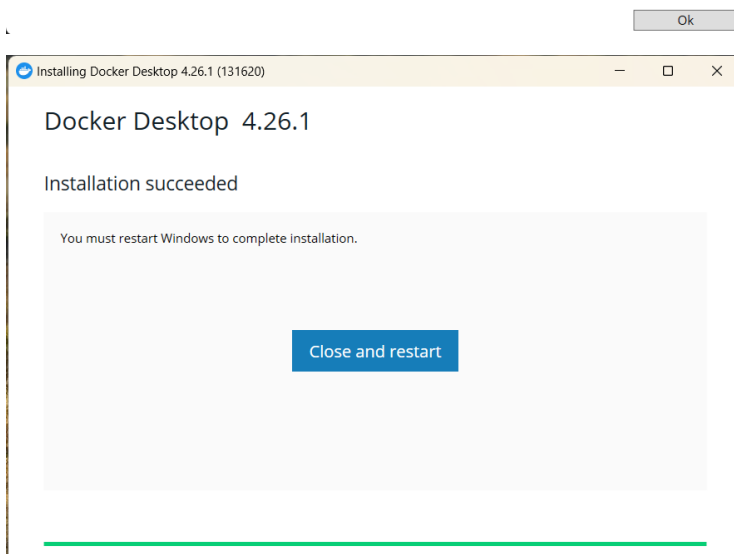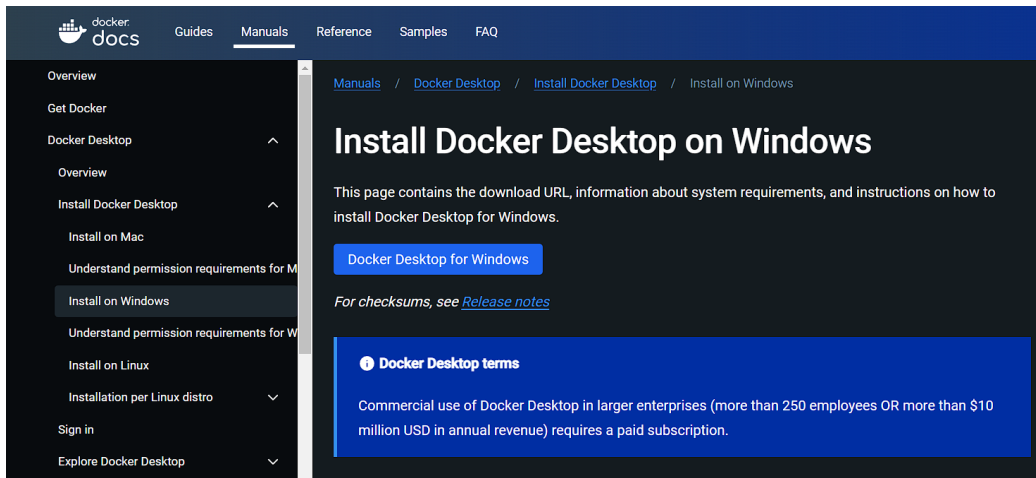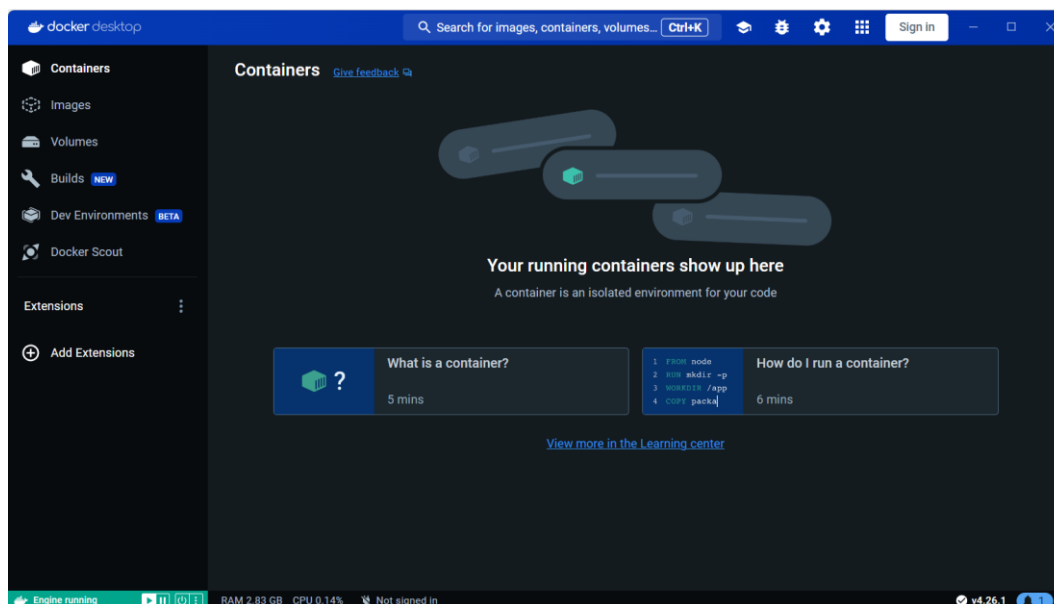# Lab 5 Assignment

