

Experiment -1.2

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Branch: AIT CSE-DevOps

Semester: 5th

Subject Name: Docker and Kubernetes

UID: 22BDO10036

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.

```
chayan@chayan-virtual-machine:~$ docker --version
Docker version 24.0.7, build 24.0.7-0ubuntu2~22.04.1
chayan@chayan-virtual-machine:~$ docker images
REPOSITORY      TAG          IMAGE ID        CREATED         SIZE
ubuntu          latest       edbfe74c41f8    3 weeks ago    78.1MB
hello-world     latest      d2c94e258dcb    16 months ago  13.3kB
chayan@chayan-virtual-machine:~$ 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 starts one or more stopped containers in Docker.

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

```
chayan@chayan-virtual-machine:~$ docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED          STATUS              PORTS          NAMES
087c7c9c5a7b   ubuntu    "/bin/bash"             3 days ago      Exited (0) 11 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.

```
chayan@chayan-virtual-machine:~$ docker run -dit --name two ubuntu
6d8f6fdadef4981c048eed20912d5502b5d3eacac94c11e43262724c0a29ec43
chayan@chayan-virtual-machine:~$ docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED          STATUS              PORTS          NAMES
6d8f6fdadef4   ubuntu    "/bin/bash"             11 seconds ago   Up 10 seconds              two
087c7c9c5a7b   ubuntu    "/bin/bash"             3 days ago      Exited (0) About a minute ago    one
0f2f6833e93e   hello-world "/hello"                7 days ago      Exited (0) 7 days ago          thirsty
chayan@chayan-virtual-machine:~$ docker pause two
two
chayan@chayan-virtual-machine:~$ docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED          STATUS              PORTS          NAMES
6d8f6fdadef4   ubuntu    "/bin/bash"             39 seconds ago   Up 38 seconds (Paused)              two
087c7c9c5a7b   ubuntu    "/bin/bash"             3 days ago      Exited (0) About a minute ago    one
0f2f6833e93e   hello-world "/hello"                7 days ago      Exited (0) 7 days ago          thirsty
```

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.

```
chayan@chayan-virtual-machine:~$ docker stop two
two
chayan@chayan-virtual-machine:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
6d8f6fdadef4	ubuntu	"/bin/bash"	About a minute ago	Exited (137) 10 seconds ago		two
087c7c9c5a7b	ubuntu	"/bin/bash"	3 days ago	Exited (0) 2 minutes ago		one
0f2f6833e93e	hello-world	"/hello"	7 days ago	Exited (0) 7 days ago		thirsty

```
chayan@chayan-virtual-machine:~$ docker rm two
two
chayan@chayan-virtual-machine:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
087c7c9c5a7b	ubuntu	"/bin/bash"	3 days ago	Exited (0) 2 minutes ago		one
0f2f6833e93e	hello-world	"/hello"	7 days ago	Exited (0) 7 days ago		thirsty_jackson

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

```
chayan@chayan-virtual-machine:~$ docker run -dit --name two ubuntu
e6a36d19dfddb0717f21d868ca40080e4a70b2973e17c9251772540c792d3539
chayan@chayan-virtual-machine:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
e6a36d19dfdd	ubuntu	"/bin/bash"	11 seconds ago	Up 9 seconds		two
087c7c9c5a7b	ubuntu	"/bin/bash"	3 days ago	Exited (0) 4 minutes ago		one
0f2f6833e93e	hello-world	"/hello"	7 days ago	Exited (0) 7 days ago		thirsty_jac

```
chayan@chayan-virtual-machine:~$ docker kill two
two
chayan@chayan-virtual-machine:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
e6a36d19dfdd	ubuntu	"/bin/bash"	48 seconds ago	Exited (137) 10 seconds ago		two
087c7c9c5a7b	ubuntu	"/bin/bash"	3 days ago	Exited (0) 4 minutes ago		one
0f2f6833e93e	hello-world	"/hello"	7 days ago	Exited (0) 7 days ago		thirsty_

```
chayan@chayan-virtual-machine:~$ docker rm one two
one
two
chayan@chayan-virtual-machine:~$ docker run -dit --name one ubuntu
05776a42994adba59f366ab9d4c422a6c31195487517e8490c42db2fbdbd77e6
chayan@chayan-virtual-machine:~$ docker run -dit --name two ubuntu
a57117863275685f448b4217dea3eccafe58dfaf7e61a5320385761a0730a3d9
chayan@chayan-virtual-machine:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
a57117863275	ubuntu	"/bin/bash"	7 seconds ago	Up 5 seconds		two
05776a42994a	ubuntu	"/bin/bash"	34 seconds ago	Up 33 seconds		one
0f2f6833e93e	hello-world	"/hello"	7 days ago	Exited (0) 7 days ago		thirsty

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.

```
chayan@chayan-virtual-machine:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
a57117863275	ubuntu	"/bin/bash"	7 seconds ago	Up 5 seconds		two
05776a42994a	ubuntu	"/bin/bash"	34 seconds ago	Up 33 seconds		one
0f2f6833e93e	hello-world	"/hello"	7 days ago	Exited (0) 7 days ago		thirsty_jac

```
chayan@chayan-virtual-machine:~$ docker ps -aq
a57117863275
05776a42994a
0f2f6833e93e
chayan@chayan-virtual-machine:~$ docker stop $(docker ps -aq)
a57117863275
05776a42994a
0f2f6833e93e
chayan@chayan-virtual-machine:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
a57117863275	ubuntu	"/bin/bash"	5 minutes ago	Exited (137) 9 seconds ago		two
05776a42994a	ubuntu	"/bin/bash"	5 minutes ago	Exited (137) 9 seconds ago		one
0f2f6833e93e	hello-world	"/hello"	7 days ago	Exited (0) 7 days ago		thirsty

Learning outcomes (What I have learned):

1. learned about docker.
2. learned about docker images.
3. learned about docker containers.
4. learned about docker commands.
5. learned 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.			