

Assignment 4

Assignment date	18 October 2022
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Student roll no	2019115110
Maximum Marks	2 Marks

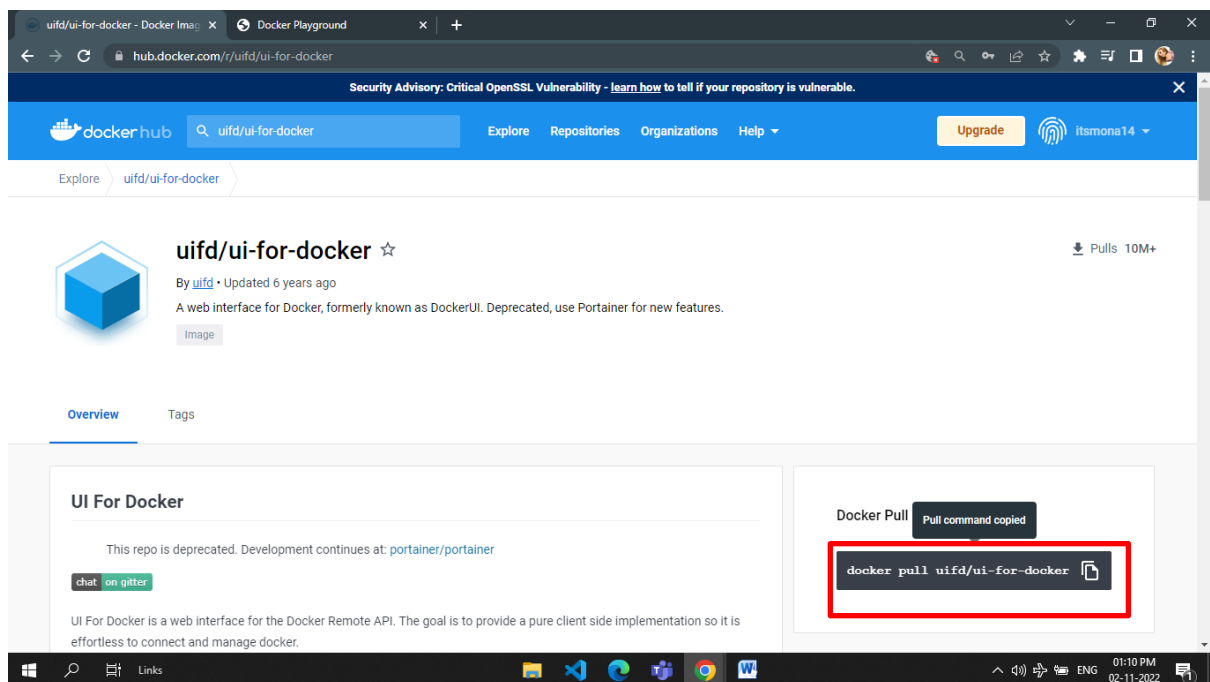
Question 1:

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
```



Docker playground:

The screenshot shows the Docker Playground interface in a web browser. The top bar includes 'Docker Hub' and 'Docker Playground' tabs. The main content area displays the instance name 'cdi0ji60_cdi0jpe0qau0008f9u8g' and its IP address '192.168.0.13'. A 'CLOSE SESSION' button is visible. Below the instance details, there's a list of instances with '192.168.0.13 node1' listed. The terminal window shows a shell session where the user pulls the 'uifd/ui-for-docker' image and runs it with specific flags. The terminal output includes a warning about the sandbox environment and the successful pull of the image.

```
# This is a sandbox environment. Using personal credentials
# is HIGHLY discouraged. Any consequences of doing so are
# completely the user's responsibilities.
#
# The FWD team.
#####
[node1] (local) root@192.168.0.13 ~
$ docker pull uifd/ui-for-docker
Using default tag: latest
latest: Pulling from uifd/ui-for-docker
841194d080c8: Pull complete
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834cbadf244870572150b1cb749
Status: Downloaded newer image for uifd/ui-for-docker:latest
docker.io/uifd/ui-for-docker:latest
[node1] (local) root@192.168.0.13 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
c2557355d58010b2607d19372fd954a94b3f2c922d1c5377d8458ff941cb2cab
[node1] (local) root@192.168.0.13 ~
$
```

Docker UI:

The screenshot shows the Docker UI interface in a web browser. The top bar includes 'Docker Hub', 'Docker Playground', and 'UI For Docker' tabs. The main content area displays the 'UI For Docker' dashboard. It features a navigation bar with 'Dashboard', 'Containers', 'Containers Network', 'Images', 'Networks', 'Volumes', and 'Info'. A 'Refresh' button is also present. The 'Running Containers' section shows a list of containers, including 'serene_keller' which is 'Up 17 seconds'. A donut chart indicates the status of containers: 'Running' (green), 'Stopped' (red), and 'Ghost' (grey). Below the chart, there are two line graphs: 'Containers created' and 'Images created', both showing a count of 1 on the y-axis and the date '04/11/2022' on the x-axis.

