Docker assignment

Test:-1

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

Answer:

First docker to pull an ubuntu

- Docker pull ubuntu

Then we have to run container with given port 80

- Docker run -d -p 80:80 – ubuntu -apache ubuntu

Let install the Apache2 inside the container

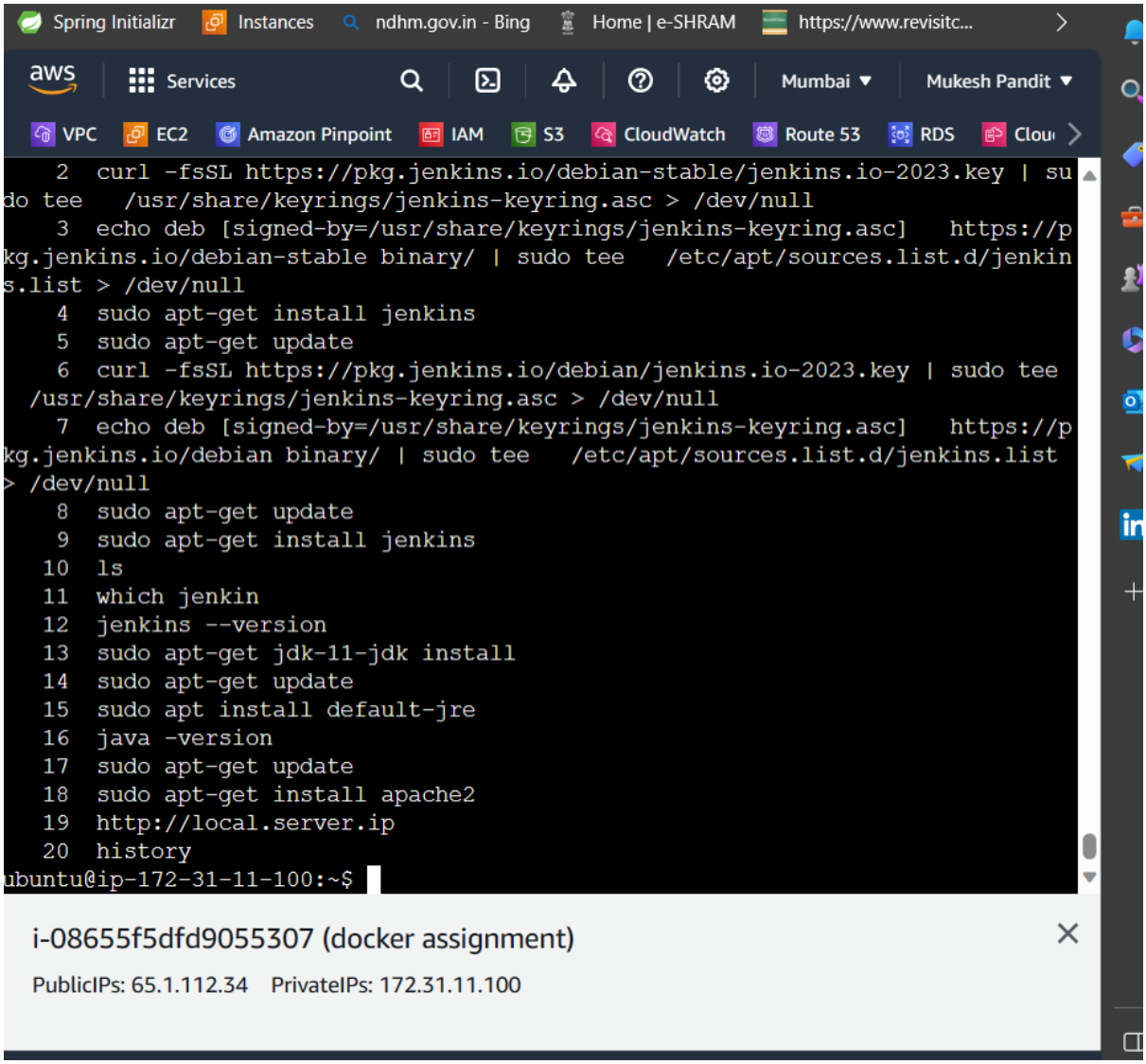
- Docker exec -it ubuntu-apache /bin/bash

Install apache command to used

- apt-get update
- apt-get install apache2
- bash : systemectl status apache2

  let check out server
- docker exec -it ubuntu-apache systemectl status apache2

check out the brower http”//local host given port and run it



Check it in ip address

Not secure | 65.1.112.34

Spring Initializr | Instances | ndhm.gov.in - Bing | Home | e-SHRAM | https://www.revisitc...

Ubuntu

Apache2 Default Page

It works!

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

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

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and sp
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. Documentatior
server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this s

