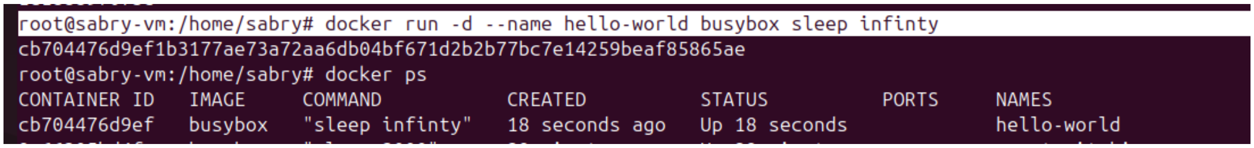
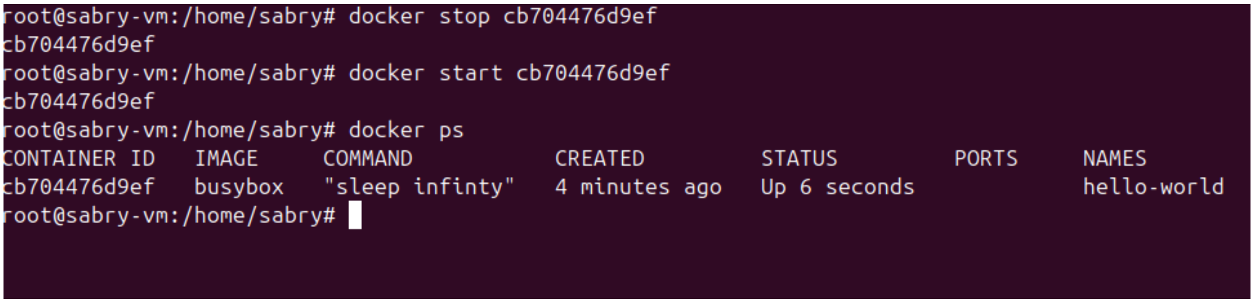
Task 1

- **Run the container hello-world**
- **Check the container status**



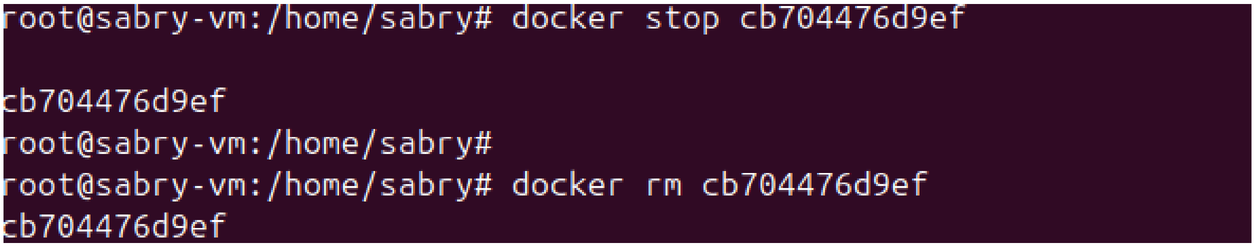
```
root@sabry-vm:/home/sabry# docker run -d --name hello-world busybox sleep infinty
cb704476d9ef1b3177ae73a72aa6db04bf671d2b2b77bc7e14259beaf85865ae
root@sabry-vm:/home/sabry# docker ps
CONTAINER ID   IMAGE     COMMAND            CREATED          STATUS          PORTS     NAMES
cb704476d9ef   busybox   "sleep infinty"    18 seconds ago   Up 18 seconds             hello-world
```

