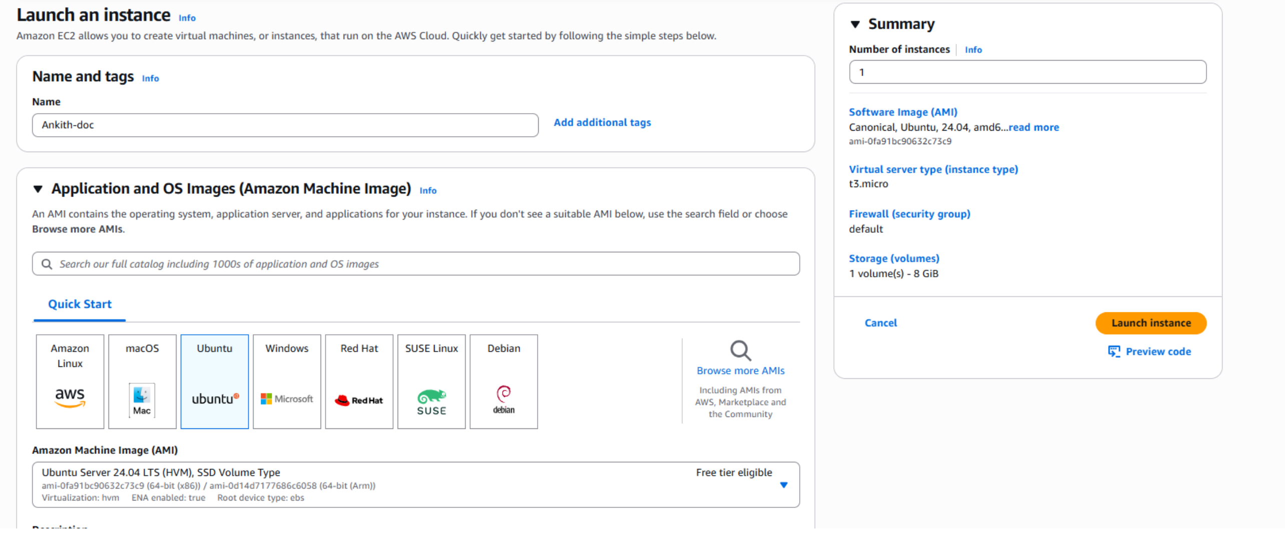
1)Tasks To Be Performed:

1. Pull Ubuntu container
2. Run this container and map port 80 on the local
3. Install Apache2 on this container
4. Check if you are able to access the Apache page on your browser

launch ubuntu ec2 instance:



Launch an instance

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags

Name: Ankith-doc

Application and OS Images (Amazon Machine Image)

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose Browse more AMIs.

Search our full catalog including 1000s of application and OS images

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type — Free tier eligible
ami-0fa91bc90632c73c9 (64-bit (x86)) / ami-0d14d7177686c6058 (64-bit (Arm))
Virtualization: hvm   ENA enabled: true   Root device type: ebs

Summary

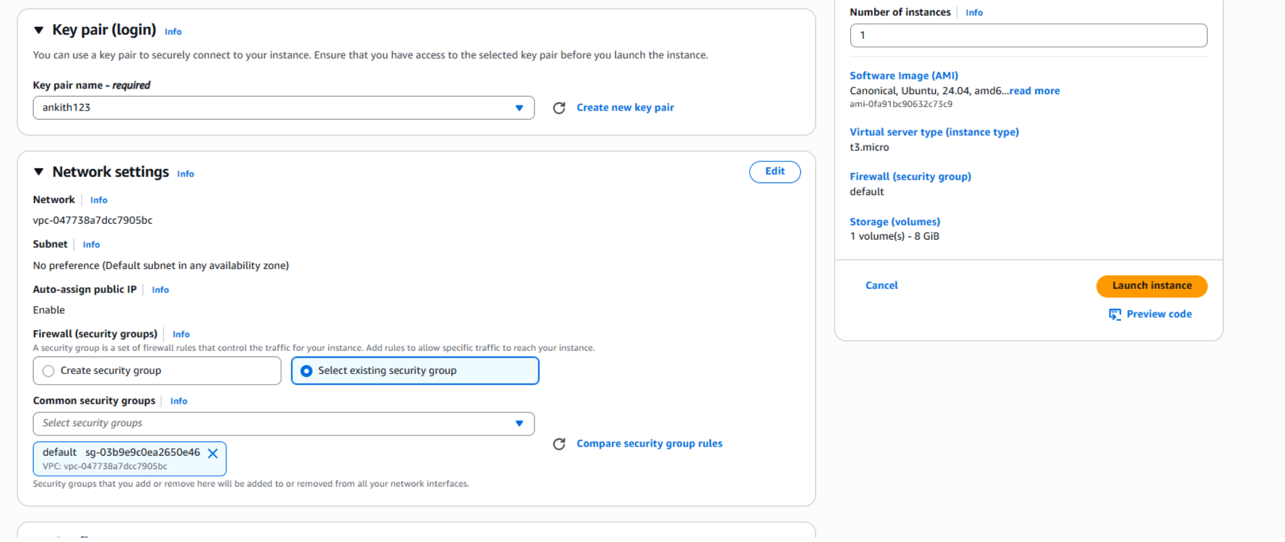
Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 24.04, amd6...read more
ami-0fa91bc90632c73c9

Virtual server type (instance type): t3.micro

Firewall (security group): default

Storage (volumes): 1 volume(s) - 8 GiB



Key pair (login)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*: ankith123

Network settings

Network: vpc-047738a7dcc7905bc

Subnet: No preference (Default subnet in any availability zone)

Auto-assign public IP: Enable

Firewall (security groups)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

○ Create security group   ● Select existing security group

Common security groups: *Select security groups*

default sg-03b9e9c0ea2650e46
VPC: vpc-047738a7dcc7905bc

Security groups that you add or remove here will be added to or removed from all your network interfaces.

