SETTING UP THE APACHE WEBSERVER ON AMAZON EC2 AND CONFIGURING IT TO HOST A WEBSITE ON IT

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that 18CSE316J Mini project report titled **"Setting up the Apache Webserver on Amazon EC2 and configuring it to host a website on it"** is the bonafide work of **PRADIPTA NANDI [RegNo:RA2011003010154], GUNNU JAIRAJ [RegNo:RA2011003010171]** and **ARPAN GHOSH [RegNo:RA2011003010205]** who carried out the project work under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion for this or any other candidate.

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ABSTRACT

In this project we plan to set up and install the Apache web server on Amazon EC2 and then configure it such that we are able to host our website on the web server publicly so that our website is accessible to everyone on the WWW.

INTRODUCTION

The Apache HTTP Server is a free and open-source cross-platform web server software, released under the terms of Apache License 2.0. It is developed and maintained by a community of developers under the auspices of the Apache Software Foundation.

Apache is a web server software that is responsible for accepting HTTP requests from visitors and sending them back the requested information in the form of web pages. Or in simpler terms, it allows visitors to view content on your website.

Amazon Elastic Compute Cloud is a part of Amazon's cloud-computing platform, Amazon Web Services, that allows users to rent virtual computers on which to run their own computer applications. Amazon Elastic Compute Cloud (Amazon EC2) provides on-demand, scalable computing capacity in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 reduces hardware costs so you can develop and deploy applications faster.

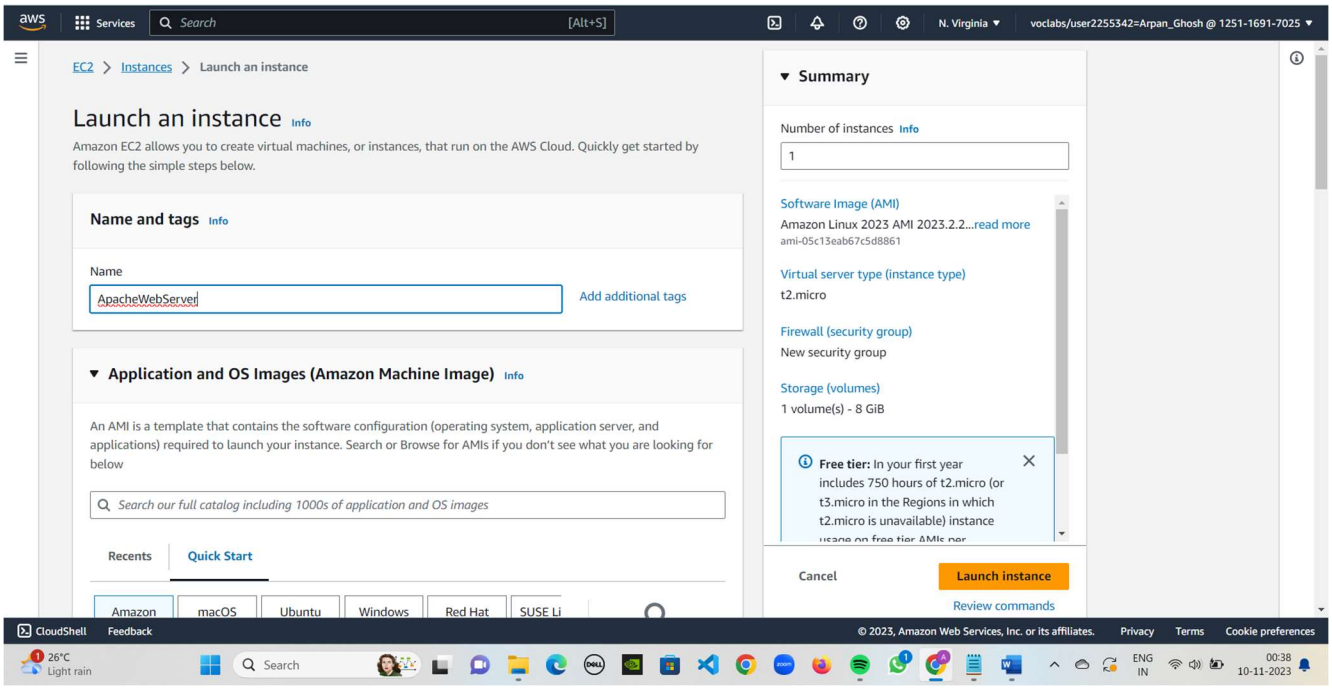
TABLE OF CONTENTS

LIST OF ABBREVIATIONS

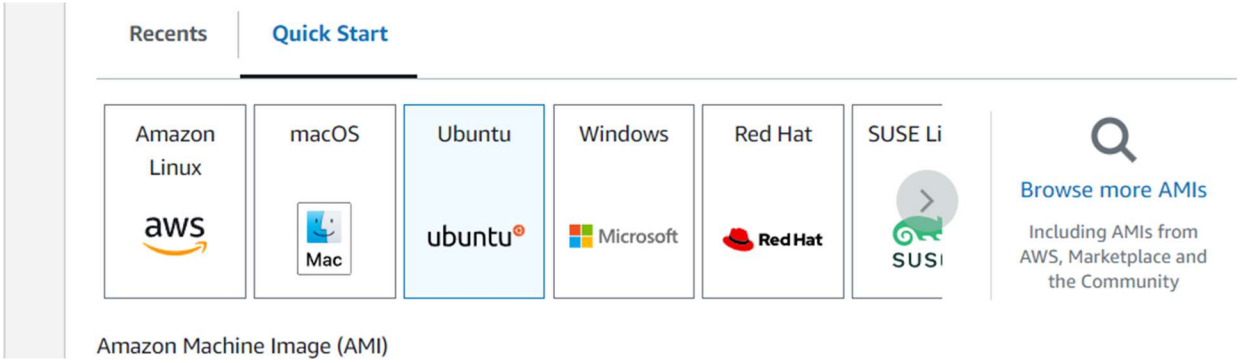
AWS – Amazon Web Services
EC2 – Elastic Compute Cloud
HTML – Hypertext Markup Language
IP – Internet Protocol
sudo – super user do
ppk – putty private key

