

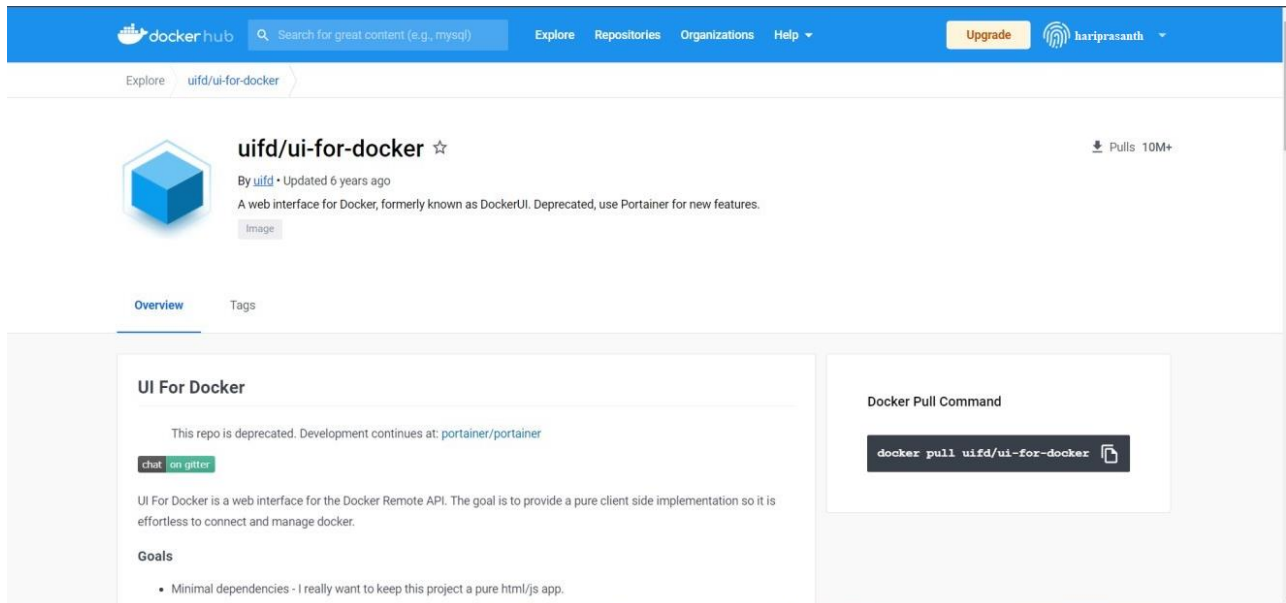
Assignment 4

Assignment date	06 November 2022
Team ID	PNT2022TMID17912

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 header includes the Docker Hub logo, a search bar, and navigation links for Explore, Repositories, Organizations, and Help. The repository page itself features a blue cube icon, the repository name `uifd/ui-for-docker` with a star icon, and a note that it is deprecated, with development continuing at `portainer/portainer`. The description states it is a web interface for Docker, formerly known as DockerUI. The page also shows a Docker Pull Command box with the command `docker pull uifd/ui-for-docker` and a copy icon. The Overview tab is selected, showing a description of the project and its goals, including minimal dependencies.

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:** Includes a digital clock showing 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 displays the instance name "cdjth7m0_cdjthk60qau000esrdpg". It shows the IP address "192.168.0.8" and a button to "OPEN PORT". Below this, it lists "Memory" and "CPU" usage.
- SSH:** A section showing the 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. At the top, there's a navigation bar with tabs for "Dashboard", "Containers", "Containers Network", "Images", "Networks", "Volumes", and "Info". A "Refresh" button is on the right. Below the navigation bar, the "Containers" tab is active, showing a "Running Containers" section with a list of containers. One container, "serene_keller", is listed as "Up 17 seconds". To the right of the container list is a "Status" section with a donut chart showing the status of containers: "Running" (green), "Stopped" (red), and "Ghost" (grey). Below the status section, there are two line graphs: "Containers created" and "Images created", both showing a count of 1 over time.

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
-> => sha256:908972ffeed8c17c25b21573681851f092e054f57cccd7eb43937a1a47114480 8.56kB / 8.56kB
-> => sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 55.05MB / 55.05MB
-> => sha256:4edced0587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d 10.88MB / 10.88MB
-> => sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5 1.86kB / 1.86kB
-> => sha256:23a1010fcf737e709a912ce9ad7480801a01e0e35ff1c5e7d6b0b640b0e1c3f 2.22kB / 2.22kB
-> => sha256:de4ad4c6cea80801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 5.15MB / 5.15MB
-> => sha256:a7969cfffba466a91291fd76b19ecbe93c03ea4ded8014042aeb4c4c4211a43 54.59MB / 54.59MB
-> => sha256:74bf51aed099f36017fe42b598b1a622b29eb8c3622e92e13df14578825eb37 6.29MB / 6.29MB
-> => sha256:74bf51aed099f36017fe42b598b1a622b29eb8c3622e92e13df14578825eb37 196.87MB / 196.87MB
-> => sha256:16fe51aed099f36017fe42b598b1a622b29eb8c3622e92e13df14578825eb37 6.29MB / 6.29MB
-> => sha256:2b979a731384cf50dac8fd255d381b70020d67b69b45c1a2b6c3ea10b92636d4 17.39MB / 17.39MB
-> => sha256:aac34359fdb43308069ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1 234B / 234B
-> => extracting sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 10.8s
-> => sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397860b4637f72ce91b6 2.89MB / 2.89MB
-> => extracting sha256:de4ad4c6cea80801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 1.3s
-> => extracting sha256:4edced0587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d 1.0s
-> => extracting sha256:a7969cfffba466a91291fd76b19ecbe93c03ea4ded8014042aeb4c4c4211a43 13.1s
-> => extracting sha256:74bf51aed099f36017fe42b598b1a622b29eb8c3622e92e13df14578825eb37 13.6s
-> => extracting sha256:16fe51aed099f36017fe42b598b1a622b29eb8c3622e92e13df14578825eb37 0.4s
-> => extracting sha256:2b979a731384cf50dac8fd255d381b70020d67b69b45c1a2b6c3ea10b92636d4 1.1s
-> => extracting sha256:aac34359fdb43308069ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1 0.0s
-> => extracting sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397860b4637f72ce91b6 0.4s
-> [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:f68fcdce5bb665f00e8f47bc4d137a4f7e0533348402c5bfda71121d7d43f63
-> => naming to docker.io/library/hello-world 0.0s

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

d38adf39e1d8: 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

cdi0ji60_cdi18b63tccg00fmtsog

IP: 192.168.0.13

Memory: 27.73% (1.083GiB / 3.906GiB)

CPU: 0.16%

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

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

```
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 displays the IBM Cloud Kubernetes Dashboard for a cluster named 'mycluster-free'. The cluster is in a 'Normal' state and is scheduled to expire in 29 days. A warning banner at the top states: 'Expires in 29 days: Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a standard cluster.'

The dashboard provides a summary of the cluster's components:

- Node status:** 1 of 1 nodes are Normal.
- Add-on status:** 0 of 0 add-ons are Normal.
- Master status:** The master node is Normal.
- Ingress status:** The ingress controller status is Unknown.

The 'Details' section provides further information about the cluster:

- Cluster ID:** c81c33cf0a6mchav6k1g
- Version:** 1.24.7_1542
- Infrastructure:** Cloudic
- Zones:** Milan 01
- Created:** 04/11/2022, 01:12
- Resource group:** Default
- Image security enforcement:** A link to 'Enable' is provided.

