Module – 3: Docker – I Assignment – 2

You have been asked to:

- Save the image created in Assignment 1 as a Docker image
- Launch container from this new image and map the port to 81
- Go inside the container and start the apache2 service
- Check if you are able to access it on the browser

```
$ sudo apt remove -y docker docker-enginr docker.io containerd runc
$ sudo apt update
$ sudo apt install -y ca-certificates curl gnupg lsb-release
$ sudo apt autoremove -y
$  curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
$ sudo apt update
$ sudo apt install -y docker-ce docker-ce-cli containerd.io
$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:97a379f4f88575512824f3b352bc03cd75e239179eea0fecc38e597b2209f49a
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.
```

01

1. Install Docker on Ubuntu using commands as shown

```
(base) hariharan@hariharan-home-pc:~$ sudo docker pull ubuntu:22.04
22.04: Pulling from library/ubuntu
c610536171e3: Pull complete
Digest: sha256:a02c32cf0c2a7e8743c74deef66637aa70e063c9bd40e9e1f8c0b3ea0750b0ba
Status: Downloaded newer image for ubuntu:22.04
docker.io/library/ubuntu:22.04
(base) hariharan@hariharan-home-pc:~$
```

02

03

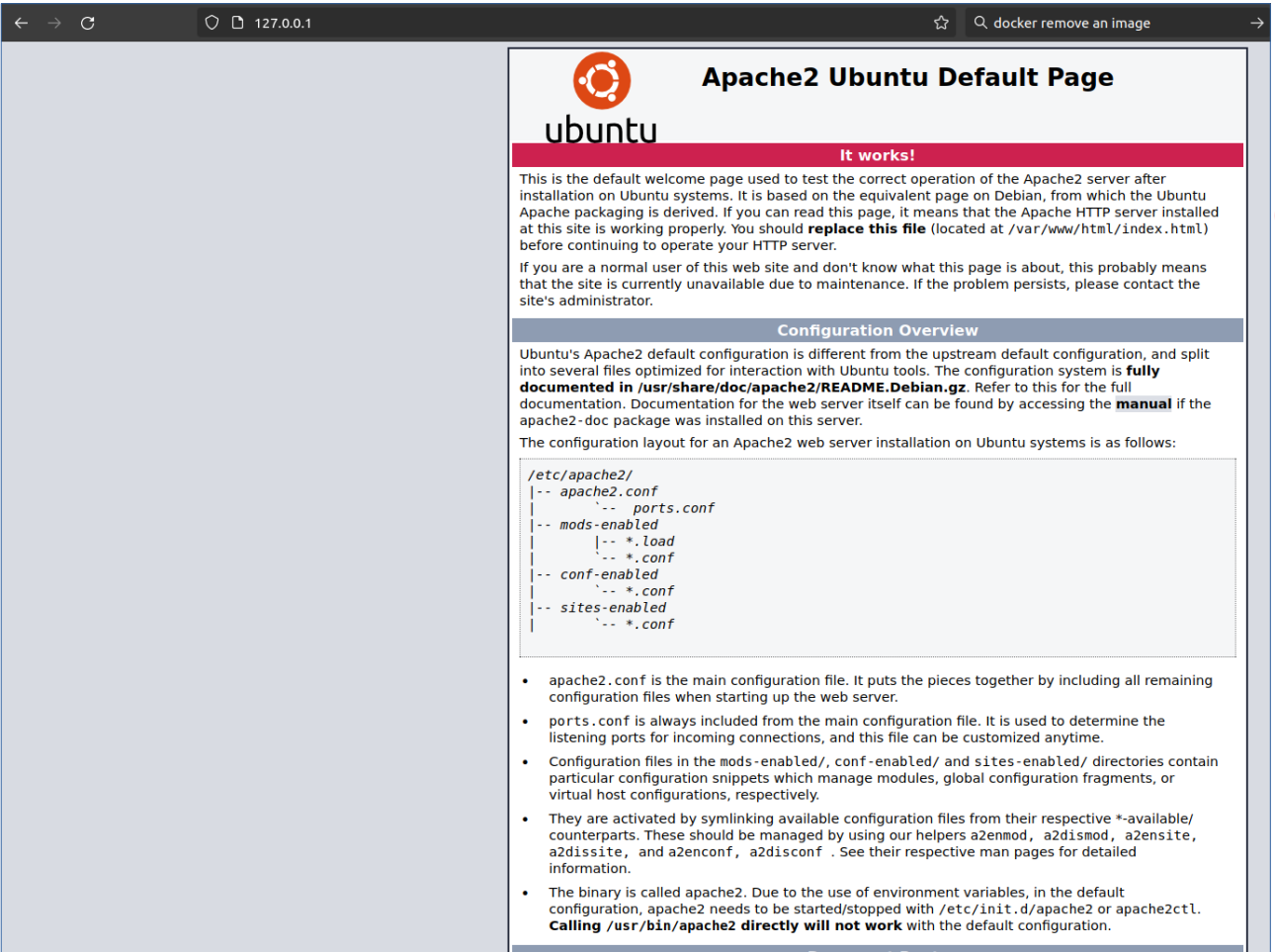
```
(base) hariharan@hariharan-home-pc:~$ sudo docker run --interactive --tty --publish 80:80 --entrypoint "/bin/bash" ubuntu:22.04
root@ef8e900c3636:/#
```

```
root@ef8e900c3636:/# apt update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [90.7 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [90.7 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [90.7 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.2 MB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [267 kB]
Get:7 http://archive.ubuntu.com/ubuntu jammy/main amd64 Packages [1805 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [129 kB]
Fetched 19.9 MB in 5s (4060 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
11 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@ef8e900c3636:/# apt install -y apache2
```