- **Start the stopped container**



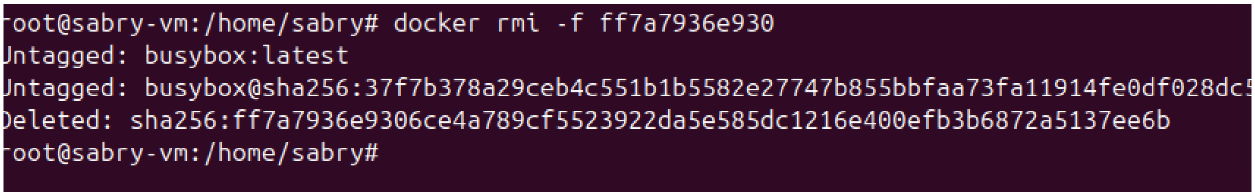
```
root@sabry-vm:/home/sabry# docker stop cb704476d9ef
cb704476d9ef
root@sabry-vm:/home/sabry# docker start cb704476d9ef
cb704476d9ef
root@sabry-vm:/home/sabry# docker ps
CONTAINER ID   IMAGE     COMMAND            CREATED         STATUS         PORTS     NAMES
cb704476d9ef   busybox   "sleep infinty"    4 minutes ago   Up 6 seconds             hello-world
root@sabry-vm:/home/sabry#
```

- **Remove the container**



```
root@sabry-vm:/home/sabry# docker stop cb704476d9ef

cb704476d9ef
root@sabry-vm:/home/sabry#
root@sabry-vm:/home/sabry# docker rm cb704476d9ef
cb704476d9ef
```

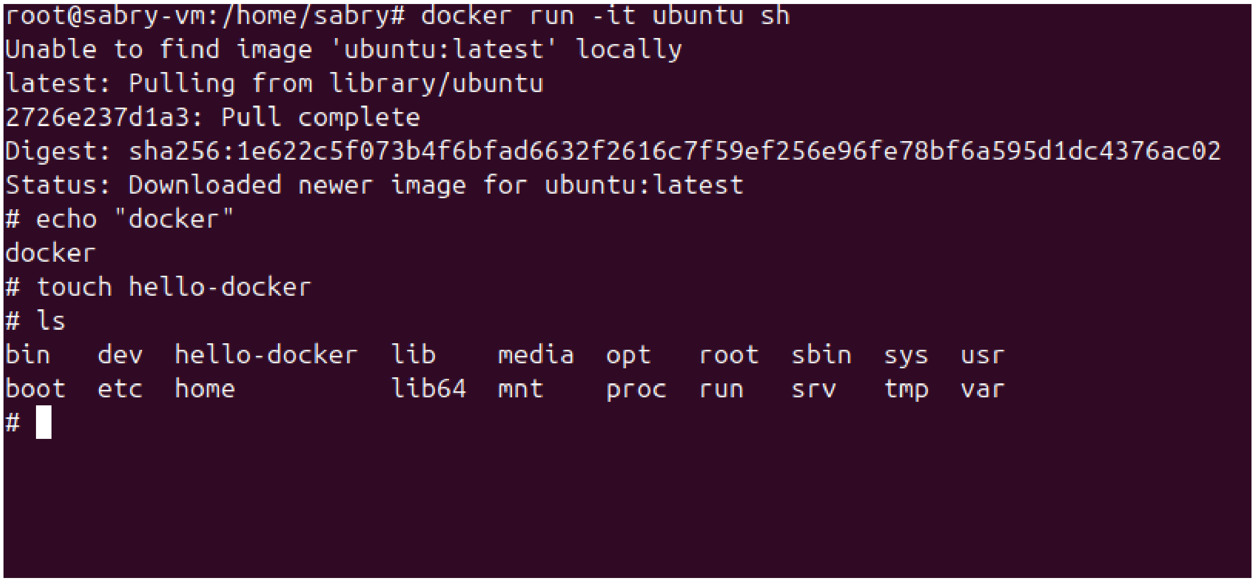
- **Remove the image**



```
root@sabry-vm:/home/sabry# docker rmi -f ff7a7936e930
Untagged: busybox:latest
Untagged: busybox@sha256:37f7b378a29ceb4c551b1b5582e27747b855bbfaa73fa11914fe0df028dc5
Deleted: sha256:ff7a7936e9306ce4a789cf5523922da5e585dc1216e400efb3b6872a5137ee6b
root@sabry-vm:/home/sabry#
```