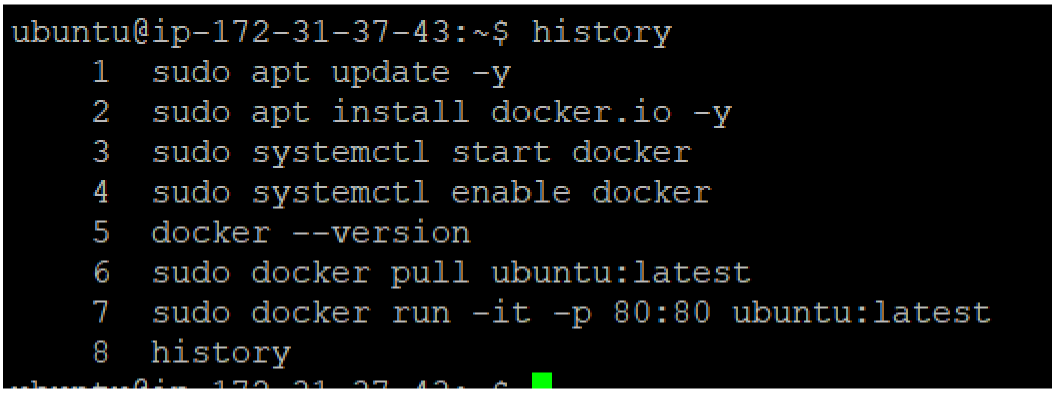
Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 24.04, amd6...read more
ami-0fa91bc90632c73c9

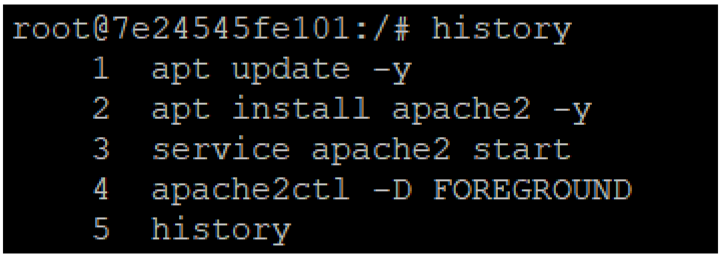
Virtual server type (instance type): t3.micro

Firewall (security group): default

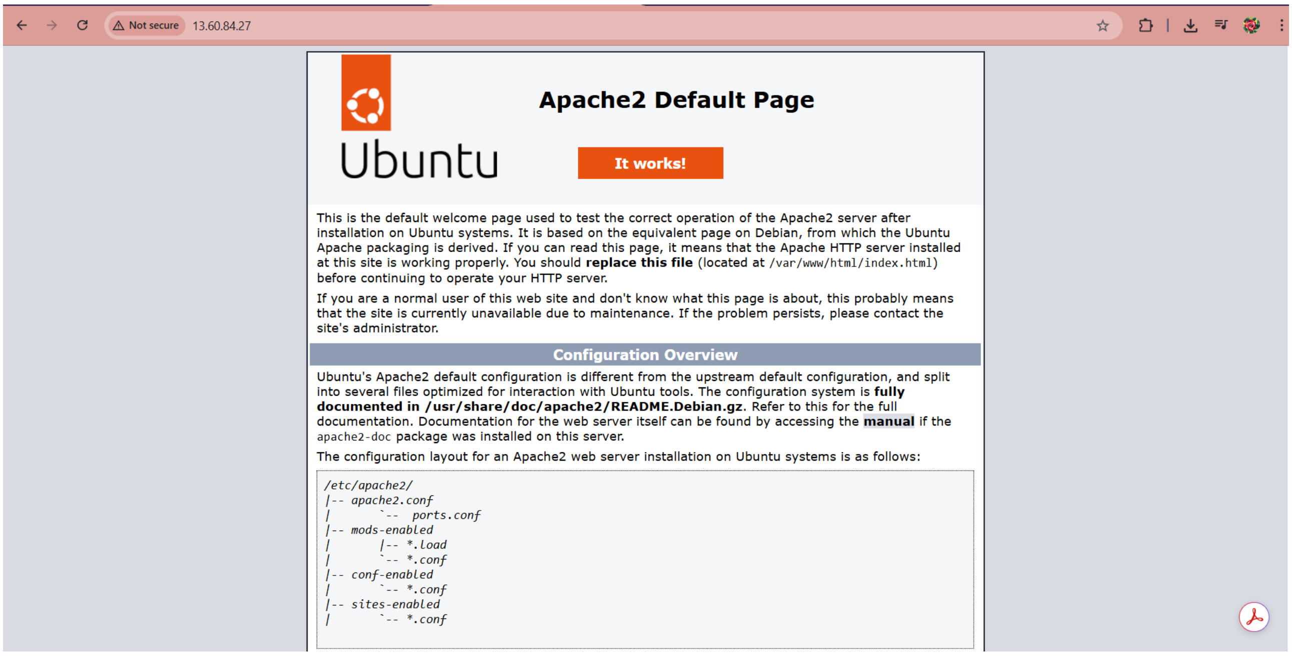
Storage (volumes): 1 volume(s) - 8 GiB



```
ubuntu@ip-172-31-37-43:~$ history
    1  sudo apt update -y
    2  sudo apt install docker.io -y
    3  sudo systemctl start docker
    4  sudo systemctl enable docker
    5  docker --version
    6  sudo docker pull ubuntu:latest
    7  sudo docker run -it -p 80:80 ubuntu:latest
    8  history
ubuntu@ip-172-31-37-43:~$
```



```
root@7e24545fe101:/# history
    1  apt update -y
    2  apt install apache2 -y
    3  service apache2 start
    4  apache2ctl -D FOREGROUND
    5  history
```