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
```

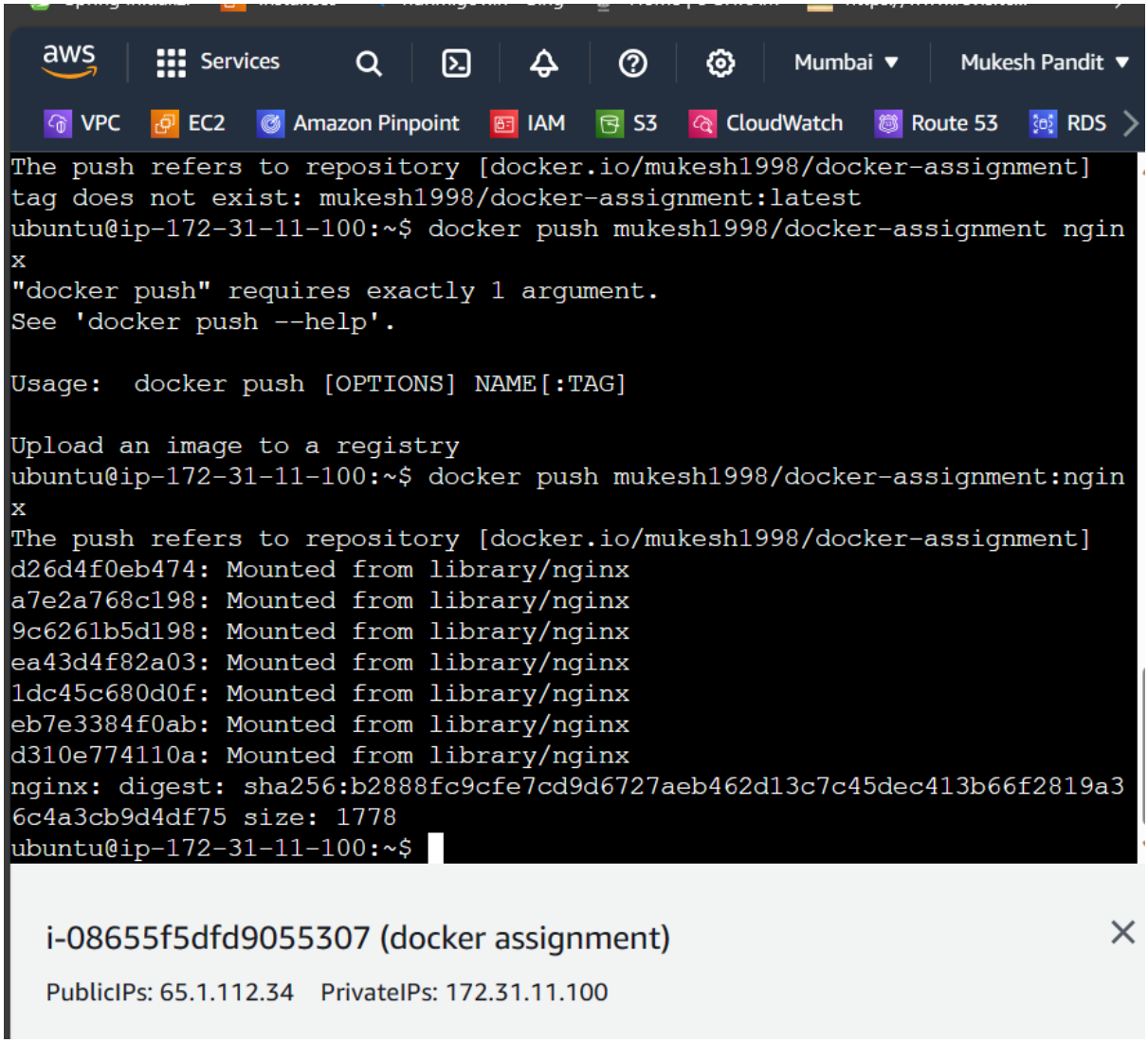
Test :- 2

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

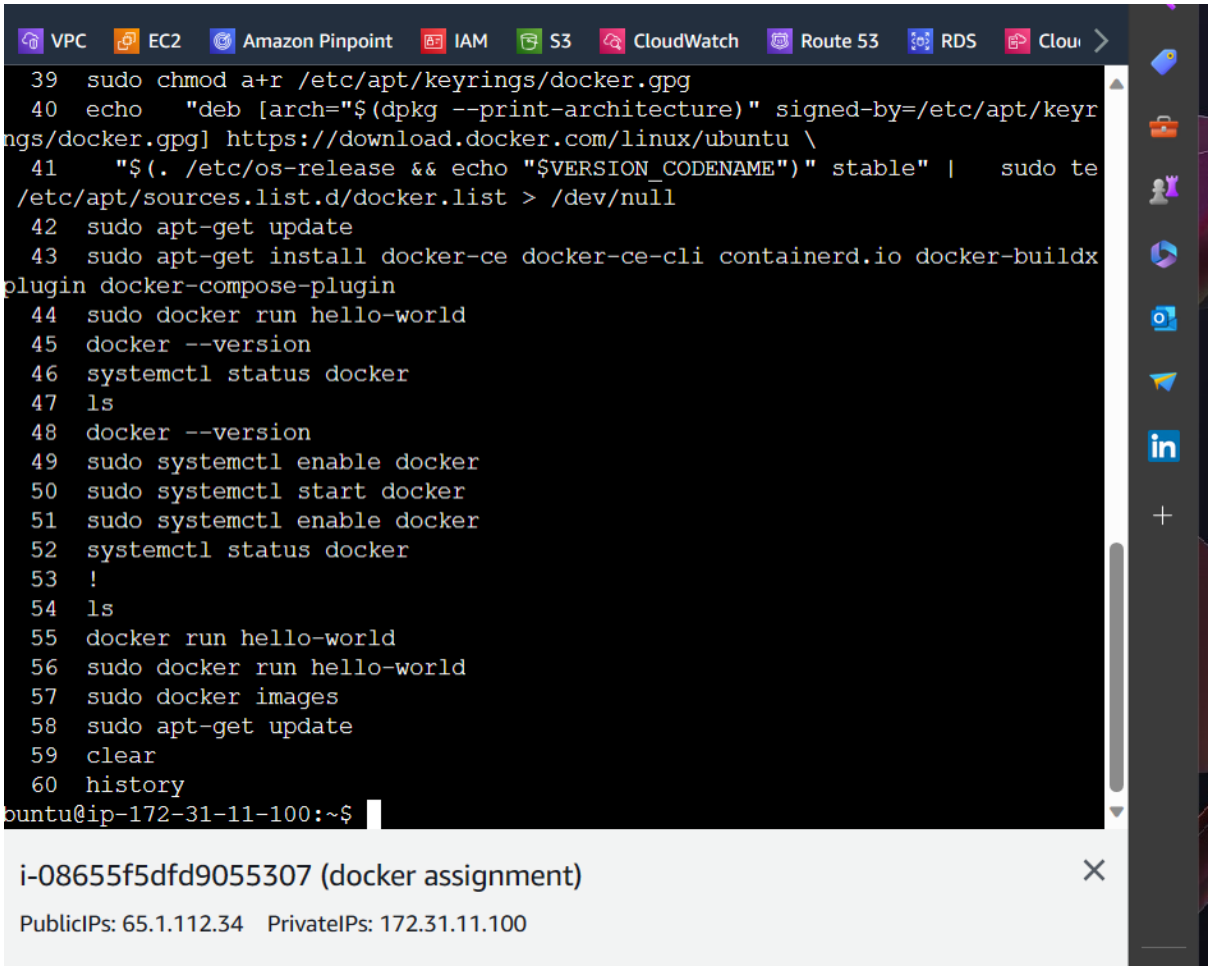
Create the docker Images with specify the images

New images to launch



Install the aparche 2

Then check out the imags to create the docker images



Installing the docker

ls

48 docker --version

49 sudo systemctl enable docker

50 sudo systemctl start docker

51 sudo systemctl enable docker

52 systemctl status docker

53 !

54 ls

55 docker run hello-world

56 sudo docker run hello-world

57 sudo docker images

58 sudo apt-get update

59 clear

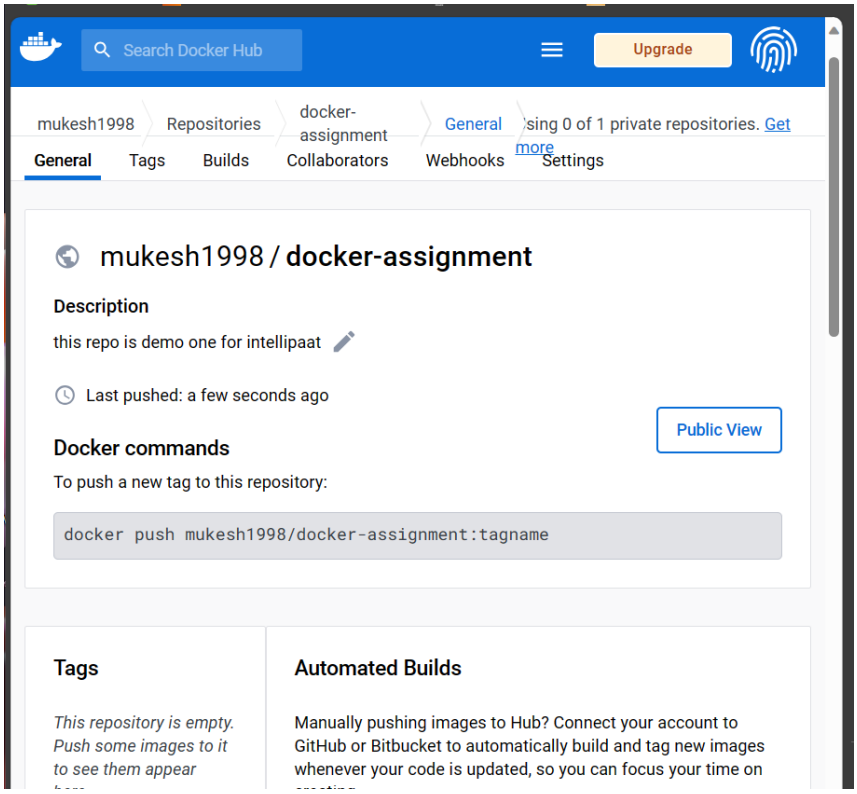
60 history