To Explore Docker Container

1. Install Docker in your environment

2. Verify your Docker by looking up the version

```
C:\Users\harsh>docker version
Client:
 Cloud integration: v1.0.35+desktop.5
 Version:           24.0.6
 API version:       1.43
 Go version:        go1.20.7
 Git commit:        ed223bc
 Built:             Mon Sep  4 12:32:48 2023
 OS/Arch:           windows/amd64
 Context:           default

Server: Docker Desktop 4.24.2 (124339)
 Engine:
  Version:          24.0.6
  API version:      1.43 (minimum version 1.12)
  Go version:       go1.20.7
  Git commit:       1a79695
  Built:            Mon Sep  4 12:32:16 2023
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.6.22
  GitCommit:        8165feabfdfe38c65b599c4993d227328c231fca
 runc:
  Version:          1.1.8
  GitCommit:        v1.1.8-0-g82f18fe
 docker-init:
  Version:          0.19.0
```

3. Run a hello-world container

```
(base) PS C:\Users\harsh> docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
c1ec31eb5944: Pull complete
Digest: sha256:4bd78111b6914a99dbc560e6a20eab57ff6655aea4a80c50b0c5491968cbc2e6
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
 $ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
 https://hub.docker.com/

For more examples and ideas, visit:
 https://docs.docker.com/get-started/
```

4. Verify the hello-world image

```
(base) PS C:\Users\harsh> docker images
REPOSITORY                        TAG                                       IMAGE ID        CREATED         SIZE
shaharsh624/test_app_video        latest                                    5c0f51298cff    3 months ago    1.1GB
<none>                            <none>                                    793300de7692    5 months ago    918MB
docker/welcome-to-docker          latest                                    912b66cfd46e    7 months ago    13.4MB
nginx                             1.23                                      a7be6198544f    8 months ago    142MB
hello-world                       latest                                    d2c94e258dcb    9 months ago    13.3kB
nginx/docker-extension            0.0.3                                     41d3d0d7d940    9 months ago    7.53MB
alpine                            3.16.3                                    bfe296a52501    14 months ago   5.54MB
docker/dev-environments-default   stable-1                                  7eb85f44c229    16 months ago   610MB
crazymax/linguist                 7.20.0                                    dc5f9ae3be6a    20 months ago   72.2MB
docker/desktop-git-helper         5a4fca126aadcd3f6cc3a011aa991de982ae7000  efe2d67c403b    2 years ago     44.2MB
```

5. Get the sample application

```
C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing
\LAB\Practical_5>git clone https://github.com/docker/getting-started-a
pp.git
Cloning into 'getting-started-app'...
remote: Enumerating objects: 68, done.
remote: Counting objects: 100% (31/31), done.
remote: Compressing objects: 100% (22/22), done.
remote: Total 68 (delta 10), reused 9 (delta 9), pack-reused 37Receivi
ng objects:  92% (63/68), 1.58 MiB | 1.00 MiB/s
Receiving objects: 100% (68/68), 1.75 MiB | 900.00 KiB/s, done.
Resolving deltas: 100% (11/11), done.
```

