

Docker Assessment

Questions 1-4

Prepared By:-
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Question 1:- On VM install Docker Engg create web application containers provide port number 9095 of nginx and httpd on port number 9096?

Solution:-

```
root@localhost:~# docker images
REPOSITORY    TAG        IMAGE ID      CREATED       SIZE
cadentry       1.1        dd88b1bd0104  3 hours ago  231MB
cmd            1.0        ece057e230c5  3 hours ago  231MB
vol            lab6       9c8c6c09e3c6  6 hours ago  231MB
lab5           1.0        2f6b8b2a15db  7 hours ago  231MB
web1           1.1        3539a837998b  7 hours ago  231MB
nginx          latest     87a94228f133  2 weeks ago  133MB
centos         latest     5d0da3dc9764  6 weeks ago  231MB

root@localhost:~# docker pull httpd
Using default tag: latest
latest: Pulling from library/httpd
7d63c13d9b9b: Pull complete
ca52f3eeea66: Pull complete
448256567156: Pull complete
21469ac09caf: Pull complete
462e88bc3074: Pull complete
Digest: sha256:f70876d78442771406d7245b8d3425e8b0a86891c79811af94fb2e12af0fadb
Status: Downloaded newer image for httpd:latest
docker.io/library/httpd:latest
root@localhost:~# docker run -d --name asses1 -h Asses -p 9096:80 httpd
224be8e04f23d5d43443f1c56f736e9f513c1121543e82446be1b8b44a30fcc5
root@localhost:~# docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS
224be8e04f23   httpd      "httpd-foreground"      26 seconds ago Up 25 seconds  0.0.0.0:9096->80/tcp, :::9096->80/tcp  asses1
root@localhost:~# docker exec -it asses1 bash
root@asses:/usr/local/apache2# ls
bin build cgi-bin conf error htdocs icons include logs modules
root@asses:/usr/local/apache2# cd htdocs
root@asses:/usr/local/apache2/htdocs# ls
index.html
root@asses:/usr/local/apache2/htdocs# cat index.html
<html><body><h1>It works!</h1></body></html>
root@asses:/usr/local/apache2/htdocs# cat >index.html
***** Assessment 1*****
root@asses:/usr/local/apache2/htdocs# exit
root@localhost:~#
```

```
root@localhost:~# show
NAME      UID      TYPE      DEVICE
docker0  c822af6-3348-43c6-9f74-bb37a2ab8def  bridge  docker0
ens33     12c571bb-4295-46dc-b64e-59777c099f61  802-3-ethernet  ens33

root@localhost:~# ip a s
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN qlen 1
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1:1 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1:1 scope host
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether 00:0c:29:00:00:00 brd ff:ff:ff:ff:ff:ff
    inet 192.168.223.128/24 brd 192.168.223.255 scope global dynamic ens33
        valid_lft 1307sec preferred_lft 1307sec
    inet6 fe80::f04c:1d1d:d5a:163a:64 scope link
        valid_lft forever preferred_lft forever
3: docker0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP
    link/ether 02:42:5b:64:43:15 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
        valid_lft forever preferred_lft forever
    inet6 fe80::42:5b:64:43:15:64 scope link
        valid_lft forever preferred_lft forever
69: vethb3ac9a16a1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue master docker0
    link/ether b2c2:76:20:5b:0f:b4 brd ff:ff:ff:ff:ff:ff link-netnsid 0
    inet6 fe80::b0c2:76ff:fe2b:5b0f:64 scope link
        valid_lft forever preferred_lft forever

root@localhost:~# connect
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/25)

root@localhost:~# show
NAME      UID      TYPE      DEVICE
docker0  c822af6-3348-43c6-9f74-bb37a2ab8def  bridge  docker0
ens33     12c571bb-4295-46dc-b64e-59777c099f61  802-3-ethernet  ens33

root@localhost:~#
```

```
root@localhost:~# docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS
e8fc2440eaf1   nginx     "/docker-entrypoint..."  8 minutes ago Up 8 minutes  0.0.0.0:9095->80/tcp, :::9095->80/tcp  asses1.1
224be8e04f23   httpd     "httpd-foreground"        15 minutes ago Up 15 minutes  0.0.0.0:9096->80/tcp, :::9096->80/tcp  asses1
root@localhost:~#
```

```
root@localhost:~# apt-get install nginx
X11 common-licenses fontconfig libc-bin pam tabset
adduser debconf fonts lintian pam-configs terminfo
base-files debianutils gcc-8 locale perl5 xml
base-passwd dict gdb man pixmaps zoneinfo
bash-completion doc info menu polkit-1 zsh
bug doc-base java misc readline
ca-certificates dpkg keyrings nginx sensible-utils

root@assessment1:/usr/share# cd nginx
root@assessment1:/usr/share/nginx# ls
html
root@assessment1:/usr/share/nginx# cd html
root@assessment1:/usr/share/nginx/html# ls
50x.html index.html
root@assessment1:/usr/share/nginx/html# cat index.html
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
root@assessment1:/usr/share/nginx/html# cat >> index.html
***** Assessment 1 Nginx *****
root@assessment1:/usr/share/nginx/html#
root@assessment1:/usr/share/nginx/html#
root@assessment1:/usr/share/nginx/html# exit
[root@localhost ~]# docker ps
CONTAINER ID   IMAGE      COMMAND                  NAMES        CREATED          STATUS          PORTS
a6fc2440e1f   nginx     "/docker-entrypoint..." 8 minutes ago   Up 8 minutes    0.0.0.0:80->80/tcp
224be8e04f23   httpd     "httpd-foreground"      httpd-foreg  15 minutes ago   Up 15 minutes    0.0.0.0:80->80/tcp
[root@localhost ~]#
```