IMPLEMENTATION

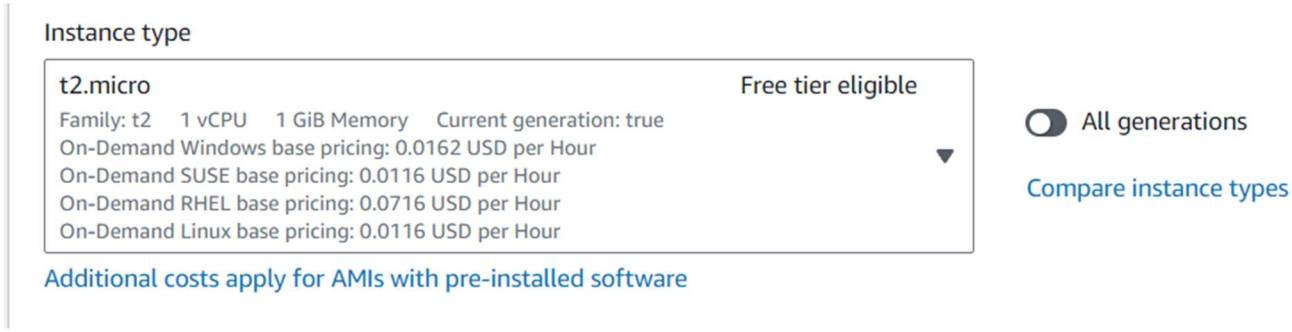
1. Creating and Launching an Amazon EC2 Instance



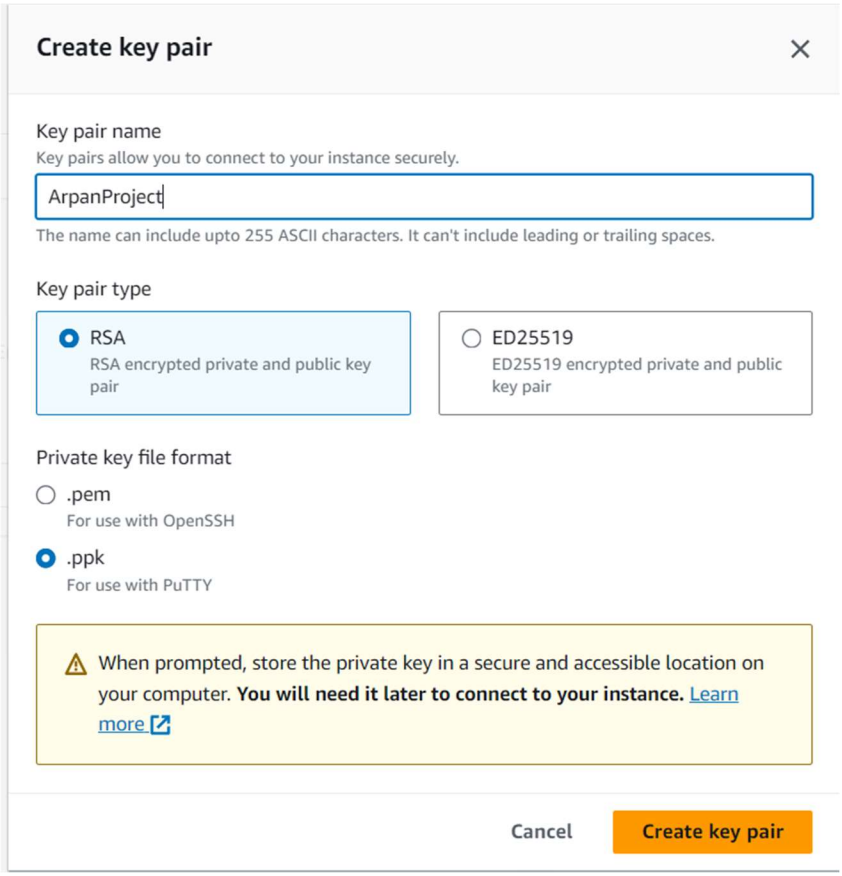
- First click on Launch an Instance and select an appropriate name for the instance. In this case we have named it as ApacheWebServer.



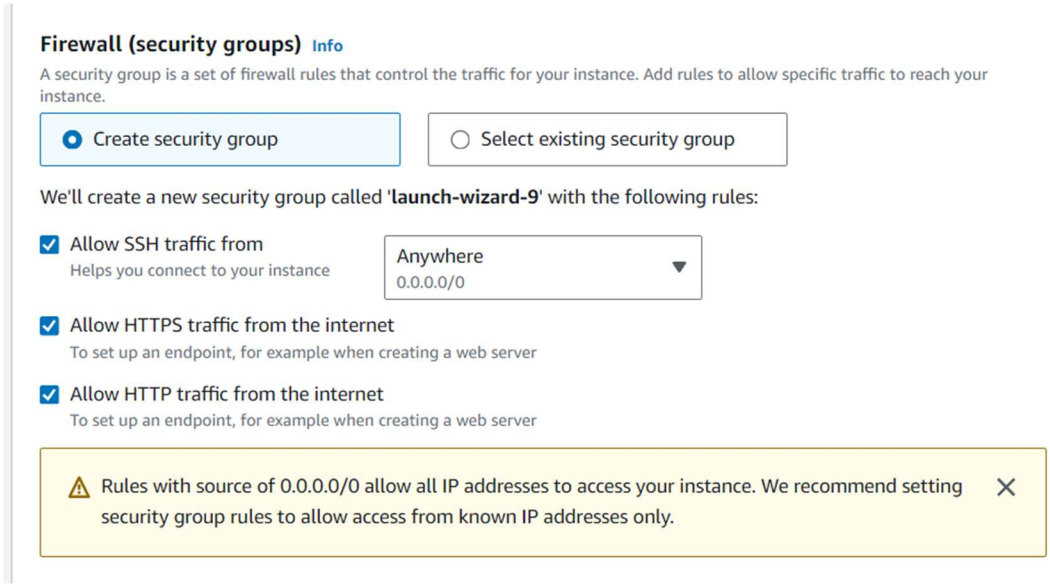
- Choose an Operating System of your choice in this case we are choosing Ubuntu.



