DOCKER - LAB 1

Setup:

1.0 Running your first container

1.1 Docker Run

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker run alpine ls -l
total 56
drwxr-xr-x    2 root     root          4096 Dec  7 09:43 bin
drwxr-xr-x    5 root     root           340 Jan 14 21:47 dev
drwxr-xr-x    1 root     root          4096 Jan 14 21:47 etc
drwxr-xr-x    2 root     root          4096 Dec  7 09:43 home
drwxr-xr-x    7 root     root          4096 Dec  7 09:43 lib
drwxr-xr-x    5 root     root          4096 Dec  7 09:43 media
drwxr-xr-x    2 root     root          4096 Dec  7 09:43 mnt
drwxr-xr-x    2 root     root          4096 Dec  7 09:43 opt
dr-xr-xr-x  244 root     root             0 Jan 14 21:47 proc
drwx------    2 root     root          4096 Dec  7 09:43 root
drwxr-xr-x    2 root     root          4096 Dec  7 09:43 run
drwxr-xr-x    2 root     root          4096 Dec  7 09:43 sbin
drwxr-xr-x    2 root     root          4096 Dec  7 09:43 srv
dr-xr-xr-x   11 root     root             0 Jan 14 21:47 sys
drwxrwxrwt    2 root     root          4096 Dec  7 09:43 tmp
drwxr-xr-x    7 root     root          4096 Dec  7 09:43 usr
drwxr-xr-x   12 root     root          4096 Dec  7 09:43 var
```

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker run alpine echo "hello from alpine"  ←
hello from alpine

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker run alpine /bin/sh

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker run -it alpine /bin/sh  ←
/ # ls
bin   dev   etc   home  lib   media mnt   opt   proc  root  run   sbin  srv   sys   tmp   usr   var
/ # uname -a
Linux 63c9e53667f8 5.15.133.1-microsoft-standard-WSL2 #1 SMP Thu Oct 5 21:02:42 UTC 2023 x86_64 Linux
/ # exit
```

2.0 Webapps with Docker

2.1 Run a static website in a container

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker run -d dockersamples/static-site
Unable to find image 'dockersamples/static-site:latest' locally
latest: Pulling from dockersamples/static-site
fdd5d7827f33: Pull complete
a3ed95caeb02: Pull complete
716f7a5f3082: Pull complete
7b10f03a0309: Pull complete
aff3ab7e9c39: Pull complete
Digest: sha256:daa686c61d7d239b7977e72157997489db49f316b9b9af3909d9f10fd28b2dec
Status: Downloaded newer image for dockersamples/static-site:latest
5c572c8a82d0a8199aea6c24878c341ccb2013f8389cf6a621e098be97cf2254
```

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker run --name static-site-2 -e AUTHOR="Shehroz Waseem - 101501973" -d -p 8888:80 dockersamples/static-site
50334a49eb66afe00e7e2ba54ebce819594d132ef4467bc63d3e872bea1e192a

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker ps
CONTAINER ID   IMAGE                        COMMAND                CREATED          STATUS          PORTS                              NAMES
50334a49eb66   dockersamples/static-site    "/bin/sh -c 'cd /usr…" 10 seconds ago   Up 9 seconds    443/tcp, 0.0.0.0:8888->80/tcp      static-site-2
5c572c8a82d0   dockersamples/static-site    "/bin/sh -c 'cd /usr…" 4 minutes ago    Up 4 minutes    80/tcp, 443/tcp                    cool_ardinghelli
```

← → C ⓘ localhost:8888

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Hello Shehroz Waseem - 101501973!

This is being served from a **docker**
container running Nginx.

Activate Windows
Go to Settings to activate Windows.

2.2 Docker Images

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker images
REPOSITORY                 TAG        IMAGE ID        CREATED        SIZE
node-app                   latest     4106734130dd    2 days ago     919MB
<none>                     <none>     e2ce16c1906f    3 days ago     90.1MB
<none>                     <none>     e300a59cc624    3 days ago     90.1MB
alpine                     latest     f8c20f8bbcb6    5 weeks ago    7.38MB
hello-world                latest     d2c94e258dcb    8 months ago   13.3kB
dockersamples/static-site  latest     f589ccde7957    7 years ago    191MB
```
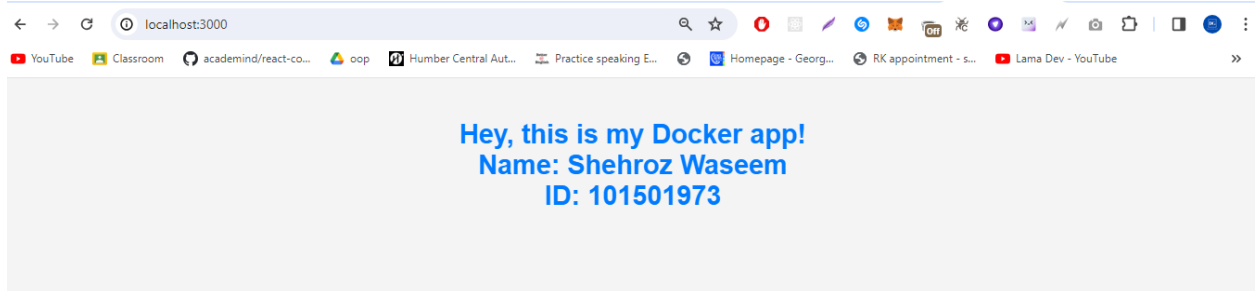
2.3 Create your first image

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker build -t my-first-node-app .
[+] Building 2.1s (10/10) FINISHED
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 388B
 => [internal] load metadata for docker.io/library/node:14
 => [1/5] FROM docker.io/library/node:14@sha256:a158d3b9b4e3fa813fa6c8c590b8f0a860e015ad4e59bbce5744d2f6fd8461aa
 => [internal] load build context
 => => transferring context: 64.45kB
 => CACHED [2/5] WORKDIR /usr/src/app
 => CACHED [3/5] COPY package*.json ./
 => CACHED [4/5] RUN npm install
 => [5/5] COPY . .
 => exporting to image
 => => exporting layers
 => => writing image sha256:ae46eade5ac3e9f7a289c52b424b40f57c9c78bea599f2b49f2db579023d7cff
 => => naming to docker.io/library/my-first-node-app

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview
```