Question 2:- What are the features of underlying operating system, explain type of storage that docker can provide and create container provide storage =type =volume, name vol10?

Solution: - Features of the underlying operating system:-

- 1) Namespace: - Separate namespaces for containers are created by the kernel to ensure process isolation. Namespaces allow you to abstract global system resource and present it to processes within a namespace as a separate instance. It is a combination of PID (process id), mount, network, UTS (unique time sharing), IPC (inter process communication) and, user.
- 2) Control Group (cgroup):- Control Groups are used by the kernel to organise processes for system resource management. Control Groups distribute CPU time, system memory, network bandwidth, or a mix of these resources among user-defined task groups.
- 3) SE-Linux: - SE-Linux uses SE-Linux policy and labels to ensure secure container isolation. It acts like a firewall for the same. It has three state: - Enforce, Permissive and, Disable.
- 4) SE-Comp: - SE-Comp is a kernel feature that allows you to filter system call (syscalls) from container to the kernel. SE-Comp gives an attacker a restricted number of syscalls from the container, allowing for greater fine-grained control.

There are three types of storage that are provided by Docker. Those are:-

- 1) Bind Mount
 - 2) Volume Mount
 - 3) Tmpfs Mount
- 1) Bind Mount
Bind mounts can be kept on the host system in any location. It's possible that they're crucial system files or directories. Non-Docker processes can modify them at any time.
 - 2) Volume Mount
Volumes are kept in a Docker-managed section of the host filesystem. Is is located at '/var/lib/docker/volumes' on Linux OS. Non-Docker processes should not modify this part of the filesystem.
 - 3) Tmpfs Mount
Tmpfs mount are only saved in memory of the host system and are never written on the filesystem.

```
Activities | PUTTY SSH Client | Oct 29 19:40
CentOS 7 64-bit - VMware Workstation
File Edit View VM Tabs Help
Library
Type here to sea...
My Computer
CentOS 7 64-bit

root@localhost:~#
63628836c33e1a63fde6ef201-init/diff:/var/lib/docker/overlay2/2822f30aba3b39267015a90ecc7e2e
4d5d852889647017a6509a028a36ce5d65/diff:/var/lib/docker/overlay2/787069e/cdd33fa600b2a44002e
0aad9ff46c8da536159d039d5e/cc33f46661/diff:/var/lib/docker/overlay2/dd8b55b9f3aa147f4443184d
803ba17e6f38122ea57d50813a6d7707e/1027/diff:/var/lib/docker/overlay2/354be2f393b39268c3e92
5d7ff5157b4550dfe01b39751076edc1820a69c9c/diff:/var/lib/docker/overlay2/d8f16d4f7357e2b77
47f05ba0ac49a0da42f14dd55728e548da51c65765bb/diff:/var/lib/docker/overlay2/0b0a699555c3fb4
c5d1fa361684cd41ae61a6fd74251364592d516719ce40d/diff".
"MergeDir": "/var/lib/docker/overlay2/e01b4ad99d/ccae71a7a0eaf12ac155ad0f0c