```
3: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DO
WN group default
    link/ether 02:42:12:af:00:2e brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:12ff:feaf:2e/64 scope link
       valid_lft forever preferred_lft forever
ubuntu@ip-172-31-11-100:~$ docker run -d --name democontainernginx nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
a803e7c4b030: Pull complete
8b625c47d697: Pull complete
4d3239651a63: Pull complete
0f816efa513d: Pull complete
01d159b8db2f: Pull complete
5fb9a81470f3: Pull complete
9b1e1e7164db: Pull complete
Digest: sha256:32da30332506740a2f7c34d5dc70467b7f14ec67d912703568daff790ab3f755
Status: Downloaded newer image for nginx:latest
b33b55fe52913a5fe9ed7247c020b01683cbc2f5ab3e3bf828c7ab42203da300
ubuntu@ip-172-31-11-100:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS
    PORTS     NAMES
b33b55fe5291   nginx     "/docker-entrypoint.…"   14 seconds ago   Up 13 second
s   80/tcp    democontainernginx
ubuntu@ip-172-31-11-100:~$
```

i-08655f5dfd9055307 (docker assignment)

PublicIPs: 65.1.112.34 PrivateIPs: 172.31.11.100

Pull the docker images to ubuntu



Push the docker to docker hub

aws Services Mumbai Mukesh Pandit

VPC EC2 Amazon Pinpoint IAM S3 CloudWatch Route 53 RDS

```
The push refers to repository [docker.io/mukesh1998/docker-assignment]
tag does not exist: mukesh1998/docker-assignment:latest
ubuntu@ip-172-31-11-100:~$ docker push mukesh1998/docker-assignment ngin
x
"docker push" requires exactly 1 argument.
See 'docker push --help'.

Usage:  docker push [OPTIONS] NAME[:TAG]

Upload an image to a registry
ubuntu@ip-172-31-11-100:~$ docker push mukesh1998/docker-assignment:ngin
x
The push refers to repository [docker.io/mukesh1998/docker-assignment]
d26d4f0eb474: Mounted from library/nginx
a7e2a768c198: Mounted from library/nginx
9c6261b5d198: Mounted from library/nginx
ea43d4f82a03: Mounted from library/nginx
1dc45c680d0f: Mounted from library/nginx
eb7e3384f0ab: Mounted from library/nginx
d310e774110a: Mounted from library/nginx
nginx: digest: sha256:b2888fc9cfe7cd9d6727aeb462d13c7c45dec413b66f2819a3
6c4a3cb9d4df75 size: 1778
ubuntu@ip-172-31-11-100:~$
```

i-08655f5dfd9055307 (docker assignment)

PublicIPs: 65.1.112.34 PrivateIPs: 172.31.11.100

https://hub.docker.com/r...

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mukesh1998 / **docker-assignment**

Description

this repo is demo one for intellipaat

Last pushed: a few seconds ago

Public View

Docker commands

To push a new tag to this repository:

```
docker push mukesh1998/docker-assignment:tagname
```

Tags

This repository contains 1 tag(s).

Tag	OS	Type	Pulled	Pushed
nginx		Image	---	a few seconds ago

See all Go to Advanced Image Management

Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions. Read more about automated builds.

https://hub.docker.com/r...

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mukesh1998 / **docker-assignment**

Description

this repo is demo one for intellipaat

Last pushed: a few seconds ago

Public View

Docker commands

To push a new tag to this repository:

```
docker push mukesh1998/docker-assignment:tagname
```

Tags

This repository contains 1 tag(s).

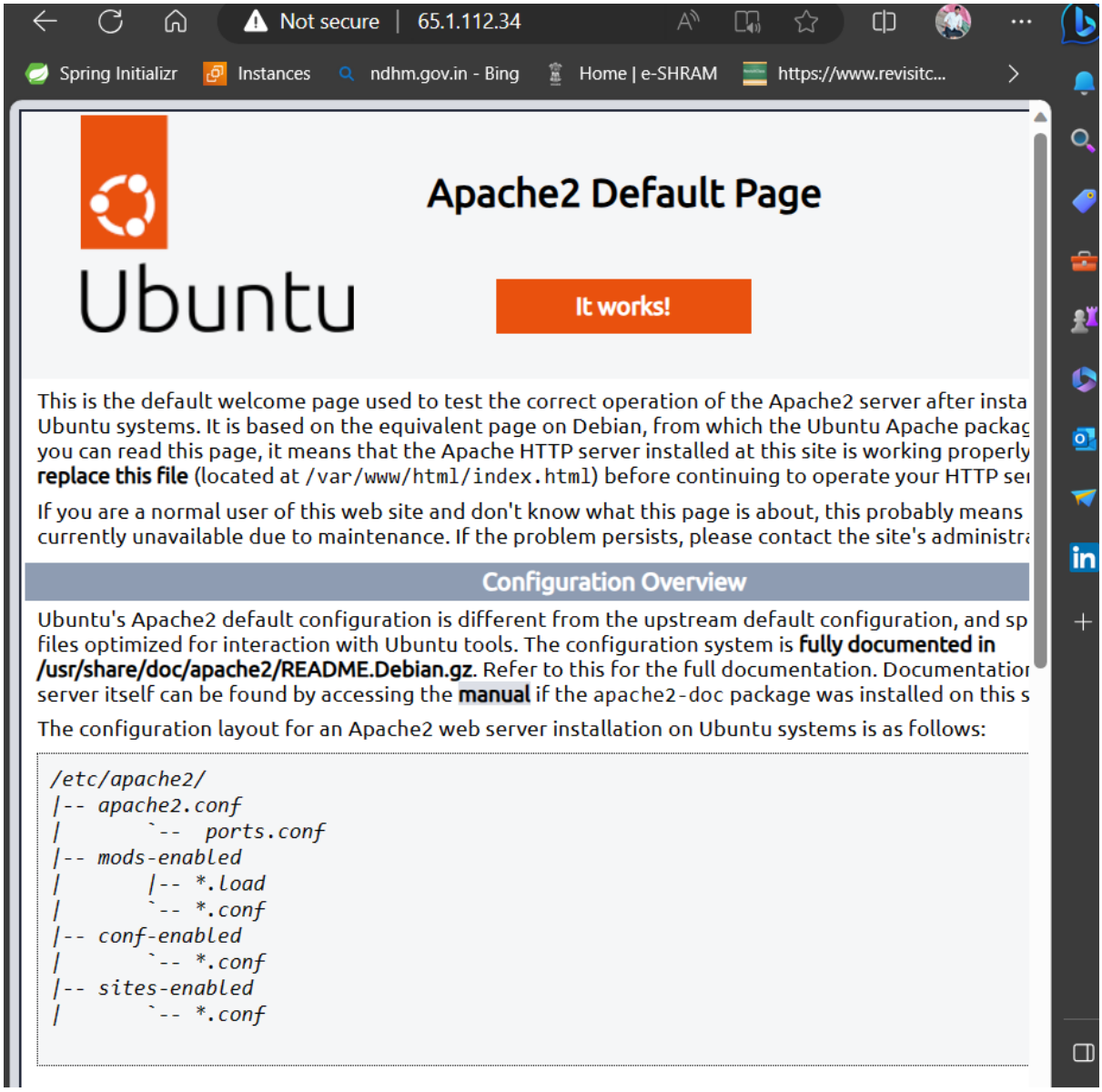
Tag	OS	Type	Pulled	Pushed
nginx		Image	---	a few seconds ago

See all Go to Advanced Image Management

Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions. Read more about automated builds.



docker run -d -p nginx

docker ps

docker run -d -p nginx

docker run -d -p ubuntu

docker ps

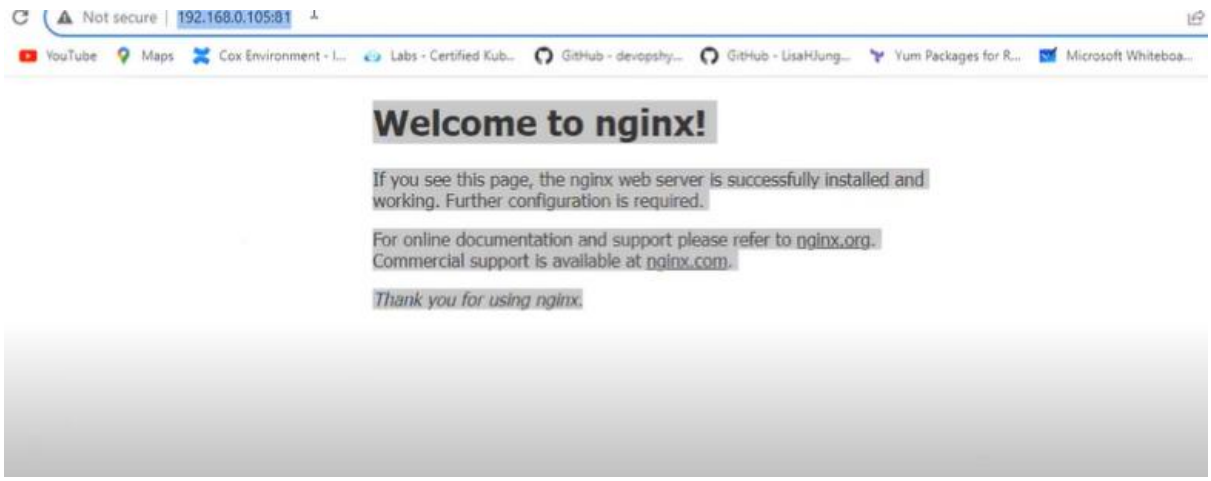
netstat -an | grep -i 32768

docker port

Let go the images to ip addres in the ip address

netstat -an | grep -i 9876

