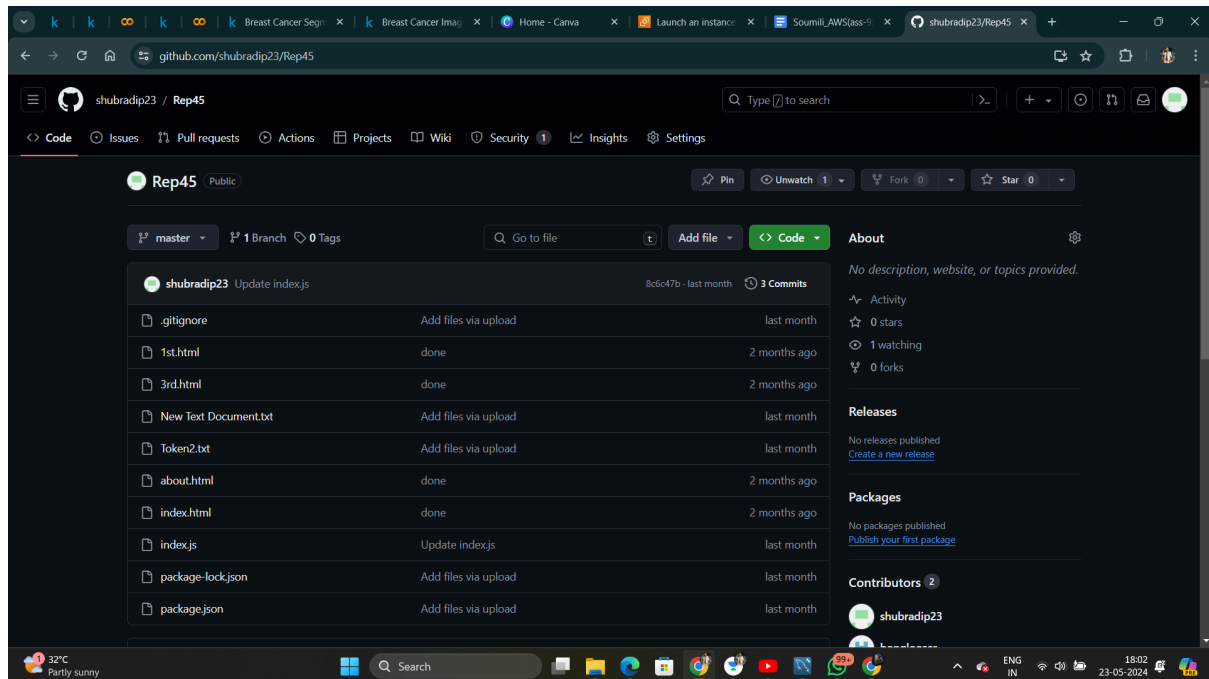


## ASSIGNMENT No: 9

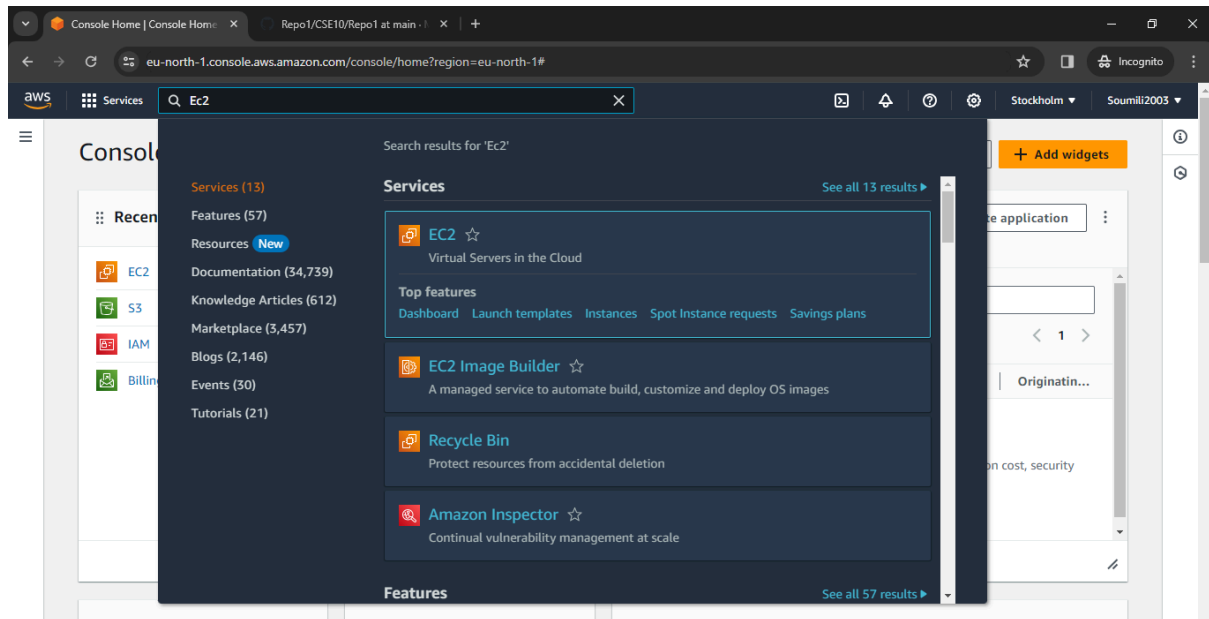
### Problem Statement: Deploy a project from GitHub to EC2.

