

Assignment 4

Assignment date	25 october 2022
Student name	M.Sowmiya
Student roll no	951319104046
Maximum Marks	2 Marks

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 shows the Docker Hub interface for the repository `uifd/ui-for-docker`. The page header includes a security advisory for Critical OpenSSL Vulnerability. The repository is marked as deprecated, with a note stating "A web interface for Docker, formerly known as DockerUI. Deprecated, use Portainer for new features." The page also displays the Docker Pull Command: `docker pull uifd/ui-for-docker`. The repository has over 10M pulls. The page is viewed on a Windows desktop with a taskbar at the bottom showing various application icons and the system clock at 21:21 on 04-11-2022.

Docker playground:

The screenshot shows the Docker Playground interface in a web browser. The browser tabs include IBM, WhatsApp, IBM-Project-22133-1659805, uid/ui-for-docker - Docker, and Docker Playground. The address bar shows the URL: labs.play-with-docker.com/p/cdijgim3tccg00a7r71g#cdijgim3_cdijhlm3tccg00a7r74g.

On the left sidebar, there is a digital clock showing 03:45:22, a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button and a list of instances including '192.168.0.18 node1'.

The main panel displays details for the instance 'cdijgim3_cdijhlm3tccg00a7r74g':

- IP: 192.168.0.18
- Memory: 1.63% (65.11 MiB / 3.906 GiB)
- CPU: 0.51%
- SSH: ssh ip172-18-0-26-cdijgim3tccg00a7r71g@direct.labs.play-

Buttons for 'DELETE' and 'EDITOR' are visible. Below this, a terminal window shows the following commands and output:

```
# The FWD team.
#####
(node1) (local) root@192.168.0.18 ~
$ docker pull uid/ui-for-docker
bash: $: command not found
(node1) (local) root@192.168.0.18 ~
$ docker pull uid/ui-for-docker
Using default tag: latest
latest: Pulling from uid/ui-for-docker
841194d080e8: Pull complete
Digest: sha256:fe371fff5a69549269b24073a5ab1244dd4c0b834cbadf244870572150b1cb749
Status: Downloaded newer image for uid/ui-for-docker:latest
docker.io/uid/ui-for-docker:latest
(node1) (local) root@192.168.0.18 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uid/ui-for-docker
unknown flag: --privileged
See 'docker run --help'.
(node1) (local) root@192.168.0.18 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uid/ui-for-docker
78ab97261cc11c0d591eal7aca7505d9b1538af8f0e882f34eb334ba4657ba04
(node1) (local) root@192.168.0.18 ~
$
```

The Windows taskbar at the bottom shows the search bar, task view, and various application icons. The system tray on the right indicates the time is 21:50 on 04-11-2022.

Docker UI:

The screenshot shows the Docker UI web interface in a web browser. The browser tabs include Docker Hub, Docker Playground, and UI For Docker. The address bar shows the URL: ip172-18-0-40-cdi0ji60qau0008f9u80-9000.direct.labs.play-with-docker.com/#/.

The main panel displays the 'UI For Docker' dashboard with the following sections:

- Dashboard**: A navigation bar with tabs for Dashboard, Containers, Containers Network, Images, Networks, Volumes, and Info. A 'Refresh' button is also present.
- Running Containers**: 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 green, indicating that all containers are running. The legend shows 'Running' (green), 'Stopped' (red), and 'Ghost' (grey).
- Containers created**: A line graph showing the number of containers created over time. The y-axis ranges from 0 to 1, and the x-axis shows the date 04/11/2022.
- Images created**: A line graph showing the number of images created over time. The y-axis ranges from 0 to 1, and the x-axis shows the date 04/11/2022.