04

2. Pull Ubuntu Docker container
3. Run it with port 80 of container mapped to port 80 of local
4. Install apache within the container

```
root@c0303ff86409:/# service apache2 status
 * apache2 is not running
root@c0303ff86409:/# 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 globally to suppress this message
 *
root@c0303ff86409:/# service apache2 status
 * apache2 is running
```



05

06

5. Check staus of apache2 service and Start it if not already started
6. Now, from out of the container, open http://127.0.0.1 in a browser. You should see the Apache2 default page.
This confirms that apache2 webserver is...
    Running in the container
    Publishing to port 80 in the contianer
    Container port 80 is mapped to port 80 on host machine

```
root@85a247223f14:/# exit
exit
```

07

```
(base) hariharan@hariharan-home-pc:~$ sudo docker ps -l
CONTAINER ID   IMAGE          COMMAND       CREATED          STATUS                      PORTS     NAMES
c0303ff86409   ubuntu:22.04   "/bin/bash"   36 minutes ago   Exited (0) 4 seconds ago              vibrant_kare
```

```
(base) hariharan@hariharan-home-pc:~$ sudo docker commit --message="Updated to install apache2" --author="Hariharan Narayanan" c0303ff86409 ubuntu_with_apache2
sha256:90eba8d2896876d11d4129604149db2d2adad0ff07b877998d2fcd7285089120
```

```
(base) hariharan@hariharan-home-pc:~$ sudo docker run --interactive --tty --publish 81:80 --entrypoint "/bin/bash" ubuntu_with_apache2
[sudo] password for hariharan:
root@032d6d9dcbaa:/#
```

08

```
root@032d6d9dcbaa:/# service apache2 status
 * apache2 is not running
root@032d6d9dcbaa:/# 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 globally to suppress this message
 *
root@032d6d9dcbaa:/# service apache2 status
 * apache2 is running
root@032d6d9dcbaa:/#
```

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```
root@032d6d9dcbaa:/# apt install -y curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  curl
0 upgraded, 1 newly installed, 0 to remove and 11 not upgraded.
Need to get 194 kB of archives.
After this operation, 452 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 curl amd64 7.81.0-1 [194 kB]
Fetched 194 kB in 1s (164 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package curl.
(Reading database ... 7838 files and directories currently installed.)
Preparing to unpack .../curl_7.81.0-1_amd64.deb ...
Unpacking curl (7.81.0-1) ...
Setting up curl (7.81.0-1) ...
root@032d6d9dcbaa:/# curl localhost

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

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7. Exit the container, note the container-id, and commit this container with a new name “ubuntu_with_apache2”
8. Run the new container “ubuntu_with_apache2” with publishing the container’s port 80 as port 81 on the host machine
9. Start apache2 service in the container and verify that it is running
10. Verify that port 80 within container opens the default apache2 webpage

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11. Open http://localhost:81 on host machine and verify that the default apache2 web page hosted within the container started in 10 is served in the host machine throughport 81