

# 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***

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker image pull nginx
Using default tag: latest
latest: Pulling from library/nginx
1f7ce2fa46ab: Pull complete
9b16c94bb686: Pull complete
9a59d19f9c5b: Pull complete
9ea27b074f71: Pull complete
c6edf33e2524: Pull complete
84b1ff10387b: Pull complete
517357831967: Pull complete
Digest: sha256:10d1f5b58f74683ad34eb29287e07dab1e90f10af243f151bb50aa5dbb4d62ee
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
PS C:\Users\manya\OneDrive\Desktop\ACO> █
```

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

***sudo docker images***

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
nginx         latest    a6bd71f48f68   10 days ago    187MB
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

## Step 2: Creating a new container

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

***sudo docker run -dt -p 81:81 nginx***

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker run -dt -p 81:81 nginx
30dd84d515e67b812eb61aaadda5b877d63acc35e166e82bcfa26385f06daa
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

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***

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
30dd84d515e6   nginx    "/docker-entrypoint..." 3 minutes ago  Up 3 minutes  80/tcp, 0.0.0.0:81->81/tcp         gracious_hugle
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

## Step 3: Stopping the container

3.1 Use the following command to stop the running container. (You can also use 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 use 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   compassionate_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***

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker ps -l
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS      NAMES
92c6d0134498   ubuntu    "/bin/bash"             2 hours ago   Up 2 hours                   Test_1
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

## 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
```

```
PS C:\Users\manya\OneDrive\Desktop\ACO> docker container stop 92c6d0134498
92c6d0134498
PS C:\Users\manya\OneDrive\Desktop\ACO> docker container rm 92c6d0134498
92c6d0134498
PS C:\Users\manya\OneDrive\Desktop\ACO>
```

**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
```

```
manikumarsimpli@ip-172-31-71-23:~$ sudo docker image rm nginx
Untagged: nginx:latest
Untagged: nginx@sha256:47ae43cdfc7064d28800bc42e79a429540c7c80168e8c8952778c0d5a11c09db
Deleted: sha256:4f380adfc10f4cd34f775ae57a17d2835385efd5251d6dfe0f246b0018fb0399
Deleted: sha256:2855bbcefcf95050e64049447e99e77efa2bff32374e586982d69be4612467ce
Deleted: sha256:bad169ad8b30eab551acbb8cd8fbdcd824528189e3dd0cc52dd88a37bbf121cd
Deleted: sha256:36d83ebf5fec7ae1be4c431f0945f2dbe6828ecdc936c604daa48f17c0b50ed7
Deleted: sha256:b4c9a251dc81d52dd1cca9b4c69ca9e4db602a9a7974019f212846577f739699
Deleted: sha256:038ca5b801cea48e9f40f6ffb4cda61a2fe0b6b0f378a7434a0d39d2575a4082
Deleted: sha256:764055ebc9a7a290b64d17cf9ea550f1099c202d83795aa967428ebdf335c9f7
manikumarsimpli@ip-172-31-71-23:~$
```