6. Run the application on the Docker

a. Build the Docker Image

```
C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing
\LAB\Practical_5>cd getting-started-app

C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing
\LAB\Practical_5\getting-started-app>type nul > Dockerfile

C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing
\LAB\Practical_5\getting-started-app>code .

C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing
\LAB\Practical_5\getting-started-app>docker build -t getting-started .
```

```
C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing\LAB\Practical_5\getting-started-app>docker build -t getting-started .
[+] Building 58.1s (10/10) FINISHED                                                          docker:default
 => [internal] load .dockerignore                                                                      0.0s
 => => transferring context: 2B                                                                        0.0s
 => [internal] load build definition from Dockerfile                                                   0.1s
 => => transferring dockerfile: 154B                                                                   0.0s
 => [internal] load metadata for docker.io/library/node:18-alpine                                      3.7s
 => [auth] library/node:pull token for registry-1.docker.io                                            0.0s
 => [1/4] FROM docker.io/library/node:18-alpine@sha256:0085670310d2879621f96a4216c893f92e2ded827e9e6ef8437672e1bd72f437   28.4s
 => => resolve docker.io/library/node:18-alpine@sha256:0085670310d2879621f96a4216c893f92e2ded827e9e6ef8437672e1bd72f437    0.0s
 => => sha256:c8eb770fbfacf54104162cc9035c478ddb7d8dc15dca5298af028257f1dbdb3f 7.14kB / 7.14kB         0.0s
 => => sha256:4abcf20661432fb2d719aaf90656f55c287f8ca915dc1c92ec14ff61e67fbaf8 3.41MB / 3.41MB         1.5s
 => => sha256:eb6c7c29ba4d368f2428cacd291f7821b750fac3b1fb65b937ef855c573cdf97 40.24MB / 40.24MB      25.7s
 => => sha256:3d4a65156edf0208c8421995310d9e662e7ee63e2bcae660efb02f6c4ddef6a9 2.34MB / 2.34MB         2.3s
 => => sha256:0085670310d2879621f96a4216c893f92e2ded827e9e6ef8437672e1bd72f437 1.43kB / 1.43kB         0.0s
 => => sha256:aacbcec05180c1dd8c33dba8a9c42b75dbfdd659aa57617497f1ce2c5d83d889 1.16kB / 1.16kB         0.0s
 => => extracting sha256:4abcf20661432fb2d719aaf90656f55c287f8ca915dc1c92ec14ff61e67fbaf8              0.2s
 => => sha256:5bdb6c27eb32087b71a9dde411c1f1eeb87563c0445f89db4eb7639d2cf50f45 450B / 450B             2.0s
 => => extracting sha256:eb6c7c29ba4d368f2428cacd291f7821b750fac3b1fb65b937ef855c573cdf97              2.2s
 => => extracting sha256:3d4a65156edf0208c8421995310d9e662e7ee63e2bcae660efb02f6c4ddef6a9              0.1s
 => => extracting sha256:5bdb6c27eb32087b71a9dde411c1f1eeb87563c0445f89db4eb7639d2cf50f45              0.0s
 => [internal] load build context                                                                     0.5s
 => => transferring context: 6.50MB                                                                    0.4s
 => [2/4] WORKDIR /app                                                                                 0.3s
 => [3/4] COPY . .                                                                                     0.1s
 => [4/4] RUN yarn install --production                                                               24.3s
 => exporting to image                                                                                 1.4s
 => => exporting layers                                                                                1.4s
 => => writing image sha256:a55ffbe50aeb5c4a9ba45c199f86f65183b2a8f0e04fd2453809f4ed64ebcd9a           0.0s
 => => naming to docker.io/library/getting-started                                                     0.0s
```

b. Verify the newly build image

```
C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing\LAB\Practical_5\getting-started-app>docker ps -a
CONTAINER ID   IMAGE         COMMAND      CREATED          STATUS                    PORTS    NAMES
3c1136c87876   hello-world   "/hello"     20 minutes ago   Exited (0) 20 minutes ago          sweet_khayyam
```

7. Run the Docker container

a. Run the container in the detached mode. Name the container "Test Sample".

```
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud
 Computing\LAB\Practical_5> docker run --detach --name TestSample gett
ing-started
239b6d77a42e1138802bd6e8f3e1b1ea7a49095ceff26fc314ecdcd423bab62a
```

```
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud
 Computing\LAB\Practical_5> docker run -dp 127.0.0.1:3000:3000 getting
-started
393ec96fa61aaafbcd4c8aa3cb8896190b50a506c8c47823f577eb4019e61af2
```

b. List all the running containers.

```
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud Computing\LAB\Practical_5> docker ps
CONTAINER ID   IMAGE            COMMAND               CREATED          STATUS          PORTS        NAMES
239b6d77a42e   getting-started  "docker-entrypoint.s…" 53 seconds ago   Up 52 seconds   3000/tcp     TestSample
```

