

## Assignment - 4

### Docker and Kubernetes

Assignment Date	19.11.2022
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Student Roll Number	913019104006
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** ☆

By [uifd](#) • Updated 6 years ago

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

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

Pulls 10M+

[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\_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. #
#####
[rook1] (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
uifd/ui-for-docker:latest
[rook1] (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
c590dd163101ae795bdcea0eb1ddd98f6fe549cb5f24dcb9ff7c1531923fc0d
[rook1] (local) root@192.168.0.13 ~
$
```

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

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

1

0

21/10/2022

Images created

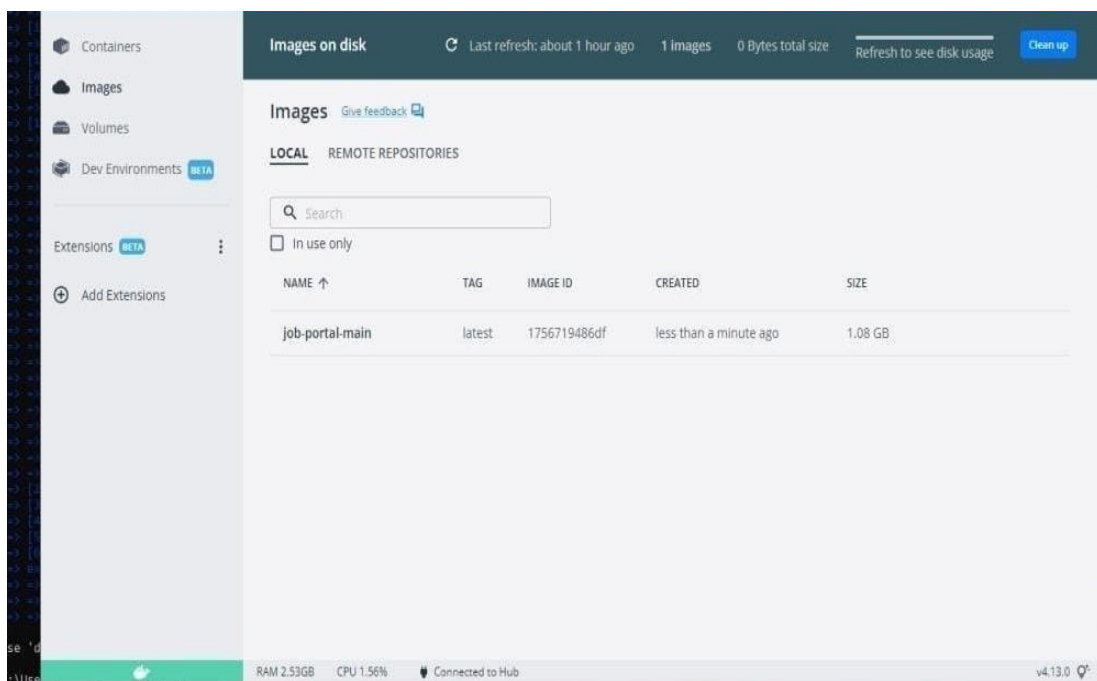
1

## 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: 687B
[1/6] FROM docker.io/library/python:3.6@sha256:f8652aef88c25f0d2235d547db92591067aa4026a7fa9a6810d4f9f308aef6fc
-> resolve docker.io/library/python:3.6@sha256:f8652aef88c25f0d2235d547db92591067aa4026a7fa9a6810d4f9f308aef6fc
-> sha256:f8652aef88c25f0d2235d547db92591067aa4026a7fa9a6810d4f9f308aef6fc 1.86kB / 1.86kB
-> sha256:4007a490788c479df5ac31872359c2de510f07214c0448e925393b376d3b6ed 2.22kB / 2.22kB
-> sha256:54260830d07c5a3ad24c6e21fc899abbc8486a27634c0903086ff71f3f44b104 0.27kB / 0.27kB
-> sha256:0e29546d541c0bd309281d21a73a9d1db7865c1b95b74f32b009e8b77ade1e3 54.92MB / 54.92MB
-> sha256:9b829c73b52b07d5c07a54f0f8e921995a290c714b53a32ae67d10231fcd 5.15MB / 5.15MB
-> sha256:c5b7ae361722f070eca53f35823ed21baa5d61d5d95cd5a95ab53d740cd56 10.87MB / 10.87MB
-> sha256:a494e4811022b31c077cc322ca463927f0805f560a9306f15c91a0d6718795 54.57MB / 54.57MB
-> sha256:490774096df931e08172504f6a05d0bde8a08218efcd9112fcd7c4d5c70f7 106.51MB / 106.51MB
-> sha256:5e3b1213efc56598e780a002083045c164de2a37205e0ba63dad823124d743 6.20MB / 6.20MB
-> extracting sha256:0e29546d541c0bd309281d21a73a9d1db7865c1b95b74f32b009e8b77ade1e3
-> sha256:9fd9fcd36334f2eeefad7e241bf5e7459c40ed105c5478670f41c1244bd06752 14.21MB / 14.21MB
-> extracting sha256:0b829c73b52b07d5c07a54f0f8e921995a290c714b53a32ae67d10231fcd
-> extracting sha256:c5b7ae361722f070eca53f35823ed21baa5d61d5d95cd5a95ab53d740cd56
-> sha256:404f02044buc8432ca522cbb9f254b1c91fca0806bfeef0be0b243b2f31bab7 235B / 235B
-> sha256:c4f42be2b53b900ebffc040c1df13de530434ccc5f5d954a56848a6109a3a3f 2.21MB / 2.21MB
-> extracting sha256:a494e4811022b31c077cc322ca463927f0805f560a9306f15c91a0d6718795
-> extracting sha256:490774096df931e08172504f6a05d0bde8a08218efcd9112fcd7c4d5c70f7
-> extracting sha256:5e3b1213efc56598e780a002083045c164de2a37205e0ba63dad823124d743
-> extracting sha256:9fd9fcd36334f2eeefad7e241bf5e7459c40ed105c5478670f41c1244bd06752
-> extracting sha256:404f02044buc8432ca522cbb9f254b1c91fca0806bfeef0be0b243b2f31bab7
-> extracting sha256:c4f42be2b53b900ebffc040c1df13de530434ccc5f5d954a56848a6109a3a3f
[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 sha256:1756719486df002fad5dae305c5221533f2f2d1b49a8d242b22a28ef0379f10
-> naming to docker.io/library/job-portal-main
e '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 'DEPLOY' tab in the IBM Cloud console. It includes a 'DELETE' button and tabs for 'INPUT', 'JOBS', and 'ENVIRONMENT PROPERTIES'. Below these are icons for 'Rolling De...' and 'ADD JOB'. The 'Rolling Deploy' section is active, showing a 'REMOVE' button and a 'Deploy configuration' table. The table lists the following settings:

Deploy configuration
<b>Deployer type</b> (Cloud Foundry)
<b>IBM Cloud region</b> (US South - https://api.ng.bluemix.net)
<b>Organization</b> (bluemix_devops@ibm.com)
<b>Space</b> (demo)
<b>Application name</b> (simple-website-ae7f5ff6)

```
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>
```