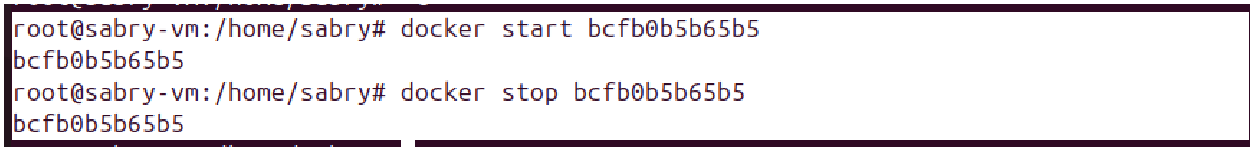
Task 2

- **Run container centos or ubuntu in an interactive mode**
- **Run the following command in the container “echo docker ”**
- **Open a bash shell in the container and touch a file named hello-docker**



```
root@sabry-vm:/home/sabry# docker run -it ubuntu sh
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
2726e237d1a3: Pull complete
Digest: sha256:1e622c5f073b4f6bfad6632f2616c7f59ef256e96fe78bf6a595d1dc4376ac02
Status: Downloaded newer image for ubuntu:latest
# echo "docker"
docker
# touch hello-docker
# ls
bin   dev  hello-docker  lib    media  opt   root  sbin  sys  usr
boot  etc  home          lib64  mnt    proc  run   srv   tmp  var
# 
```

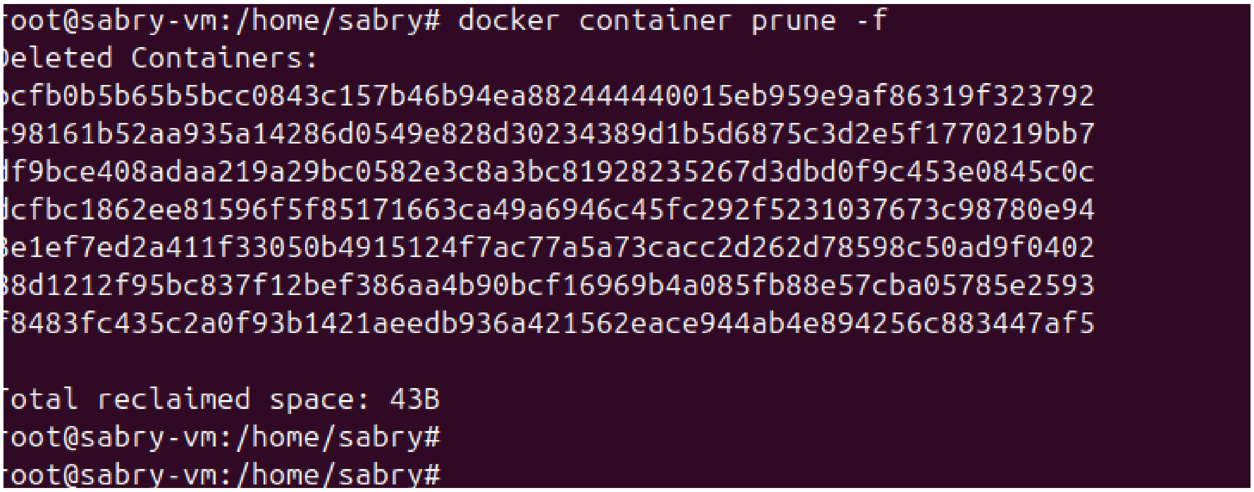
- **Stop the container and remove it. Write your comment about the file hello-docker**



```
root@sabry-vm:/home/sabry# docker start bcfb0b5b65b5
bcfb0b5b65b5
root@sabry-vm:/home/sabry# docker stop bcfb0b5b65b5
bcfb0b5b65b5
```

Comment: The file hello-docker was created *inside* the container's filesystem. Once the container is removed, its filesystem is also deleted