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker run -p 3000:3000 -d my-first-node-app
993c6e98fd0e32d4a15e57735c8d1f0bec73516e419c2898bc8778908d69fe35

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker ps -all
CONTAINER ID   IMAGE              COMMAND                CREATED         STATUS          PORTS                     NAMES
993c6e98fd0e   my-first-node-app  "docker-entrypoint.s…" 5 seconds ago   Up 5 seconds    0.0.0.0:3000->3000/tcp    competent_stonebraker
```

Activate Windows
Go to Settings to activate Windows.

Hey, this is my Docker app!
Name: Shehroz Waseem
ID: 101501973

2.3.4 Push your image

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032\Lab 1>docker push shehroz85waseem/my-first-node-app
Using default tag: latest
The push refers to repository [docker.io/shehroz85waseem/my-first-node-app]
63c3ea01063c: Pushed
665506475a85: Pushed
0345f8e1fea6: Pushed
b5d87adc1397: Pushed
0d5f5a015e5d: Pushed
3c777d951de2: Pushed
f8a91dd5fc84: Pushed
cb81227abde5: Pushed
e01a454893a9: Pushed
c45660adde37: Pushed
fe0fb3ab4a0f: Pushed
f1186e5061f2: Pushed
b2dba7477754: Pushed
latest: digest: sha256:c1cd38ab962865856aeac25251fb292ae7517d11a7745a45fb0ce5ee4161c208 size: 3053
```

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker ps
CONTAINER ID   IMAGE              COMMAND              CREATED         STATUS          PORTS                    NAMES
993c6e98fd0e   my-first-node-app  "docker-entrypoint.s…"  10 minutes ago  Up 10 minutes   0.0.0.0:3000->3000/tcp   competent_stonebraker

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker rm -f 99
99

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
```

3.0 Deploying an app to a Swarm

3.1 Deploying the app

```
C:\Windows\System32\cmd.exe                                              —    □    ✕

Microsoft Windows [Version 10.0.19045.3930]
(c) Microsoft Corporation. All rights reserved.

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>git clone https://github.com/docker/example-voting-app.git
Cloning into 'example-voting-app'...
remote: Enumerating objects: 1132, done.
remote: Total 1132 (delta 0), reused 0 (delta 0), pack-reused 1132
 KiB/s
Receiving objects: 100% (1132/1132), 1.17 MiB | 778.00 KiB/s, done.
Resolving deltas: 100% (432/432), done.

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>cd example-voting-appcd example-voting-app
The system cannot find the path specified.

C:\Users\shehr\OneDrive\Desktop\BCVD 4032>cd example-voting-app

C:\Users\shehr\OneDrive\Desktop\BCVD 4032\example-voting-app>docker swarm init
Swarm initialized: current node (gm0eoxg5d3cwjmd6noh2n9yf3) is now a manager.

To add a worker to this swarm, run the following command:

    docker swarm join --token SWMTKN-1-25du58wyfja6x8qszhc0279kpmah701tddiqhgedcl59uo2o6m-6dlnwjgkixtccv8haz8pahgde 192.
168.65.3:2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.
```

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032\example-voting-app>docker stack deploy --compose-file docker-stack.yml vote
Creating network vote_frontend
Creating network vote_backend
Creating service vote_result
Creating service vote_worker
Creating service vote_redis
Creating service vote_db
Creating service vote_vote
```

```
C:\Users\shehr\OneDrive\Desktop\BCVD 4032\example-voting-app>docker stack services vote
ID             NAME             MODE         REPLICAS   IMAGE                                            PORTS
liyzsflsp0hs   vote_db          replicated   0/1        postgres:9.4
orauhblp7glb   vote_redis       replicated   2/2        redis:alpine                                     *:30000->6379/tc
p
mr0nx3n9is32   vote_result      replicated   1/1        dockersamples/examplevotingapp_result:before     *:5001->80/tcp
a4y1edwnqmlj   vote_visualizer  replicated   0/1        dockersamples/visualizer:latest                  *:8080->8080/tcp
dub8qfqpjc5n   vote_vote        replicated   2/2        dockersamples/examplevotingapp_vote:before       *:5000->80/tcp
humdj9vrlg4c   vote_worker      replicated   1/1        dockersamples/examplevotingapp_worker:latest
```