Assignment - 4 Docker and Kubernetes

Assignment Date	November 3
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Maximum Marks	2 Marks

Question-1:

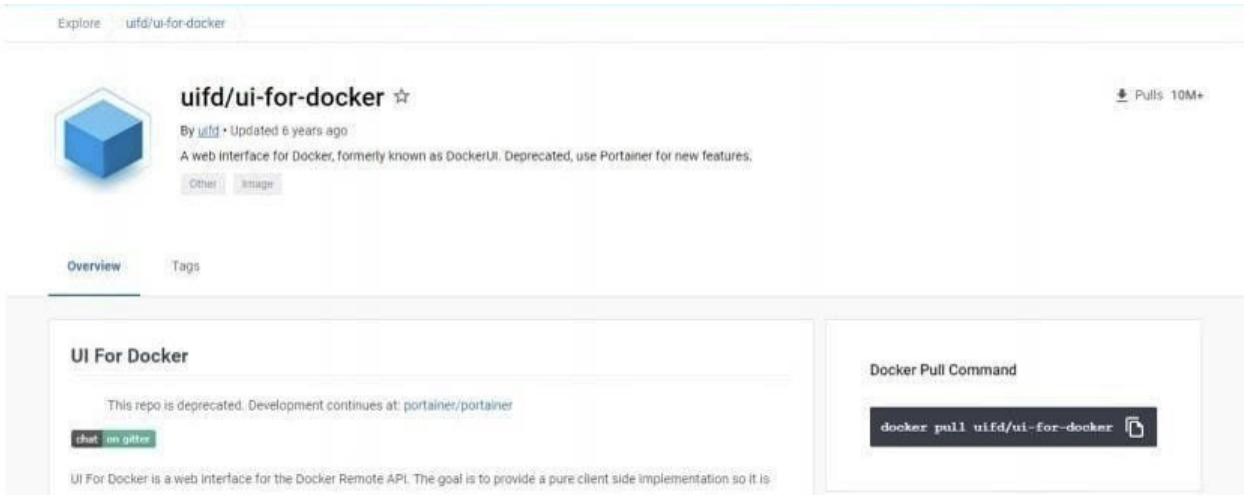
1. Pull an Image from docker hub and run it in docker playground.

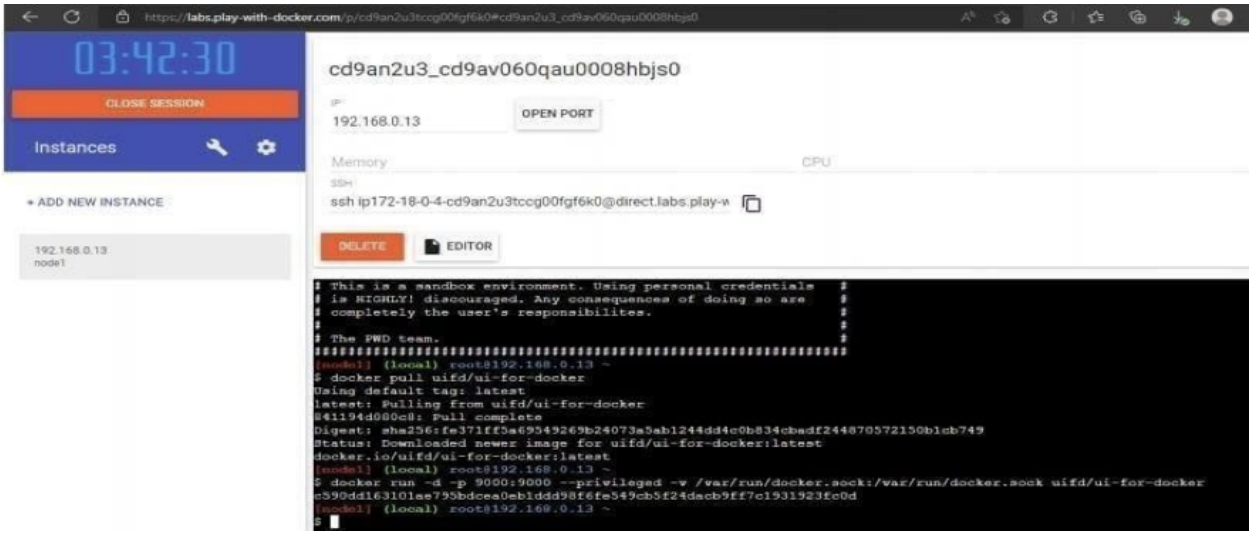
Solution:

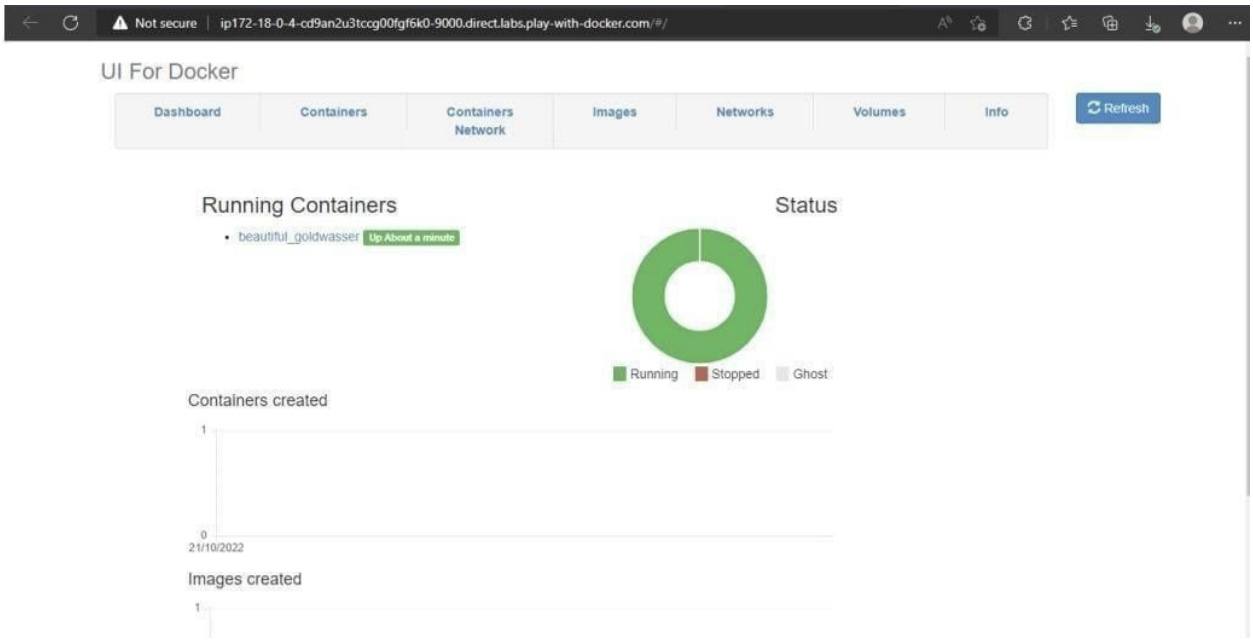
docker run --rm -p 8787:8787 rocker/verse docker pull rocker/verse
docker login --username=abuthahir --email=ssnehasri178@gmail.com WARNING: login credentials saved in
/home/abuthahir/.docker/config.jsonLogin Succeeded

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 abuthahir
/verse_gapminder:firsttry docker push abuthahir
/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