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

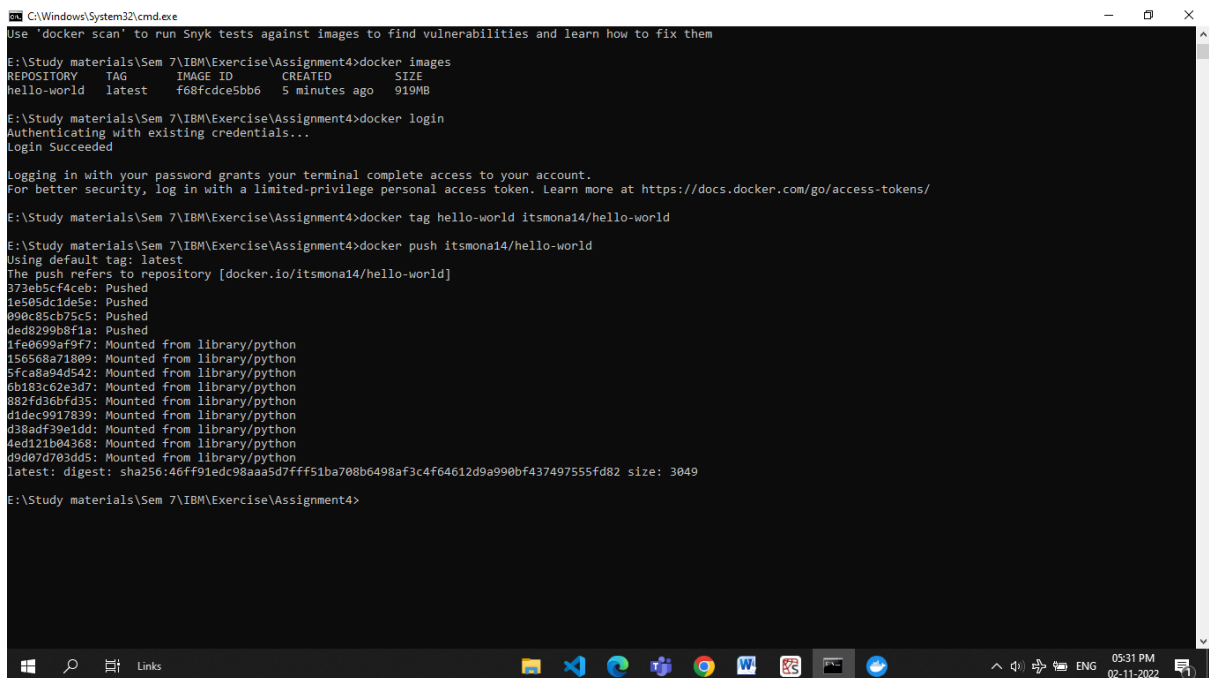
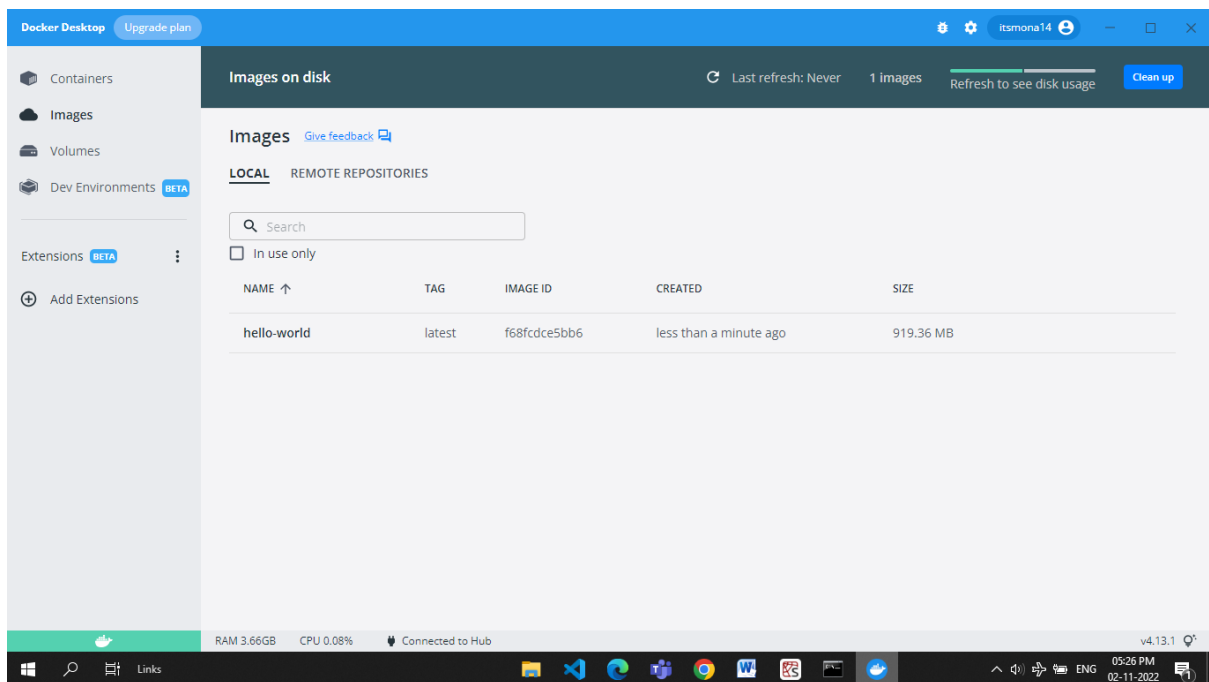
```
FROM python:3.8
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

