

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
```

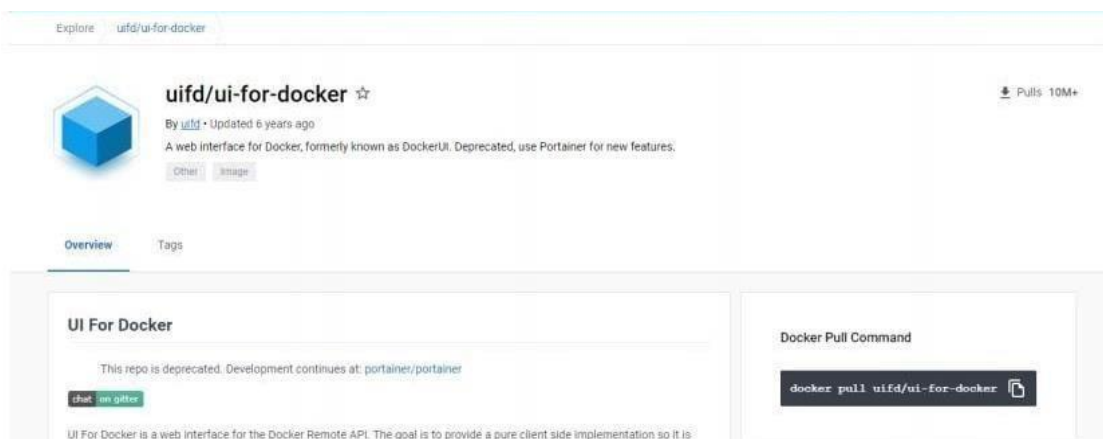
```
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
verse_gapminder_gsl  latest  023ab91c6291  3 minutes ago  1.975 GB
verse_gapminder     latest  bb38976d03cf  13 minutes ago 1.955 GB
rocker/verse        latest  0168d115f220  3 days ago    1.954 GB
docker tag bb38976d03cf nishanthc
/verse_gapminder:firsttry
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. Deprecated, use Portainer for new features.

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

Overview

Tags

UI For Docker

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

[chat](#) [on gitter](#)

