

Experiment -1.2

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Branch: CSE-DevOps

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Subject Name: Docker and Kubernetes

UID: 22BDO10038

Section/Group: 22BCD-1 (A)

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1. Aim/Overview of the practical:

To understand the Container Lifecycle Management with Docker:

- Docker images
- Containers
- Docker repository
- Docker commands
- Dockerfile

2. Apparatus: VM ware, Ubuntu Linux , Docker.

3. Steps for experiment/practical:

Docker –version: it helps to check the current version of docker installed in your system.

Docker –images: It helps to list all the Docker images in the system installed.

```
ayush@ayush:~/Desktop$ docker --version
Docker version 24.0.2, build cb74dfc
ayush@ayush:~/Desktop$ docker images
REPOSITORY    TAG       IMAGE ID   CREATED   SIZE
ayush@ayush:~/Desktop$ docker create --name one ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
9c704ecd0c69: Pull complete
Digest: sha256:2e863c44b718727c860746568e1d54afd13b2fa71b160f5cd9058fc436217b30
Status: Downloaded newer image for ubuntu:latest
be73c2012d16c71db430834b3bbe221aa4d82848c57ccd5c5a2754838871b02e
ayush@ayush:~/Desktop$ docker start one
one
```

docker create --name nameofcontainer image_name: It is used to create a container of the image that is passed.

Docker start container_name: The docker start command is used to start one or more stopped containers in Docker.

docker ps -a: it is used to check the status of all the container in the system.

```
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|----------------|---------------------------|-------|-------|
| be73c2012d16 | ubuntu | "/bin/bash" | 35 seconds ago | Exited (0) 19 seconds ago | | one |

docker run -dit --name nameofcontainer imagename : It is used to create and start a new Docker container with specific options:

docker pause containername: If we want to pause the processes running inside the container, we can use the “docker pause” command

docker unpause containername: To unpause the container, use “docker unpause” command.

```
ayush@ayush:~/Desktop$ docker run -dit --name two ubuntu
99648b80faa068e037b68b0a6726073f417f58537425b8ea0cb172cc7966a32f
```

```
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|----------------|-------------------------------|-------|-------|
| 99648b80faa0 | ubuntu | "/bin/bash" | 11 seconds ago | Up 10 seconds | | two |
| be73c2012d16 | ubuntu | "/bin/bash" | 2 minutes ago | Exited (0) About a minute ago | | one |

```
ayush@ayush:~/Desktop$ docker pause two
```

```
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|----------------|--------------------------|-------|-------|
| 99648b80faa0 | ubuntu | "/bin/bash" | 40 seconds ago | Up 40 seconds (Paused) | | two |
| be73c2012d16 | ubuntu | "/bin/bash" | 2 minutes ago | Exited (0) 2 minutes ago | | one |

```
ayush@ayush:~/Desktop$ docker unpause two
```

```
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|--------------------|--------------------------|-------|-------|
| 99648b80faa0 | ubuntu | "/bin/bash" | About a minute ago | Up About a minute | | two |
| be73c2012d16 | ubuntu | "/bin/bash" | 3 minutes ago | Exited (0) 2 minutes ago | | one |

```
ayush@ayush:~/Desktop$ docker stop two
```

docker stop container_name: Stopping a running Container means to stop all the processes running in that Container. Stopping does not mean killing or ending the process

docker rm containername: It is used to remove and delete the container. Removing or deleting the container means destroying all the processes running inside the container and then deleting the Container. It's preferred to destroy the container, only if present in the stopped state instead of forcefully destroying the running container.

```
ayush@ayush:~/Desktop$ docker stop two
two
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|--------------------|----------------------------|-------|-------|
| 99648b80faa0 | ubuntu | "/bin/bash" | About a minute ago | Exited (137) 7 seconds ago | | two |
| be73c2012d16 | ubuntu | "/bin/bash" | 3 minutes ago | Exited (0) 3 minutes ago | | one |

```
ayush@ayush:~/Desktop$ docker rm two
two
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|---------------|--------------------------|-------|-------|
| be73c2012d16 | ubuntu | "/bin/bash" | 4 minutes ago | Exited (0) 4 minutes ago | | one |

docker kill container_name: It immediately stops the container without cleanup, which can result in potential data loss or corruption.

```
ayush@ayush:~/Desktop$ docker run -dit --name two ubuntu
3af3b074b8d77500d8101bce272d9f466d0c730d12bd31446fde5daf44e73a88
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|----------------|--------------------------|-------|-------|
| 3af3b074b8d7 | ubuntu | "/bin/bash" | 12 seconds ago | Up 11 seconds | | two |
| be73c2012d16 | ubuntu | "/bin/bash" | 5 minutes ago | Exited (0) 5 minutes ago | | one |

```
ayush@ayush:~/Desktop$ docker kill two
two
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|----------------|----------------------------|-------|-------|
| 3af3b074b8d7 | ubuntu | "/bin/bash" | 36 seconds ago | Exited (137) 7 seconds ago | | two |
| be73c2012d16 | ubuntu | "/bin/bash" | 5 minutes ago | Exited (0) 5 minutes ago | | one |

```
ayush@ayush:~/Desktop$ docker rm one two
one
two
ayush@ayush:~/Desktop$ docker run -dit --name one ubuntu
0082cf3edbd4f499ceeadabc0e6470eb1fefa99b885e84954321b6da9dcaf2ba
ayush@ayush:~/Desktop$ docker run -dit --name two ubuntu
78577a4f9d5133e0f981e912ce0393f382493f5e039e97f87c1c5cb5b224c623
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|----------------|---------------|-------|-------|
| 78577a4f9d51 | ubuntu | "/bin/bash" | 19 seconds ago | Up 18 seconds | | two |
| 0082cf3edbd4 | ubuntu | "/bin/bash" | 51 seconds ago | Up 50 seconds | | one |

docker ps -aq: This command lists the IDs of all containers, including stopped ones.

docker stop \$(docker ps -aq): It is used to stop all the running containers from the docker.

```
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|----------------|---------------|-------|-------|
| 78577a4f9d51 | ubuntu | "/bin/bash" | 19 seconds ago | Up 18 seconds | | two |
| 0082cf3edbd4 | ubuntu | "/bin/bash" | 51 seconds ago | Up 50 seconds | | one |

```
ayush@ayush:~/Desktop$ docker ps -aq
78577a4f9d51
0082cf3edbd4
ayush@ayush:~/Desktop$ docker stop $(docker ps -aq)
78577a4f9d51
0082cf3edbd4
ayush@ayush:~/Desktop$ docker ps -a
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS | NAMES |
|--------------|--------|-------------|--------------------|----------------------------|-------|-------|
| 78577a4f9d51 | ubuntu | "/bin/bash" | About a minute ago | Exited (137) 7 seconds ago | | two |
| 0082cf3edbd4 | ubuntu | "/bin/bash" | About a minute ago | Exited (137) 7 seconds ago | | one |

Learning outcomes (What I have learnt):

1. I have learnt about docker.
2. I have learnt about docker images.
3. I have learnt about docker containers.
4. I have learnt about docker commands.
5. I have learnt about docker components.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

| Sr. No. | Parameters | Marks Obtained | Maximum Marks |
|---------|------------|----------------|---------------|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| | | | |



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