Module 3: Docker Part 1 Assignment - 1

1. Pull Ubuntu container.
Solution:-

$ sudu su

Set up the repository
1. Update the apt package index and install packages to allow apt to use a repository over HTTPS:

sudo apt-get update

```
ubuntu@ip-172-31-93-148:~$ sudo su
root@ip-172-31-93-148:/home/ubuntu# sudo apt-get update
sudo apt-get install ca-certificates curl gnupg
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [11
9 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [
108 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packag
es [14.1 MB]
```

sudo apt-get install ca-certificates curl gnupg
sudo install -m 0755 -d /etc/apt/keyrings
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg

```
root@ip-172-31-93-148:/home/ubuntu# sudo apt-get install ca-certificates curl gn
upg
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.22.04.1).
curl is already the newest version (7.81.0-1ubuntu1.13).
gnupg is already the newest version (2.2.27-3ubuntu2.1).
0 upgraded, 0 newly installed, 0 to remove and 92 not upgraded.
root@ip-172-31-93-148:/home/ubuntu# sudo install -m 0755 -d /etc/apt/keyrings
root@ip-172-31-93-148:/home/ubuntu# curl -fsSL https://download.docker.com/linux
/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
```

```
# sudo chmod a+r /etc/apt/keyrings/docker.gpg
# echo \
  "deb [arch="$(dpkg --print-architecture)" signed-by=/etc/apt/keyrings/docker.gpg]
https://download.docker.com/linux/ubuntu \
  "$(. /etc/os-release && echo "$VERSION_CODENAME")" stable" | \
  sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
# sudo apt-get update
```

```
root@ip-172-31-93-148:/home/ubuntu# sudo chmod a+r /etc/apt/keyrings/docker.gpg
root@ip-172-31-93-148:/home/ubuntu# echo \
  "deb [arch="$(dpkg --print-architecture)" signed-by=/etc/apt/keyrings/docker.g
pg] https://download.docker.com/linux/ubuntu \
  "$(. /etc/os-release && echo "$VERSION_CODENAME")" stable" | \
  sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
root@ip-172-31-93-148:/home/ubuntu# sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
```

Install Docker Engine
1. Install Docker Engine, containers, and Docker Compose.
2. Latest Specific version To install the latest version, run:

```
# sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
```

```
root@ip-172-31-93-148:/home/ubuntu# sudo apt-get install docker-ce docker-ce-cli
 containerd.io docker-buildx-plugin docker-compose-plugin
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
containerd.io is already the newest version (1.6.22-1).
docker-buildx-plugin is already the newest version (0.11.2-1~ubuntu.22.04~jammy)
.
docker-ce-cli is already the newest version (5:24.0.5-1~ubuntu.22.04~jammy).
docker-ce is already the newest version (5:24.0.5-1~ubuntu.22.04~jammy).
docker-compose-plugin is already the newest version (2.20.2-1~ubuntu.22.04~jammy
).
0 upgraded, 0 newly installed, 0 to remove and 92 not upgraded.
```

3. Verify that the Docker Engine installation is successful by running the hello-world image.

sudo docker run hello-world

```
root@ip-172-31-93-148:/home/ubuntu# sudo docker run hello-world

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

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.
```

docker -v

```
root@ip-172-31-93-148:/home/ubuntu# docker -v
Docker version 24.0.5, build ced0996
root@ip-172-31-93-148:/home/ubuntu#
```

service docker status
docker images
docker pull ubuntu
docker search ubuntu

```
root@ip-172-31-93-148:/home/ubuntu# service docker status
● docker.service - Docker Application Container Engine
     Loaded: loaded (/lib/systemd/system/docker.service; enabled; v
     Active: active (running) since Thu 2023-08-03 03:54:42 UTC; 1m
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
   Main PID: 615 (dockerd)
      Tasks: 9
```

```
root@ip-172-31-93-148:/home/ubuntu# docker images
REPOSITORY      TAG        IMAGE ID        CREATED        SIZE
hello-world     latest     9c7a54a9a43c    3 months ago   13.3kB
root@ip-172-31-93-148:/home/ubuntu# docker search ubuntu
NAME                            DESCRIPTION
 STARS      OFFICIAL    AUTOMATED
ubuntu                          Ubuntu is a Debian-based Linux operating sys…
 16240      [OK]
websphere-liberty               WebSphere Liberty multi-architecture images …
 296        [OK]
open-liberty                    Open Liberty multi-architecture images based…
 61         [OK]
neurodebian                     NeuroDebian provides neuroscience research s…
```

```
root@ip-172-31-93-148:/home/ubuntu# docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
3153aa388d02: Pull complete
Digest: sha256:0bced47fffa3361afa981854fcabcd4577cd43cebbb808cea2b1f33a3dd
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
root@ip-172-31-93-148:/home/ubuntu# docker images
REPOSITORY      TAG        IMAGE ID        CREATED        SIZE
ubuntu          latest     5a81c4b8502e    5 weeks ago    77.8MB
hello-world     latest     9c7a54a9a43c    3 months ago   13.3kB
```

2. Run this container and map port 80 on the local.
Solution:-

docker run -it -p 80:80 ubuntu /bin/bash
apt update -y

```
root@ip-172-31-93-148:/home/ubuntu# docker run -it -p 80:80 ubuntu /bin/bash
root@735a8bd00b14:/# apt update -y
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages
977 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [108 kB]
```

3. Install Apache2 on this container.
Solution:-

apt install apache2 && service apache2 start && service apache2 status

```
root@735a8bd00b14:/# apt install apache2 && service apache2 start && service apa
che2 status
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils bzip2 ca-certificates file libapr1
  libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libbrotli1 libcurl4
Running hooks in /etc/ca-certificates/update.d...
done.
 * Starting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified doma
in name, using 172.17.0.3. Set the 'ServerName' directive globally to suppress t
his message
 *
 * apache2 is running
```

4. Check if you are able to access the Apache page on your browser.
Solution:-

http://54.86.222.234:80/