- **Remove all stopped containers**



```
root@sabry-vm:/home/sabry# docker container prune -f
Deleted Containers:
bcfb0b5b65b5bcc0843c157b46b94ea882444440015eb959e9af86319f323792
c98161b52aa935a14286d0549e828d30234389d1b5d6875c3d2e5f1770219bb7
df9bce408adaa219a29bc0582e3c8a3bc81928235267d3dbd0f9c453e0845c0c
dcfbc1862ee81596f5f85171663ca49a6946c45fc292f5231037673c98780e94
3e1ef7ed2a411f33050b4915124f7ac77a5a73cacc2d262d78598c50ad9f0402
38d1212f95bc837f12bef386aa4b90bcf16969b4a085fb88e57cba05785e2593
f8483fc435c2a0f93b1421aeedb936a421562eace944ab4e894256c883447af5

Total reclaimed space: 43B
root@sabry-vm:/home/sabry#
root@sabry-vm:/home/sabry#
```

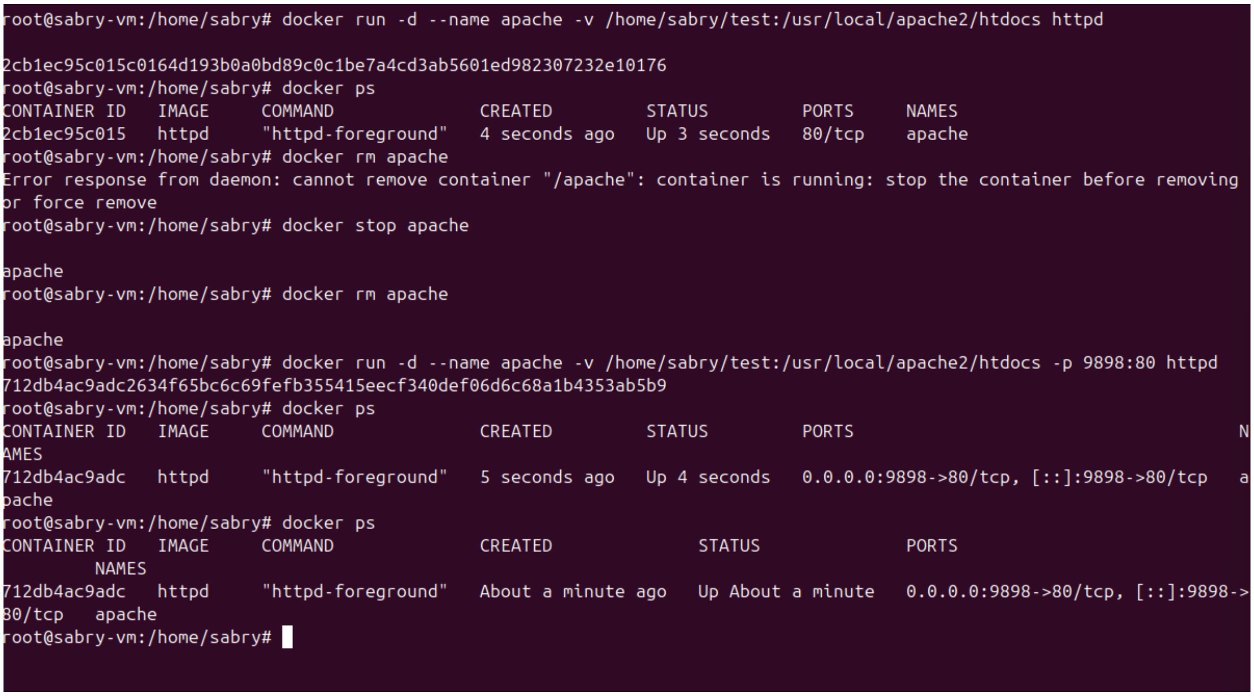
Task 3

- **Run a container httpd with name apache and attach a volume 2 volumes to the container**
- **Volume1 for containing static html file**
- **Volume2 for containing httpd configuration**
- **Remove the container**
- **Run a new container with the following:**