763628836c33e1a63fde6ef201/merged".
"UpperDir": "/var/lib/docker/overlay2/e01b4ad99d/ccae71a7a0eaf12ac155ad0f0c
763628836c33e1a63fde6ef201/diff".
"WorkDir": "/var/lib/docker/overlay2/e01b4ad99d/ccae71a7a0eaf12ac155ad0f0c76
3628836c33e1a63fde6ef201/work".
},
"Name": "overlay2"
},
"Mounts": [
{
"Type": "volume",
"Name": "vol10",
"Source": "/var/lib/docker/volumes/vol10/_data",
"Destination": "/usr/share/nginx/html",
"Driver": "local",
"Mode": "z",
"RM": true,
"Propagation": ""
}
],
"Config": {
"Hostname": "fe841aa807fe",
"Dnsname": "",
"User": "",
"AttachStdin": false,
"AttachStdout": false,
"AttachStderr": false,
"ExposedPorts": {
"80/tcp": {}
},
"Env": [
"PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
"NGINX_VERSION=1.21.3",
"NJS_VERSION=0.6.2",
"PKG_RELEASE=1-buster"
],
"Cmd": [
"nginx",
"-g"
]
}
}

root@localhost:~# #assessment 2
root@localhost:~# docker volume ls
DRIVER VOLUME NAME
local 4c088d006e07aa5e1dfefbcf71aaf345b28c1973039d6288d81a39a62a6f0071
local 66a7273ac2cac1694bb8bf80260b3edd02b3f9f2aa7a3dc4a8bab976d7a36ac
local 7252ab053017fe33af69b18aa79cbf41d3fa5ed1d8e454a5d8a1fd53e051c1d
local b3dcb2b41d1d971937186d7acc2e41f64ca8863236c39083ba8a7816621169
local c96400d0df72bc2fe482485e50bedd27b2d691ad2c8d32e41821d939b59f7fd
local vol1
local vol2
local volume1
local volume2
local volume6
root@localhost:~# docker volume prune
WARNING! This will remove all local volumes not used by at least one container.
Are you sure you want to continue? [y/N] y
Deleted Volumes:
vol2
vol1
4c088d006e07aa5e1dfefbcf71aaf345b28c1973039d6288d81a39a62a6f0071
volume1
66a7273ac2cac1694bb8bf80260b3edd02b3f9f2aa7a3dc4a8bab976d7a36ac
b3dcb2b41d1d971937186d7acc2e41f64ca8863236c39083ba8a7816621169
c96400d0df72bc2fe482485e50bedd27b2d691ad2c8d32e41821d939b59f7fd
7252ab053017fe33af69b18aa79cbf41d3fa5ed1d8e454a5d8a1fd53e051c1d
volume2
Total reclaimed space: 1.166kB
root@localhost:~# docker volume ls
DRIVER VOLUME NAME
root@localhost:~# clear
root@localhost:~# # assessment 2
root@localhost:~# docker volume ls
DRIVER VOLUME NAME
root@localhost:~# docker volume create vol10
vol10
root@localhost:~# docker run -d --name assess2 -v vol10:/usr/share/nginx/html/ nginx
fe841aa807fe60974acc4c75931794391f2eb55ae4a1f2a979d26e8c53338a6
root@localhost:~# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAME
fe841aa807fe nginx "/docker-entrypoint..." 3 seconds ago Up 1 second 80/tcp assess2
root@localhost:~# docker inspect assess2
[
{
"Id": "fe841aa807fe60974acc4c75931794391f2eb55ae4a1f2a979d26e8c53338a6",
"Created": "2021-10-29T13:12:25.919434558Z",
"Path": "/docker-entrypoint.sh",

```

Qusetion 3:- Create docker file for httpd, build image out of that, create container, make that Image publically available [upload on docker hub]?