The Windows taskbar at the bottom shows the search bar, task view, and various application icons. The system tray on the right indicates the time is 12:08 AM 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"]
```

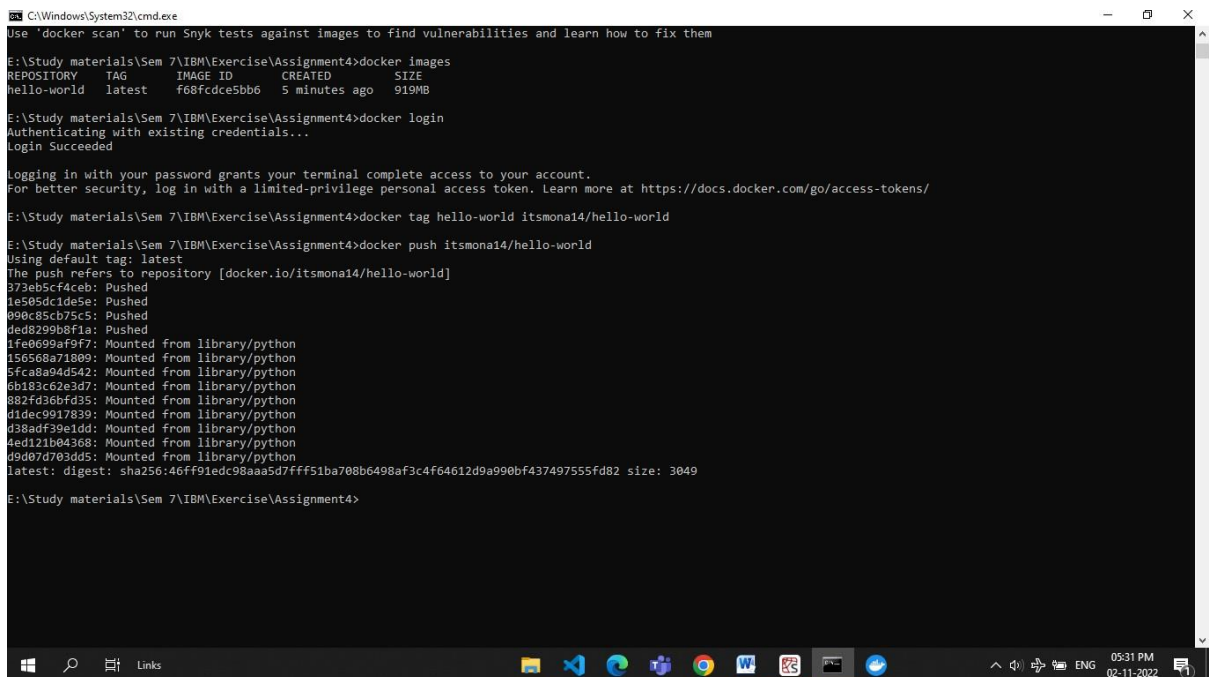
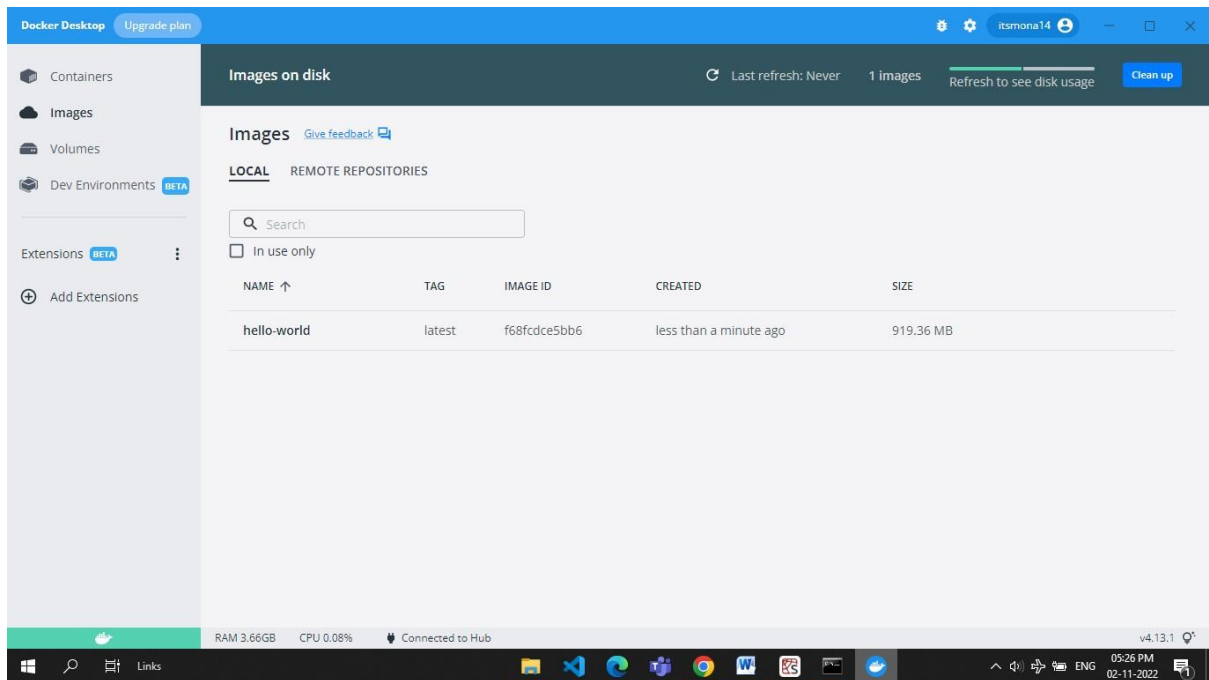
Bulid Docker image

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

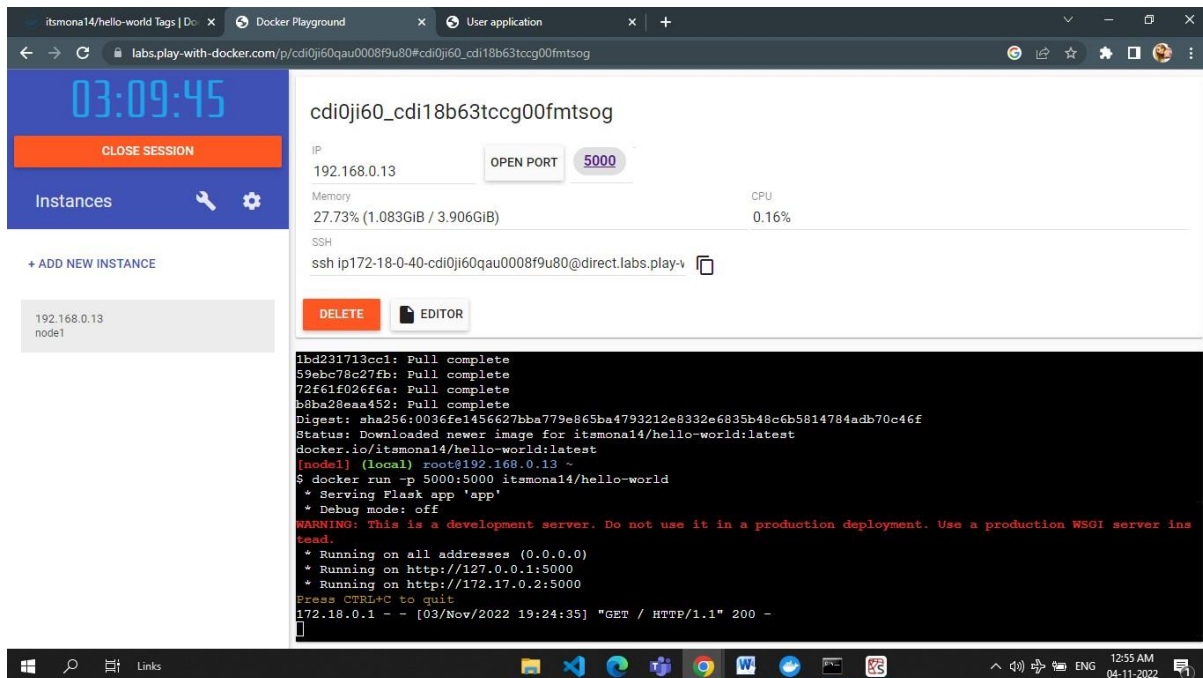
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker build -t hello-world .
[+] Building 160.4s (10/10) FINISHED
=> [internal] load build definition from Dockerfile                                0.0s
=> == transferring dockerfile: 194B                                              0.0s
=> [internal] load .dockerignore                                                  0.0s
=> == transferring context: 2B                                                  0.0s
=> [internal] load metadata for docker.io/library/python:3.8                    5.8s
=> [1/5] FROM docker.io/library/python:3.8@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d0519190b8aa1d5 149.9s
=> == resolve docker.io/library/python:3.8@sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d0519190b8aa1d5 0.0s
=> == sha256:900972ffecdc8c17c25b21573681851f092e054f57cc07eb43937e1a47114480 8.56kB / 8.56kB 0.0s
=> == sha256:17c9e6141fdb3387e5a1c07d4f9bca85ac1498e96029fa3ea55470d4504f7770 55.05MB / 55.05MB 65.2s
=> == sha256:4edced8587e6c18412817019074f5e04a8ede4e2fc09d00eaf13df3f00d78a70d 10.80MB / 10.80MB 8.7s
=> == sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d0519190b8aa1d5 1.06kB / 1.06kB 0.0s