Bulid Docker image

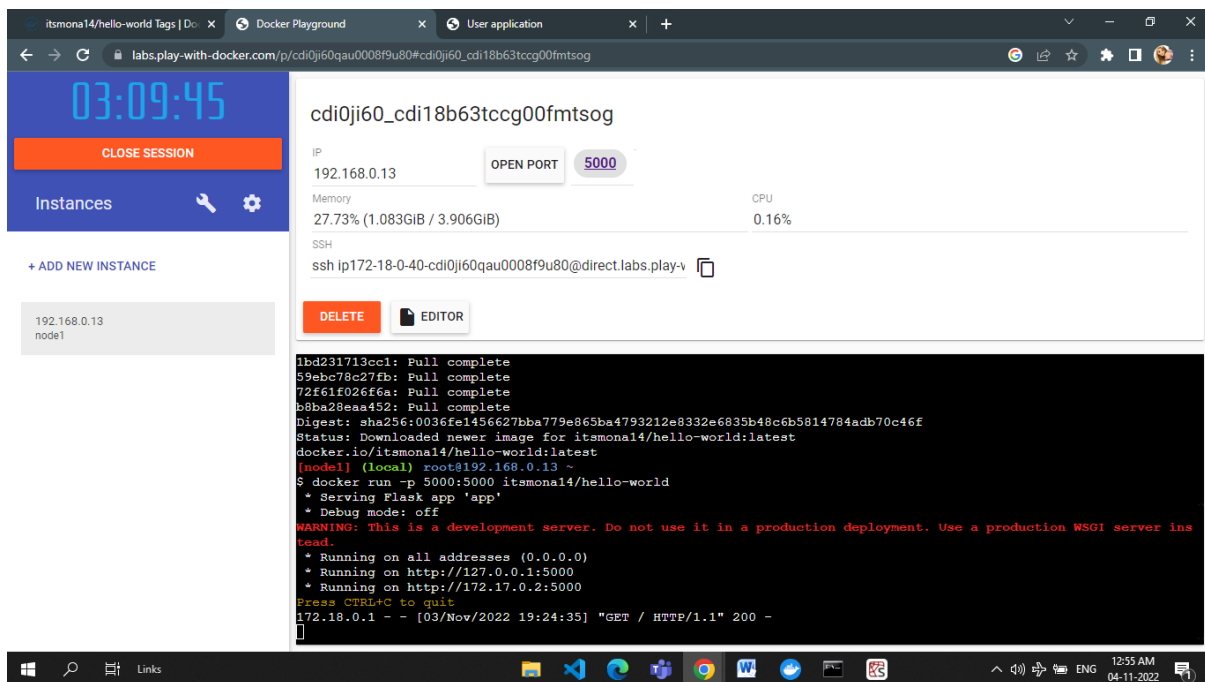
```
C:\Windows\System32\cmd.exe
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker build -t hello-world .