Solution:-

Activities | PUTTY SSH Client | Oct 29 2004

root@localhost:~# Assessment 3

```
root@localhost ~# ls
100      a.txt      data      file2.sh  logs
assignment  copy_remove_move  file1.sh  log       pipeline.txt
root@localhost ~# cd assessment3
root@localhost assessment3# ls
root@localhost assessment3# vi file.df
root@localhost assessment3# cat file.df
file.df
#Docker FILE
FROM centos:latest

RUN yum install httpd -y

RUN systemctl enable httpd

COPY index.html /var/www/html

CMD ["httpd", "-D", "FOREGROUND"]

EXPOSE 80

***** THIS IS MY ASSESSMENT 3 of DOCKER. *****
root@localhost assessment3# docker build -f file.df -t dhuh:v1
Sending build context to Docker daemon 3.072kB
Step 1/6 : FROM centos:latest
--> 5d0da3dc9764
Step 2/6 : RUN yum install httpd -y
--> Running in c49226c73d6
CentOS Linux 8 - AppStream                2.0 MB/s | 9.5 MB    00:04
CentOS Linux 8 - BaseOS                  1.2 MB/s | 7.5 MB    00:06
CentOS Linux 8 - Extras                   5.5 kB/s | 10 kB    00:01
Dependencies resolved.
Package Arch Version Repo Size
Installing:
httpd x86_64 2.4.37-39.module_el8.4.0+577e6ac.1 appstream 1.4 M
Installing dependencies:
apr x86_64 1.6.3-11.el8 appstream 125 k
apr-util x86_64 1.6.1-6.el8 appstream 105 k
brotli x86_64 1.0.6-3.el8 baseso 323 k
```

Oct 29 2005

```
root@localhost assessment3# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
dhuh v1 43900114000f About a minute ago 286MB
cmcentry 1.1 d888b1bd0104 4 hours ago 231MB
cmd 1.0 ece057e230c5 4 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
web1 1.1 3539a837998b 8 hours ago 231MB
httpd latest 1132a4fc88fa 7 days ago 143MB
nginx latest 87a94228f133 2 weeks ago 133MB
centos latest 5d0da3dc9764 6 weeks ago 231MB
root@localhost assessment3# docker run -d --name asses2 -p 9095:80 dhuh:v1
Unable to find image 'dhuh:v1' locally
root@localhost assessment3# docker run -d --name asses2 -p 9095:80 dhuh:v1
9035ba24df6dc7272e4493509ef81e705423b51baaa81610815b9f346ff721a1
root@localhost assessment3# docker exec -it asses2 bash
root@0e35ba24df6d /# cd
root@0e35ba24df6d /# ls
assignment copy_remove_move file1.sh log pipeline.txt
root@0e35ba24df6d /# cd /var/www
root@0e35ba24df6d /var/www# ls
cgi-bin html
root@0e35ba24df6d /var/www# cd html
root@0e35ba24df6d /var/www/html# ls
index.html
root@0e35ba24df6d /var/www/html# cat >>index.html
** It's my second docker repository on docker hub. Keep an eye on this repository for more updates. **
root@0e35ba24df6d /var/www/html# exit
exit
root@localhost assessment3# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
dhuh v1 43900114000f 3 minutes ago 286MB
cmcentry 1.1 d888b1bd0104 4 hours ago 231MB
cmd 1.0 ece057e230c5 4 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
web1 1.1 3539a837998b 8 hours ago 231MB
httpd latest 1132a4fc88fa 7 days ago 143MB
nginx latest 87a94228f133 2 weeks ago 133MB
centos latest 5d0da3dc9764 6 weeks ago 231MB
root@localhost assessment3# docker tag dhuh:v1 kshiti_j34
-bash: /: is a directory
root@localhost assessment3# docker tag dhuh:v1 kshiti_j34/docker_pract1:httpd_Kshiti_j
root@localhost assessment3# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: kshiti_j34
Password:
Error response from daemon: Get "https://registry-1.docker.io/v2/": unauthorized: incorrect username or password
root@localhost assessment3# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: kshiti_j34
Password:
Error response from daemon: Get "https://registry-1.docker.io/v2/": unauthorized: incorrect username or password
root@localhost assessment3# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: kshiti_j34
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
Login Succeeded
root@localhost assessment3# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
kshiti_j34/docker_pract1 httpd_Kshiti_j 43900114000f 8 minutes ago 286MB
dhuh v1 43900114000f 8 minutes ago 286MB
kshiti_j34 latest 43900114000f 8 minutes ago 286MB
cmcentry 1.1 d888b1bd0104 4 hours ago 231MB
cmd 1.0 ece057e230c5 4 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
web1 1.1 3539a837998b 8 hours ago 231MB
httpd latest 1132a4fc88fa 7 days ago 143MB
nginx latest 87a94228f133 2 weeks ago 133MB
centos latest 5d0da3dc9764 6 weeks ago 231MB
root@localhost assessment3# docker push kshiti_j34/docker_pract1
Using default tag: latest
The push refers to repository [docker.io/kshiti_j34/docker_pract1]
tag does not exist: kshiti_j34/docker_pract1:latest
root@localhost assessment3# docker push kshiti_j34/docker_pract1:httpd_Kshiti_j
The push refers to repository [docker.io/kshiti_j34/docker_pract1]
5d0a3f11ed5f: Pushed
74e6b772f59a: Pushed
cdbe69e65ca4: Pushed
74dd0ec08fa: Layer already exists
httpd_Kshiti_j: digest: sha256:84eca568879c001ea419e367c4515a530e38014c63794f89ba39715202f15b size: 1155
root@localhost assessment3#
```