```
134  netstat -an | grep -i 4321
135  docker ps
136  docker port test
137  172-31-11-100
138  docker run -d -P
139  docker run -d -p 81:80 nginx
140  ip adr
141  ip addr
```



Test:-3

Tasks To Be Performed:

1. Use the saved image in the previous assignment

2. Upload this image on Docker Hub

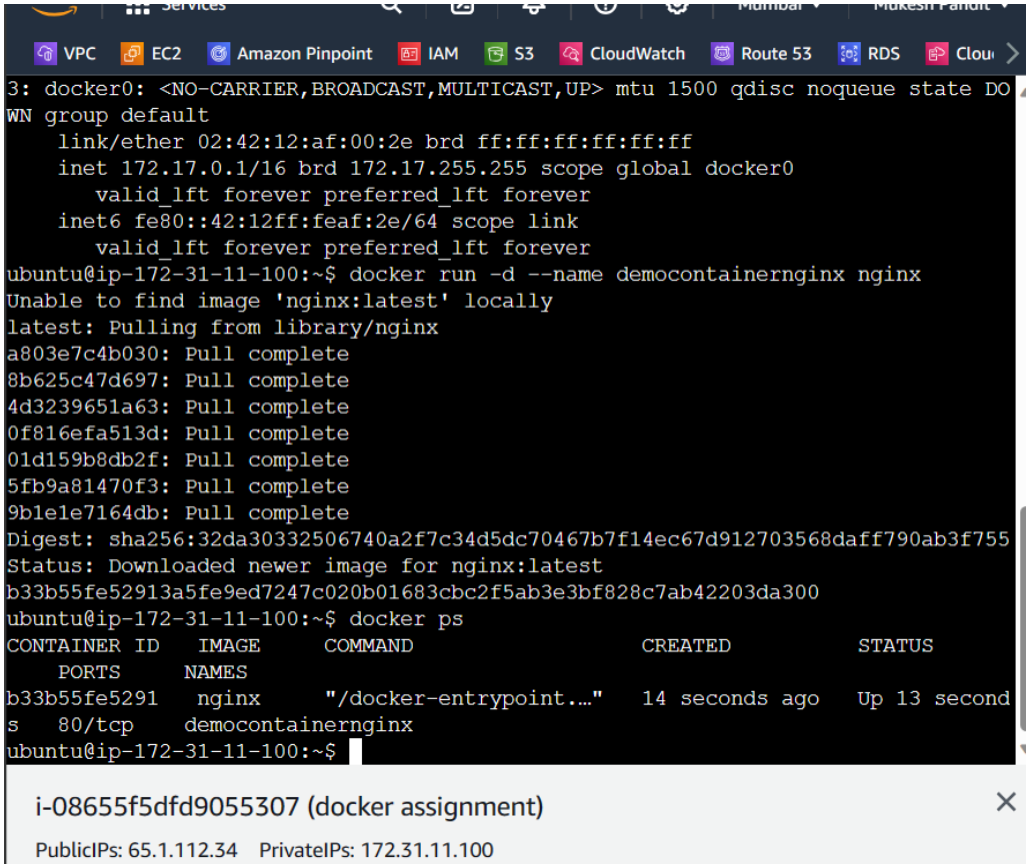
3. On a separate machine pull this Docker Hub image and launch it on port 80

4. Start the Apache2 service

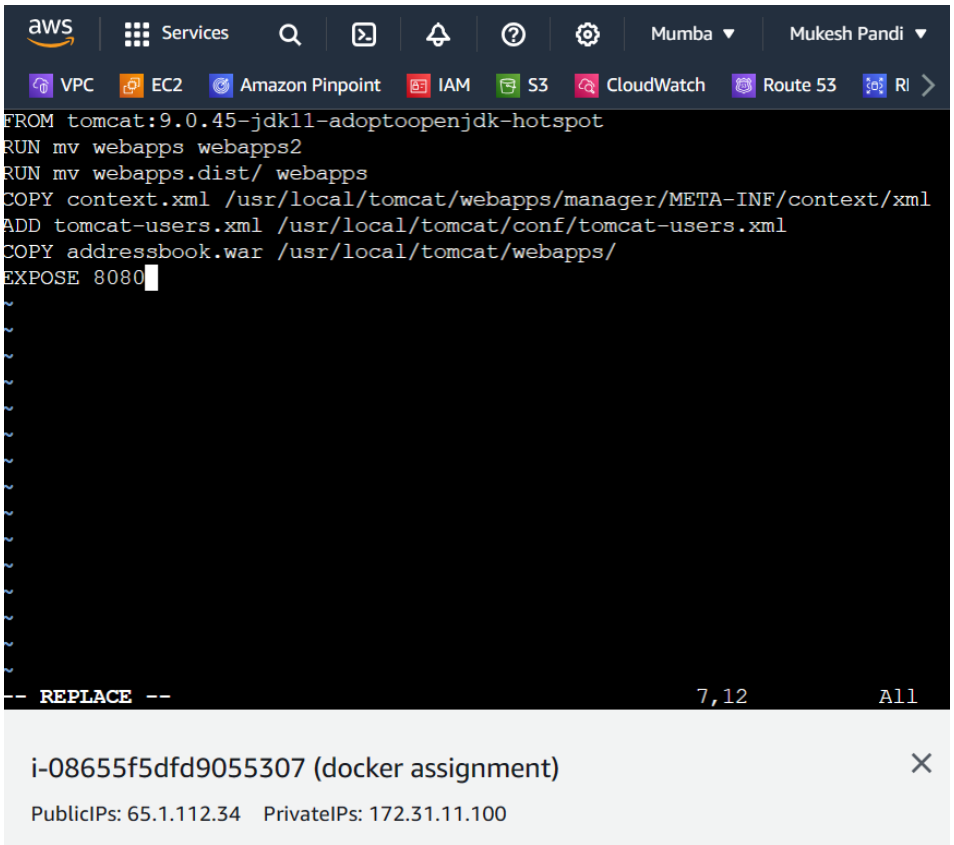
5. Verify if you are able to see the Apache2 service

First go to :

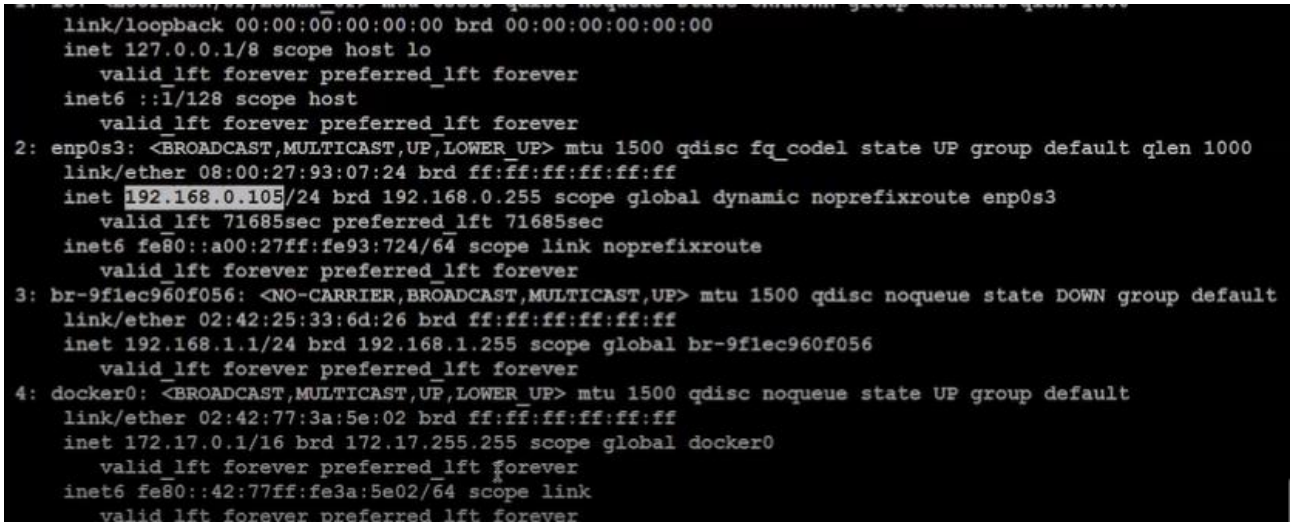
docker login



docker tag ubuntu-apache:latest <your-docker-hub-username>/<your-repository-name>:latest

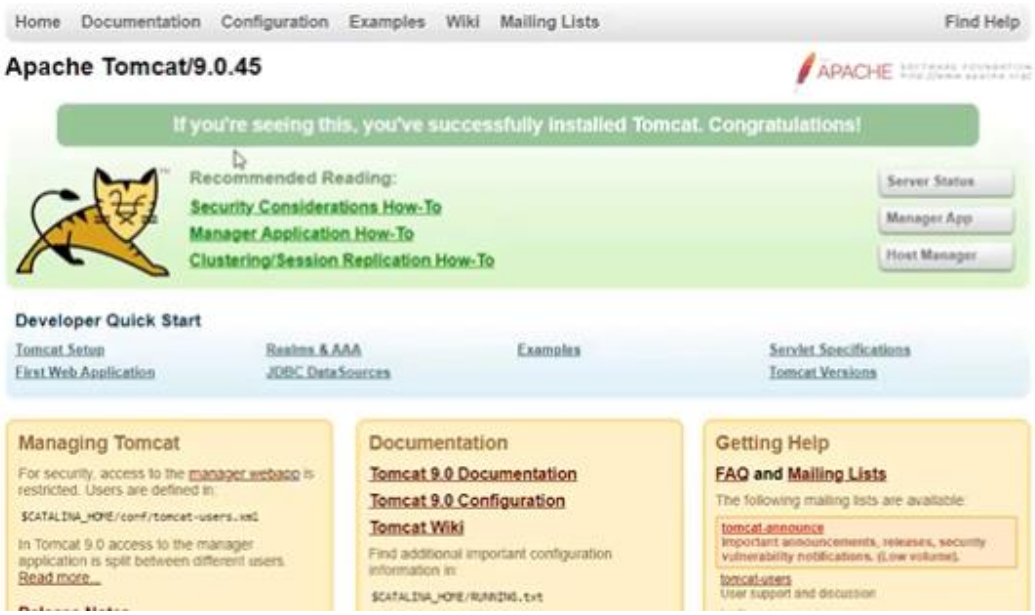


- docker push <your-docker-hub-username>/<your-repository-name>:latest
- docker run -d -p 8080:80 <your-docker-hub-username>/<your-repository-name>:latest



docker.file

http://192.168.1.100:8080



Verify the aparche 2

http://-ip:8080

Now we are aparche tomcat

ter contacts...

New conta

irst Name	Last Name	Email
)mer	Hussain	abbad1996@gmail.com
eorge	White	george@white.com
)aniel	Thompson	daniel@thompson.com
Timothy	Jones	timothy@jones.com
eter	Wilson	peter@wilson.com
)an	Robinson	dan@robinson.com
)an	Davis	dan@davis.com
Olivia	Davis	olivia@davis.com
)an	Smith	dan@smith.com
)aniel	Anderson	daniel@anderson.com
lice	Thomas	alice@thomas.com
inda	Harris	linda@harris.com
)aniel	Robinson	daniel@robinson.com
)ike	Young	mike@young.com

Test: 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

