Module-3: Docker – I Assignment - 1

You have been asked to:

- Pull ubuntu container
- Run this container, and map port 80 on the local
- Install apache2 on this container
- Check if you are able to access the apache page on your browser

Solution:

1) **Pull ubuntu container** : docker pull ubuntu

```
ubuntu@ip-172-31-15-134:~$ docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
5a7813e071bf: Pull complete
Digest: sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
ubuntu@ip-172-31-15-134:~$
```

2) **To verify the image is there** : docker images

```
ubuntu@ip-172-31-15-134:~$ docker images
REPOSITORY     TAG        IMAGE ID       CREATED        SIZE
ubuntu         latest     a04dc4851cbc   10 days ago    78.1MB
ubuntu@ip-172-31-15-134:~$
```

3) **Run this container, and map port 80 on the local** : docker run -dit -p 80:80 ubuntu

Explanation:

docker run: This is the command used to create and start a new container.

-d: Stands for detached mode. This option runs the container in the background, allowing you to continue using your terminal.

-i: Stands for interactive mode. This option keeps the standard input (stdin) open, even if not attached, which is useful for interactive applications.

-t: Stands for pseudo-TTY. This option allocates a pseudo-TTY, which gives you an interactive terminal session.

-p 80:80: This option maps port 80 on your local machine to port 80 in the container.

ubuntu: This specifies the image to use for the container.

```
ubuntu@ip-172-31-15-134:~$ docker run -dit -p 80:80 ubuntu
acc29f734773f57aee6da35b8204f1195035b1212827fcf08384cdb1b2391075
ubuntu@ip-172-31-15-134:~$ docker ps -a
CONTAINER ID   IMAGE    COMMAND       CREATED        STATUS                    PORTS                                    NAMES
acc29f734773   ubuntu   "/bin/bash"   4 seconds ago  Up 3 seconds              0.0.0.0:80->80/tcp, :::80->80/tcp        cool_dubinsky
2f46dd602e4c   ubuntu   "/bin/bash"   6 minutes ago  Exited (137) 32 seconds ago                                        sharp_payne
99848e6863a2   ubuntu   "/bin/bash"   9 minutes ago  Exited (0) 9 minutes ago                                           my-ubuntu-container
```

4) Install apache2 on this container:

a) list the running containers : docker ps

```
ubuntu@ip-172-31-15-134:~$ docker ps
CONTAINER ID   IMAGE    COMMAND      CREATED        STATUS        PORTS                                       NAMES
acc29f734773   ubuntu   "/bin/bash"  3 minutes ago  Up 3 minutes  0.0.0.0:80->80/tcp, :::80->80/tcp           cool_dubinsky
ubuntu@ip-172-31-15-134:~$
```

b) **Attach to the container** : docker exec -it [container_id_or_name] bash

```
ubuntu@ip-172-31-15-134:~$ docker exec -it acc29f734773 bash
root@acc29f734773:/#
```

c) **Inside the container, update the package lists**: apt update

```
ubuntu@ip-172-31-15-134:~$ docker exec -it acc29f734773 bash
root@acc29f734773:/# apt update
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [789 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [777 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [1039 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [15.5 kB]
Get:8 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [331 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [19.3 MB]
Get:11 http://archive.ubuntu.com/ubuntu noble/main amd64 Packages [1808 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble/restricted amd64 Packages [117 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [804 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1313 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [20.1 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1084 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [15.1 kB]
Fetched 28.1 MB in 9s (3051 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
14 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@acc29f734773:/#
```

d) **Install Apache2**: apt install apache2 -y

```
root@acc29f734773:/# apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  adduser apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
  libbrotli1 libcurl4t64 libexpat1 libgdbm-compat4t64 libgdbm6t64 libgssapi-krb5-2 libicu74 libjansson4 libk5crypto3 libkeyutils1 libkrb5-3
  libkrb5support0 libldap-common libldap2 liblua5.4-0 libnghttp2-14 libperl5.38t64 libpsl5t64 librtmp1 libsasl2-2 libsasl2-modules
  libsasl2-modules-db libsqlite3-0 libssh-4 libxml2 media-types netbase openssl perl perl-base perl-modules-5.38 publicsuffix ssl-cert
Suggested packages:
  liblocale-gettext-perl cron quota ecryptfs-utils apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser ufw gdbm-l10n krb5-doc
  krb5-user libsasl2-modules-gssapi-mit | libsasl2-modules-gssapi-heimdal libsasl2-modules-ldap libsasl2-modules-otp libsasl2-modules-sql perl-do
  libterm-readline-gnu-perl | libterm-readline-perl-perl make libtap-harness-archive-perl
The following NEW packages will be installed:
  adduser apache2 apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap
  libaprutil1t64 libbrotli1 libcurl4t64 libexpat1 libgdbm-compat4t64 libgdbm6t64 libgssapi-krb5-2 libicu74 libjansson4 libk5crypto3 libkeyutils1
  libkrb5-3 libkrb5support0 libldap-common libldap2 liblua5.4-0 libnghttp2-14 libperl5.38t64 libpsl5t64 librtmp1 libsasl2-2 libsasl2-modules
  libsasl2-modules-db libsqlite3-0 libssh-4 libxml2 media-types netbase openssl perl perl-modules-5.38 publicsuffix ssl-cert
The following packages will be upgraded:
  perl-base
1 upgraded, 43 newly installed, 0 to remove and 13 not upgraded.
Need to get 28.1 MB of archives.
After this operation, 109 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 perl-base amd64 5.38.2-3.2build2.1 [1823 kB]
0% [1 perl-base 14.2 kB/1823 kB 1%]
```

e) **Start the Apache2 Service**: service apache2 start

```
root@acc29f734773:/# 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@acc29f734773:/#
```

5) Check if you are able to access the apache page on your browser

Copy the public IP address . navigate to http://<your-server-ip> and we can see the apache default web page.