

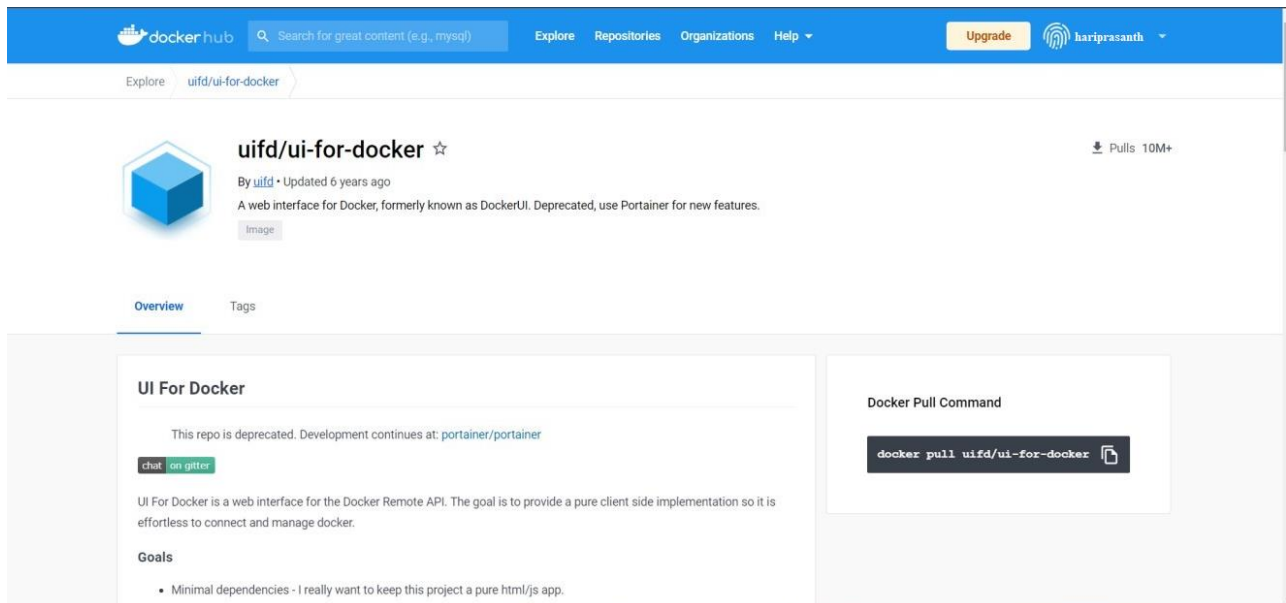
## Assignment 4

Assignment date	06 November 2022
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### Question 1:

Pull an image from docker hub and run it on docker playground.

### Solution 1:



The screenshot shows the Docker Hub interface for the repository `uifd/ui-for-docker`. The page includes a search bar, navigation links (Explore, Repositories, Organizations, Help), and a user profile (Upgrade, hariprasanth). The repository page features a blue cube icon, the name `uifd/ui-for-docker` with a star, and a note that it is deprecated. The description states: "A web interface for Docker, formerly known as DockerUI. Deprecated, use Portainer for new features." The page also shows a pull count of 10M+ and a section for the Docker Pull Command: `docker pull uifd/ui-for-docker`. The Overview tab is selected, showing a notice that the repo is deprecated and development continues at `portainer/portainer`. The Goals section lists: "Minimal dependencies - I really want to keep this project a pure html/js app."

## Docker playground:

The screenshot shows a web browser window with the URL `labs.play-with-docker.com/p/cdjth7m0qau000esrdp0#cdjth7m0_cdjthk60qau000esrdpg`. The interface is divided into several sections:

- Top Bar:** Displays a timer at 03:53:41, a "CLOSE SESSION" button, and a list of instances.
- Instances:** A sidebar on the left shows a single instance named "192.168.0.8" with the image "node1".
- Instance Details:** The main area shows details for the instance "cdjth7m0\_cdjthk60qau000esrdpg", including its IP (192.168.0.8), memory, CPU, and an SSH command: `ssh ip172-18-0-53-cdjth7m0qau000esrdp0@direct.labs.play`.
- Terminal:** A large terminal window at the bottom shows the following commands and output:

```
[model] (local) root@192.168.0.8 ~
$ docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
uifd/ui-for-docker  latest         965940f98fa5   6 years ago    8.1MB
[model] (local) root@192.168.0.8 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
ab4812e7bf2cde4f33b05baac16b2857aadb359141e1e8be944f7149b10c9a37
[model] (local) root@192.168.0.8 ~
$
```

## Docker UI:

The screenshot shows the Docker UI interface with the title "UI For Docker". The interface includes a navigation bar with tabs for Dashboard, Containers, Containers Network, Images, Networks, Volumes, and Info, along with a "Refresh" button.

The main content area is divided into two sections:

- Running Containers:** Displays a list of running containers, including "serene\_keller" which is "Up 17 seconds".
- Status:** A donut chart showing the status of containers. The chart is mostly green, indicating that most containers are running. A legend below the chart shows "Running" (green), "Stopped" (red), and "Ghost" (grey).