Apache2 Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

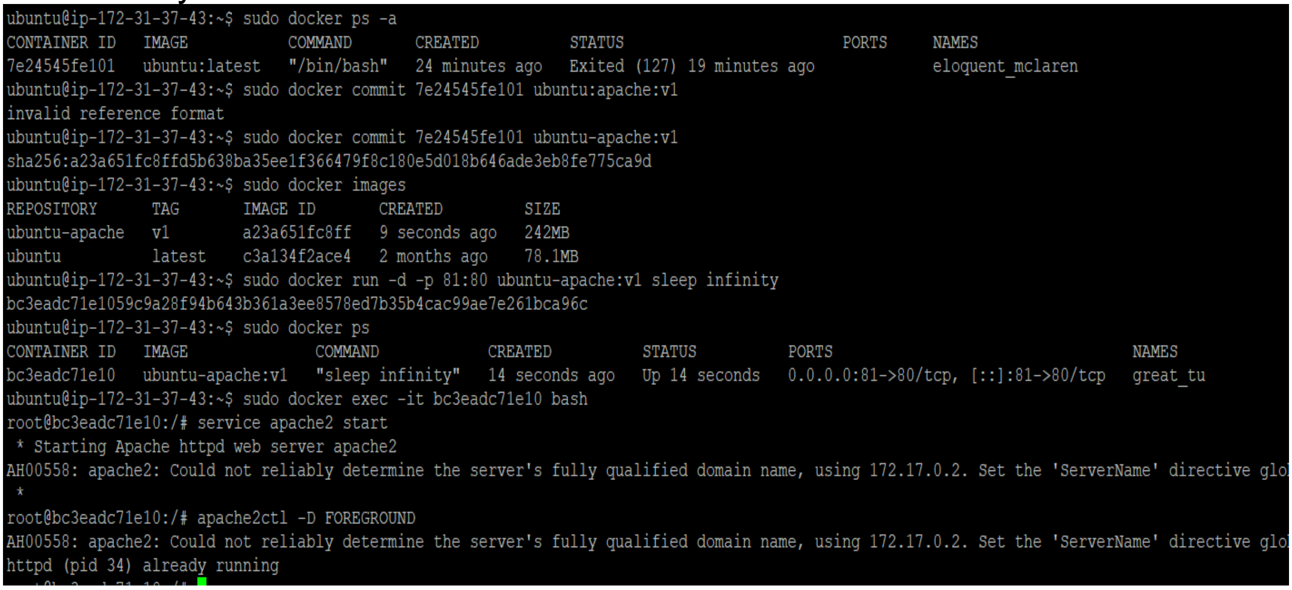
Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

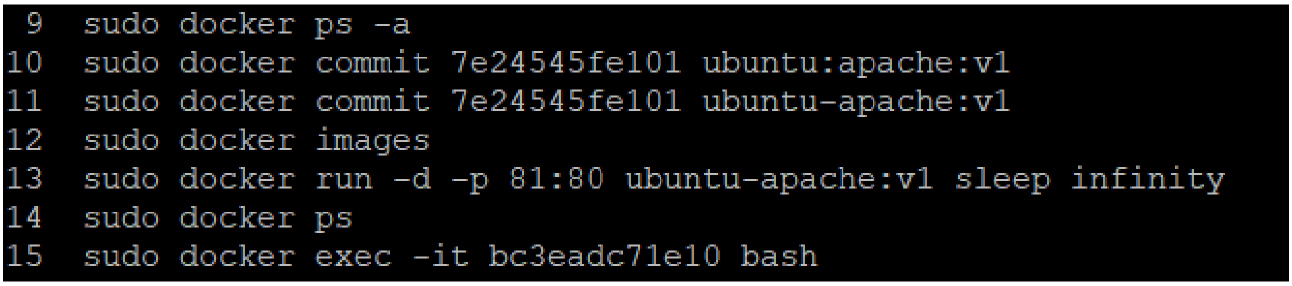
```
/etc/apache2/
|-- apache2.conf
|       `--  ports.conf
|-- mods-enabled
|       |-- *.load
|       `-- *.conf
|-- conf-enabled
|       `-- *.conf
|-- sites-enabled
|       `-- *.conf
```

2)Tasks To Be Performed:

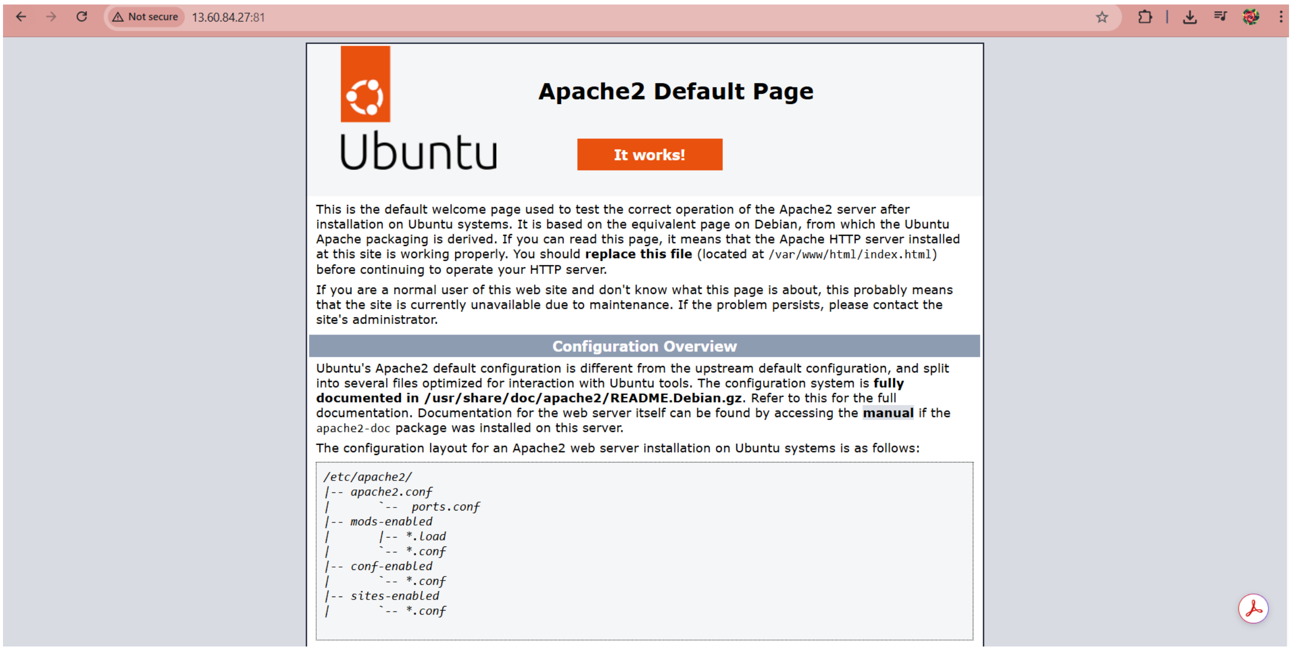
1. Save the image created in assignment 1 as a Docker image
2. Launch container from this new image and map the port to 81
3. Go inside the container and start the Apache2 service
4. Check if you are able to access it on the browser



```
ubuntu@ip-172-31-37-43:~$ sudo docker ps -a
CONTAINER ID   IMAGE           COMMAND       CREATED          STATUS                          PORTS     NAMES
7e24545fe101   ubuntu:latest   "/bin/bash"   24 minutes ago   Exited (127) 19 minutes ago               eloquent_mclaren
ubuntu@ip-172-31-37-43:~$ sudo docker commit 7e24545fe101 ubuntu:apache:v1
invalid reference format
ubuntu@ip-172-31-37-43:~$ sudo docker commit 7e24545fe101 ubuntu-apache:v1
sha256:a23a651fc8ffd5b638ba35ee1f366479f8c180e5d018b646ade3eb8fe775ca9d
ubuntu@ip-172-31-37-43:~$ sudo docker images
REPOSITORY      TAG       IMAGE ID       CREATED         SIZE
ubuntu-apache   v1        a23a651fc8ff   9 seconds ago   242MB
ubuntu          latest    c3a134f2ace4   2 months ago    78.1MB
ubuntu@ip-172-31-37-43:~$ sudo docker run -d -p 81:80 ubuntu-apache:v1 sleep infinity
bc3eadc71e1059c9a28f94b643b361a3ee8578ed7b35b4cac99ae7e261bca96c
ubuntu@ip-172-31-37-43:~$ sudo docker ps
CONTAINER ID   IMAGE              COMMAND            CREATED          STATUS          PORTS                                 NAMES
bc3eadc71e10   ubuntu-apache:v1   "sleep infinity"   14 seconds ago   Up 14 seconds   0.0.0.0:81->80/tcp, [::]:81->80/tcp   great_tu
ubuntu@ip-172-31-37-43:~$ sudo docker exec -it bc3eadc71e10 bash
root@bc3eadc71e10:/# service apache2 start
 * Starting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive glo
 *
root@bc3eadc71e10:/# apache2ctl -D FOREGROUND
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive glo
httpd (pid 34) already running
```



```
 9  sudo docker ps -a
10  sudo docker commit 7e24545fe101 ubuntu:apache:v1
11  sudo docker commit 7e24545fe101 ubuntu-apache:v1
12  sudo docker images
13  sudo docker run -d -p 81:80 ubuntu-apache:v1 sleep infinity
14  sudo docker ps
15  sudo docker exec -it bc3eadc71e10 bash
```