Oct 29 2005

root@localhost:~# Assessment 3

```
root@localhost ~# ls
100      a.txt      data      file2.sh  logs
assignment  copy_remove_move  file1.sh  log       pipeline.txt
root@localhost ~# cd assessment3
root@localhost assessment3# ls
root@localhost assessment3# vi file.df
root@localhost assessment3# cat file.df
file.df
#Docker FILE
FROM centos:latest

RUN yum install httpd -y

RUN systemctl enable httpd

COPY index.html /var/www/html

CMD ["httpd", "-D", "FOREGROUND"]

EXPOSE 80

***** THIS IS MY ASSESSMENT 3 of DOCKER. *****
root@localhost assessment3# docker build -f file.df -t dhuh:v1
Sending build context to Docker daemon 3.072kB
Step 1/6 : FROM centos:latest
--> 5d0da3dc9764
Step 2/6 : RUN yum install httpd -y
--> Running in c49226c73d6
CentOS Linux 8 - AppStream                2.0 MB/s | 9.5 MB    00:04
CentOS Linux 8 - BaseOS                  1.2 MB/s | 7.5 MB    00:06
CentOS Linux 8 - Extras                   5.5 kB/s | 10 kB    00:01
Dependencies resolved.
Package Arch Version Repo Size
Installing:
httpd x86_64 2.4.37-39.module_el8.4.0+577e6ac.1 appstream 1.4 M
Installing dependencies:
apr x86_64 1.6.3-11.el8 appstream 125 k
apr-util x86_64 1.6.1-6.el8 appstream 105 k
brotli x86_64 1.0.6-3.el8 baseso 323 k
```