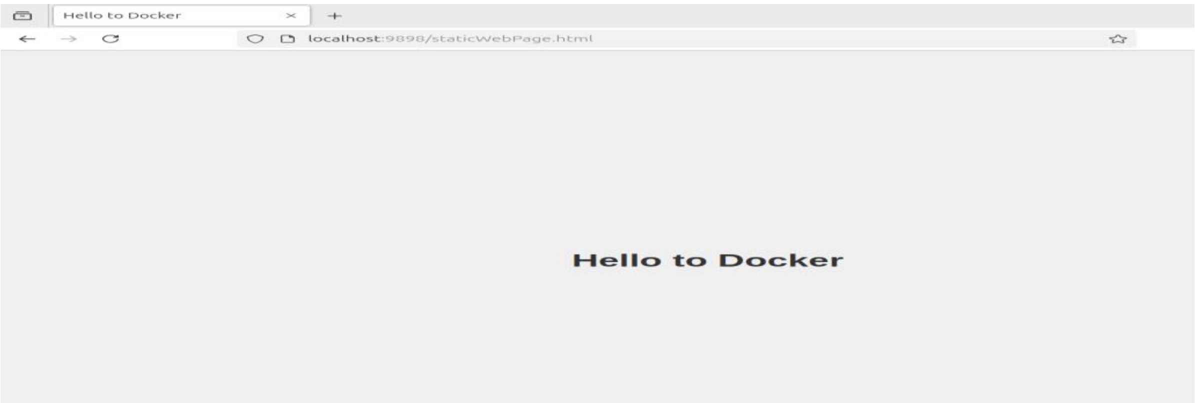
  Attach the 2 volumes that was attached to the previous container

  Map port 80 to port 9898 on you host machine

  Access the html files from your browser



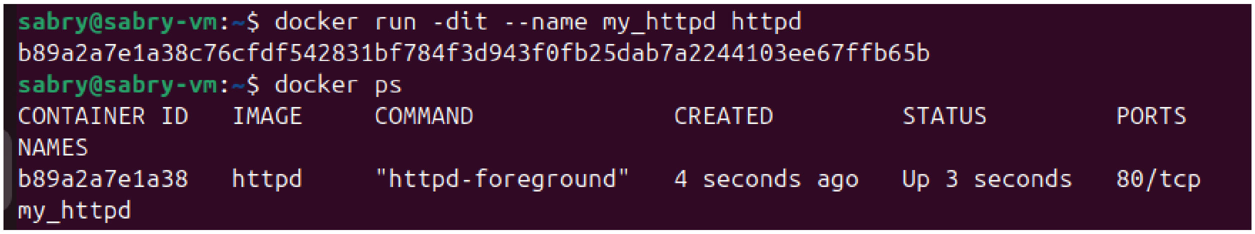
```
root@sabry-vm:/home/sabry# docker run -d --name apache -v /home/sabry/test:/usr/local/apache2/htdocs httpd

2cb1ec95c015c0164d193b0a0bd89c0c1be7a4cd3ab5601ed982307232e10176
root@sabry-vm:/home/sabry# docker ps
CONTAINER ID   IMAGE     COMMAND              CREATED         STATUS         PORTS     NAMES
2cb1ec95c015   httpd     "httpd-foreground"   4 seconds ago   Up 3 seconds   80/tcp    apache
root@sabry-vm:/home/sabry# docker rm apache
Error response from daemon: cannot remove container "/apache": container is running: stop the container before removing
or force remove
root@sabry-vm:/home/sabry# docker stop apache

apache
root@sabry-vm:/home/sabry# docker rm apache

apache
root@sabry-vm:/home/sabry# docker run -d --name apache -v /home/sabry/test:/usr/local/apache2/htdocs -p 9898:80 httpd
712db4ac9adc2634f65bc6c69fefb355415eecf340def06d6c68a1b4353ab5b9
root@sabry-vm:/home/sabry# docker ps
CONTAINER ID   IMAGE     COMMAND              CREATED         STATUS         PORTS                                     N
AMES
712db4ac9adc   httpd     "httpd-foreground"   5 seconds ago   Up 4 seconds   0.0.0.0:9898->80/tcp, [::]:9898->80/tcp   a
pache
root@sabry-vm:/home/sabry# docker ps
CONTAINER ID   IMAGE     COMMAND              CREATED              STATUS              PORTS
        NAMES
712db4ac9adc   httpd     "httpd-foreground"   About a minute ago   Up About a minute   0.0.0.0:9898->
80/tcp   apache
root@sabry-vm:/home/sabry# 
```