The steps are as follows: -

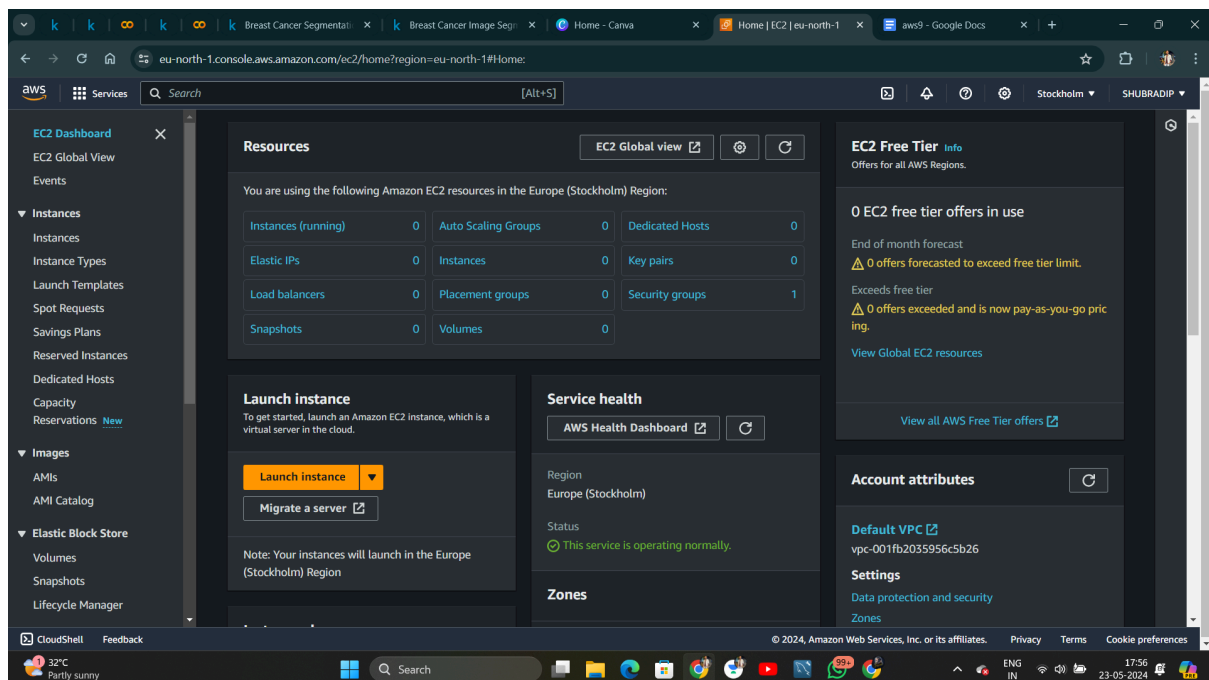
1. Please confirm whether the `index.js` file exists in your GitHub repository. If it's not present, then clone it into a repository if the file already exists on your local machine using the command `git clone <repository_path>`.



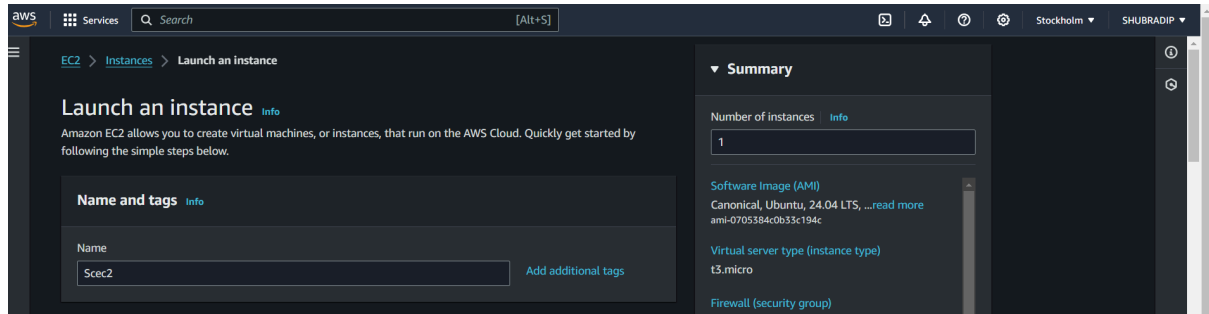
2. Access your AWS account and utilize the search box to look for EC2, then proceed to click on the first option displayed.



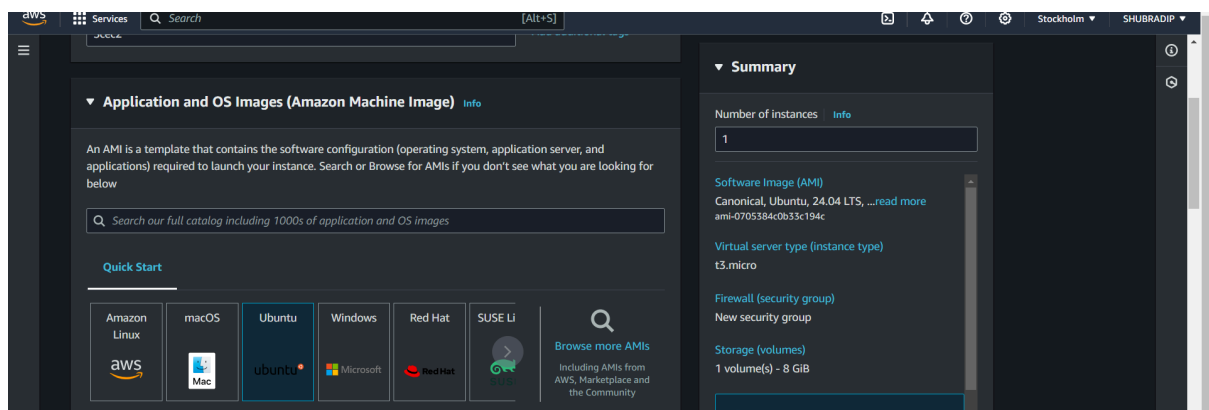
3. Subsequently, select "Launch Instance".



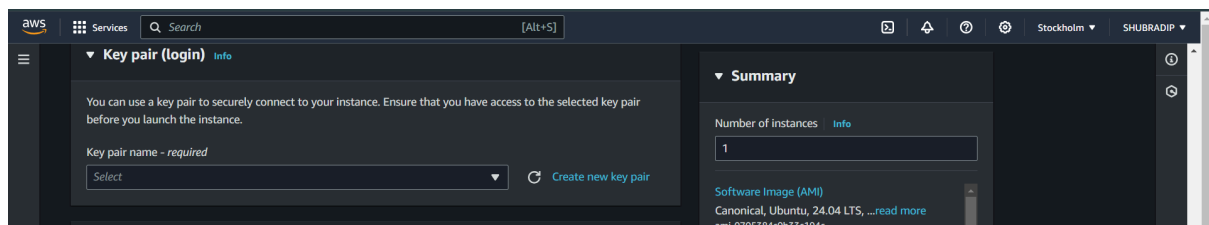
4. For the subsequent step, ensure to assign an appropriate name to the EC2 instance. (For instance, here it is -scec2)