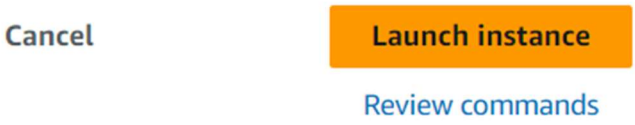
- Next choose the instance type. In this case we have chosen the Instance type as "**t2.micro".**



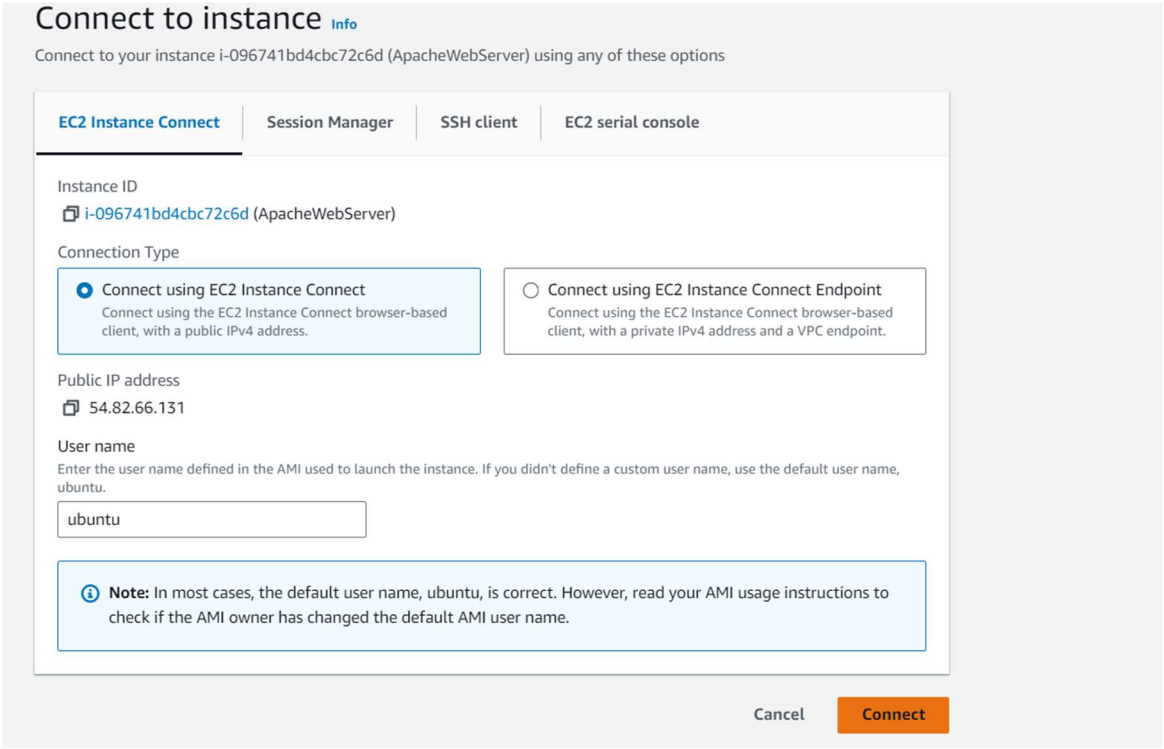
- Next Create the Key Pair.



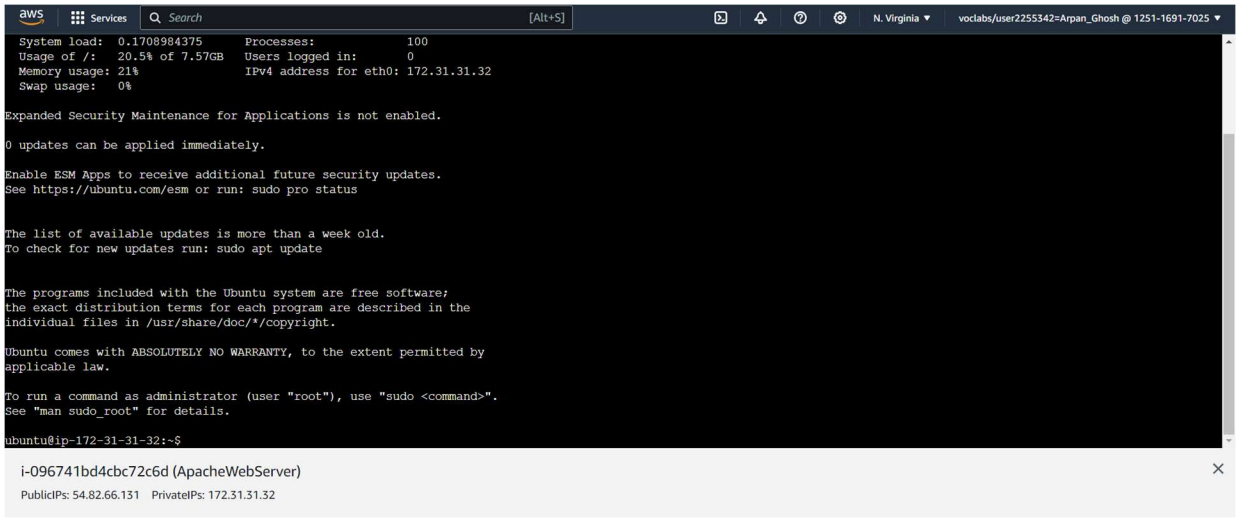
- Next create the security Group and choose your preferences.