Apache2 Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

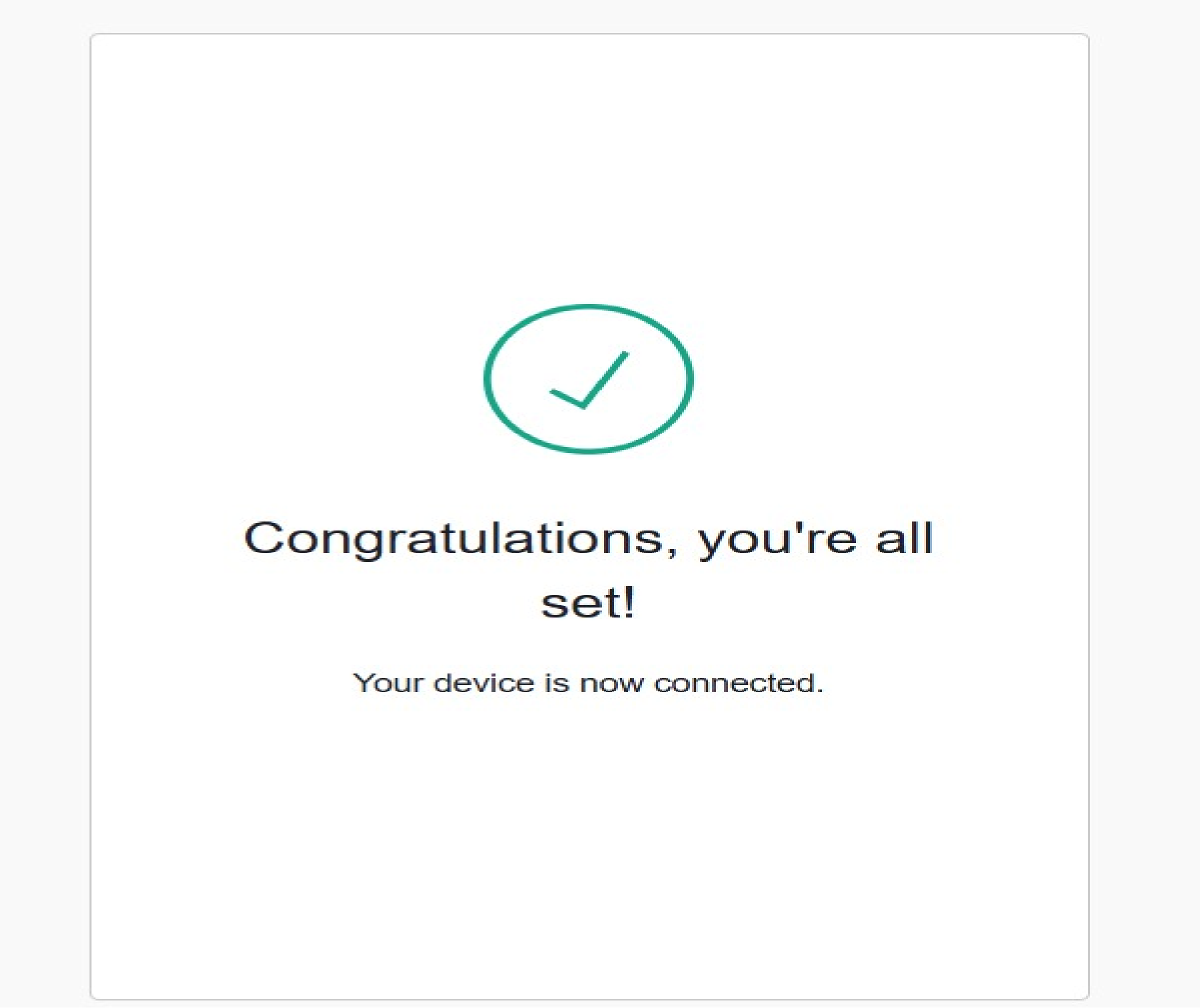
Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|       `--  ports.conf
|-- mods-enabled
|       |-- *.load
|       `-- *.conf
|-- conf-enabled
|       `-- *.conf
|-- sites-enabled
|       `-- *.conf
```

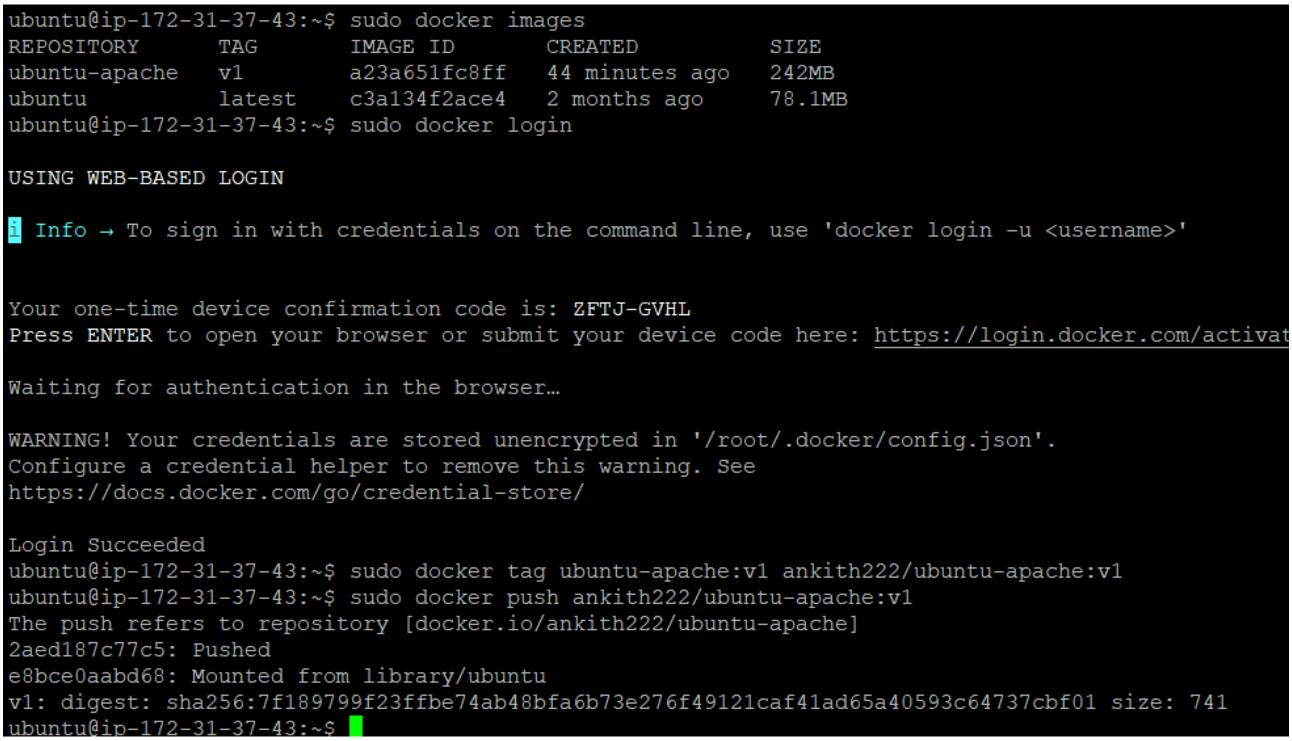
3)Tasks To Be Performed:

1. Use the saved image in the previous assignment
2. Upload this image on Docker Hub
3. On a separate machine pull this Docker Hub image and launch it on port 80
4. Start the Apache2 service
5. Verify if you are able to see the Apache2 service



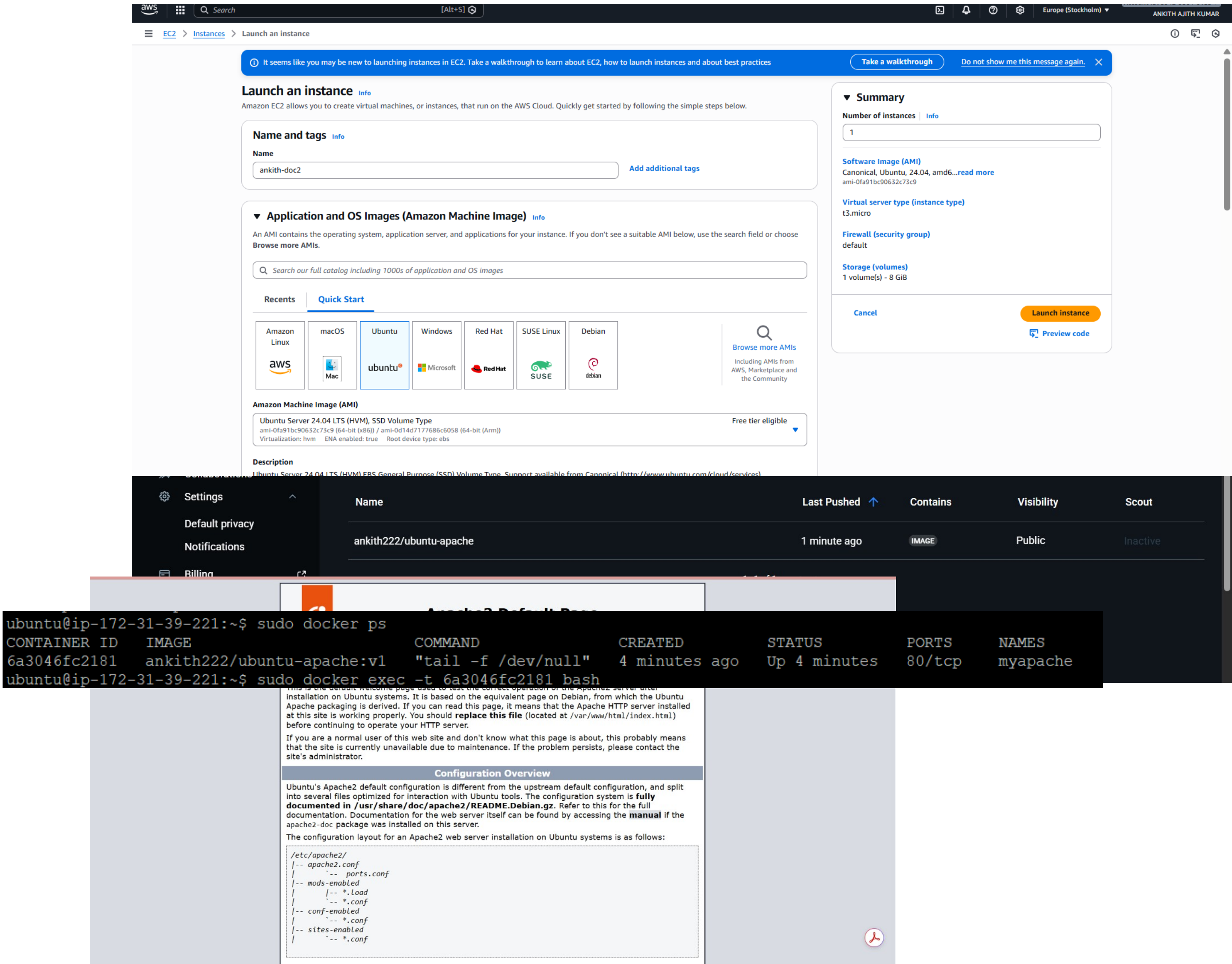
Congratulations, you're all set!

Your device is now connected.