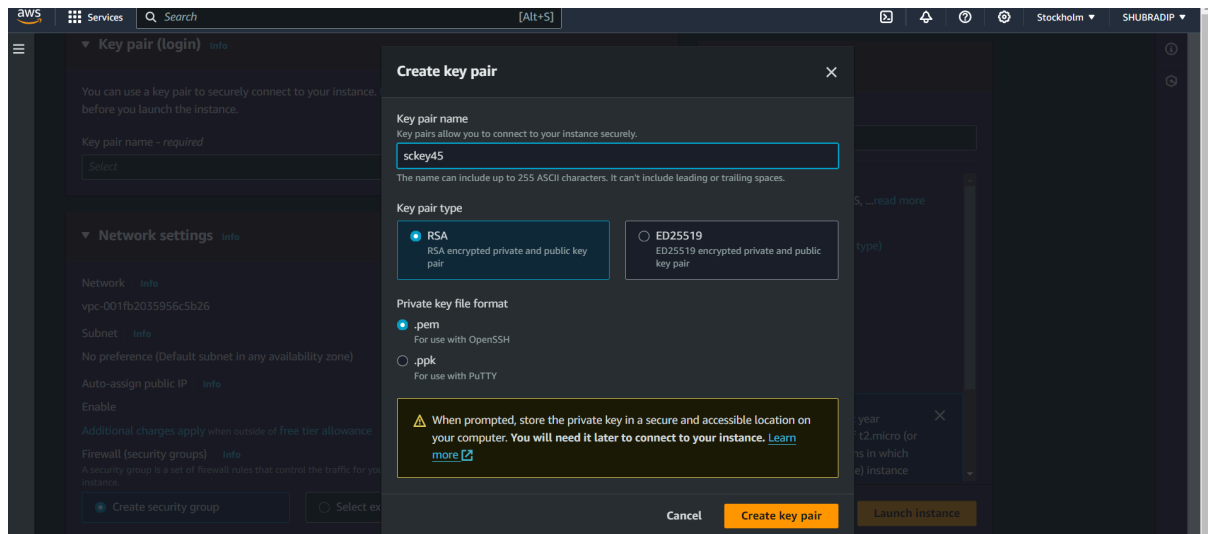
5. Choose **Ubuntu** from the available AMIs.



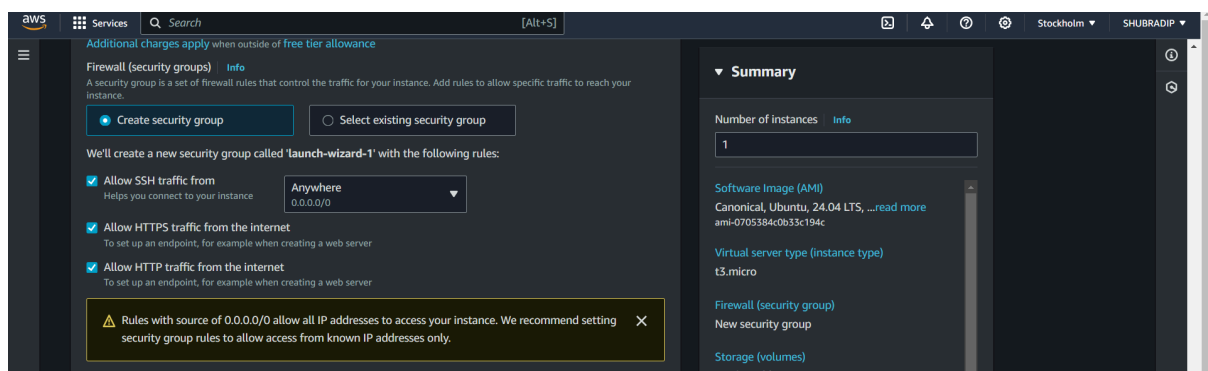
6. Generate a new key pair or alternatively, utilize an existing one. A new key pair is generated by selecting "**Create new key pair**".



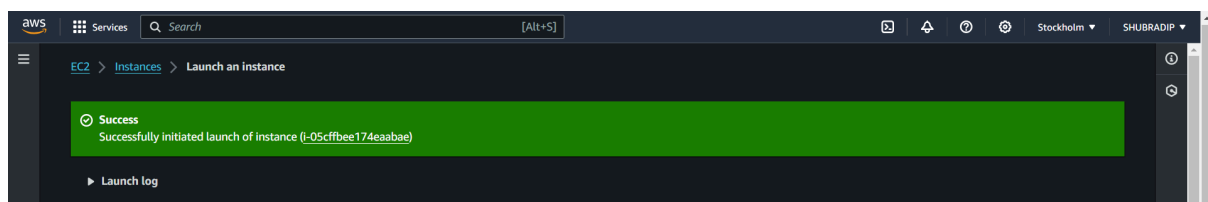
7. In the following window, provide a name for the key pair(here it is-sckey45) and opt for the **.pem** format. Then click on “**create key pair**”.



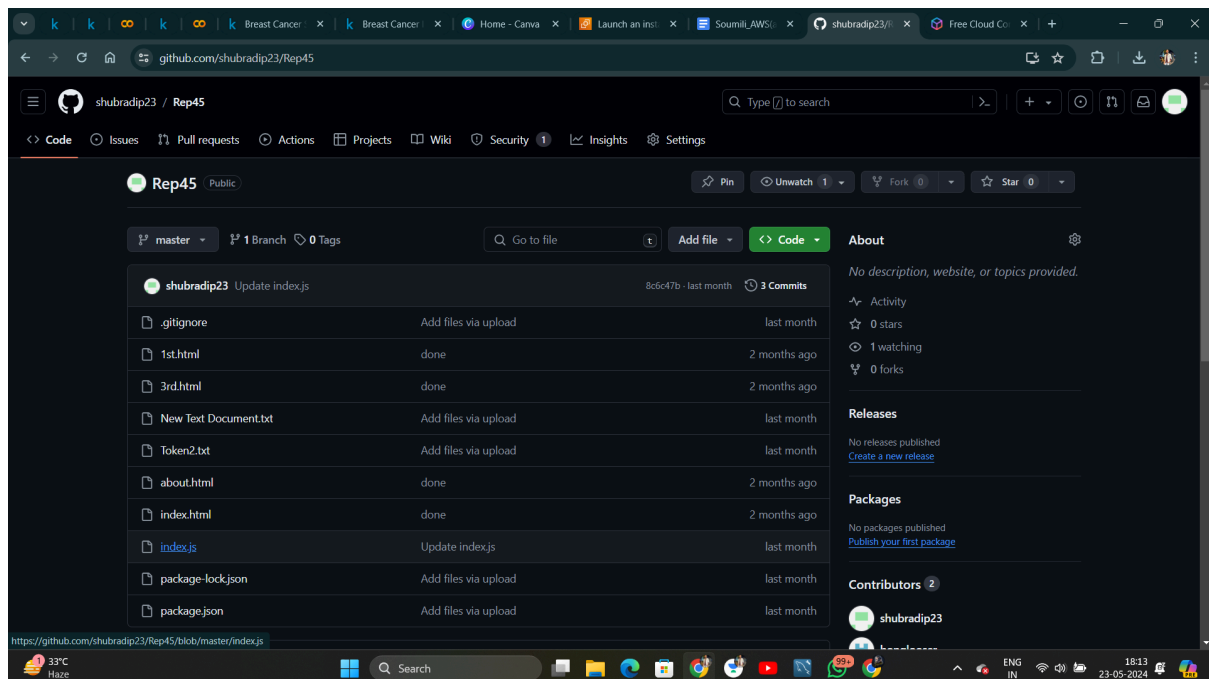
8. Select to create a server and ensure to enable all three protocols: SSH, HTTP, and HTTPS.