```
# Use the official Ubuntu as the base image
FROM ubuntu:latest

# Update the package list and install Apache2
RUN apt-get update && \
    apt-get install -y apache2

# Start Apache2 when the container starts
CMD ["apachectl", "-D", "FOREGROUND"]

# Expose port 80 for HTTP traffic
EXPOSE 80
```

aws Services Mumba Mukesh Pandi

VPC EC2 Amazon Pinpoint IAM S3 CloudWatch Route 53 RI

```
FROM ubuntu:10.04
RUN apt-get update &7 apt-get install -y vim
RUN apt-get install -y nginx
WORKDIR/var/www/html/
RUN echo"<h1> hello mukesh kumar </h1>" > index.html
EXPOSE 80
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
-- INSERT --                                    6,10          All
```

i-08655f5dfd9055307 (docker assignment)

PublicIPs: 65.1.112.34 PrivateIPs: 172.31.11.100

docker build -t ubuntu-apache .

docker run -d -p 8080:80 ubuntu-apache

```
root@af97cef0a16f: /var/www/html
[centos@localhost ~]$ docker ps
CONTAINER ID   IMAGE                 COMMAND                  CREATED              STATUS
af97cef0a16f   customizednginx:1.1   "/bin/sh -c '/usr/sb…"   About a minute ago   Up 3 seconds
[centos@localhost ~]$ docker exec -it af97cef0a16f bash
root@af97cef0a16f:/var/www/html# ls -al
total 4
drwxr-xr-x. 1 root root 37 Sep  9 16:52 .
drwxr-xr-x. 1 root root 18 Sep  9 16:50 ..
-rw-r--r--. 1 root root 34 Sep  9 16:50 index.html
root@af97cef0a16f:/var/www/html#
```

```
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default q
    link/ether 08:00:27:93:07:24 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.105/24 brd 192.168.0.255 scope global dynamic noprefixroute enp0s3
       valid_lft 72507sec preferred_lft 72507sec
    inet6 fe80::a00:27ff:fe93:724/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
3: br-9f1ec960f056: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN gro
    link/ether 02:42:25:33:6d:26 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.1/24 brd 192.168.1.255 scope global br-9f1ec960f056
       valid_lft forever preferred_lft forever
4: docker0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
    link/ether 02:42:77:3a:5e:02 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:77ff:fe3a:5e02/64 scope link
       valid_lft forever preferred_lft forever
```

docker run -d -p 8080:80 ubuntu-apache

Not secure | 65.1.112.34

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Ubuntu

Apache2 Default Page

It works!

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

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

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and sp
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. Documentatior
server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this s

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
```

Test:5

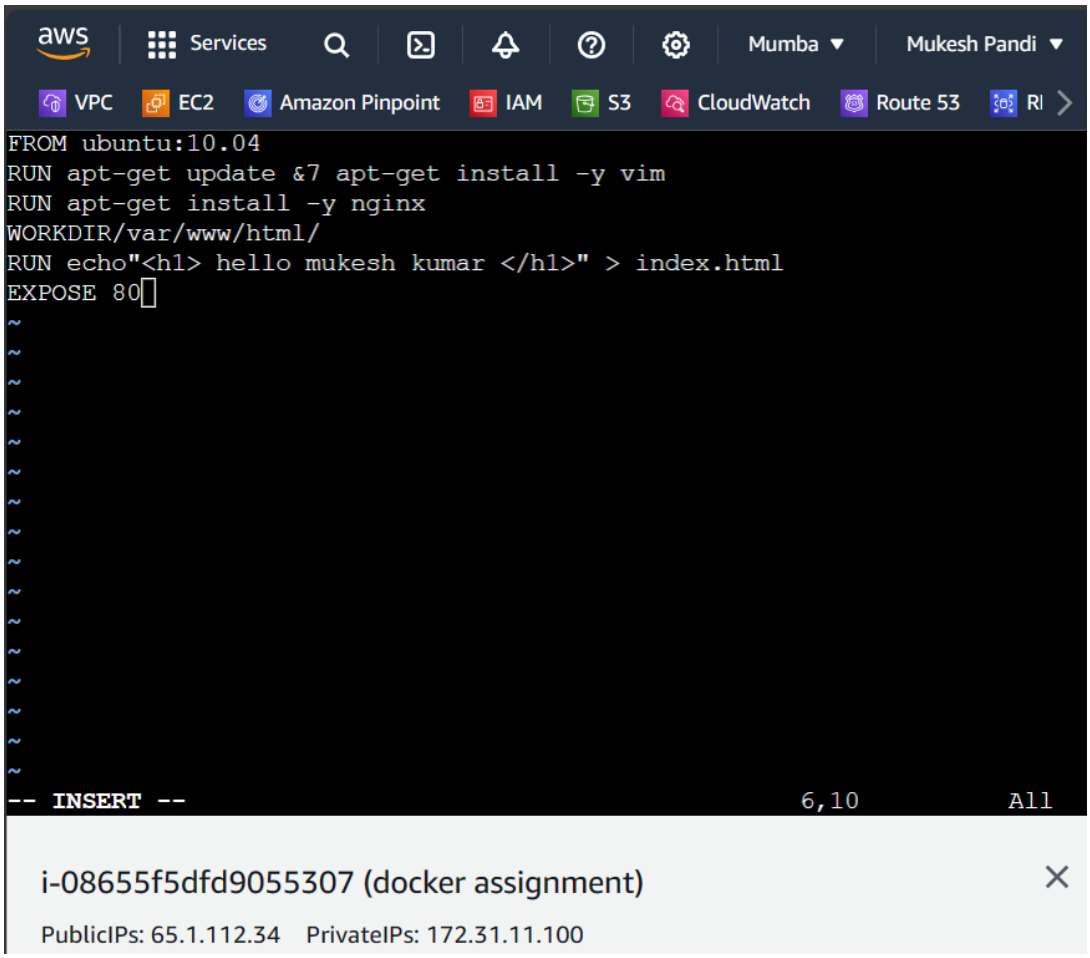
Tasks To Be Performed:

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

Assignment 1,2,3 are same and last step to do html file in docker container to creat in page

docker build -t my-web-app .

docker run -d -p 8080:80 my-web-app



Loclhost:8080

PROJECT 1

Case study -containerization using docker

Part -1

DevOps Certification Training Problem Statement:

You work as a DevOps Engineer in a leading software company. You have been asked to Dockerize the applications on the production server. The company uses custom software. Therefore, there is no pre-built container which can be used.

Assume the following things:

1. Assume the software to be installed is Apache

2. Use an Ubuntu container

The company wants the following things:

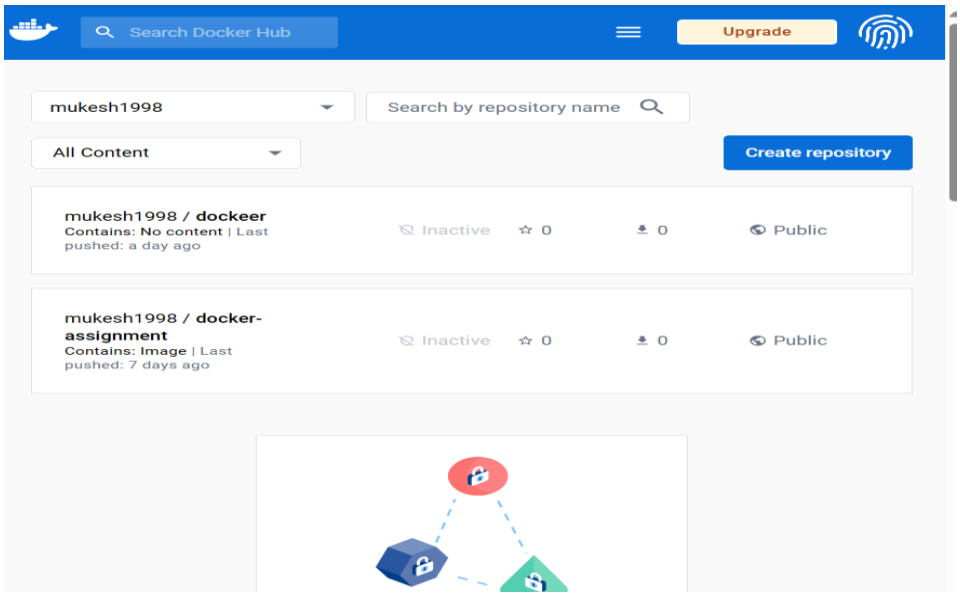
1. Push a container to Docker Hub with the above config

2. The developers will not be working with Docker, hence from their side you will just get the code. Write a Dockerfile which could put the code in the custom image that you have built.