- Next click on "**Launch Instance**" to launch the instance.



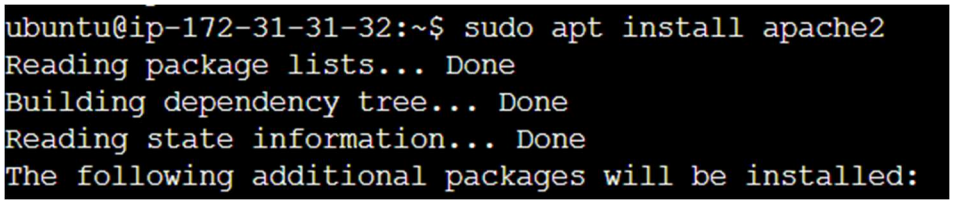
- Next click "**Connect**" to connect to the EC2 instance.

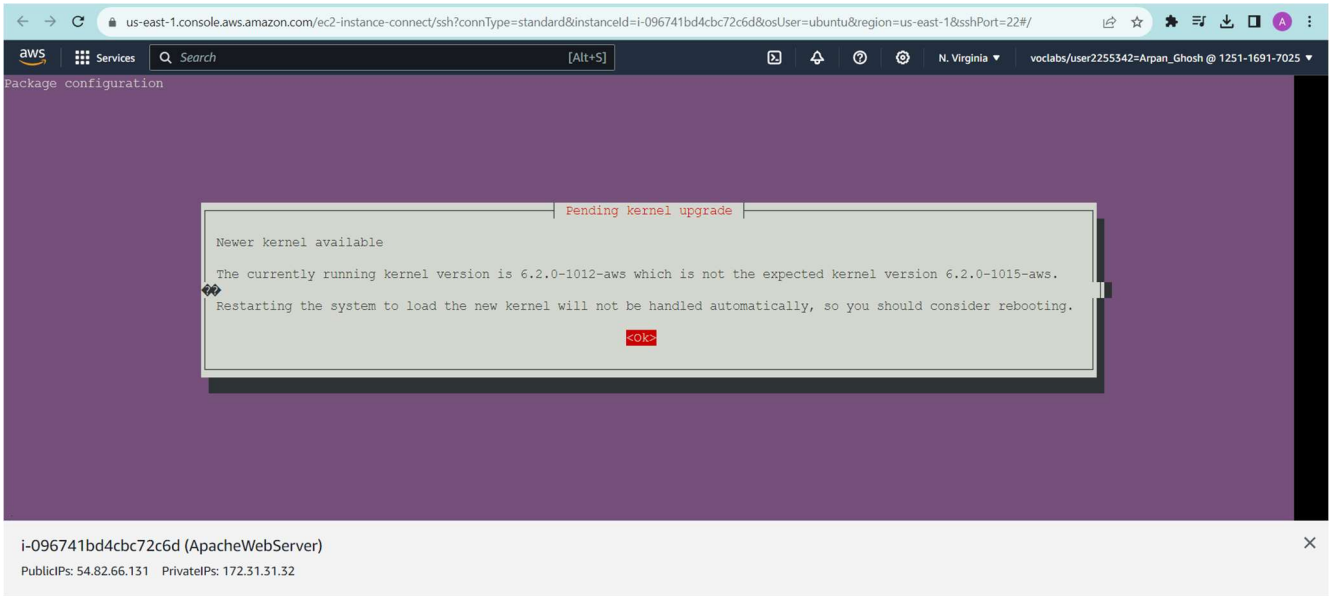


- Successfully connected to the instance.

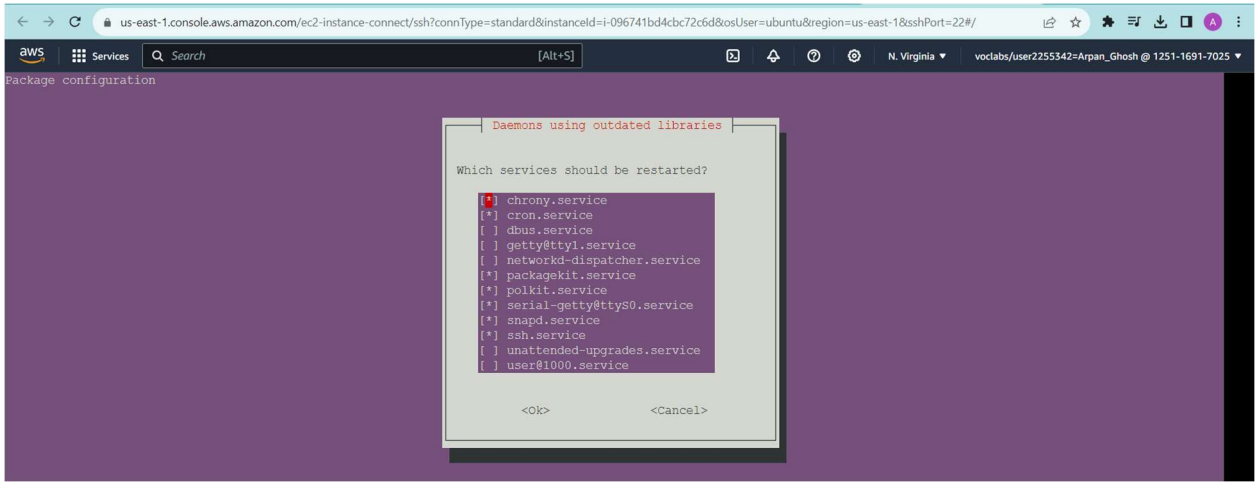
2. Installing Apache Webserver on the created EC2 Instance

- Type in the command – **sudo apt install apache2**. This command will install the Apache Server in the present instance.





- On doing the same the following Prompt appears. Press ENTER.



- Again, press Enter/Click OK.