=> == sha256:254101fc7777ef80a912ce9ad7488081a01e0a35b7f1cc5e7d0bb06d0b6e1c3f 2.22kB / 2.22kB 0.0s
=> == sha256:de44dc6ae8801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 5.16MB / 5.16MB 18.3s
=> == sha256:a7969cfff46e6a91291fd76b19ecbe93c03ea4ded0d14042aecb4c0c4211a43 54.59MB / 54.59MB 47.5s
=> == sha256:74fbfde6af91271fb88f0a1716224dce5c0e0ead3609943792a9c6b0a4d6d3d 196.87MB / 196.87MB 133.3s
=> == sha256:16fe51aed899f36017fe42b590b1a622b29ebe8c3622e92e13df14578825eb37 6.29MB / 6.29MB 53.8s
=> == sha256:2b979a731384cf50dac8fd255d381b70028d67b69b45c1a2b6c3ea10b92636d4 17.39MB / 17.39MB 68.0s
=> == sha256:aa3c4359fdb43306069ae8ba78b2eb713221ef3a3eca97f93590500f1506de1 234B / 234B 67.3s
=> == extracting sha256:17c9e6141fdb3387e5a1c07d4f9bca85ac1498e96029fa3ea55470d4504f7770 10.6s
=> == sha256:5b706fbcfa0c82e5d34a9f76ba7748a194cf4df7312a397060b4637f72ce01b6 1.89MB / 1.89MB 70.7s
=> == extracting sha256:de44dc6ae8801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 1.3s
=> == extracting sha256:4edced8587e6c18412817019074f5e04a8ede4e2fc09d00eaf13df3f00d78a70d 1.0s
=> == extracting sha256:a7969cfff46e6a91291fd76b19ecbe93c03ea4ded0d14042aecb4c0c4211a43 13.1s
=> == extracting sha256:74fbfde6af91271fb88f0a1716224dce5c0e0ead3609943792a9c6b0a4d6d3d 13.6s
=> == extracting sha256:16fe51aed899f36017fe42b590b1a622b29ebe8c3622e92e13df14578825eb37 0.4s
=> == extracting sha256:2b979a731384cf50dac8fd255d381b70028d67b69b45c1a2b6c3ea10b92636d4 1.1s
=> == extracting sha256:aa3c4359fdb43306069ae8ba78b2eb713221ef3a3eca97f93590500f1506de1 0.0s
=> == extracting sha256:5b706fbcfa0c82e5d34a9f76ba7748a194cf4df7312a397060b4637f72ce01b6 0.4s