STEP:1

First create the docker installed on the system

Login to dockerhub account



Now go to aws creat the docker master and slave m/c

This command to customer apache application.

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


Last login: Mon Oct 16 10:25:24 2023 from 13.233.177.4
ubuntu@ip-172-31-8-15:~$ history
    1  ls
    2  sudo yum install docker
    3  apt-get install docker
    4  sudo yum update
    5  ls
    6  sudo apt update
    7  sudo apt install apt-transport-https ca-certificates curl sof
e-properties-common
    8  curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sud
t-key add -
    9  sudo add-apt-repository "deb [arch=amd64] https://download.do
.com/linux/ubuntu focal stable"
   10  apt-cache policy docker-ce
   11  sudo apt install docker-ce
   12  sudo systemctl status docker
   13  sudo usermod -aG docker ${USER}
```

i-0aa52e3387e76a421 (project1)

```
   17  sudo usermod -aG docker username
   18  docker
   19  docker docker-subcommand --help
   20  docker info
   21  docker run hello-world
   22  docker search ubuntu
   23  sudo add-apt-repository "deb [arch=amd64] https://download.docker
.com/linux/ubuntu focal stable"
   24  docker search ubuntu
   25  docker pull ubuntu
   26  sudo usermod -aG docker mukesh1998
   27  sudo usermod -aG docker ${mukesh1998; .; /; /.; />; <..; 1q; .
   28  history
ubuntu@ip-172-31-8-15:~$
```

i-0aa52e3387e76a421 (project1)

PublicIPs: 13.126.153.207 PrivateIPs: 172.31.8.15

Feedback Privacy Terms Cookie preferences

2 step:

Create the docker file with this command to use

```
ubuntu@ip-172-31-8-15:~$ vi dockerfile.sh
ubuntu@ip-172-31-8-15:~$
ubuntu@ip-172-31-8-15:~$ ls
dockerfile.sh
ubuntu@ip-172-31-8-15:~$
```

CREATE FILE WITH DOCKER FILE.SH

RUN apt-get update && apt-get install -y apache2

Then EXPOSE 80

CMD [“apache2ectl” , “-d” ,’FOREGROUND”]

Step:3

Create the docker images in dockerfile

- Docker build -t custom=apache-image

```
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS
    PORTS     NAMES
b33b55fe5291   nginx     "/docker-entrypoint.…"   14 seconds ago   Up 13 secon
s   80/tcp    democontainernginx
```

Create the directory for code

- Mkdir developer-code
- Ls
-

```
ubuntu@ip-172-31-8-15:~$ ls
developer-code  dockerfile.sh
```

```
ubuntu@ip-172-31-8-15:~$ docker build -t custom-apache-image .
[+] Building 0.1s (2/2) FINISHED                          docker:default
 => [internal] load build definition from Dockerfile                0.1s
 => => transferring dockerfile: 2B                                  0.0s
 => [internal] load .dockerignore                                   0.1s
 => => transferring context: 2B                                     0.0s
```

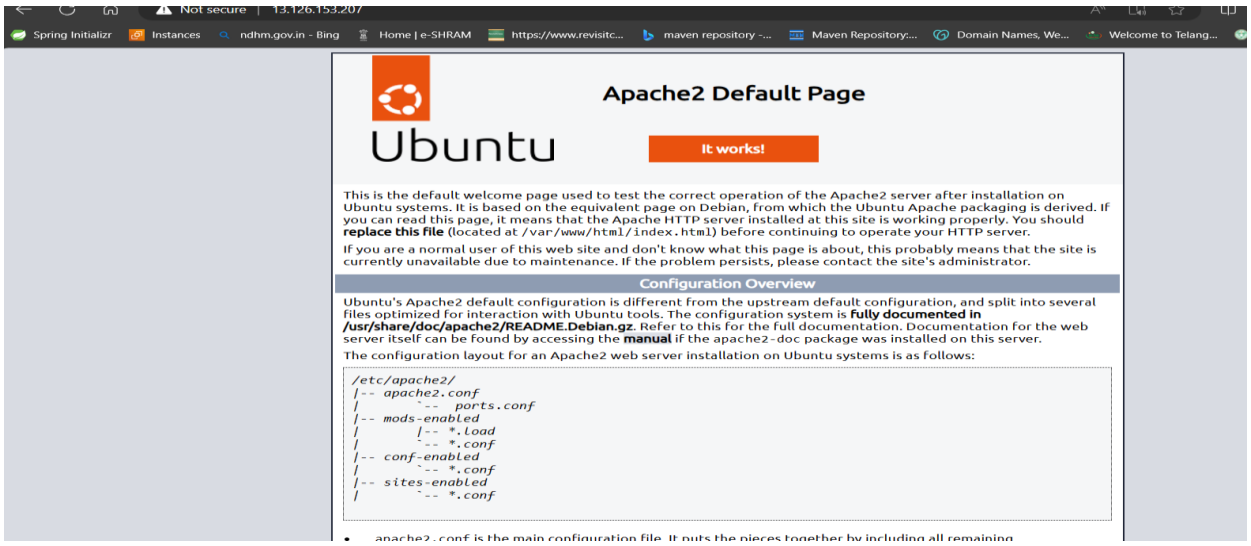
After words create a

- docker tag custom-apache-image your-docker-hub-mukesh1998/docker-apache:1.0

```
Processing triggers for ufw (0.36.1-4build1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on thi
 host.
ubuntu@ip-172-31-8-15:~$ http://local.service.ip
-bash: http://local.service.ip: No such file or directory
ubuntu@ip-172-31-8-15:~$ apache2 --version
[Mon Oct 16 11:03:21.639640 2023] [core:warn] [pid 12292] AH00111:
g variable ${APACHE_RUN_DIR} is not defined
```

```
ubuntu@ip-172-31-8-15:~/dockerfile$ ls
ubuntu@ip-172-31-8-15:~/dockerfile$ docker pull mukesh1998/docker-assignment:nginx
nginx: Pulling from mukesh1998/docker-assignmentmukesh1998/docker-assignment:nginx
a803e7c4b030: Pull complete
8b625c47d697: Pull complete
4d3239651a63: Pull complete
0f816efa513d: Pull complete
01d159b8db2f: Pull complete
5fb9a81470f3: Pull complete
9b1e1e7164db: Pull complete
Digest: sha256:b2888fc9cfe7cd9d6727aeb462d13c7c45dec413b66f2819a36c4a3cb9d4df75
Status: Downloaded newer image for mukesh1998/docker-assignment:nginx
docker.io/mukesh1998/docker-assignment:nginx
```

So we have done Dockerized the custom apache application in docker hub we provide the docker image



Module 3:

Docker implementation for website deployment

Tasks To Be Performed:

1. Fork the given repository and make your own github repository.

2. Design a Dockerfile to build an image with Nginx for hosting a website.

3. Implement commands in the Dockerfile to clone your github repository securely.

4. Configure the Nginx server within the Dockerfile to serve the cloned website.

5. Validate the Docker image by building and running a container to confirm successful image creation and website accessibility.

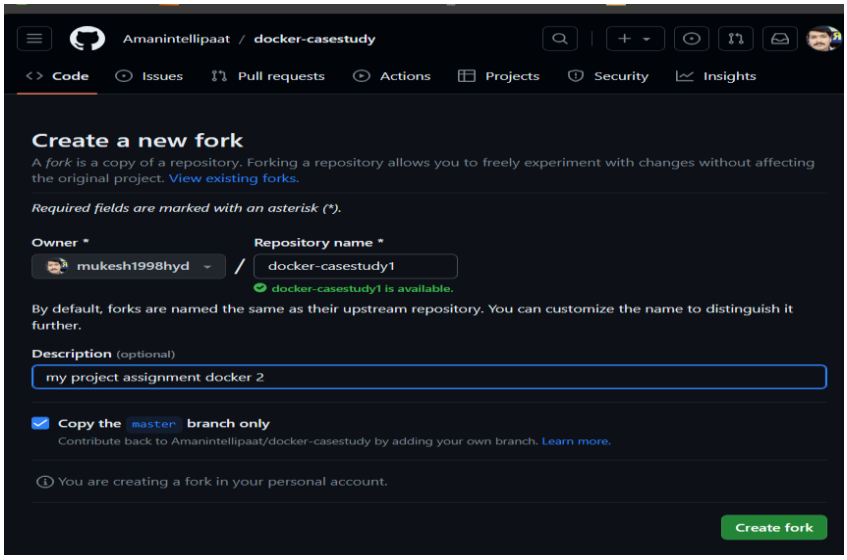
To submit the assignment, upload the screenshots of the executed steps and the Dockerfile to your GitHub repository .After that,share the repository with us.

Answer :

Step:1:

Open this link and fork the account :- : https://github.com/Amanintellipaat/docker-casestudy

First go to github create the fork to our project name .



Now install the latest nginx