- To check if Apache is successfully installed type the following command – **which apache2.**

```
ubuntu@ip-172-31-31-32:~$ which apache2
/usr/sbin/apache2
```

- To check the version of Apache, type – **apache2 – v**

```
ubuntu@ip-172-31-31-32:~$ apache2 -v
Server version: Apache/2.4.52 (Ubuntu)
Server built:   2023-05-03T20:02:51
ubuntu@ip-172-31-31-32:~$
```

3. Starting the Server

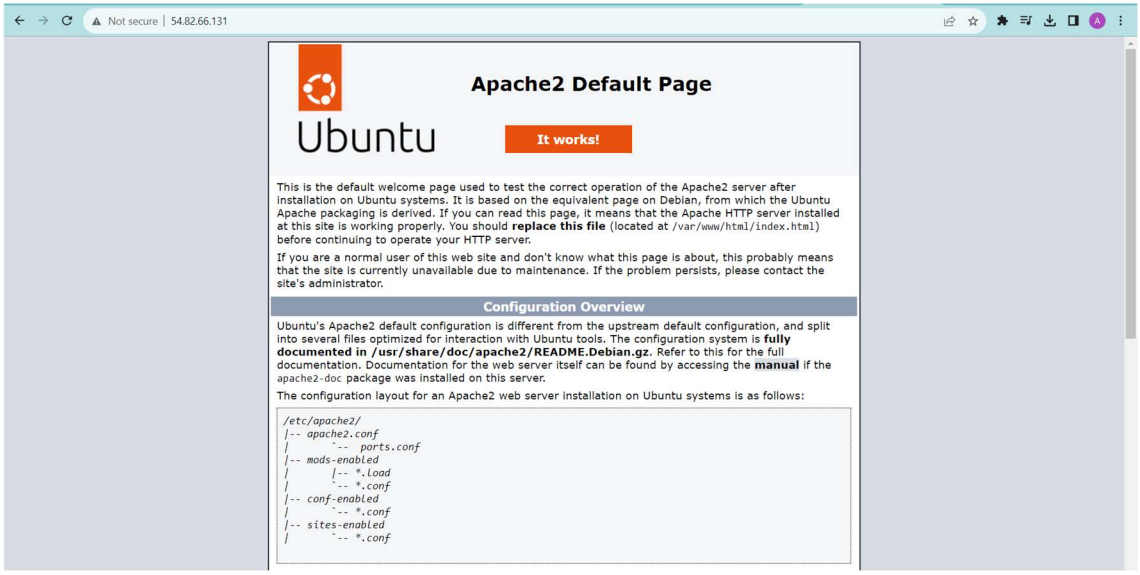
- To start the service type in the following command – **sudo service apache2 start**. This starts the Web Server.

```
ubuntu@ip-172-31-31-32:~$ sudo service apache2 start
```

- To check the status of the web server type in the command – **sudo service apache2 status**.

```
ubuntu@ip-172-31-31-32:~$ sudo service apache2 status
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Thu 2023-11-09 19:41:26 UTC; 7min ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 14824 (apache2)
      Tasks: 55 (limit: 1121)
     Memory: 5.0M
        CPU: 57ms
     CGroup: /system.slice/apache2.service
             ├─14824 /usr/sbin/apache2 -k start
             ├─14826 /usr/sbin/apache2 -k start
             └─14827 /usr/sbin/apache2 -k start
```

- The above screenshot shows that the Apache server is running. To confirm it copy the public IP at the bottom left and paste it to open the test page on a new tab.



- The above screenshot shows the Apache2 test page.

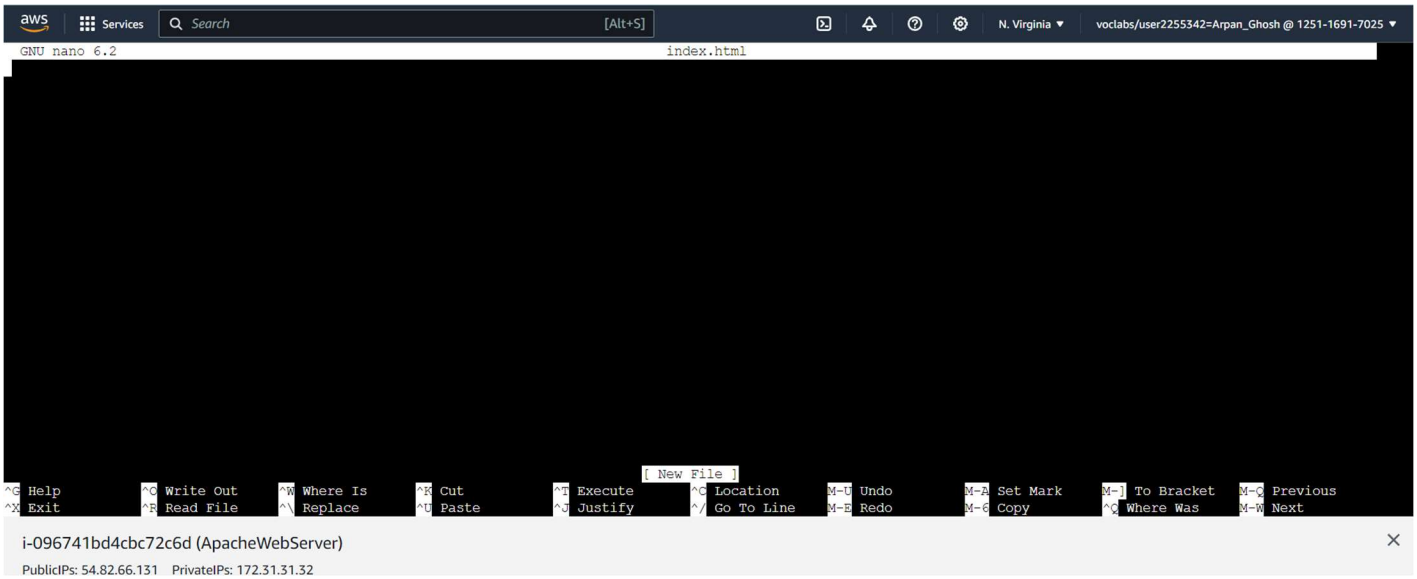
4. Replacing the Test page with our very own Webpage

```
ubuntu@ip-172-31-31-32:~$ cd /var/www/html
ubuntu@ip-172-31-31-32:/var/www/html$ ls
index.html
ubuntu@ip-172-31-31-32:/var/www/html$
```