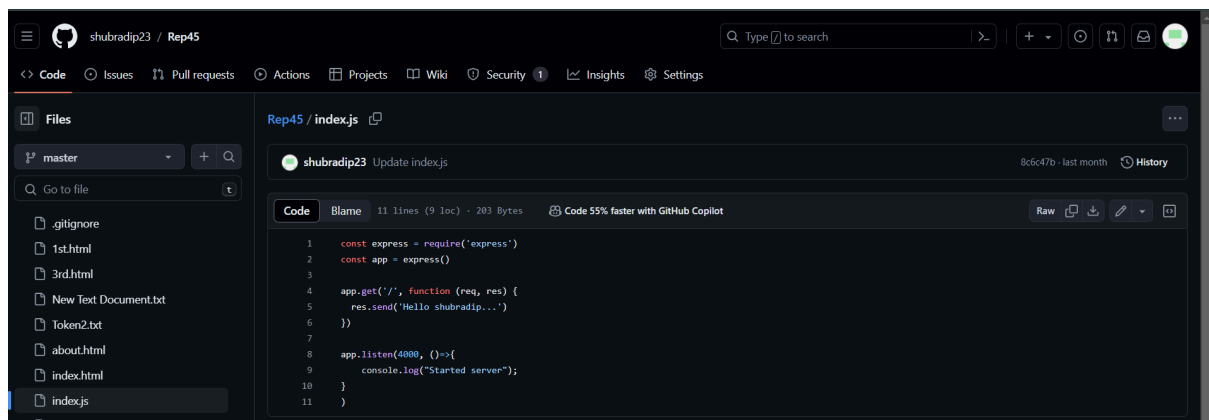
9. Finally, proceed by clicking on "**Launch Instance**".



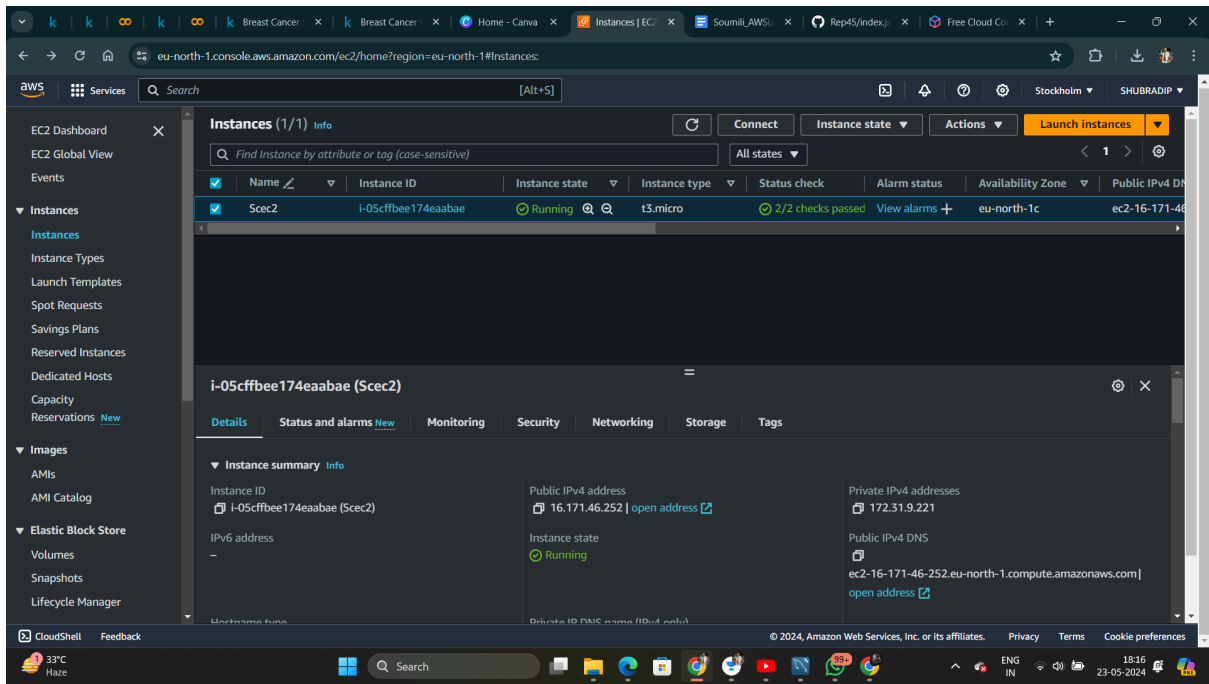
10. Access GitHub and navigate to your repository that is currently being worked on, containing the `index.js` file.



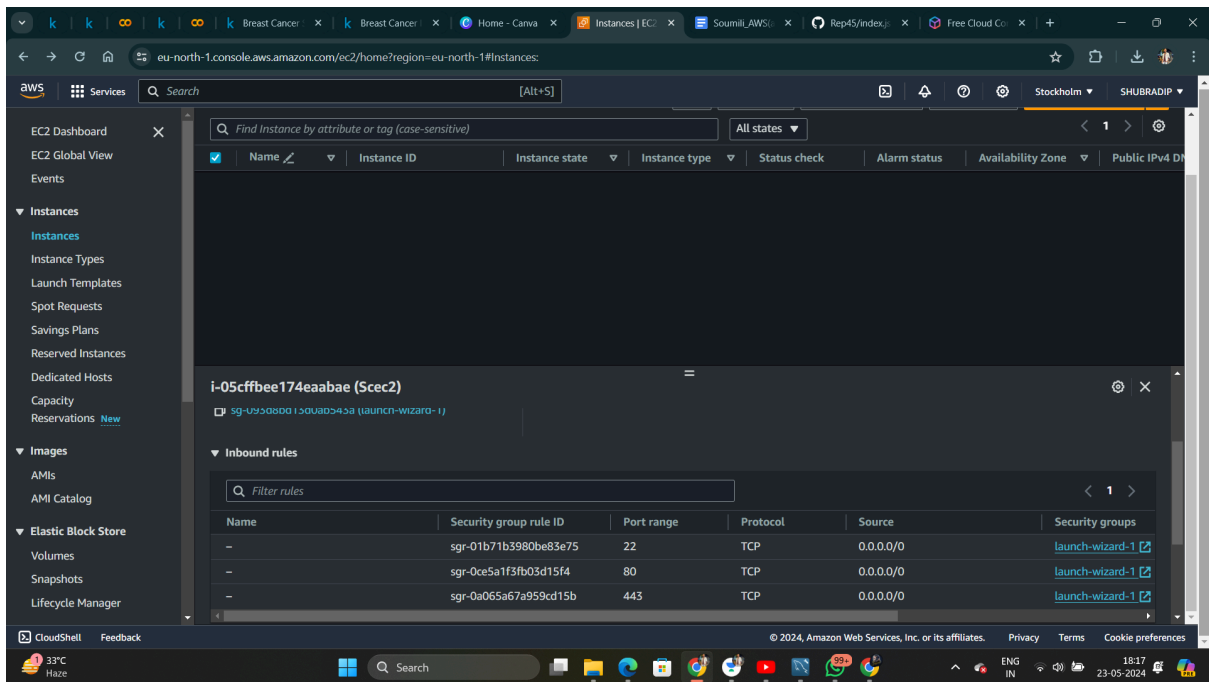
11. Access the `index.js` file and modify the code by replacing `"hello students"` with `"hello <your_name>"`.



