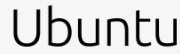## Tasks To Be Performed:

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-172-31-82-124:~$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND        CREATED          STATUS          PORTS                                     NAMES
614556b07111   ubuntu    "/bin/bash"    23 minutes ago   Up 23 minutes   0.0.0.0:80->80/tcp, :::80->80/tcp         C1
ubuntu@ip-172-31-82-124:~$ sudo docker commit C1 image2
sha256:2cbf210ab7beae7e5dca23489e5f08fb07969e409c59adedf3309e87917b24a7
ubuntu@ip-172-31-82-124:~$ sudo docker images
REPOSITORY   TAG      IMAGE ID       CREATED          SIZE
image2       latest   2cbf210ab7be   40 seconds ago   228MB
ubuntu       latest   5a81c4b8502e   5 weeks ago      77.8MB
ubuntu@ip-172-31-82-124:~$ sudo docker run -itd -p 81:80 --name C2 image2
23a7b1801052a9e8ea4008f98b375d502bf500f079ec8045276fa48f283c8825
ubuntu@ip-172-31-82-124:~$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND        CREATED          STATUS          PORTS                                     NAMES
23a7b1801052   image2    "/bin/bash"    11 seconds ago   Up 10 seconds   0.0.0.0:81->80/tcp, :::81->80/tcp         C2
614556b07111   ubuntu    "/bin/bash"    26 minutes ago   Up 26 minutes   0.0.0.0:80->80/tcp, :::80->80/tcp         C1
ubuntu@ip-172-31-82-124:~$ sudo docker exec -it C2 bash
root@23a7b1801052:/# apt-get update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:2 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1104 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1235 kB]
Fetched 2677 kB in 1s (2441 kB/s)
Reading package lists... Done
root@23a7b1801052:/# service apache2 status
 * apache2 is not running
root@23a7b1801052:/# service apache2 start
 * Starting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.3. Set the 'ServerName' directive globally to
suppress this message
```



```
sha256:2cbf210ab7beae7e5dca23489e5f08fb07969e409c59adedf3309e87917b24a7
ubuntu@ip-172-31-82-124:~$ sudo docker images
REPOSITORY   TAG      IMAGE ID       CREATED          SIZE
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ubuntu@ip-172-31-82-124:~$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND        CREATED          STATUS          PORTS                                     NAMES
23a7b1801052   image2    "/bin/bash"    11 seconds ago   Up 10 seconds   0.0.0.0:81->80/tcp, :::81->80/tcp         C2
614556b07111   ubuntu    "/bin/bash"    26 minutes ago   Up 26 minutes   0.0.0.0:80->80/tcp, :::80->80/tcp         C1
ubuntu@ip-172-31-82-124:~$ sudo docker exec -it C2 bash
root@23a7b1801052:/# apt-get update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:2 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1104 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1235 kB]
Fetched 2677 kB in 1s (2441 kB/s)
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root@23a7b1801052:/# service apache2 status
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 * Starting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.3. Set the 'ServerName' directive globally to
suppress this message
 *
root@23a7b1801052:/# service apache2 status
 * apache2 is running
root@23a7b1801052:/#
```

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
```

- `apache2.conf` is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
- `ports.conf` is always included from the main configuration file. It is used to determine the listening ports for incoming connections, and this file can be customized anytime.
- Configuration files in the `mods-enabled/`, `conf-enabled/` and `sites-enabled/` directories contain particular configuration snippets which manage modules, global configuration fragments, or virtual host configurations, respectively.
- They are activated by symlinking available configuration files from their respective *-available/ counterparts. These should be managed by using our helpers a2enmod, a2dismod, a2ensite, a2dissite, and a2enconf, a2disconf . See their respective man pages for detailed information.
- The binary is called apache2 and is managed using systemd, so to start/stop the service use `systemctl start apache2` and `systemctl stop apache2`, and use `systemctl status apache2` and `journalctl -u apache2` to check status. `system` and `apache2ctl` can also be used for service management if desired. **Calling /usr/bin/apache2 directly will not work** with the default configuration.

Document Roots

By default, Ubuntu does not allow access through the web browser to *any* file outside of those located in `/var/www`, **public_html** directories (when enabled) and `/usr/share` (for web applications). If your site is using a web document root located elsewhere (such as in `/srv`) you may need to whitelist your document root directory in `/etc/apache2/apache2.conf`.

The default Ubuntu document root is `/var/www/html`. You can make your own virtual hosts under `/var/www`.

Reporting Problems

Please use the `ubuntu-bug` tool to report bugs in the Apache2 package with Ubuntu. However, check **existing bug reports** before reporting a new bug.

Please report bugs specific to modules (such as PHP and others) to their respective packages, not to the web server itself.