Oct 29 2005

```
root@localhost assessment3# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
dhuh v1 43900114000f About a minute ago 286MB
cmcentry 1.1 d888b1bd0104 4 hours ago 231MB
cmd 1.0 ece057e230c5 4 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
web1 1.1 3539a837998b 8 hours ago 231MB
httpd latest 1132a4fc88fa 7 days ago 143MB
nginx latest 87a94228f133 2 weeks ago 133MB
centos latest 5d0da3dc9764 6 weeks ago 231MB
root@localhost assessment3# docker run -d --name asses2 -p 9095:80 dhuh:v1
Unable to find image 'dhuh:v1' locally
root@localhost assessment3# docker run -d --name asses2 -p 9095:80 dhuh:v1
9035ba24df6dc7272e4493509ef81e705423b51baaa81610815b9f346ff721a1
root@localhost assessment3# docker exec -it asses2 bash
root@0e35ba24df6d /# cd
root@0e35ba24df6d /# ls
assignment copy_remove_move file1.sh log pipeline.txt
root@0e35ba24df6d /# cd /var/www
root@0e35ba24df6d /var/www# ls
cgi-bin html
root@0e35ba24df6d /var/www# cd html
root@0e35ba24df6d /var/www/html# ls
index.html
root@0e35ba24df6d /var/www/html# cat >>index.html
** It's my second docker repository on docker hub. Keep an eye on this repository for more updates. **
root@0e35ba24df6d /var/www/html# exit
exit
root@localhost assessment3# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
dhuh v1 43900114000f 3 minutes ago 286MB
cmcentry 1.1 d888b1bd0104 4 hours ago 231MB
cmd 1.0 ece057e230c5 4 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
web1 1.1 3539a837998b 8 hours ago 231MB
httpd latest 1132a4fc88fa 7 days ago 143MB
nginx latest 87a94228f133 2 weeks ago 133MB
centos latest 5d0da3dc9764 6 weeks ago 231MB
root@localhost assessment3# docker tag dhuh:v1 kshiti_j34
-bash: /: is a directory
root@localhost assessment3# docker tag dhuh:v1 kshiti_j34/docker_pract1:httpd_Kshiti_j
root@localhost assessment3# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: kshiti_j34
Password:
Error response from daemon: Get "https://registry-1.docker.io/v2/": unauthorized: incorrect username or password
root@localhost assessment3# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: kshiti_j34
Password:
Error response from daemon: Get "https://registry-1.docker.io/v2/": unauthorized: incorrect username or password
root@localhost assessment3# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: kshiti_j34
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
Login Succeeded
root@localhost assessment3# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
kshiti_j34/docker_pract1 httpd_Kshiti_j 43900114000f 8 minutes ago 286MB
dhuh v1 43900114000f 8 minutes ago 286MB
kshiti_j34 latest 43900114000f 8 minutes ago 286MB
cmcentry 1.1 d888b1bd0104 4 hours ago 231MB
cmd 1.0 ece057e230c5 4 hours ago 231MB
lab5 1.0 2f6b8b2a15db 8 hours ago 231MB
web1 1.1 3539a837998b 8 hours ago 231MB
httpd latest 1132a4fc88fa 7 days ago 143MB
nginx latest 87a94228f133 2 weeks ago 133MB
centos latest 5d0da3dc9764 6 weeks ago 231MB
root@localhost assessment3# docker push kshiti_j34/docker_pract1
Using default tag: latest
The push refers to repository [docker.io/kshiti_j34/docker_pract1]
tag does not exist: kshiti_j34/docker_pract1:latest
root@localhost assessment3# docker push kshiti_j34/docker_pract1:httpd_Kshiti_j
The push refers to repository [docker.io/kshiti_j34/docker_pract1]
5d0a3f11ed5f: Pushed
74e6b772f59a: Pushed
cdbe69e65ca4: Pushed
74dd0ec08fa: Layer already exists
httpd_Kshiti_j: digest: sha256:84eca568879c001ea419e367c4515a530e38014c63794f89ba39715202f15b size: 1155
root@localhost assessment3#
```

Question 4:- What is difference between Entrypoint and CMD?