Below the status section, there are two line graphs:

- Containers created:** A line graph showing the number of containers created over time, with a peak of 1 on 04/11/2022.
- Images created:** A line graph showing the number of images created over time, with a peak of 1 on 04/11/2022.

## Question 2:

Create a docker file for the job portal app or hello world app and deploy it in docker desktop app.

## Solution 2:

### DockerFile

Dockerfile - Notepad

File Edit Format View Help

```
FROM python:3.8
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

### Bulid Docker image

```
C:\Windows\System32\cmd.exe

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker build -t hello-world .
[*] Building 160.4s (10/10) FINISHED
-> [internal] load build definition from Dockerfile
-> => transferring dockerfile: 194B
-> [internal] load .dockerignore
-> => transferring context: 2B
-> [internal] load metadata for docker.io/library/python:3.8
-> [1/5] FROM docker.io/library/python:3.8@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5
-> => resolve docker.io/library/python:3.8@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5
-> => sha256:908972ffecdc8c17c25b21573681851f092e054f57cccd7eb43937a1a47114480 8.56kB / 8.56kB
-> => sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 55.05MB / 55.05MB
-> => sha256:4edced0587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d 10.88MB / 10.88MB
-> => sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5 1.86kB / 1.86kB
-> => sha256:2341010fcf737e709a912ce9ad7480801a01e0e35ff1c5e7d6b0b640b0e1c3f 2.22kB / 2.22kB
-> => sha256:de4a4c6c9ea80801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 5.15MB / 5.15MB
-> => sha256:a7969cfff6466a91291fd76b19ecbe93c03ea4ded8014042aeb4c4c4211a43 54.59MB / 54.59MB
-> => sha256:74bf51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37 6.29MB / 6.29MB
-> => sha256:74bf51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37 196.87MB / 196.87MB
-> => sha256:16fe51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37 6.29MB / 6.29MB
-> => sha256:2b979a731384cf50dac8fd255d381b70020d67b69b45c1a2b6c3ea10b92636d4 17.39MB / 17.39MB
-> => sha256:aac34359fdb43308069ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1 234B / 234B
-> => extracting sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770
-> => sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397800b4637f72ce91b6 2.89MB / 2.89MB
-> => extracting sha256:de4a4c6c9ea80801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1
-> => extracting sha256:4edced0587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d
-> => extracting sha256:a7969cfff6466a91291fd76b19ecbe93c03ea4ded8014042aeb4c4c4211a43
-> => extracting sha256:74bf51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37
-> => extracting sha256:16fe51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578825eb37
-> => extracting sha256:2b979a731384cf50dac8fd255d381b70020d67b69b45c1a2b6c3ea10b92636d4
-> => extracting sha256:aac34359fdb43308069ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1
-> => extracting sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397800b4637f72ce91b6
-> [internal] load build context
-> => transferring context: 1.15kB
-> [2/5] WORKDIR /app
-> [3/5] ADD . /app
-> [4/5] COPY requirements.txt /app
-> [5/5] RUN python3 -m pip install -r requirements.txt
-> exporting to image
-> => exporting layers
-> => writing image sha256:f68fcdce5bb665f00e8f47bc4d137a4f7e0533348402c5bfdaad71121d7d43f63
-> => naming to docker.io/library/hello-world
```

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

## Deploy it on Docker hub

Docker Desktop

Upgrade plan

harpisanth

Containers

Images

Volumes

Dev Environments

Extensions

Add Extensions

Images on disk

Last refresh: Never 1 images Refresh to see disk usage Clean up

Images

LOCAL REMOTE REPOSITORIES

☐ In use only

NAME	TAG	IMAGE ID	CREATED	SIZE
hello-world	latest	f68fcdce5bb6	less than a minute ago	919.36 MB

RAM 3.66GB CPU 0.08% Connected to Hub

C:\Windows\System32\cmd.exe

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

hello-world latest f68fcdce5bb6 5 minutes ago 919MB

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker login

Authenticating with existing credentials...

Login Succeeded

Logging in with your password grants your terminal complete access to your account.

For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world itsmona14/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push itsmona14/hello-world

Using default tag: latest

The push refers to repository [docker.io/itsmona14/hello-world]

373eb5cf4ceb: Pushed

1e505dc1de5e: Pushed

090c85cb75c5: Pushed

ded8299b8f1a: Pushed

1fe0699af9f7: Mounted from library/python

156568a71809: Mounted from library/python

5fca8a94d542: Mounted from library/python

6b183c62e3d7: Mounted from library/python

882fd36bfd35: Mounted from library/python

d1dec9917839: Mounted from library/python

d38adf39e1dd: Mounted from library/python

4ed121b04368: Mounted from library/python

d9d07d703dd5: Mounted from library/python

latest: digest: sha256:46ff91edc98aaa5d7fff51ba708b6498af3c4f64612d9a990bf437497555fd82 size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>

## Tested it using Docker playground

03:09:45

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.13  
node1

cdi0ji60\_cdi18b63tccg00fmtsog

IP: 192.168.0.13

OPEN PORT: 5000

Memory: 27.73% (1.083GiB / 3.906GiB)

CPU: 0.16%

SSH: ssh ip172-18-0-40-cdi0ji60qau0008f9u80@direct.labs.play-...

DELETE EDITOR