```
ubuntu@ip-172-31-37-43:~$ sudo docker images
REPOSITORY      TAG       IMAGE ID       CREATED          SIZE
ubuntu-apache   v1        a23a651fc8ff   44 minutes ago   242MB
ubuntu          latest    c3a134f2ace4   2 months ago     78.1MB
ubuntu@ip-172-31-37-43:~$ sudo docker login

USING WEB-BASED LOGIN

i Info → To sign in with credentials on the command line, use 'docker login -u <username>'


Your one-time device confirmation code is: ZFTJ-GVHL
Press ENTER to open your browser or submit your device code here: https://login.docker.com/activat

Waiting for authentication in the browser…

WARNING! Your credentials are stored unencrypted in '/root/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/

Login Succeeded
ubuntu@ip-172-31-37-43:~$ sudo docker tag ubuntu-apache:v1 ankith222/ubuntu-apache:v1
ubuntu@ip-172-31-37-43:~$ sudo docker push ankith222/ubuntu-apache:v1
The push refers to repository [docker.io/ankith222/ubuntu-apache]
2aed187c77c5: Pushed
e8bce0aabd68: Mounted from library/ubuntu
v1: digest: sha256:7f189799f23ffbe74ab48bfa6b73e276f49121caf41ad65a40593c64737cbf01 size: 741
ubuntu@ip-172-31-37-43:~$
```

launching new instance and pulling image



It seems like you may be new to launching instances in EC2. Take a walkthrough to learn about EC2, how to launch instances and about best practices

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name: ankith-doc2

▼ Application and OS Images (Amazon Machine Image) Info

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose **Browse more AMIs**.

Search our full catalog including 1000s of application and OS images
Recents
Quick Start
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE Linux
Debian
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type — Free tier eligible
ami-0fa91bc90632c73c9 (64-bit (x86)) / ami-0d14d7177686c6058 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Ubuntu Server 24.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

▼ Summary

Number of instances Info: 1

Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
ami-0fa91bc90632c73c9

Virtual server type (instance type)
t3.micro

Firewall (security group)
default

Storage (volumes)
1 volume(s) - 8 GiB

Name	Last Pushed ↑	Contains	Visibility	Scout
ankith222/ubuntu-apache	1 minute ago	IMAGE	Public	Inactive

```
ubuntu@ip-172-31-39-221:~$ sudo docker ps
CONTAINER ID   IMAGE                        COMMAND               CREATED         STATUS         PORTS     NAMES
6a3046fc2181   ankith222/ubuntu-apache:v1   "tail -f /dev/null"   4 minutes ago   Up 4 minutes   80/tcp    myapache
ubuntu@ip-172-31-39-221:~$ sudo docker exec -t 6a3046fc2181 bash
```

Apache2 Default Page

installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at /var/www/html/index.html) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the apache2-doc package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|       `--  ports.conf
|-- mods-enabled
|       |-- *.load
|       `-- *.conf
|-- conf-enabled
|       `-- *.conf
|-- sites-enabled
|       `-- *.conf
```

4)Tasks To Be Performed:

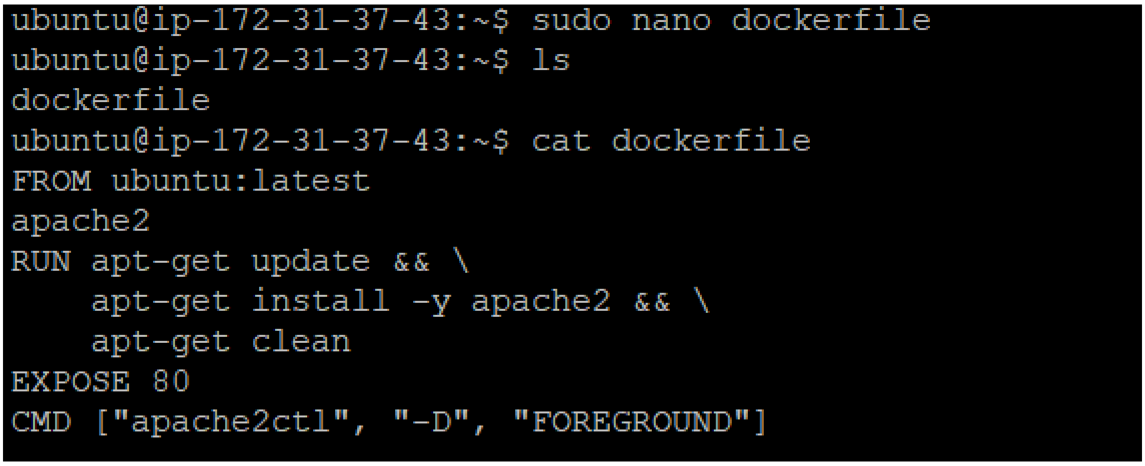
1. Create a Dockerfile with the following specs:

● Ubuntu container

● Apache2 installed

● Apache2 should automatically run once the container starts

2. Submit the Dockerfile for assignment completion



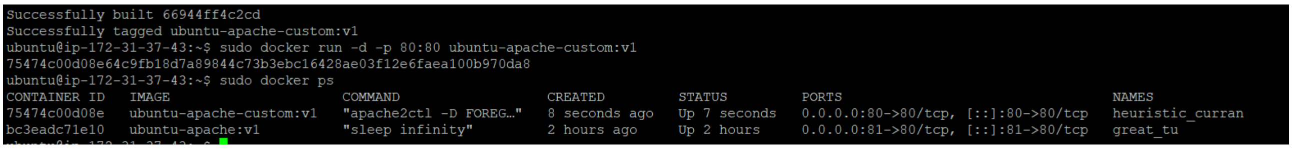
```
ubuntu@ip-172-31-37-43:~$ sudo nano dockerfile
ubuntu@ip-172-31-37-43:~$ ls
dockerfile
ubuntu@ip-172-31-37-43:~$ cat dockerfile
FROM ubuntu:latest
apache2
RUN apt-get update && \
    apt-get install -y apache2 && \
    apt-get clean
EXPOSE 80
CMD ["apache2ctl", "-D", "FOREGROUND"]
```

5)Tasks To Be Performed:

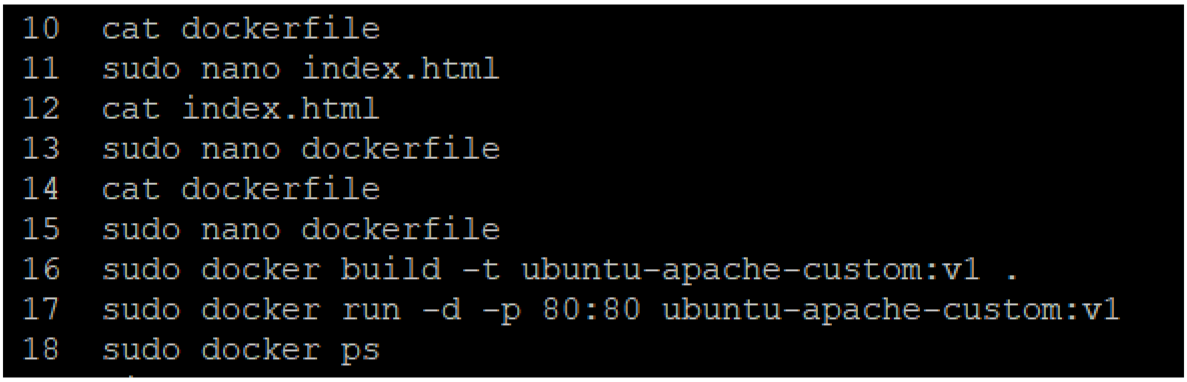
1. Create a sample HTML file

2. Use the Dockerfile from the previous task

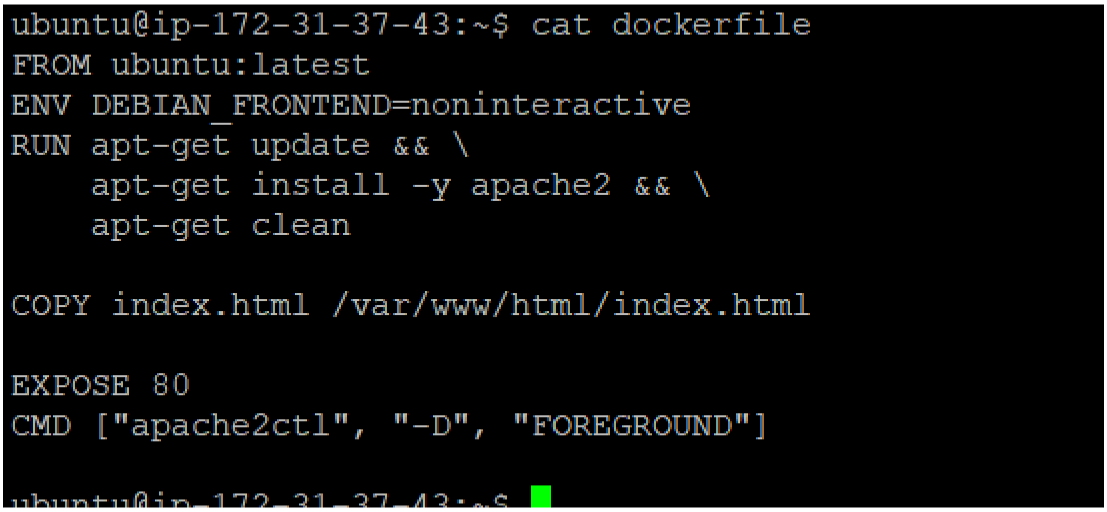
3. Replace this sample HTML file inside the Docker container with the default page