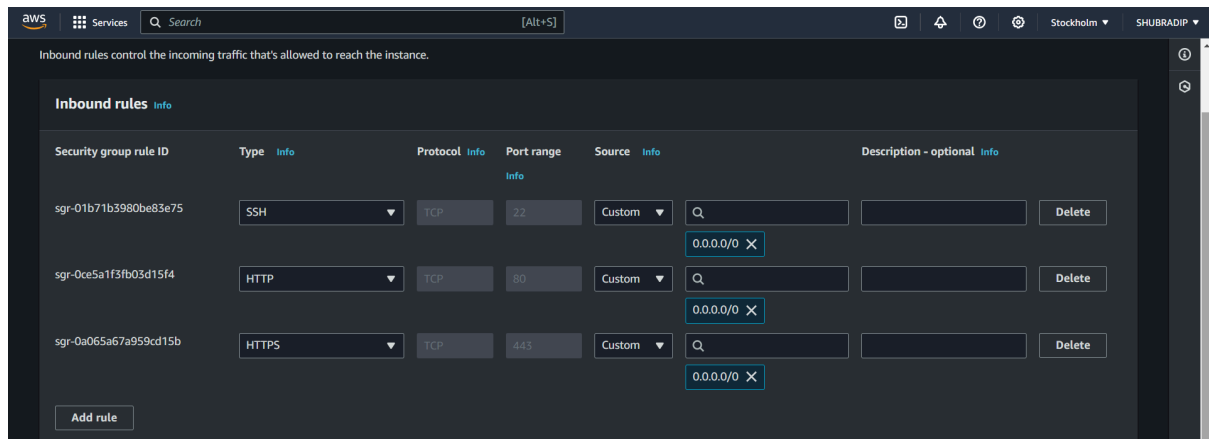
12. Return to the AWS tab currently open in your system, then navigate to **instances** and select **security**.



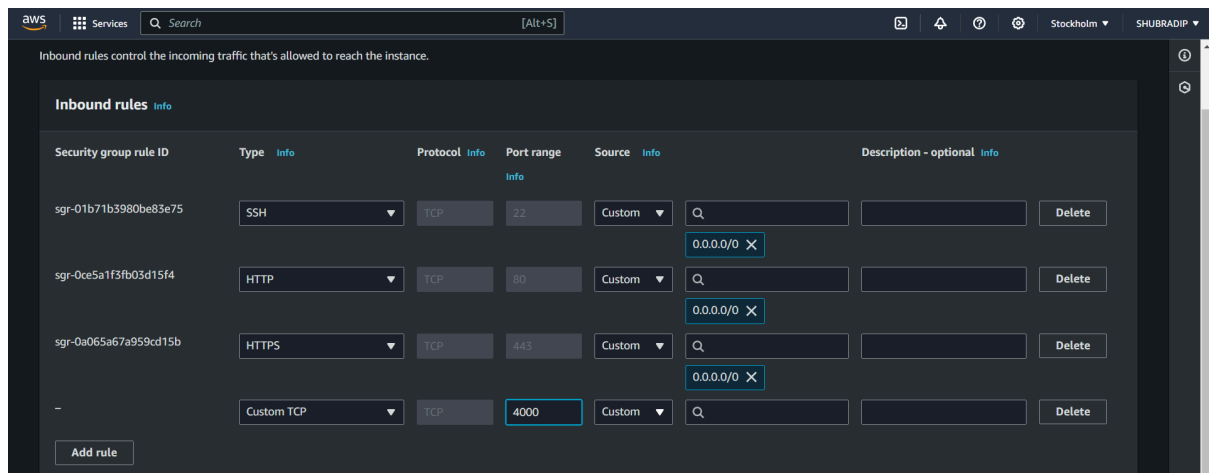
13. Select the security group and observe that three protocols have been chosen.



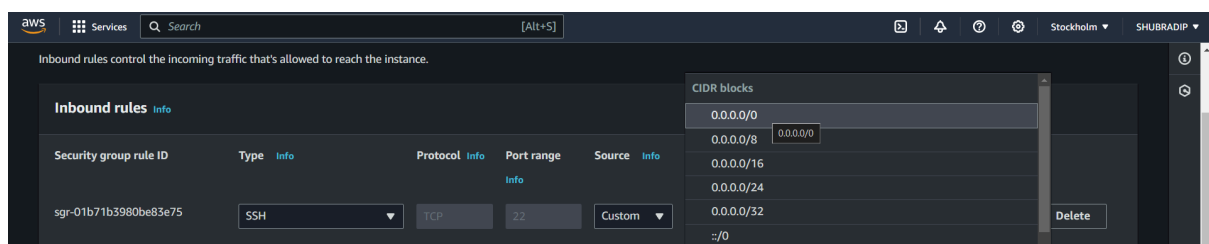
## 14. Select "Edit inbound rules."