Solution: - The main difference between these two is that, if we are executing any command through ENTRYPOINT then it will concatenate it with the previous executed command with the latest command. Whereas if we are using CMD then it will consider the latest over the previous and execute the latest command only. It will overwrite the previous commands.

```
cat: entrpoint.df: No such file or directory
[root@localhost assessment4]# cat entrpoint.df
#Checking entrpoint
FROM centos:latest

ENTRYPOINT ["echo","This is Entrypoint.."]

[root@localhost assessment4]# cat cmd.df
# Checking CMD
FROM centos:latest

CMD ["echo","This is Cmd.."]

[root@localhost assessment4]# docker build -f cmd.df -t cmd:v1
Sending build context to Docker daemon 3.072kB
Step 1/2: FROM centos:latest
--> 5d0da3dc9764
Step 2/2: CMD ["echo","This is Cmd.."]
--> Running in 4f5b45d9b46b
Removing intermediate container 4f5b45d9b46b
--> aceb8d7b9afa
Successfully built aceb8d7b9afa
Successfully tagged cmd:v1
[root@localhost assessment4]# docker build -f entrpoint.df -t entry:v1
Sending build context to Docker daemon 3.072kB
Step 1/2: FROM centos:latest
--> 5d0da3dc9764
Step 2/2: ENTRYPOINT ["echo","This is Entrypoint.."]
--> Running in 82c54b0bf543
Removing intermediate container 82c54b0bf543
--> c881ab8d1cd2
Successfully built c881ab8d1cd2
Successfully tagged entry:v1
[root@localhost assessment4]# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
cmd                  v1                 aceb8d7b9afa        22 seconds ago     231MB
kshiti34/docker_prac1 httpd_kshiti34     43900114000f        About an hour ago  286MB
dhub                 v1                 43900114000f        About an hour ago  286MB
kshiti34             latest             43900114000f        About an hour ago  286MB
cmdentry             1.1                dd88b1bd0104        5 hours ago        231MB
cmd                  1.0                ece057e230c5        5 hours ago        231MB
vol                  lab6               9c8c6c09e3c6        8 hours ago        231MB
lab5                 1.0                2f6b8b2a15db        9 hours ago        231MB
web1                 1.1                3539a837998b        10 hours ago       231MB
htpdp                latest             1132a4fc88fa        7 days ago         143MB
nginx                latest             87a94228f133        2 weeks ago        133MB
centos                latest             5d0da3dc9764        6 weeks ago        231MB
[root@localhost assessment4]#

[root@localhost]# docker logs cmdcont
This is Cmd..
[root@localhost]# docker logs entrycont
This is Entrypoint..
[root@localhost]# docker logs entrycont1
This is Entrypoint.. Good
[root@localhost]# docker rm -f cmdcont1
cmdcont1
[root@localhost]# docker rm -f cmdcont2
cmdcont2
[root@localhost]# docker run -d --name cmdcont1 cmd:v1 hostname
9ed1015fb7fb6774c855eaa1a515a3adc0e56def9d84cdf15b2bf1afa59279d3
[root@localhost]# docker logs cmdcont1
9ed1015fb7fb
[root@localhost]# ls
100          assessment4  bind          docker_image  linux         pipeline.txt
anaconda-ks.cfg assignment  copy_remove_move file1.sh      log           sha1.sh
assessment3  a.txt      data          file2.sh      logs
[root@localhost]# cd assessment4
[root@localhost assessment4]# ls
cmd.df  entrpoint.df
[root@localhost assessment4]# cat cmd.df
#Checking CMD
FROM centos:latest

CMD ["echo","This is Cmd.."]

[root@localhost assessment4]# cat entrpoint.df
#Checking entrpoint
FROM centos:latest

ENTRYPOINT ["echo","This is Entrypoint.."]

[root@localhost assessment4]# docker ps -a
CONTAINER ID        IMAGE               COMMAND                  NAMES             CREATED             STATUS
9ed1015fb7fb       cmd:v1             "hostname"              cmdcont1          40 seconds ago     Exited (0) 40 seconds ago
0080bbac2e9        entry:v1           "echo 'This is Entry..'" entrycont1         16 minutes ago     Exited (0) 16 minutes ago
a0a24e24be96       entry:v1           "echo 'This is Entry..'" entrycont          16 minutes ago     Exited (0) 16 minutes ago
27c1cab27316       cmd:v1             "echo 'This is Cmd..'"  cmdcont           17 minutes ago     Exited (0) 17 minutes ago
0e35ba24df6d       dhub:v1            "httpd -D FOREGROUND"   httpd             2 hours ago        Up 2 hours
0.0.0.0-9095->80/tcp. ::9095->80/tcp       asses2             2 hours ago        Up 2 hours
fe841ae907fe       nginx              "/docker-entrypoint. ..." asses2             2 hours ago        Up 2 hours
80/tcp
```