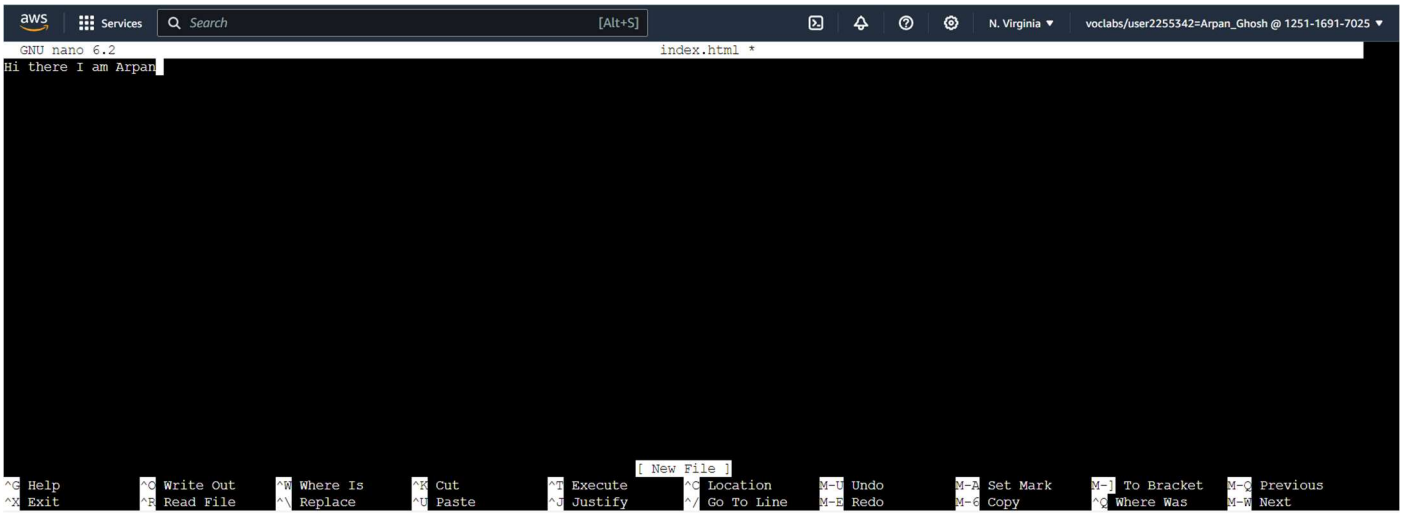
- We need to replace this index.html with our very own index HTML file for our webpage.
- Type in the command - **sudo nano index.html** to open the index.html file in the nano editor.

```
ubuntu@ip-172-31-31-32:/var/www/html$ sudo nano index.html
```

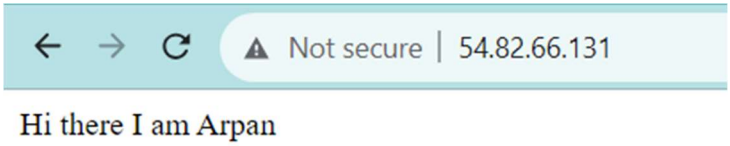
- This opens up the nano editor where we can write our html code.



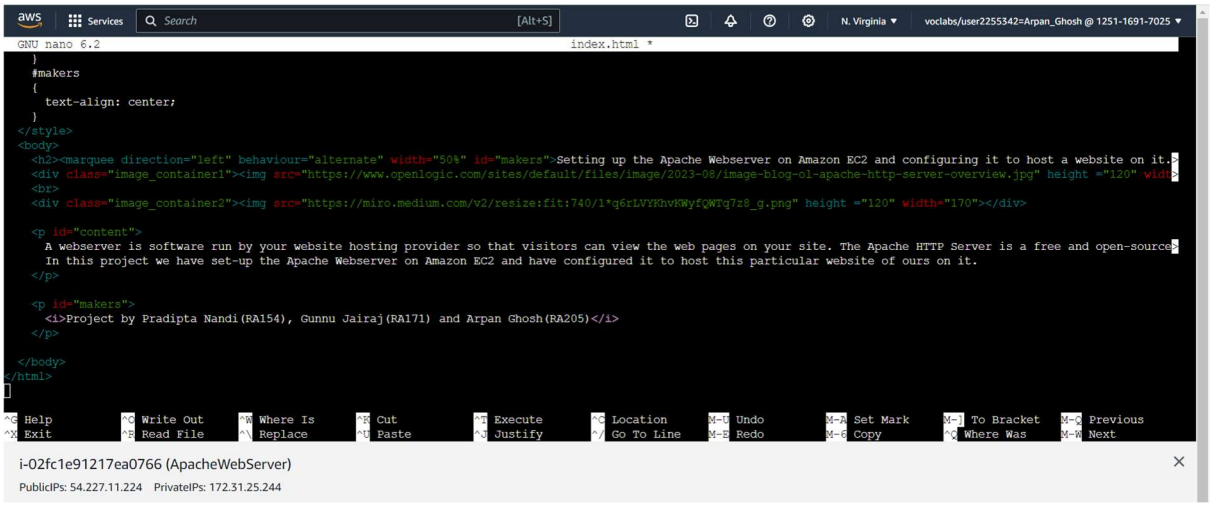
- To test it type something in the index.html file in the editor.