```
ubuntu@ip-172-31-8-15:~$ ls
developer-code  dockerfile  dockerfile.sh
ubuntu@ip-172-31-8-15:~$ docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
a378f10b3218: Pull complete
4dfff0708538: Pull complete
2135e49ace4b: Pull complete
c843f6b280ce: Pull complete
6f35ab6f1400: Pull complete
6c538b49fa4a: Pull complete
d57731fb9008: Pull complete
Digest: sha256:b4af4f8b6470febf45dc10f564551af682a802eda1743055a7dfc8332dffa595
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-31-8-15:~$
```

Nginx latest version install docker file

```
ubuntu@ip-172-31-8-15:~$ cd docker-casestudy
ubuntu@ip-172-31-8-15:~/docker-casestudy$ ls
dist  index.html  src
ubuntu@ip-172-31-8-15:~/docker-casestudy$ index.html
index.html: command not found
ubuntu@ip-172-31-8-15:~/docker-casestudy$
```

Given link customer link with docker file and github accound

```
ubuntu@ip-172-31-8-15:~/docker-casestudy$ sudo apt-get update && apt-get install -y git
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 https://download.docker.com/linux/ubuntu focal InRelease
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 110 kB in 1s (139 kB/s)
Reading package lists... Done
```

Docker vuilt the -t docker file

```
ee 'docker run --help'.
buntu@ip-172-31-8-15:~$ docker build -t docker-casestudy .
+] Building 0.1s (2/2) FINISHED
                                                                docker:d
fault
=> [internal] load build definition from dockerfile

 0.0s
=> => transferring dockerfile: 306B

 0.0s
=> [internal] load .dockerignore

 0.0s
=> => transferring context: 2B

 0.0s
RROR: failed to solve: failed to read dockerfile: read /var/lib/docker/
mp/buildkit-mount671476311/dockerfile: is a directory
```

Create the container with nginx/html

Traffic with

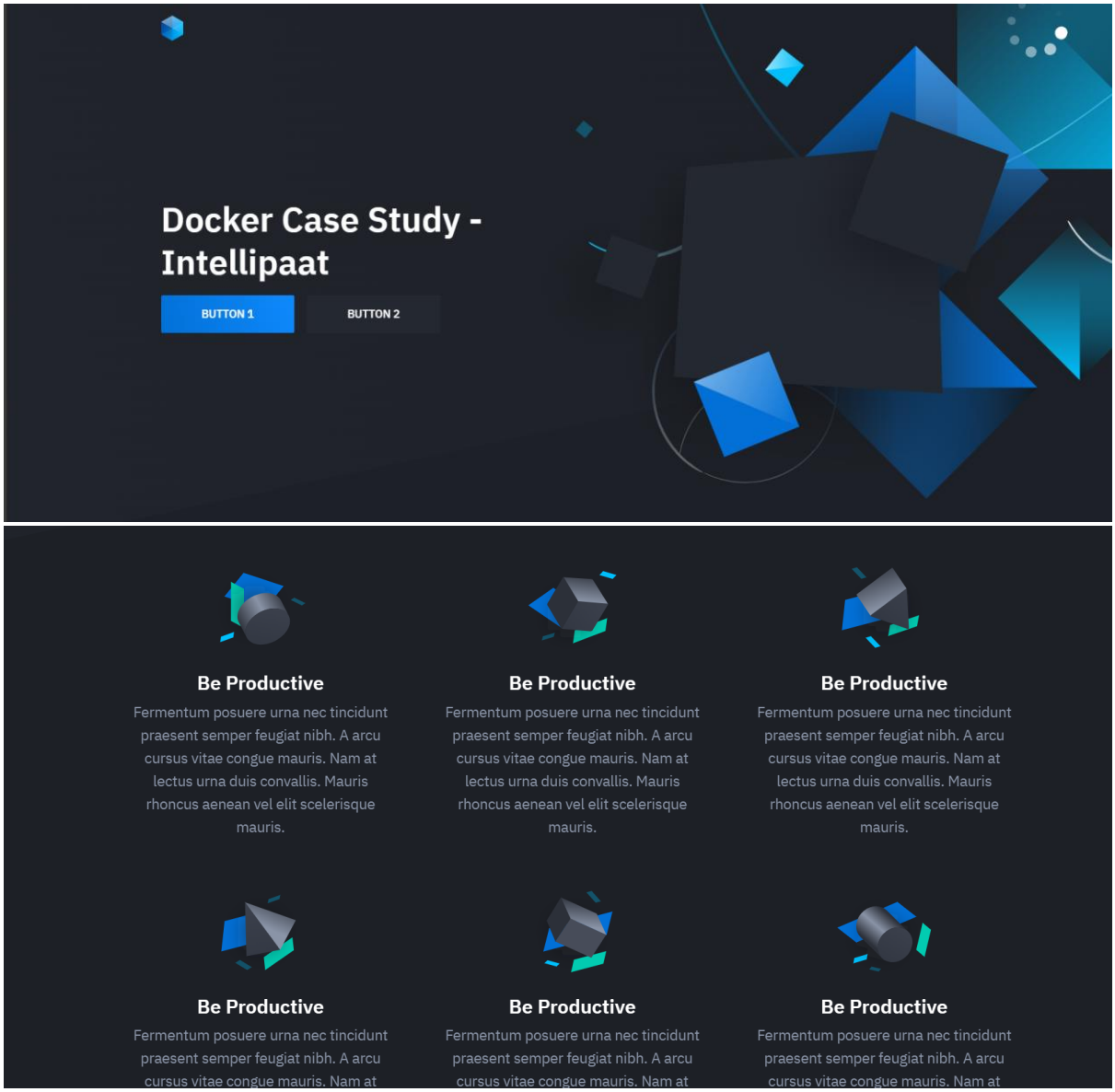
- EXPOSE 80

USE THE NGINX IMAGE BASE ON THE DOCKER ACCOUNT

BASE IMAGE

WHERE WE CAN SEE DOCKER FILE CRETE THEN LOCATION

So we can output the website



You are Done , You can leave this Page.

**********Completed the assignment**********