[+] Building 160.4s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 194B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [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 149.99s
=> sha256:900972ffec08c17c25b21573681851f802e054f5cc47eb43937a1a47114480 8.56kB / 8.56kB
=> sha256:17c9e6141f0b3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 55.05MB / 55.05MB
=> sha256:4edced8587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d 10.88MB / 10.88MB
=> sha256:089d758211770a2dd03ecc4b10a8d851f6f77af3f1e3f3620d8519190b8aa1d5 1.86kB / 1.86kB
=> sha256:254101fcf737ef89a912ce9ad7488881a01e0a35bffc5e7d6bb86d0b6e1c3f 2.22kB / 2.22kB
=> sha256:de4a4c6cae8801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 5.16MB / 5.16MB
=> sha256:a7969c9f9f9f46e6a91291f070b19ecbe93c03ea4de0d14042aebc4c4211e45 54.59MB / 54.59MB
=> sha256:74bf0de6af91271fb88f0a1716224dcce5c0beead3600943702a9cbb44d6d3d 196.87MB / 196.87MB
=> sha256:16fe51aed099f36017fe42b598b1a622b29eb8c3622e92e13df14578825eb37 6.29MB / 6.29MB
=> sha256:2b979a731384cf50dac8fd255d381b70028d67b60b45c1a2b6c3ea10b92636d4 17.30MB / 17.30MB
=> sha256:aa3c4359fdb43308669ae8ba78b2ebb713221ef3a3eca97f93590508f1506de1 234B / 234B
=> extracting sha256:17c9e6141f0b3387e5a1c07d4f9b6a05ac1498e96029fa3ea55470d4504f7770 10.8s
=> sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fdf7312a397860b4637f72ce91b6 2.89MB / 2.89MB
=> extracting sha256:de4a4c6cae8801bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 1.3s
=> extracting sha256:4edced8587e6c18412817019074f5e04a8ede4e2fc09d06af13df3f80d78a70d 1.0s