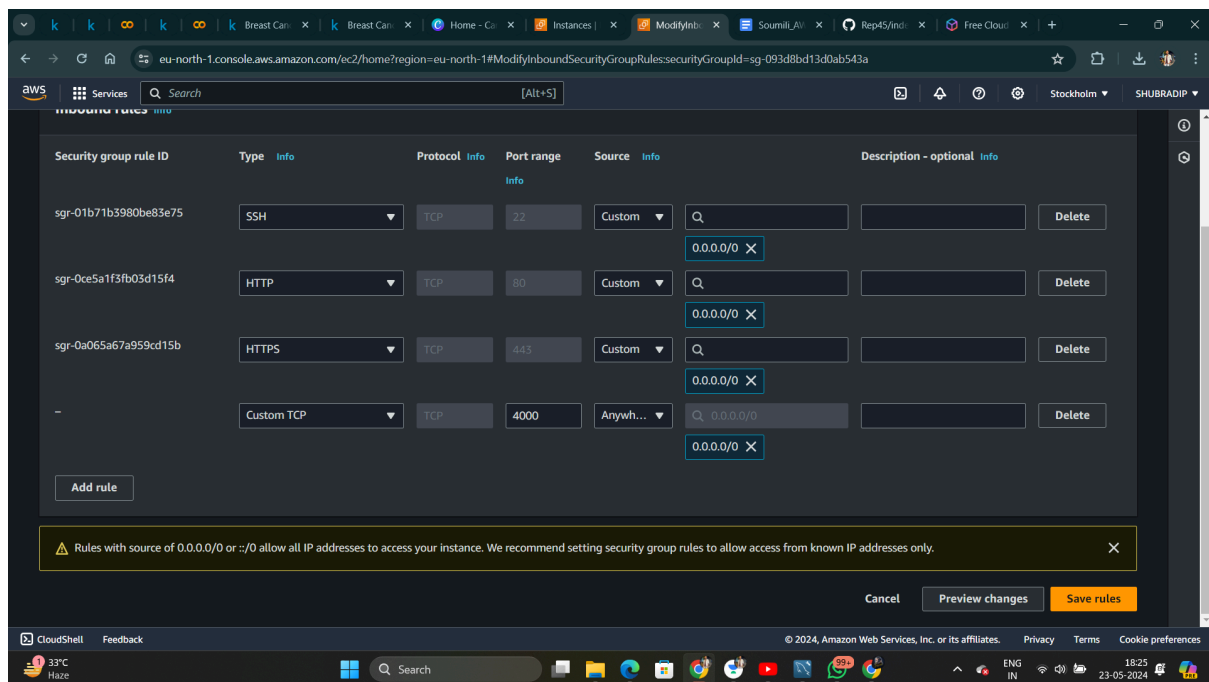
## 15. Scroll down and select "Add rule" to add Custom protocol. Enter 4000 in the port number field, as specified in the `index.js` code.



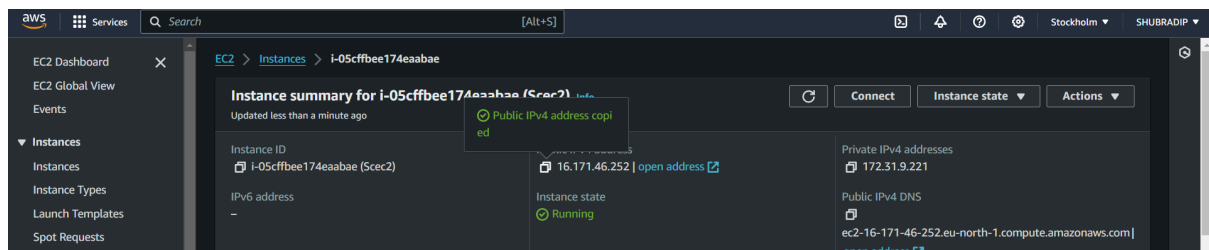
## 17. Choose the first option available beside it.



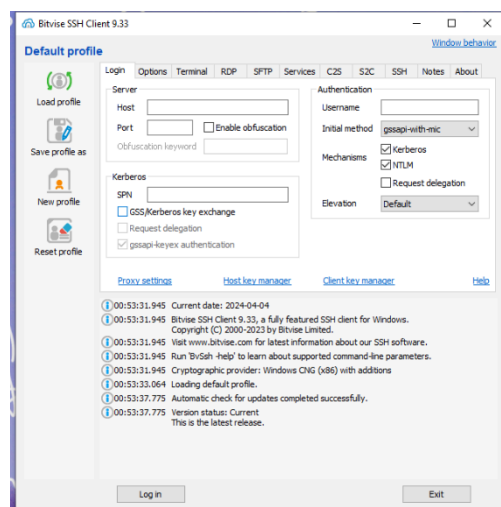
18. Finally click on **Save rules**.