Hello to Docker

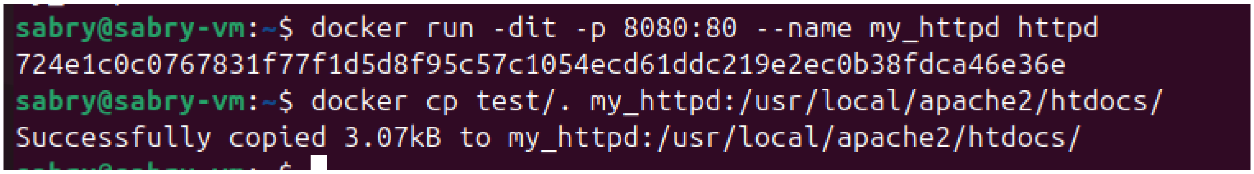
Task 4

- Run the image httpd again without attaching any volumes



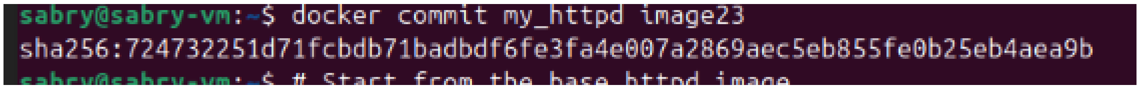
```
sabry@sabry-vm:~$ docker run -dit --name my_httpd httpd
b89a2a7e1a38c76cfdf542831bf784f3d943f0fb25dab7a2244103ee67ffb65b
sabry@sabry-vm:~$ docker ps
CONTAINER ID   IMAGE     COMMAND              CREATED         STATUS         PORTS
NAMES
b89a2a7e1a38   httpd     "httpd-foreground"   4 seconds ago   Up 3 seconds   80/tcp
my_httpd
```

- Add html static files to the container and make sure they are accessible



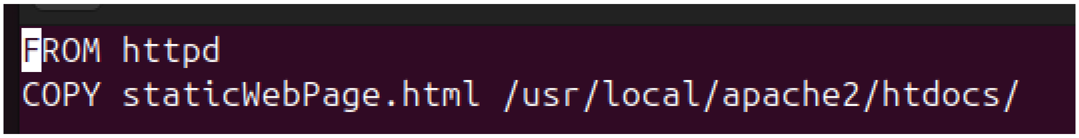
```
sabry@sabry-vm:~$ docker run -dit -p 8080:80 --name my_httpd httpd
724e1c0c0767831f77f1d5d8f95c57c1054ecd61ddc219e2ec0b38fdca46e36e
sabry@sabry-vm:~$ docker cp test/. my_httpd:/usr/local/apache2/htdocs/
Successfully copied 3.07kB to my_httpd:/usr/local/apache2/htdocs/
```