=> extracting sha256:a7969c9f9f9f46e6a91291f070b19ecbe93c03ea4de0d14042aebc4c4211e45 13.1s
=> extracting sha256:74bf0de6af91271fb88f0a1716224dcce5c0beead3600943702a9cbb44d6d3d 13.6s
=> extracting sha256:16fe51aed099f36017fe42b598b1a622b29eb8c3622e92e13df14578825eb37 0.4s
=> extracting sha256:2b979a731384cf50dac8fd255d381b70028d67b60b45c1a2b6c3ea10b92636d4 1.1s
=> extracting sha256:aa3c4359fdb43308669ae8ba78b2ebb713221ef3a3eca97f93590508f1506de1 0.0s
=> extracting sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fdf7312a397860b4637f72ce91b6 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 3.8s
=> exporting to image
=> => exporting layers
=> => writing image sha256:f68fcdce5bb665f00e8f47bc4d137a4f7e8533348402c5bfdad71121d7d3f63
=> => 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

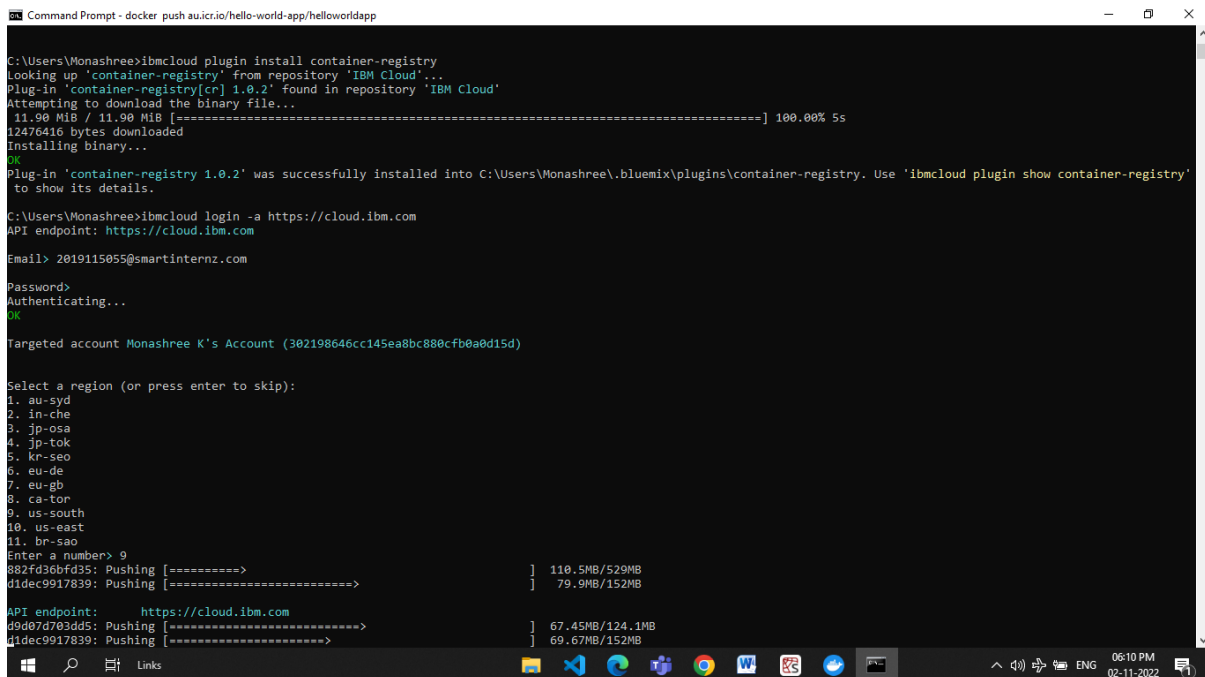


Question 3:

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



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

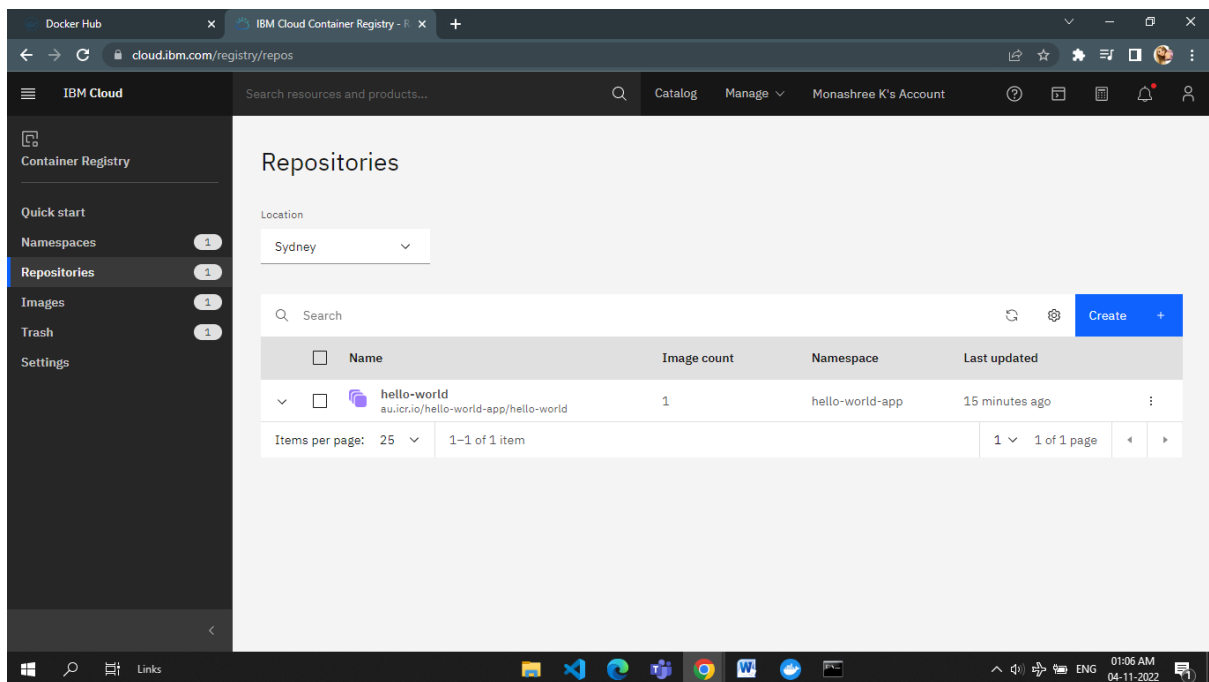
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd8cc069: Pushed
006e0938fc5e: Pushed
4bb20ce8724f: Pushed
402dea3c8533: Pushed
f5d161bba139: Pushed
1569e0d95ce6: Pushed
09e08da15d0c: Pushed
0b193c62e3d7: Mounted from hello-world-app/hello-world-app
882f3d36bf935: 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 (1)

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

Service

- Ingresses (1)
- Ingress Classes
- Services (1)

Config and Storage

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

```
* 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://172.30.82.142:5000
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