19. Navigate to instances and copy the Public IPv4 address.



20. Launch Bitvise SSH Client and proceed to click on **"Login"**.

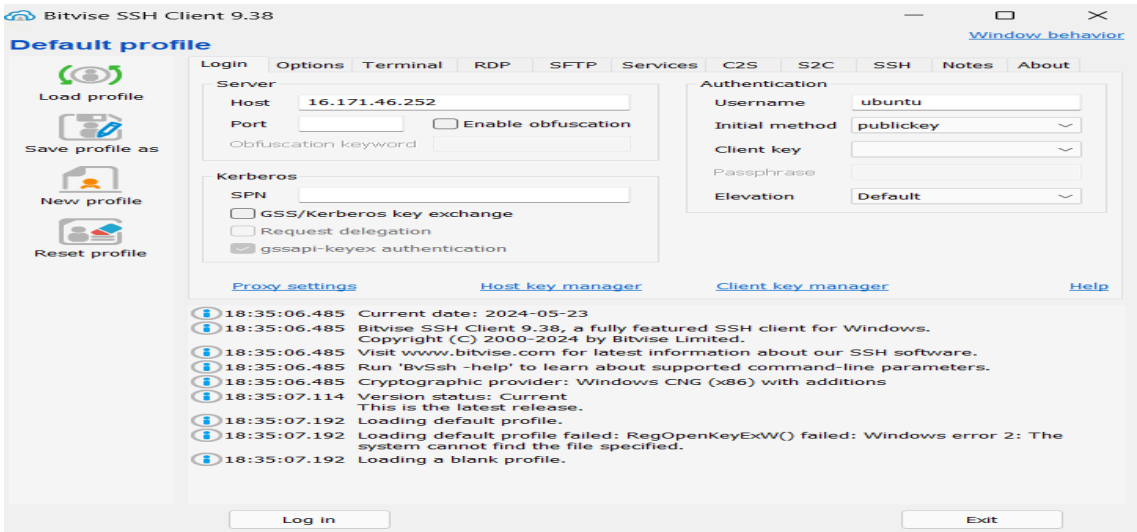


21. Paste the IPv4 address into the host field and enter "ubuntu" as the username.

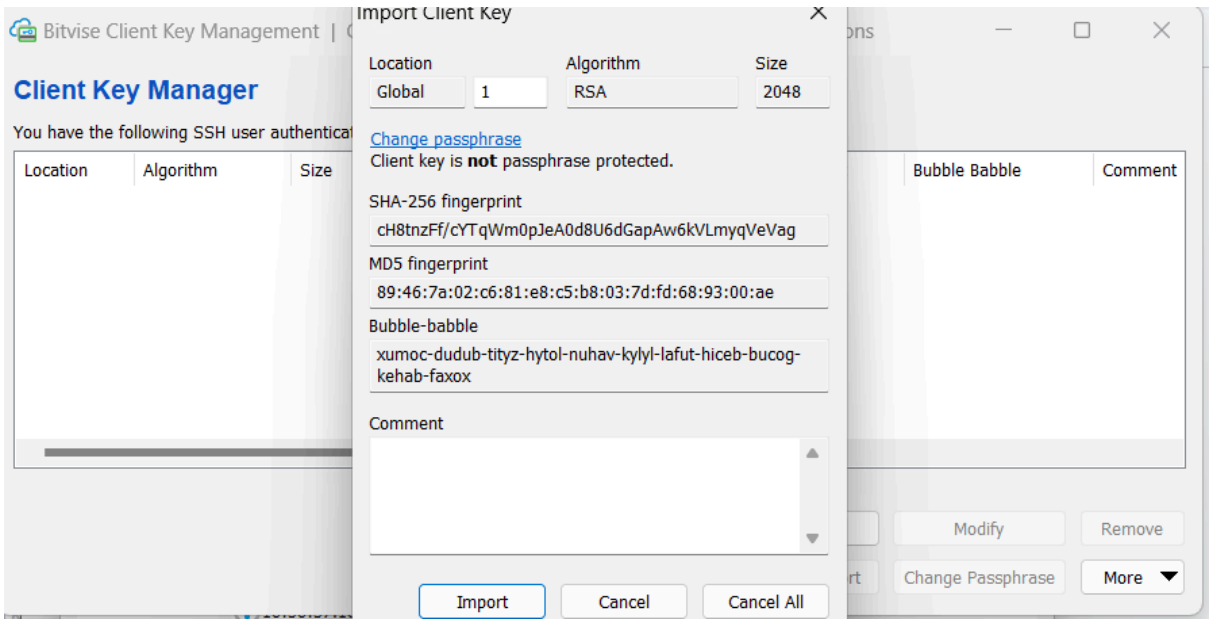


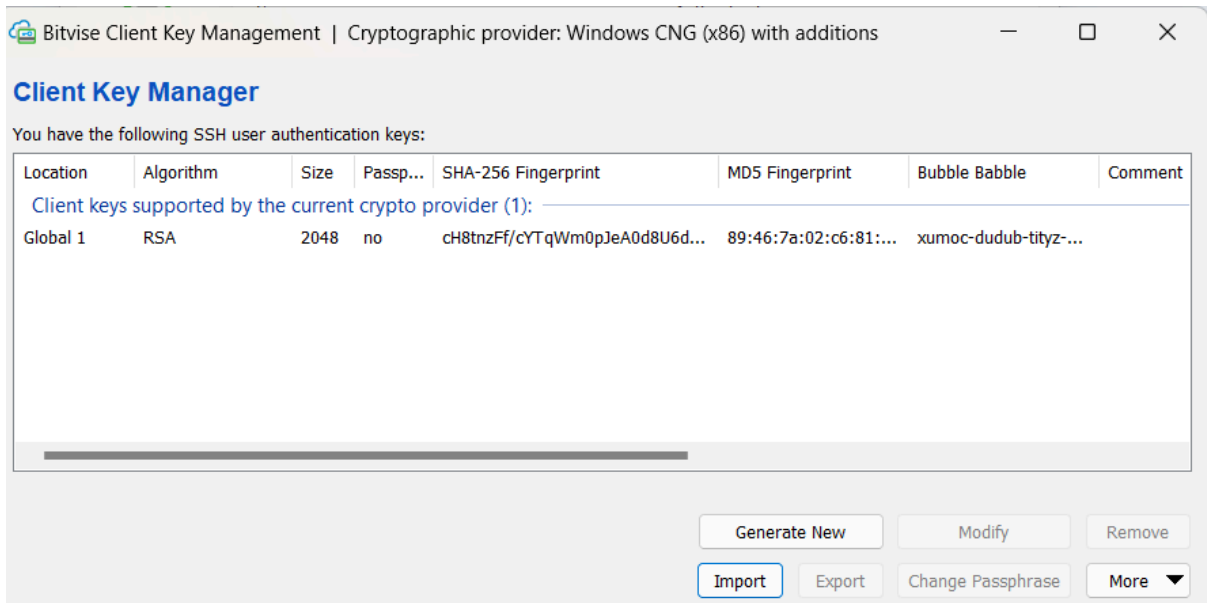
22. Navigate to the client key manager to verify if the correct key is being used. If not, remove the existing key and import the correct one. The steps are: -

i)

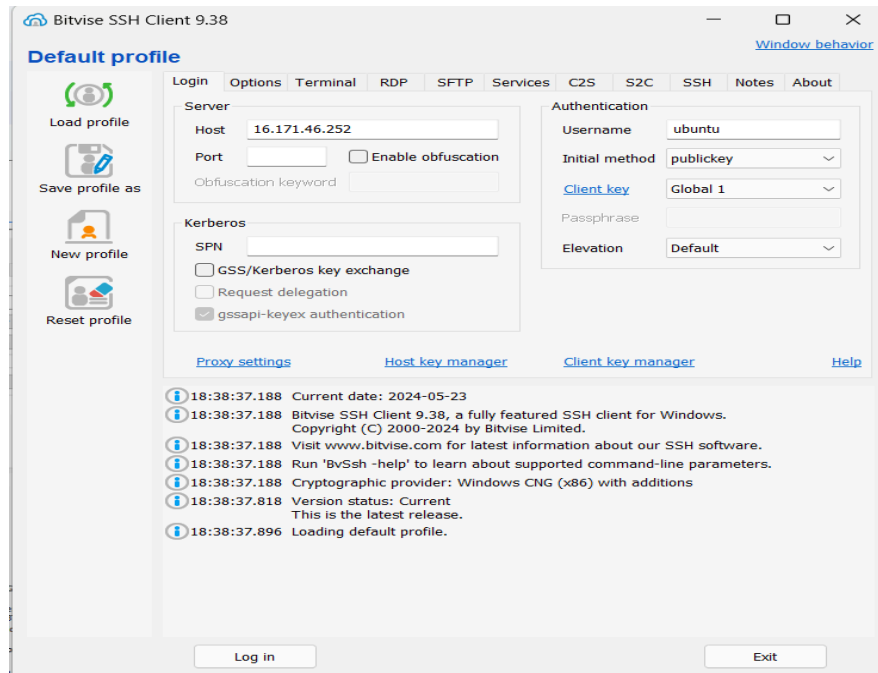


ii)