- Commit the container with image name IMAGE_NAME

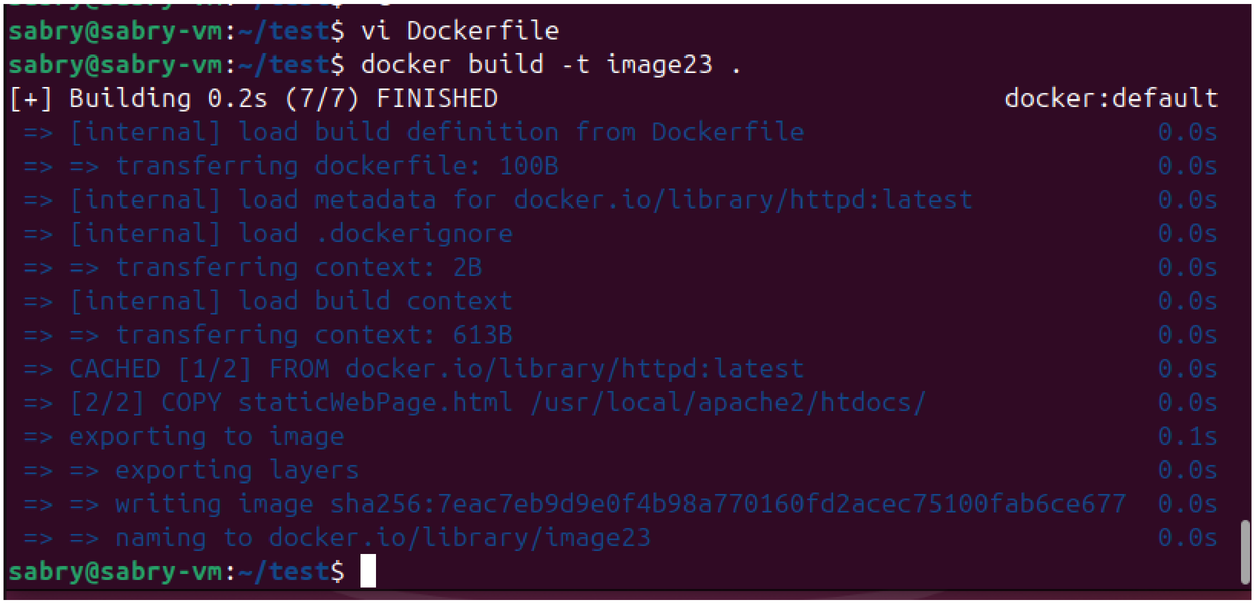


```
sabry@sabry-vm:~$ docker commit my_httpd image23
sha256:724732251d71fcbdb71badbdf6fe3fa4e007a2869aec5eb855fe0b25eb4aea9b
sabry@sabry-vm:~$ # Start from the base httpd image
```

- Create a dockerfile for the previous image and build the image from this dockerfile



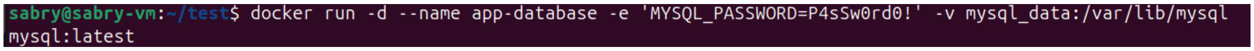
```
FROM httpd
COPY staticWebPage.html /usr/local/apache2/htdocs/
```



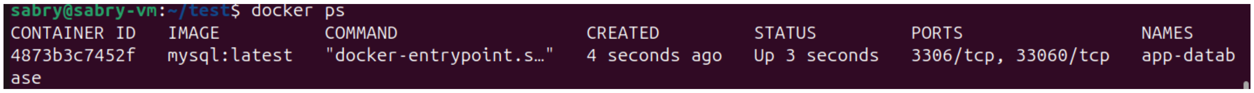
```
sabry@sabry-vm:~/test$ vi Dockerfile
sabry@sabry-vm:~/test$ docker build -t image23 .
[+] Building 0.2s (7/7) FINISHED                                docker:default
 => [internal] load build definition from Dockerfile                      0.0s
 => => transferring dockerfile: 100B                                      0.0s
 => [internal] load metadata for docker.io/library/httpd:latest           0.0s
 => [internal] load .dockerignore                                         0.0s
 => => transferring context: 2B                                           0.0s
 => [internal] load build context                                         0.0s
 => => transferring context: 613B                                         0.0s
 => CACHED [1/2] FROM docker.io/library/httpd:latest                      0.0s
 => [2/2] COPY staticWebPage.html /usr/local/apache2/htdocs/              0.0s
 => exporting to image                                                    0.1s
 => => exporting layers                                                   0.0s
 => => writing image sha256:7eac7eb9d9e0f4b98a770160fd2acec75100fab6ce677  0.0s
 => => naming to docker.io/library/image23                                0.0s
sabry@sabry-vm:~/test$
```

Task 5

- **Create a volume called mysql_data, then deploy a MySQL database called app-database. Use the mysql latest image, and use the -e flag to set MYSQL_ROOT_PASSWORD to P4sSw0rd0!.M ount the mysql_data volume to /var/lib/mysql. The container should run in the background.**



```
sabry@sabry-vm:~/test$ docker run -d --name app-database -e 'MYSQL_PASSWORD=P4sSw0rd0!' -v mysql_data:/var/lib/mysql
mysql:latest
```



```
sabry@sabry-vm:~/test$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED         STATUS         PORTS                 NAMES
4873b3c7452f   mysql:latest   "docker-entrypoint.s…"   4 seconds ago   Up 3 seconds   3306/tcp, 33060/tcp   app-datab
ase
```