

Assignment 4

Assignment date	12 - 11 - 2022
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Question 1:

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

Solution 1:

```
docker pull uifd/ui-for-docker
```

```
docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
```

The screenshot displays the Docker Hub interface for the repository `uifd/ui-for-docker`. The page header includes the Docker Hub logo and a search bar. The repository page shows the name `uifd/ui-for-docker` with a star icon and a pull count of 10M+. The description states: "A web interface for Docker, formerly known as DockerUI. Deprecated, use Portainer for new features." Below the description, there is a section titled "UI For Docker" with a note: "This repo is deprecated. Development continues at: [portainer/portainer](#)". A "Goals" section lists: "Minimal dependencies - I really want to keep this project a pure html/js app." On the right side, a "Docker Pull Command" box displays the command: `docker pull uifd/ui-for-docker`. The bottom of the screenshot shows a Windows taskbar with various application icons and system information like temperature (25°C) and time (09:24 PM, 06-11-2022).

Docker playground:

The screenshot shows the Docker Playground interface in a web browser. The browser's address bar displays the URL: `labs.play-with-docker.com/p/cdjth7m0qau000esrdp0#cdjth7m0_cdjthk60qau000esrdpg`. The interface includes a sidebar on the left with a digital clock showing 03:53:41, a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button. Below this, a list of instances shows '192.168.0.8 node1'. The main content area displays the instance details for 'cdjth7m0_cdjthk60qau000esrdpg', including its IP address (192.168.0.8), memory, CPU, and an SSH command: `ssh ip172-18-0-53-cdjth7m0qau000esrdp0@direct.labs.play`. There are 'DELETE' and 'EDITOR' buttons. Below this is a terminal window showing 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
ab4812e7bf2cde4f33b05baac16b2857aedb359141e1e8be944f7149b10c9a37
[model] (local) root@192.168.0.8 ~
$
```

The bottom of the image shows a Windows taskbar with the system clock at 09:30 PM on 06-11-2022.

Docker UI:

The screenshot shows the Docker UI interface. The top navigation bar includes tabs for 'Dashboard', 'Containers', 'Containers Network', 'Images', 'Networks', 'Volumes', and 'Info', along with a 'Refresh' button. The 'Containers' tab is active, showing a 'Running Containers' section with a list of containers: 'serene_keller' (Up 17 seconds). A 'Status' section features a donut chart showing the status of containers: 'Running' (green), 'Stopped' (red), and 'Ghost' (grey). Below this, there are two line graphs: 'Containers created' and 'Images created', both showing a count of 1 over time, with the x-axis labeled '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@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aaid5
-> resolve docker.io/library/python:3.8@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aaid5
-> sha256:908972ffeed8c17c25b21573681851f092e054f57ccd7eb43937a1a47114480 8.56kB / 8.56kB
-> sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 55.05MB / 55.05MB
-> sha256:4edced8587e6c18412817019074f5e04a8ede4e2fc89d00eaf13df3f80d78a70d 10.88MB / 10.88MB
-> sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aaid5 1.06kB / 1.06kB
-> sha256:25a101f73727b709a912ce9ad7488081a01e0a35ff1cc5e7d8bb0640b6e1c3f 2.22kB / 2.22kB
-> sha256:de4a4c6ceaa8081bb0b7377e10220a914da403bc93fa79663cbf2dcf1800bb6f1 5.16MB / 5.16MB
-> sha256:a7969cfff9f46e6a91291fd76b19acbe93c03ea4ded0d14042aebc4c4c4211a43 54.59MB / 54.59MB
-> sha256:74fbfde6af91271fb88f0e1716224dccc5c0e0ead3609943792a9cbb0a4d6d3d 196.87MB / 196.87MB
-> sha256:16fe51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578025eb37 6.29MB / 6.29MB
-> sha256:2b979a731384cf50dac8fd255d381b70020d67b09b45c1a2b6c3ea10b92636d4 17.39MB / 17.39MB
-> sha256:aa3c4359fdb43308669ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1 234B / 234B
-> extracting sha256:17c9e6141fdb3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770
-> sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397800b4637f72ce91b6 2.89MB / 2.89MB
-> extracting sha256:de4a4c6ceaa8081bb0b7377e10220a914da403bc93fa79663cbf2dcf1800bb6f1
-> extracting sha256:4edced8587e6c18412817019074f5e04a8ede4e2fc89d00eaf13df3f80d78a70d
-> extracting sha256:a7969cfff9f46e6a91291fd76b19acbe93c03ea4ded0d14042aebc4c4c4211a43
-> extracting sha256:74fbfde6af91271fb88f0e1716224dccc5c0e0ead3609943792a9cbb0a4d6d3d
-> extracting sha256:16fe51aed099f36017fe42b598b1a622b29ebe8c3622e92e13df14578025eb37
-> extracting sha256:2b979a731384cf50dac8fd255d381b70020d67b09b45c1a2b6c3ea10b92636d4
-> extracting sha256:aa3c4359fdb43308669ae8ba78b2ebb713221ef3a3eca97f93590500f1506de1
-> 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:f68fcdce5bb665f00e8f47bc4d137a47e0533348402c5bfdad71121d7d43f63
-> naming to docker.io/library/hello-world
0.05s
0.05s
0.05s
0.05s
5.8s
0.05s
149.9s
0.05s
0.05s
0.05s
8.7s
0.05s
0.05s
18.3s
47.5s
133.3s
53.8s
68.0s
67.3s
10.8s
70.7s
1.3s
1.0s
13.1s
13.6s
0.4s
1.1s
0.05s
0.4s
0.05s
0.05s
0.1s
0.05s
3.8s
0.2s
0.2s
0.2s
0.05s
```

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

itsmona14

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

Search

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

d1de9917830: Mounted from library/python

938adf39e1dd: 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

The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a digital clock showing 03:09:45, a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button. Below that, a list of instances shows '192.168.0.13 node1'. The main area displays details for instance 'cdi0ji60_cdi18b63tccg00fmtsog', including its IP (192.168.0.13), memory usage (27.73% / 1.083GiB / 3.906GiB), CPU usage (0.16%), and an SSH command. Below the details are 'DELETE' and 'EDITOR' buttons. The terminal window shows the following output:

```
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

The screenshot shows a Command Prompt window with the following commands and output:

```
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
d9d07d703dd5: 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
4bb28ce0724f: 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

Search

Name	Image count	Namespace	Last updated
<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

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:

<https://raw.githubusercontent.com/itsmona14/IBM-Assignment-cloud/main/deployment.yaml>

```
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. The dashboard provides a detailed overview of the cluster's components and configuration.

Cluster Overview:

- Node status:** 1 of 1 nodes are Normal.
- Add-on status:** 0 of 0 add-ons are Normal.
- Master status:** Normal.
- Ingress status:** Unknown.

Details:

Cluster ID	Version	Infrastructure	Zones
cd1c430cf0a6mchav0k1g	1.24.7_1542	Classic	Milan 01

Additional Information:

- Created:** 04/11/2022, 01:12
- Resource group:** Default
- Image security enforcement:** Enable