```
1bd231713cc1: Pull complete
59ebc78c27fb: Pull complete
72f61f026f6a: Pull complete
b8ba28aaa452: Pull complete
Digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f
Status: Downloaded newer image for itsmona14/hello-world:latest
docker.io/itsmona14/hello-world:latest
[node1] (local) root@192.168.0.13 ~
$ docker run -p 5000:5000 itsmona14/hello-world
 * Serving Flask app 'app'
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5000
 * Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.18.0.1 - - [03/Nov/2022 19:24:35] "GET / HTTP/1.1" 200 -
```

## Question 3:

Create an IBM container registry and deploy helloworld app or job portal app.

## Solution 3:

My image link: [au.icr.io/hello-world-app/hello-world](https://au.icr.io/hello-world-app/hello-world)

```
Command Prompt - docker push au.icr.io/hello-world-app/helloworldapp

C:\Users\Monashree>ibmcloud plugin install container-registry
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Attempting to download the binary file...
11.90 MiB / 11.90 MiB [=====] 100.00% 5s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\Monashree\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry'
to show its details.

C:\Users\Monashree>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com

Email> 2019115055@smartinternz.com

Password>
Authenticating...
OK
Targeted account Monashree K's Account (302198646cc145ea8bc880cfb0a0d15d)

Select a region (or press enter to skip):
1. au-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 9
882fd36bfd35: Pushing [=====] 110.5MB/529MB
d1dec9917839: Pushing [=====] 79.9MB/152MB

API endpoint: https://cloud.ibm.com
49d07d703dd5: Pushing [=====] 67.45MB/124.1MB
d1dec9917839: Pushing [=====] 69.67MB/152MB
```

```

C:\Windows\System32\cmd.exe - docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd5cc069: Pushed
806e0928fc5e: Pushed
4bb28ce8724f: Pushed
402de03c8533: Pushed
f5d161bbe139: Pushed
1569e0d95ca6: Pushed
d9e08da15d0c: Pushed
6b183c62e3d7: Mounted from hello-world-app/hello-world-app
882fd36bfd35: Mounted from hello-world-app/hello-world-app
d1dec9917839: Mounted from hello-world-app/hello-world-app
d38adf39e1dd: Mounted from hello-world-app/hello-world-app
4ed121b04368: Mounted from hello-world-app/hello-world-app
d9d07d703dd5: Mounted from hello-world-app/hello-world-app
latest: digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb76c46f size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>ibmcloud cr image-list
Listing images...

Repository          Tag      Digest          Namespace      Created      Size      Security status
au.icr.io/hello-world-app/hello-world  latest  0036fe145662    hello-world-app  12 minutes ago  350 MB    -

OK

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [03/Nov/2022 19:35:58] "GET / HTTP/1.1" 200 -

```

Container Registry

---

Quick start

Namespaces

**Repositories**

Images

Trash

Settings

## Repositories

Location

Sydney

Create

<input type="checkbox"/>	Name	Image count	Namespace	Last updated	
<input type="checkbox"/>	<div>hello-world</div> <div>au.icr.io/hello-world-app/hello-world</div>	1	hello-world-app	15 minutes ago	

Items per page: 25 
1-1 of 1 item

1 
1 of 1 page

#### Question 4:

Create a kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image and also expose the same app to run in nodeport.

#### Solution 4:

```
apiVersion: v1
kind: Service
metadata:
  name: hello-world-deployment
spec:
  ports:
    - port: 5000
      targetPort: 5000
  selector:
    app: hello-world
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: hello-world-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: hello-world
  template:
    metadata:
      labels:
        app: hello-world
    spec:
      containers:
        - name: hello-world
          image: au.icr.io/hello-world-app/hello-world
          imagePullPolicy: Always
          ports:
            - containerPort: 5000
```

The screenshot shows the IBM Cloud Kubernetes dashboard for a cluster named 'mycluster-free'. The cluster is in a 'Normal' state and expires in 29 days. The dashboard provides an overview of the cluster's status and details.

**Cluster Overview:**

- Cluster ID: c81f33cf0a6mchav6k1g
- Version: 1.24.7\_1542
- Infrastructure: Cloudic
- Zones: Milan 01
- Created: 04/11/2022, 01:12
- Resource group: Default
- Image security enforcement: [Enable](#)

**Status Summary:**

- Node status: 1 of 1 (Normal)
- Add-on status: 0 of 0 (Normal)
- Master status: Normal
- Ingress status: Unknown

**Details:**

The 'Details' section provides a comprehensive overview of the cluster's configuration and status, including the cluster ID, version, infrastructure provider, zones, creation date, resource group, and image security enforcement options.