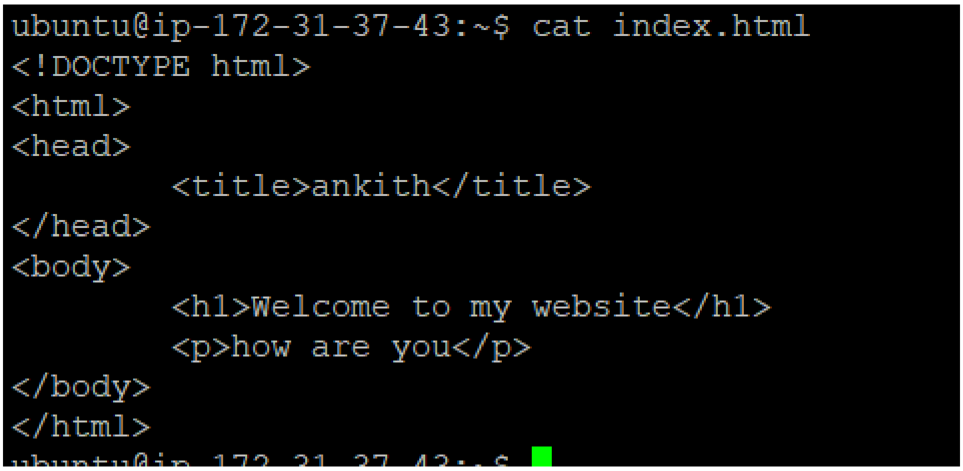
```
Successfully built 66944ff4c2cd
Successfully tagged ubuntu-apache-custom:v1
ubuntu@ip-172-31-37-43:~$ sudo docker run -d -p 80:80 ubuntu-apache-custom:v1
75474c00d08e64c9fb18d7a89844c73b3ebc16428ae03f12e6faea100b970da8
ubuntu@ip-172-31-37-43:~$ sudo docker ps
CONTAINER ID   IMAGE                     COMMAND                  CREATED         STATUS         PORTS                                   NAMES
75474c00d08e   ubuntu-apache-custom:v1   "apache2ctl -D FOREG…"   8 seconds ago   Up 7 seconds   0.0.0.0:80->80/tcp, [::]:80->80/tcp     heuristic_curran
bc3eadc71e10   ubuntu-apache:v1          "sleep infinity"         2 hours ago     Up 2 hours     0.0.0.0:81->80/tcp, [::]:81->80/tcp     great_tu
```



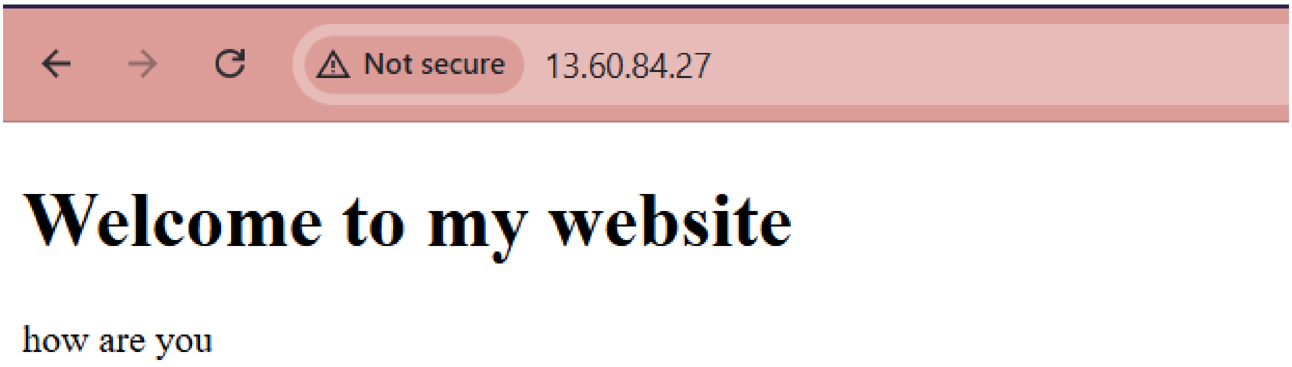
```
10  cat dockerfile
11  sudo nano index.html
12  cat index.html
13  sudo nano dockerfile
14  cat dockerfile
15  sudo nano dockerfile
16  sudo docker build -t ubuntu-apache-custom:v1 .
17  sudo docker run -d -p 80:80 ubuntu-apache-custom:v1
18  sudo docker ps
```



```
ubuntu@ip-172-31-37-43:~$ cat dockerfile
FROM ubuntu:latest
ENV DEBIAN_FRONTEND=noninteractive
RUN apt-get update && \
    apt-get install -y apache2 && \
    apt-get clean

COPY index.html /var/www/html/index.html

EXPOSE 80
CMD ["apache2ctl", "-D", "FOREGROUND"]

ubuntu@ip-172-31-37-43:~$
```



```
ubuntu@ip-172-31-37-43:~$ cat index.html
<!DOCTYPE html>
<html>
<head>
        <title>ankith</title>
</head>
<body>
        <h1>Welcome to my website</h1>
        <p>how are you</p>
</body>
</html>
ubuntu@ip-172-31-37-43:~$
```



Welcome to my website

how are you