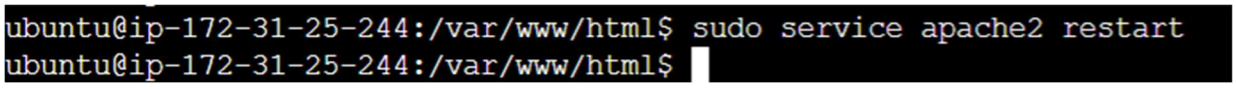
- Save it and type the command – **sudo service apache2 restart**, to restart the server.
- Now on going to the website we see the replaced content.



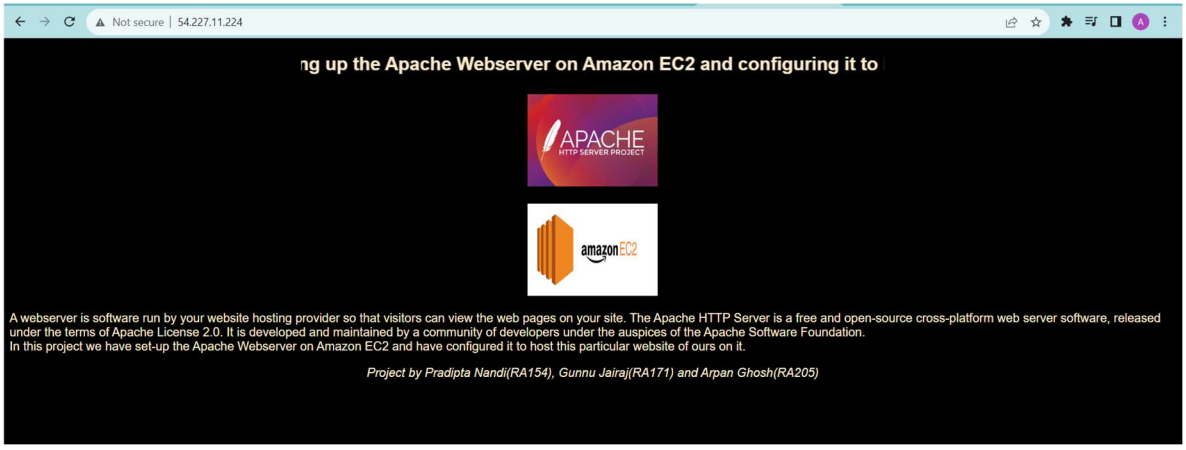
- Now again type the command – **sudo nano index.html** to open up the index HTML file and type the HTML code for the webpage there.



- After saving, press Cltr X to exit the nano editor and type the following command in the Ubuntu terminal – **sudo service apache2 restart** to again restart the service.



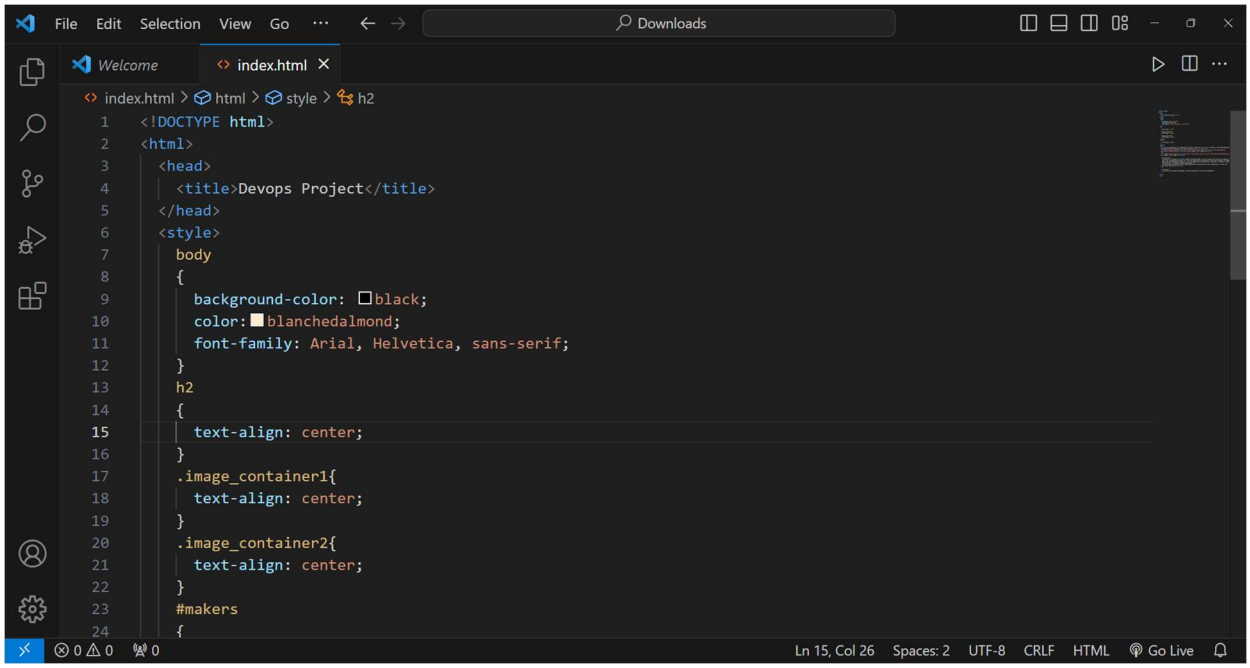
- Now refresh the website or paste the public IP address on a new tab to view the website.