=> [internal] load build context
=> == transferring context: 1.15kB                                              0.0s
=> [2/5] WORKDIR /app                                                           0.4s
=> [3/5] ADD . /app                                                            0.1s
=> [4/5] COPY requirements.txt /app                                           0.0s
=> [5/5] RUN python3 -m pip install -r requirements.txt                       3.8s
=> exporting to image                                                         0.2s
=> == exporting layers                                                         0.2s
=> == writing image sha256:f68fcdce5bb665f00e8f47bc4d137a4f7e0533348402c5bfda071121d7d43f63 0.0s
=> == 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



Tested it using Docker playground



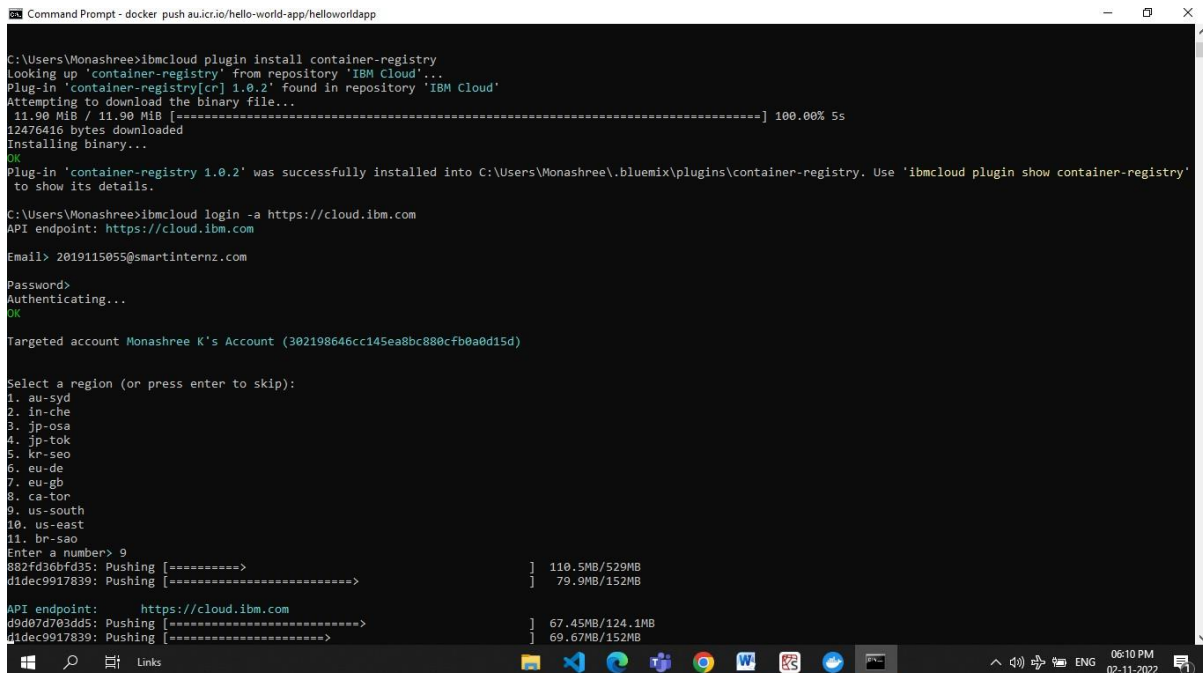
The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a clock showing 03:09:45, a 'CLOSE SESSION' button, and an 'Instances' section with a list of instances. The main area displays details for a container named 'cdi0ji60_cdi18b63tccg00fmtsog'. It shows the IP address 192.168.0.13, memory usage at 27.73% (1.083GiB / 3.906GiB), and CPU usage at 0.16%. An SSH command is provided: 'ssh ip172-18-0-40-cdi0ji60qau0008f9u80@direct.labs.play-with-docker.com'. Below this, there are 'DELETE' and 'EDITOR' buttons. A terminal window at the bottom shows the container's output, including the Docker run command and the Flask app's startup logs.

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 Windows Command Prompt window with the following commands and output:

```
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
882f0d0b9d35: 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

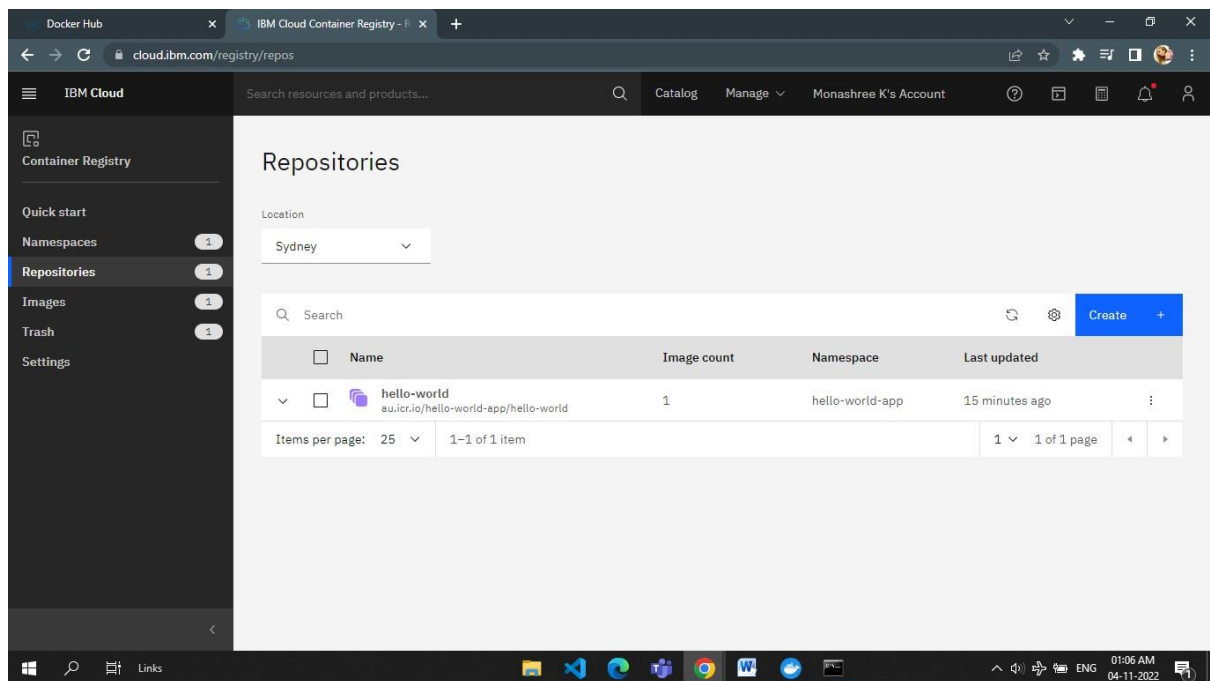
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd5cc060: Pushed
006e0938fc5e: Pushed
4bb20ce8724f: Pushed
402dea3c8533: Pushed
f5d161bba139: Pushed
1569e0d95ce6: Pushed
09e08d150dc: Pushed
0b183c62d3d7: Mounted from hello-world-app/hello-world-app
082fd36b6fd35: 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: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f 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  356 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 -
```



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
```


