

Assignment - 4

Docker and Kubernetes

Assignment Date	November 3
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Maximum Marks	2 Marks

Question-1:

1. Pull an Image from docker hub and run it in docker playground.

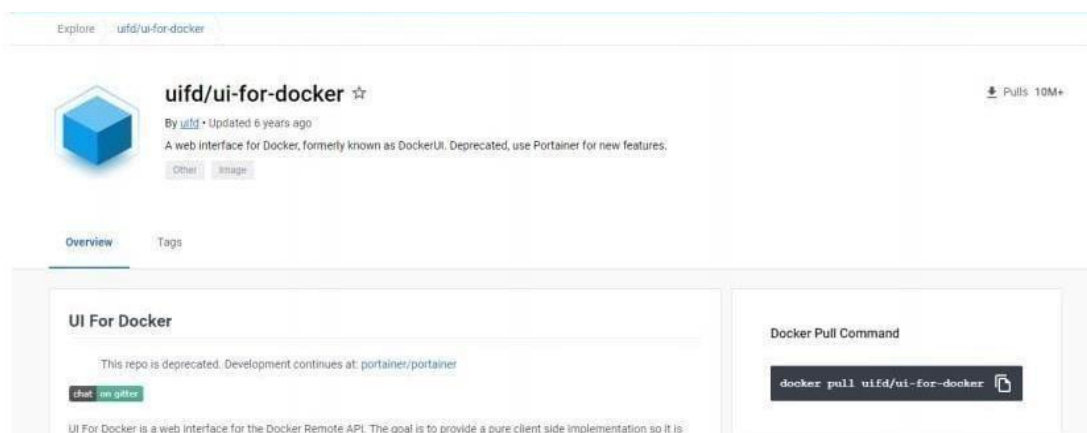
Solution:

```
docker run --rm -p 8787:8787 rocker/verse
docker pull rocker/verse
docker login --username=nishanthc --email=ssnehasri178@gmail.com
WARNING: login credentials saved in
/home/nishanthc/.docker/config.jsonLogin Succeeded
```


```
REPOSITORY          TAG       IMAGE ID       CREATED        SIZE
verse_gapminder_gsl latest    023ab91c6291   3 minutes ago  1.975 GB
verse_gapminder      latest    bb38976d03cf   13 minutes ago 1.955 GB
rocker/verse         latest    0168d115f220   3 days ago     1.954 GB
docker tag bb38976d03cf nishanthc
/verse_gapminder:firsttry
docker push nishanthc
/verse_gapminder
```

Saving and loading images

```
docker save
verse_gapminder
docker save verse_gapminder > verse_gapminder.tar
docker load --input verse_gapminder.tar
docker load --input verse_gapminder.tar
```



Explore uifd/ui-for-docker

 **uifd/ui-for-docker** ☆ Pulls 10M+

By [uifd](#) • Updated 6 years ago

A web interface for Docker, formerly known as DockerUI. Depreciated, use Portainer for new features.

[Other](#) [Image](#)

Overview Tags

UI For Docker

This repo is deprecated. Development continues at: [portainer/portainer](#)

[chat](#) [on github](#)

UI For Docker is a web interface for the Docker Remote API. The goal is to provide a pure client side implementation so it is

Docker Pull Command

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

03:42:30

CLOSE SESSION

Instances

ADD NEW INSTANCE

192.168.0.13
node1

cd9an2u3_cd9av060qau0008hbjso

IP: 192.168.0.13

OPEN PORT

Memory CPU

SSH: ssh ip172-18-0-4-cd9an2u3tccg00fgf6k0@direct.labs.play-w

DELETE EDITOR

```
# This is a sandbox environment. Using personal credentials #
# is HIGHLY! discouraged. Any consequences of doing so are #
# completely the user's responsibilities. #
#
# The PWD 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
41194d080c8: Pull complete
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834cbwdf244870572150b1cb749
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
c590dd163101ae795bdcea0eb1ddd98f6fe549cb5f24dcb9ff7c1931923fc0d
(node1) (local) root@192.168.0.13 ~
$
```

UI For Docker

DashboardContainersContainers NetworkImagesNetworksVolumesInfoRefresh

UI For Docker

The UI for Docker container engine

Learn more.

