Lab Exercise 1

Performing CRUD Operation on Containers

Objective: Performing CRUD Operation on Containers

Tools required: Docker Configuration

Pre-requisites: Ubuntu Configuration, Docker

Steps to be followed:

1. Pulling a Docker image
2. Creating a new container
3. Stopping the container
4. Listing all the containers
5. Deleting the container
6. Removing the image

Step 1: Pulling a Docker image

1.1 Open the terminal and pull an image using the command:

sudo docker pull nginx

1.2 List all the docker images to check the newly pulled *nginx* image:

sudo docker images

Step 2: Creating a new container

2.1 Create a new container from the *nginx* image:

sudo docker run -dt -p 81:81 nginx

2.2 List all the running containers to check the newly created container. You can find   various details like port of container, it's time of creation and ID.

sudo docker ps

Step 3: Stopping the container

3.1 Use the following command to stop the running container. *(*You can also us the container ID to stop the container: *sudo docker stop CONTAINER_ID*)

sudo docker stop CONTAINER_NAME

> **Note**: Replace CONTAINER_NAME with the name of the newly created container. In this case CONTAINER_NAME is stoic_darwin. The container name may differ from the one shown in the image below.

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker stop 30dd84d515e6
30dd84d515e6
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

3.2 Use the following command to list all the running containers and verify if the container has stopped running:

sudo docker ps

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker ps
CONTAINER ID   IMAGE     COMMAND    CREATED    STATUS    PORTS     NAMES
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

3.3 You can start the container again and check the running containers. *(*You can also us the container ID to start the container: *sudo docker start CONTAINER_ID*)

sudo docker start CONTAINER_NAME

sudo docker ps

> **Note**: Replace CONTAINER_NAME with the name of the newly created container. In this case CONTAINER_NAME is stoic_darwin. The container name may differ from the one shown in the image below.

```
manikumarsimpli@ip-172-31-71-23:~$ sudo docker start compassionate_tereshkova
compassionate_tereshkova
manikumarsimpli@ip-172-31-71-23:~$ sudo docker ps
CONTAINER ID   IMAGE    COMMAND               CREATED        STATUS          PORTS                                            NAMES
b7ff44ef0883   nginx    "/docker-entrypoint.…" 7 minutes ago  Up 15 seconds   80/tcp, 0.0.0.0:81->81/tcp, :::81->81/tcp   compas
sionate_tereshkova
manikumarsimpli@ip-172-31-71-23:~$
```

3.4 To start the container in interactive mode, use the –i and –t options.

sudo docker run -it --name=Test_1 ubuntu

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker run -it --name=Test_1 ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
5e8117c0bd28: Pull complete
Digest: sha256:8eab65df33a6de2844c9aefd19efe8ddb87b7df5e9185a4ab73af936225685bb
Status: Downloaded newer image for ubuntu:latest
root@92c6d0134498:/#
```

Step 4: Listing all the containers

4.1 Use the below command to list all the containers started and the once which are stopped:

sudo docker ps -a

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker ps -a
CONTAINER ID    IMAGE     COMMAND              CREATED        STATUS        PORTS                        NAMES
92c6d0134498    ubuntu    "/bin/bash"          2 hours ago    Up 2 hours                                 Test_1
30dd84d515e6    nginx     "/docker-entrypoint...."  2 hours ago    Up 2 hours    80/tcp, 0.0.0.0:81->81/tcp   gracious_hugle
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

4.2 To list the containers by their ID, use the below command

sudo docker ps -aq

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker ps -aq
92c6d0134498
30dd84d515e6
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

You can see the containers with ID are listed.

4.3 To list the total file size of each container, use the below command:

sudo docker ps -s

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker ps -s
CONTAINER ID    IMAGE     COMMAND              CREATED        STATUS        PORTS                        NAMES           SIZE
92c6d0134498    ubuntu    "/bin/bash"          2 hours ago    Up 2 hours                                 Test_1          0B (virtual 77.8MB)
30dd84d515e6    nginx     "/docker-entrypoint...."  2 hours ago    Up 2 hours    80/tcp, 0.0.0.0:81->81/tcp   gracious_hugle  1.09kB (virtual 187MB)
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

4.4 To list the latest created containers, use the following command:

sudo docker ps -l

Step 5: Deleting the container

5.1 Stop the running container and remove it using the following commands:

sudo docker stop CONTAINER_NAME

sudo docker container rm CONTAINER_NAME

Note: Replace CONTAINER_NAME with the name of the newly created container. In this case CONTAINER_NAME is sweet_brown. The container name may differ from the one shown in the image below.

Step 6: Removing the image

6.1 Remove the image using the command:

sudo docker image rm nginx