23. After logging in, click on **"Accept and Save"**. Subsequently, the following window will appear.



24. Access the terminal console from the provided left pane.

```
ubuntu@16.171.46.252:22 - Bitvise xterm - ubuntu@ip-172-31-9-221: ~
* Documentation: https://help.ubuntu.com
* Management:   https://landscape.canonical.com
* Support:      https://ubuntu.com/pro

System information as of Thu May 23 13:12:54 UTC 2024

System load: 0.0          Temperature: -273.1 C
Usage of /:  23.1% of 6.71GB Processes:   106
Memory usage: 22%        Users logged in: 0
Swap usage:  0%          IPv4 address for ens5: 172.31.9.221

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-9-221:~$
```

25. Proceed by entering the commands as listed below.

->***pwd***

(When executed in a terminal, it displays the current directory or the full path of the current working directory in the file system.)

```
ubuntu@16.171.46.252:22 - Bitvise xterm - ubuntu@ip-172-31-9-221: ~
Last login: Thu May 23 13:12:58 2024 from 1.22.224.225
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-9-221:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-9-221:~$
```

->***sudo apt-get update***

(The `sudo apt-get update` command is used on Ubuntu and other Debian-based systems to update the local package index.)

```
ubuntu@ip-172-31-9-221:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-9-221:~$ sudo apt-get update
Get:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:2 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [89.7 kB]
Get:3 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [89.7 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [89.7 kB]
Get:5 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 Packages [1401 kB]
Get:6 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble/main Translation-en [513 kB]
Get:7 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:8 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [31.7 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [10.2 kB]
```

->***sudo apt-get upgrade***

(The `sudo apt-get upgrade` command, when executed on Ubuntu or other Debian-based systems, upgrades all installed packages to their latest available versions)

```
ubuntu@ip-172-31-9-221:~$ sudo apt-get update
Hit:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
ubuntu@ip-172-31-9-221:~$
```

->***sudo apt-get install nginx***

(The `sudo apt-get install nginx` command, when executed on Ubuntu or other Debian-based systems, installs the Nginx web server software.)

```
ubuntu@ip-172-31-9-221:~$ sudo apt-get install nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
```

->***curl -SL [https://deb.nodesource.com/setup\\_16.x](https://deb.nodesource.com/setup_16.x)|sudo -E bash***

(After execution, your system will be set up to install Node.js version 16.x from the Node Source repository.)

```
ubuntu@ip-172-31-23-146: ~
100 5617 100 5617 0 0 62630 0 ---:---:---:--- 63112
=====
DEPRECATION WARNING

Node.js 16.x is no longer actively supported!

You will not receive security or critical stability updates for this version.

You should migrate to a supported version of Node.js as soon as possible.
Use the installation script that corresponds to the version of Node.js you
wish to install. e.g.

* https://deb.nodesource.com/setup_16.x - Node.js 16 "Gallium" (deprecated)
* https://deb.nodesource.com/setup_18.x - Node.js 18 "Hydrogen" (Maintenance)
* https://deb.nodesource.com/setup_19.x - Node.js 19 "Nineteen" (deprecated)
* https://deb.nodesource.com/setup_20.x - Node.js 20 LTS "Iron" (recommended)
* https://deb.nodesource.com/setup_21.x - Node.js 21 "Iron" (current)

Please see https://github.com/nodejs/Release for details about which
version may be appropriate for you.

The NodeSource Node.js distributions repository contains
information both about supported versions of Node.js and supported Linux
distributions. To learn more about usage, see the repository:
https://github.com/nodesource/distributions

=====
Continuing in 10 seconds ...
```

### ->***sudo apt install nodejs***

(The `sudo apt install NodeJS` command, when executed on Ubuntu or other Debian-based systems, installs the Node.js runtime environment along with the npm package manager.)

```
ubuntu@ip-172-31-9-221:~$ sudo apt install nodejs
Reading package lists... Done
Preparing to unpack .../2-nodejs_18.19.1+dfsg-6ubuntu5_amd64.deb ...
Unpacking nodejs (18.19.1+dfsg-6ubuntu5) ...
Selecting previously unselected package node-acorn.
Preparing to unpack .../3-node-acorn_8.8.1+ds+~cs25.17.7-2_all.deb ...
Unpacking node-acorn (8.8.1+ds+~cs25.17.7-2) ...
Selecting previously unselected package node-cjs-module-lexer.
Preparing to unpack .../4-node-cjs-module-lexer_1.2.3+dfsg-1_all.deb ...
Unpacking node-cjs-module-lexer (1.2.3+dfsg-1) ...
Selecting previously unselected package node-busboy.
Preparing to unpack .../5-node-busboy_1.6.0+~cs2.6.0-2_all.deb ...
Unpacking node-busboy (1.6.0+~cs2.6.0-2) ...
```

### ->***node --version***

(Returns the version of nodejs installed.)

```
ubuntu@ip-172-31-9-221:~$ node --version
v18.19.1
ubuntu@ip-172-31-9-221:~$
```

### ->***git clone <your repository path>***

(The `git clone` command is used to create a copy of a Git repository on your local machine.)

```
ubuntu@ip-172-31-9-221:~$ git clone https://github.com/shubradip23/Rep45.git
Cloning into 'Rep45'...
remote: Enumerating objects: 16, done.
remote: Counting objects: 100% (16/16), done.
remote: Compressing objects: 100% (14/14), done.
remote: Total 16 (delta 4), reused 4 (delta 1), pack-reused 0
Receiving objects: 100% (16/16), 50.74 KiB | 1.27 MiB/s, done.
Resolving deltas: 100% (4/4), done.
ubuntu@ip-172-31-9-221:~$
```

>Now go inside the repository using cd and ls.

```
ubuntu@ip-172-31-9-221:~$ cd Rep45
ubuntu@ip-172-31-9-221:~/Rep45$ ls
1st.html  'New Text Document.txt'  about.html  index.js  package.json
3rd.html  Token2.txt               index.html  package-lock.json
```

->**npm install**

(The `npm install` command is used in a Node.js project to install dependencies listed in the `package.json` file)

```
npm WARN deprecated uuid@3.4.0: Please upgrade to version 7 or higher. Older versions may use Math.random() in certain circumstances, which is known to be problematic. See https://v8.dev/blog/math-random for details.

added 258 packages, and audited 259 packages in 7s

18 packages are looking for funding
  run `npm fund` for details

12 vulnerabilities (10 moderate, 2 critical)

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
npm notice
npm notice New major version of npm available! 8.19.4 -> 10.5.1
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.5.1
npm notice Run npm install -g npm@10.5.1 to update!
npm notice
```

->**node index.js**

(The command `node index.js` is used to execute a JavaScript file named `index.js` using the Node.js runtime environment.)

```
ubuntu@ip-172-31-9-221:~/Rep45$ node index.js
Started server
```

26. Open a new browser window and enter the IPv4 address followed by ":4000", like "IPv4\_address:4000".