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_cd9av060qau0008hbjs0

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: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
c590dd163101ae795bdcea0eb1ddd98f6fe549cb5f24dadb9ff7c1931923fc0d
(node1) (local) root@192.168.0.13 ~

```

Not secure

ip172-18-0-4-cd9an2u3tccg00fgf6k0-9000.direct.labs.play-with-docker.com/#/

UI For Docker

Dashboard

Containers

Containers Network

Images

Networks

Volumes

Info

Refresh

UI For Docker

The UI for Docker container engine

Learn more.

Running Containers

beautiful_goldwasser

Up About a minute

Status

Not secure

ip172-18-0-4-cd9an2u3tccg00fgf6k0-9000.direct.labs.play-with-docker.com/#/

UI For Docker

Dashboard

Containers

Containers Network

Images

Networks

Volumes

Info

Refresh

Running Containers

beautiful_goldwasser

Up About a minute

Status

Running

Stopped

Ghost

Containers created

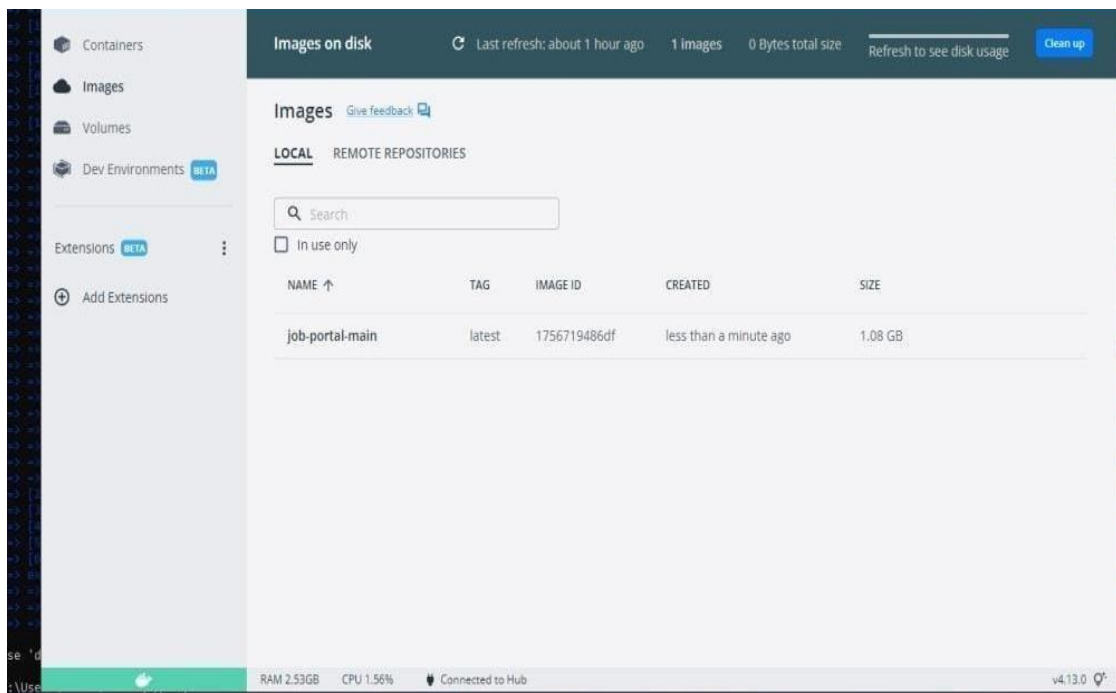
Images created

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: 807B
[1/6] FROM docker.io/library/python:3.6@sha256:f8052eaf88c35f0d2235d547db92591067aa4026a7fa9a6810df0f308aef6fc
-> resolve docker.io/library/python:3.6@sha256:f8052eaf88c35f0d2235d547db92591067aa4026a7fa9a6810df0f308aef6fc
-> sha256:f8052eaf88c35f0d2235d547db92591067aa4026a7fa9a6810df0f308aef6fc 1.86kB / 1.86kB
-> sha256:4007a4907a8ec879df5ac31872359c2de510f82214c8448e926393b376d3b6ed 2.22kB / 2.22kB
-> sha256:54268638d87c5e3ad24c6e21fc809abbc8486a27634c0092086ff71f3f44b184 9.27kB / 9.27kB
-> sha256:6e29546d541c8d309281d21a73a9d1db78665c1b95b74f32b009e8b77ade1e3 54.92MB / 54.92MB
-> sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 5.15MB / 5.15MB
-> sha256:c5b7ae301722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d748cd056 10.87MB / 10.87MB
-> sha256:a4944e811622b51c027ccac322ca4a3937f0805f569a9306f15c81aade718793 54.57MB / 54.57MB
-> sha256:490774896df023fe81721594fab8d5db0e8a98128fe9d0112af0764d370f7 109.51MB / 109.51MB
-> sha256:5a3b1213efc50598e78b0602083045c164de2a37285e86a63dadab23124dc743 6.20MB / 6.20MB
-> extracting sha256:6e29546d541c8d309281d21a73a9d1db78665c1b95b74f32b009e8b77ade1e3
-> sha256:9fd9fd56334f2eeefad7e241bf5e7459c4ed105c5478676f41c1244bd96752 14.21MB / 14.21MB
-> extracting sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd
-> extracting sha256:c5b7ae301722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d748cd056
-> sha256:404f02044bacc8432ca522cbb9f254b1c91fca6806bfeef0be0b243b2f31bab7 235B / 235B
-> sha256:c4f42be2be53b900ebffc048c1df13de538434ccc5f5d954a56848a6169a3a3f 2.21MB / 2.21MB
-> extracting sha256:a4944e811622b51c027ccac322ca4a3937f0805f569a9306f15c81aade718793
-> extracting sha256:490774896df023fe81721594fab8d5db0e8a98128fe9d0112af0764d370f7
-> extracting sha256:5a3b1213efc50598e78b0602083045c164de2a37285e86a63dadab23124dc743
-> extracting sha256:9fd9fd56334f2eeefad7e241bf5e7459c4ed105c5478676f41c1244bd96752
-> extracting sha256:404f02044bacc8432ca522cbb9f254b1c91fca6806bfeef0be0b243b2f31bab7
-> extracting sha256:c4f42be2be53b900ebffc048c1df13de538434ccc5f5d954a56848a6169a3a3f
[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 sha256:1756719486df002fad5dae305c5221513f2ff2d1b49add242b22a28ef0379f19
-> naming to docker.io/library/job-portal-main
se '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. This section includes a 'Deploy configuration' area 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). There is also an 'ADD JOB' button and a 'REMOVE' button for the current deployment.

```
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>
```