Running Containers

• beautiful_goldwasser Up About a minute

Status

UI For Docker

DashboardContainersContainers NetworkImagesNetworksVolumesInfoRefresh

Running Containers

• beautiful_goldwasser Up About a minute

Status

Running Stopped Ghost

Containers created

1

0

21/10/2022

Images created

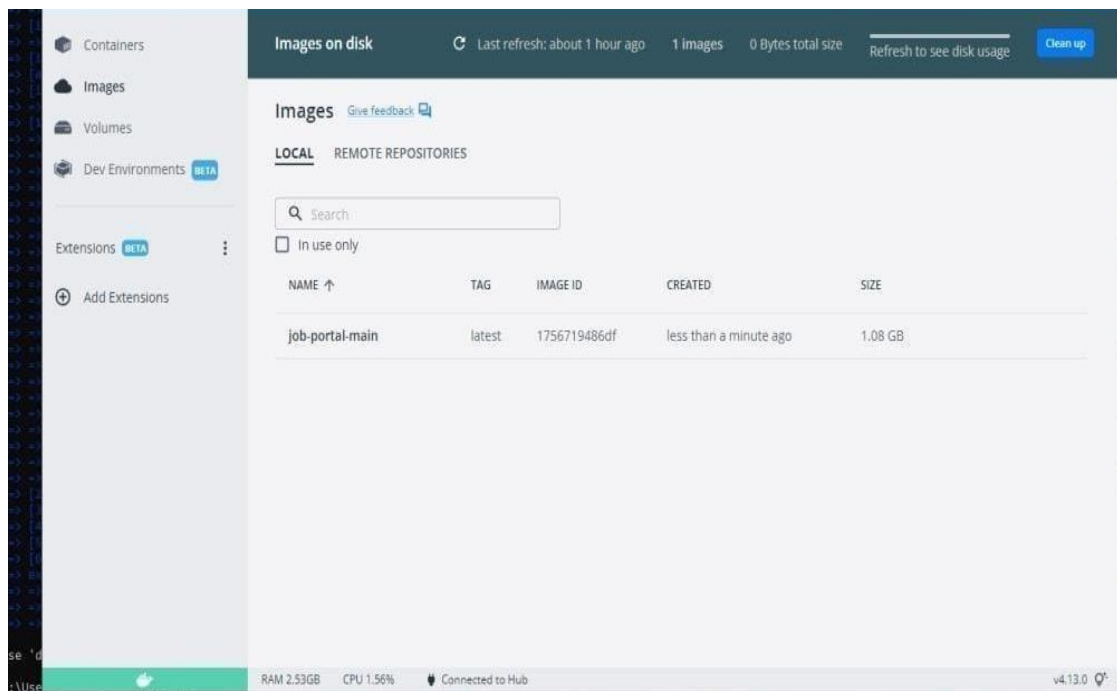
1

Question-2:

2. Create a docker file for the jobportal application and deploy it in Docker desktop application.

SOLUTION:

```
[internal] load build definition from Dockerfile
-> transferring dockerfile: 32B
[internal] load .dockerignore
-> transferring context: 2B
[internal] load metadata for docker.io/library/python:3.6
[auth] library/python:pull token for registry-1.docker.io
[internal] load build context
-> transferring context: 887B
[5/6] FROM docker.io/library/python:3.6@sha256:f8652a4f88c35f0d22354d547db92591067aa4026a7fa9a68104f0f308aef6fc
-> resolve docker.io/library/python:3.6@sha256:f8652a4f88c35f0d22354d547db92591067aa4026a7fa9a68104f0f308aef6fc
-> sha256:f8652a4f88c35f0d22354d547db92591067aa4026a7fa9a68104f0f308aef6fc 1.86kB / 1.86kB
-> sha256:40077a907a8ec879d5ac31872359c2de510f82214c0448e92c393b376d3b0e0d 2.22kB / 2.22kB
-> sha256:54260838d07c5e3ad24c6e21fc809abbcb486a27634c0092006ff71f3f44b104 9.27kB / 9.27kB
-> sha256:0e29546d541cda380281d21a73a9d1d078665c1b95b74f32e009e8b77ade1e3 54.92MB / 54.92MB
-> sha256:9b828c73b52b02b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 5.15MB / 5.15MB
-> sha256:cb5b7ae3b1722f078eca53f35823ed21baa85d61d5d95cd5a95ab53d746cd056 10.87MB / 10.87MB
-> sha256:6494a4811622b31c077ccac322ca463937f0805f569a9366f15c81a0d6718793 54.57MB / 54.57MB
-> sha256:6f977480dfe931fe8172159afba08ed0b0e8a98128ef09112af7c04d5c20f9 106.51MB / 106.51MB
-> sha256:5e3b1213efc56598e78b0d02083045c164de2a37285e86a3dadab03124d743 6.29MB / 6.29MB
-> extracting sha256:0e29546d541cda380281d21a73a9d1d078665c1b95b74f32e009e8b77ade1e3
-> sha256:9fd0fde56334f2eeefad7e241bf5e7459c40ed105c5478070f41c1244bd06752 14.21MB / 14.21MB
-> extracting sha256:9b828c73b52b02b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd
-> extracting sha256:cb5b7ae3b1722f078eca53f35823ed21baa85d61d5d95cd5a95ab53d746cd056
-> sha256:404f02044bac0432ca522cbb9f354b1c91fca0806bfee0be0b243b2f31bab7 235B / 235B
-> sha256:c4f42be2be53b900ebff040c1df13de538434ccc5f5d954a56848a6169a3a3f 2.21MB / 2.21MB
-> extracting sha256:6494a4811622b31c077ccac322ca463937f0805f569a9366f15c81a0d6718793
-> extracting sha256:6f977480dfe931fe8172159afba08ed0b0e8a98128ef09112af7c04d5c20f9
-> extracting sha256:5e3b1213efc56598e78b0d02083045c164de2a37285e86a3dadab03124d743
-> extracting sha256:9fd0fde56334f2eeefad7e241bf5e7459c40ed105c5478070f41c1244bd06752
-> extracting sha256:404f02044bac0432ca522cbb9f354b1c91fca0806bfee0be0b243b2f31bab7
-> extracting sha256:c4f42be2be53b900ebff040c1df13de538434ccc5f5d954a56848a6169a3a3f
[2/6] WORKDIR /app
[3/6] ADD . /app
[4/6] COPY requirements.txt /app
[5/6] RUN python3 -m pip install -r requirements.txt
[6/6] RUN python3 -m pip install ibm_db
exporting to image
-> exporting layers
-> writing image sha256:1756719486df002fad5d6e305c5221513f2ff2d1b49a8d242b2a28ef0379f19
-> naming to docker.io/library/job-portal-main
See 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
```