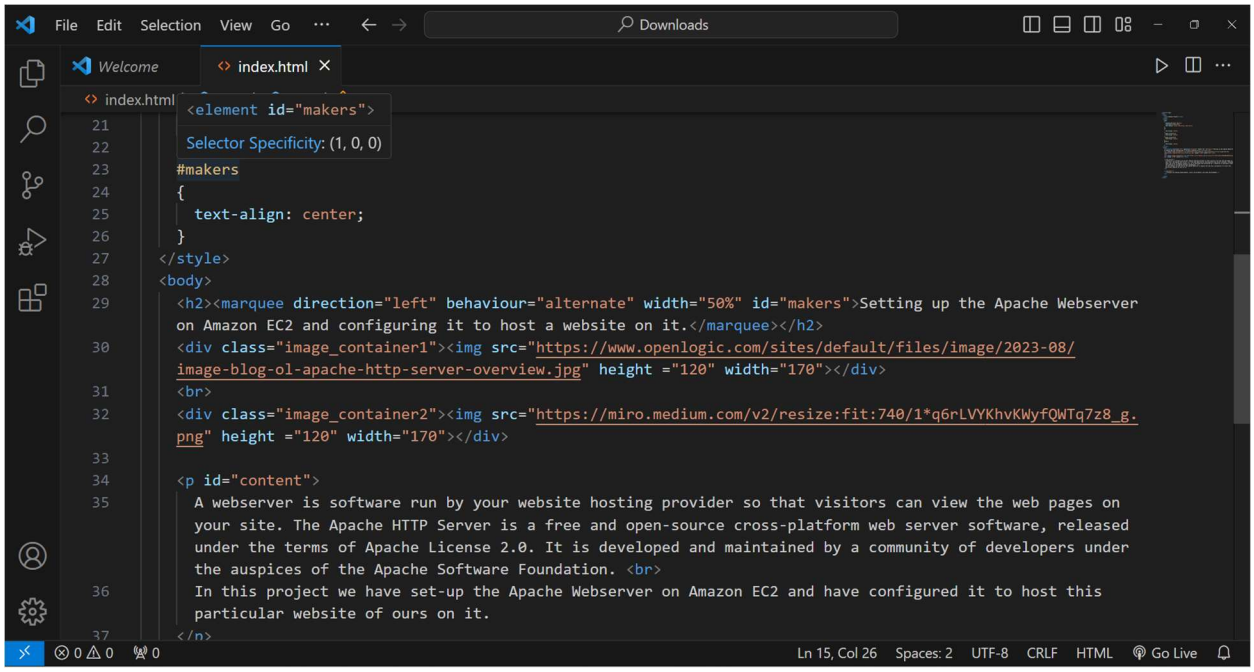
- We can observe that our website has an IP Address to it.

- We can map this to a domain name through the DNS but that is not in the scope of this project.
- Hence, we were successfully able to launch an EC2 instance and install and set up Apache on it and were able to host our website on this web server.

HTML CODE

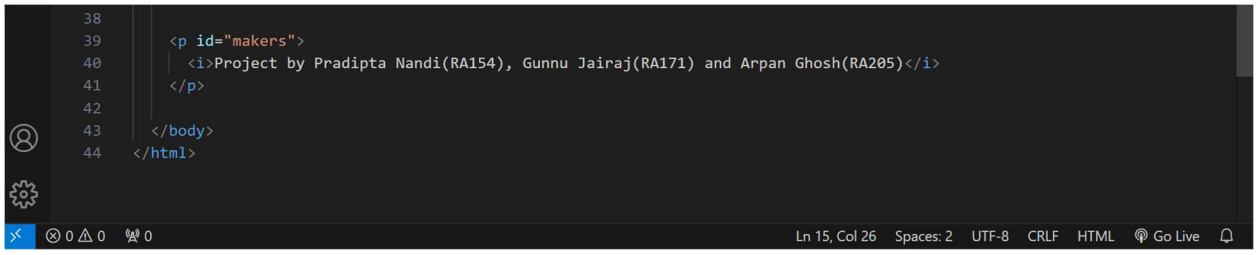


```
<!DOCTYPE html>
<html>
  <head>
    <title>Devops Project</title>
  </head>
  <style>
    body
    {
      background-color: black;
      color: blanchedalmond;
      font-family: Arial, Helvetica, sans-serif;
    }
    h2
    {
      text-align: center;
    }
    .image_container1{
      text-align: center;
    }
    .image_container2{
      text-align: center;
    }
    #makers
    {
```



```
    #makers
    {
      text-align: center;
    }
  </style>
  <body>
    <h2><marquee direction="left" behaviour="alternate" width="50%" id="makers">Setting up the Apache Webserver
    on Amazon EC2 and configuring it to host a website on it.</marquee></h2>
    <div class="image_container1"><img src="https://www.openlogic.com/sites/default/files/image/2023-08/
    image-blog-ol-apache-http-server-overview.jpg" height ="120" width="170"></div>
    <br>
    <div class="image_container2"><img src="https://miro.medium.com/v2/resize:fit:740/1*q6rLVYKhvKWyfQWTq7z8_g.
    png" height ="120" width="170"></div>

    <p id="content">
      A webserver is software run by your website hosting provider so that visitors can view the web pages on
      your site. The Apache HTTP Server is a free and open-source cross-platform web server software, released
      under the terms of Apache License 2.0. It is developed and maintained by a community of developers under
      the auspices of the Apache Software Foundation. <br>
      In this project we have set-up the Apache Webserver on Amazon EC2 and have configured it to host this
      particular website of ours on it.
    </p>
```



```

    <p id="makers">
      <i>Project by Pradipta Nandi(RA154), Gunnu Jairaj(RA171) and Arpan Ghosh(RA205)</i>
    </p>

  </body>
</html>
```

CONCLUSION

Hence, we were successfully able to set up and install the Apache Server on an Amazon EC2 instance and were also successfully able to host our website publicly on the web server for everyone to view our website on the World Wide Web.

REFERENCES

- **https://httpd.apache.org/**
- **https://en.wikipedia.org/wiki/Apache_HTTP_Server**
- **https://www.openlogic.com/sites/default/files/image/2023-08/image-blog-ol-apache-http-server-overview.jpg**
- **https://miro.medium.com/v2/resize:fit:740/1*q6rLVYKhvKWvfQWTq7z8_g.png**
- **https://devopsdatacenter.files.wordpress.com/2024/04/amazon_ec2.png**