c. Inspect the running containers

```
{
    "Id": "239b6d77a42e1138802bd6e8f3e1b1ea7a49095ceff26fc314ecdcd423bab62a",
    "Created": "2024-02-01T11:32:00.805207824Z",
    "Path": "docker-entrypoint.sh",
    "Args": [
        "node",
        "src/index.js"
    ],
    "State": {
        "Status": "running",
        "Running": true,
        "Paused": false,
        "Restarting": false,
        "OOMKilled": false,
        "Dead": false,
        "Pid": 3247,
        "ExitCode": 0,
        "Error": "",
        "StartedAt": "2024-02-01T11:32:01.278241859Z",
        "FinishedAt": "0001-01-01T00:00:00Z"
    },
    "Image": "sha256:a55ffbe50aeb5c4a9ba45c199f86f65183b2a8f0e04fd2453809f4ed64ebcd9a",
    "ResolvConfPath": "/var/lib/docker/containers/239b6d77a42e1138802bd6e8f3e1b1ea7a49095ceff26fc314ecdcd423bab62a/resolv.conf",
    "HostnamePath": "/var/lib/docker/containers/239b6d77a42e1138802bd6e8f3e1b1ea7a49095ceff26fc314ecdcd423bab62a/hostname",
    "HostsPath": "/var/lib/docker/containers/239b6d77a42e1138802bd6e8f3e1b1ea7a49095ceff26fc314ecdcd423bab62a/hosts",
    "LogPath": "/var/lib/docker/containers/239b6d77a42e1138802bd6e8f3e1b1ea7a49095ceff26fc314ecdcd423bab62a/239b6d77a42e113880
    "Name": "/TestSample",
```

d. Get the logs of "Test Sample" containers

```
2024-02-01 17:07:23 Using sqlite database at /etc/todos/todo.db
2024-02-01 17:07:23 Listening on port 3000
2024-02-01 17:11:55 Using sqlite database at /etc/todos/todo.db
2024-02-01 17:11:55 Listening on port 3000
```

8. Access the application

| New Item | Add Item |

No items yet! Add one above!

| New Item | Add Item |

☐ Task 1 🗑

☐ Task 2 🗑

9. Pushing and pulling an image to and from repository

```
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud
 Computing\LAB\Practical_5> docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
29202e855b20: Pull complete
Digest: sha256:e6173d4dc55e76b87c4af8db8821b1feae4146dd47341e4d431118c
7dd060a74
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
```

```
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud
 Computing\LAB\Practical_5> docker tag getting-started shaharsh624/sam
ple-app:v1.0
```

```
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud
 Computing\LAB\Practical_5> docker push shaharsh624/sample-app:v1.0
The push refers to repository [docker.io/shaharsh624/sample-app]
b685fe182fe3: Pushed
0627f971a9d6: Pushed
6c547c29af99: Pushed
b325b33b9813: Mounted from library/node
4a0d315ad53e: Mounted from library/node
29e213bad130: Mounted from library/node
d4fc045c9e3a: Mounted from library/node
v1.0: digest: sha256:e202253e711d5bc4e358bda354aae2b0795e6ef9b2f63bc3e
04871821dc85edf size: 1787
```

🔒 **shaharsh624 / sample-app**

Description

This is a Sample App 🖉

🕓 Last pushed: 2 minutes ago

Tags

This repository contains 1 tag(s).

Tag	OS	Type	Pulled	Pushed
● v1.0	🐧	Image	---	2 minutes ago

See all

10. Clean Up

```
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud
 Computing\LAB\Practical_5> docker stop 239b6d77a42e1138802bd6e8f3e1b1
ea7a49095ceff26fc314ecdcd423bab62a
239b6d77a42e1138802bd6e8f3e1b1ea7a49095ceff26fc314ecdcd423bab62a
(base) PS C:\Users\harsh\OneDrive - pdpu.ac.in\HARSH\_PDEU\SEM 6\Cloud
 Computing\LAB\Practical_5> docker stop 393ec96fa61aaafbcd4c8aa3cb8896
190b50a506c8c47823f577eb4019e61af2
393ec96fa61aaafbcd4c8aa3cb8896190b50a506c8c47823f577eb4019e61af2
```