mycluster-free - IBM Cloud

cloud.ibm.com/kubernetes/clusters/cd1j33f0a6mchav5kig/overview

IBM Cloud Search resources and products... Catalog Manage Monashree K's Account

Clusters / mycluster-free Normal Expires in 29 days Add tags Help Kubernetes dashboard Actions...

Overview

Worker nodes

Worker pools

DevOps New

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](#).

Node status
1 of 1
Normal
[Details ↓](#)

Add-on status
0 of 0
Normal
[Details ↓](#)

Master status
Normal
[Docs ↗](#)

Ingress status
Unknown
[Docs ↗](#)

Details

Cluster ID cd1j33f0a6mchav5kig	Version 1.24.7_1542	Infrastructure Classic	Zones Milan 01
Created 04/11/2022, 01:12	Resource group Default	Image security enforcement Enable	

mycluster-free - Kubernetes Dashboard

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cd1j33f0a6mchav5kig/service/#/deployment?namespace=default

kubernetes default Search

Workloads > Deployments

Workloads

- Cron Jobs
- Daemon Sets
- Deployments
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses
- Ingress Classes
- Services

Config and Storage

- Config Maps

CPU Usage

Memory Usage

Deployments

Name	Images	Labels	Pods	Created ↑
hello-world-deployment	Show all	-	1 / 1	34 minutes ago

mycluster-free - Kubernetes Dashboard

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdi1j33f0a6mchav5kig/service/#/log/default/hello-world-deployment-6c75b9c898-p4ntv/pod?namespace=...

kubernetes default Search

Workloads > Pods > hello-world-deployment-6c75b9c898-p4ntv > Logs

Workloads ^N

- Cron Jobs
- Daemon Sets
- Deployments
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses ^N
- Ingress Classes
- Services ^N

Config and Storage

Logs from hello-world in hello-world-dep... ^N

```
* 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 http://127.0.0.1:5000
* Running on http://172.30.82.142:5000
Press CTRL+C to quit
```

Logs from Nov 4, 2022 to Nov 4, 2022 UTC

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdi1j33f0a6mchav5kig/ser...

Windows taskbar: 03:49 PM 04-11-2022