QUESTION-3:

3. Create a IBM container registry and deploy helloworld app or jobportalapp.

Solution:

```
<html>
<body>
  Hello, IBM Cloud World!
</body>
</html>---
```

applications:

```
- buildpack: https://github.com/cloudfoundry/staticfile-buildpack.git
host: simple-website-`${random}`
name: simple-website-`${random}`
memory: 64M
stack: cflinuxfs2
```

The screenshot shows the IBM Cloud Deploy console. At the top, there's a 'DEPLOY' header with a 'DELETE' button. Below it are tabs for 'INPUT', 'JOBS', and 'ENVIRONMENT PROPERTIES'. The 'JOBS' tab is active, showing a 'Rolling Deploy' section with a 'ROLLING DEPLOY' button. Below this, there's a 'Deploy configuration' section with several dropdown menus: 'Deployer type' (Cloud Foundry), 'IBM Cloud region' (US South - https://api.ng.bluemix.net), 'Organization' (bluemix_devops@ibm.com), 'Space' (demo), and 'Application name' (simple-website-ae7f5ff6). Each dropdown has an information icon (i) to its right.

```
1  {
2    "ServiceId": "com.ibm.cloudoe.orion.client.deploy",
3    "Params": {
4      "Target": {
5        "Url": "https://api.ng.bluemix.net",
6        "Org": "bluemix_devops@ibm.com",
7        "Space": "demo"
8      },
9      "Name": "simple-website-ae7f5ff6",
10     "Instrumentation": {}
11   },
12   "Path": "manifest.yml",
13   "Type": "Cloud Foundry"
14 }
```

Hello, IBM Cloud World!

QUESTION-4:

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:

```
ibmcloud target -g <resource_group_name>ibmcloud cr nishanthc-add  
<your_nishanthc>ibmcloudresource service-instance-create example-postgresql databases-for-  
postgresql standard us- southibmcloud ks cluster-service-bind mycluster default example-  
postgresqlgit clone -b node git@github.com:IBM-Cloud/cloudatabases-helloworld-kubernetes-  
examples.gitspec:
```

```
replicas: 3name: cloudpostgres-nodejs-app
```

```
image: "registry.<region>.bluemix.net/<namespace>/icdpg" # Edit me
```

```
imagePullPolicy: Alwaysibmcloud cr regionYou are targeting region 'us-south', the registry is  
'registry.ng.bluemix.net'.ibmcloud cr build -t registry.ng.bluemix.net/<namespace>/icdpg .ibmcloud  
cr images
```

env:

```
- name: BINDING
```

```
valueFrom:
```

```
secretKeyRef:
```

```
name: <postgres-secret-name> # Edit me
```

```
key: binding
```

```
apiVersion: v1
```

```
kind: Service
```

```
metadata:
```

```
name: cloudpostgres-service
```

```
labels:
```

```
run: clouddb-demo
```

```
spec:
```

```
type: NodePort
```

```
selector:
```

```
run: clouddb-demo
```

```
ports:
```

```
- protocol: TCP
```

```
port: 8080
```

```
nodePort: 30081
```

```
kubectl apply -f clouddb-deployment.yml
```

```
deployment.apps/icdpostgres-app created
```

```
service/cloudpostgres-service created
```

```
kubectl get pods -o wideibmcloud ks workers <your_cluster_name>
```