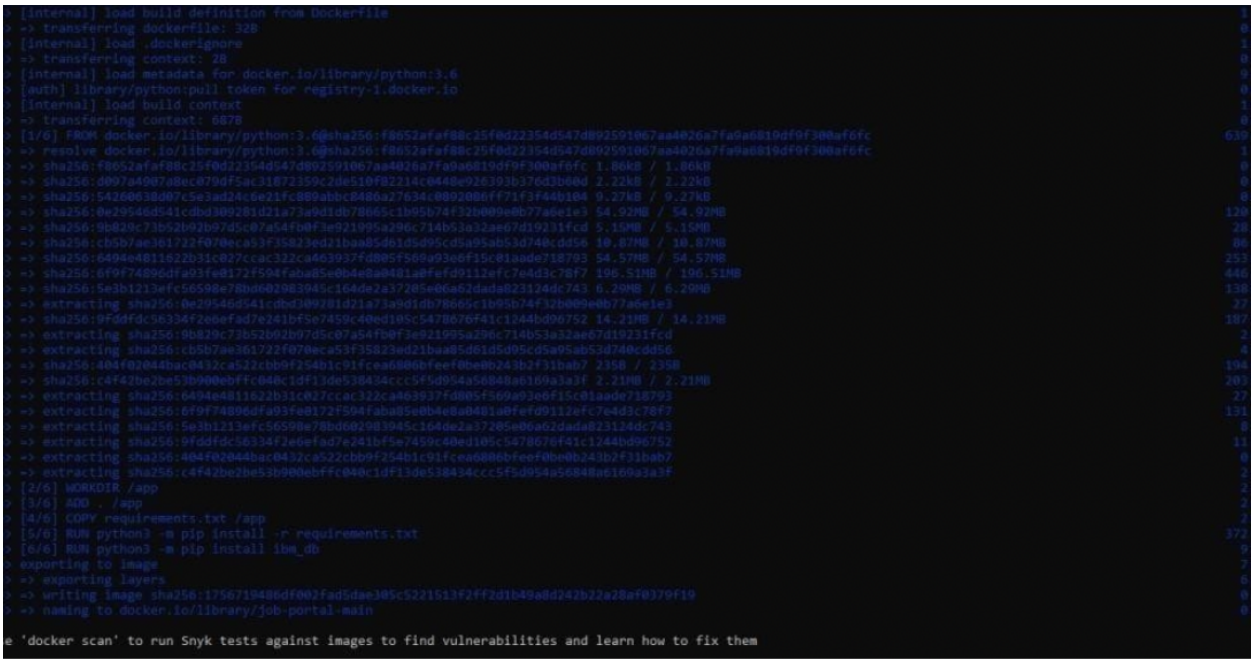


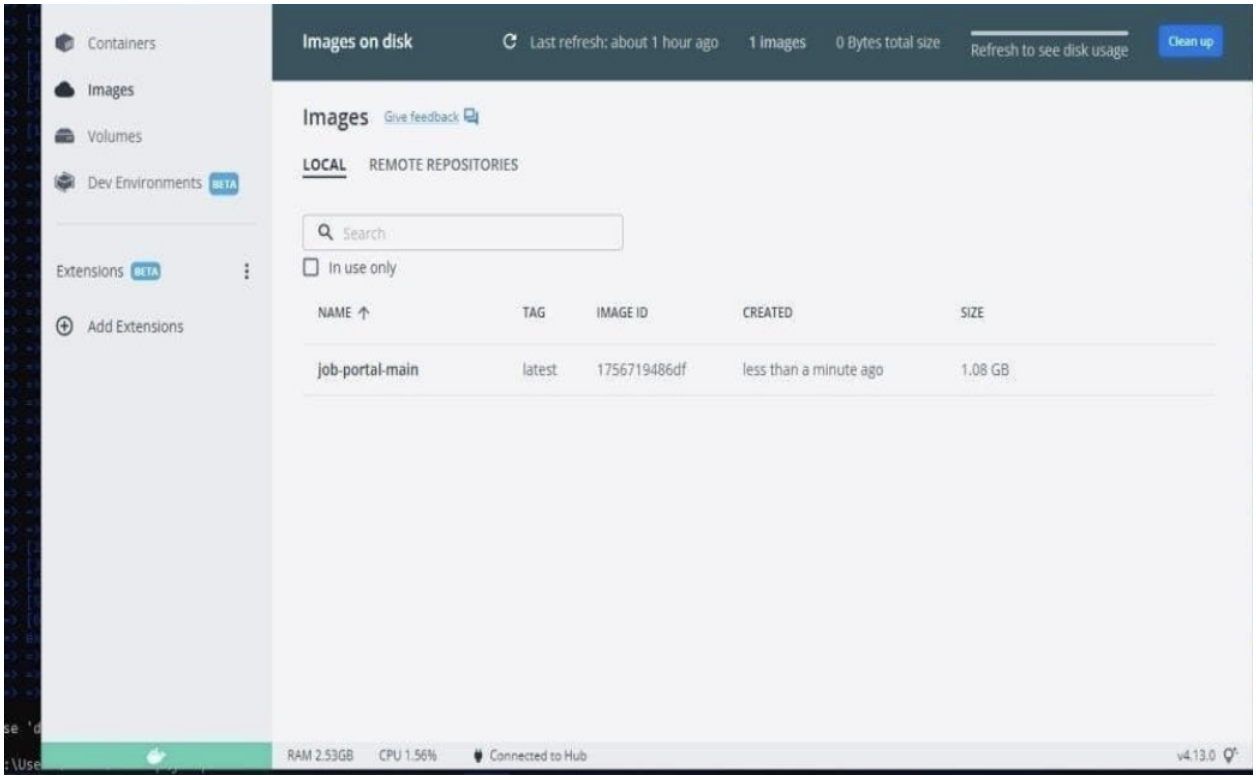


Question-2:

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

SOLUTION:

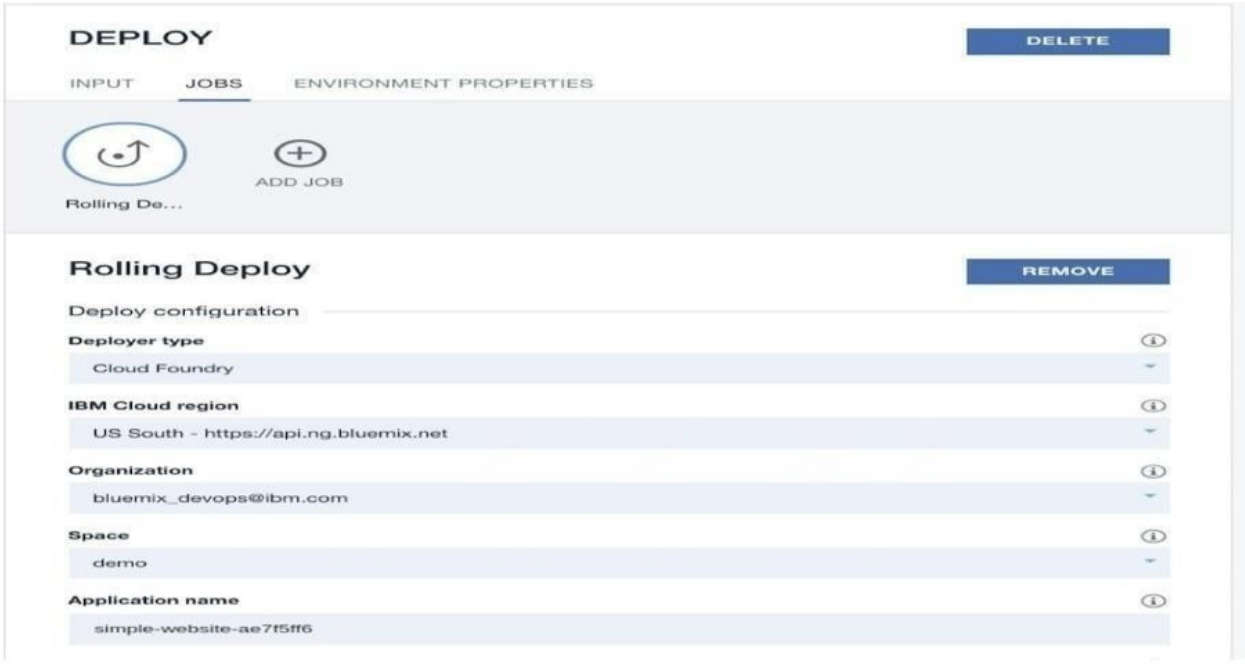

[internal] load build definition from Dockerfile
=> transferring dockerfile: 328
[internal] load .dockerignore
=> transferring context: 2B
[internal] load metadata for docker.io/library/python:3.6
[auth] library/python:pull token for registry-1.docker.io
[internal] load build context
=> transferring context: 687B
[1/6] FROM docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc
=> resolve docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc
=> sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc 1.86kB / 1.86kB
=> sha256:d097a4907a8ec079df5ac31872359c2de510f82214c0448e926393b376d3b00d 2.22kB / 2.22kB
=> sha256:54200638d07c5e3ad24c6e21fc889abbc8486a27634c0092086ff71f3f44b104 9.27kB / 9.27kB
=> sha256:0e29546d541cdbd309281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3 54.92MB / 54.92MB
=> sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 5.15MB / 5.15MB
=> sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d05cd5a95ab53d740cdd56 10.87MB / 10.87MB
=> sha256:6494e4811622b31c027ccac322ca463937fd805f509a93e6f15c01aade718793 54.57MB / 54.57MB
=> sha256:6f9f74896dfa93fe8172f594faba85e0b4e8a0481a0fefd9112efc7e4d3c78f7 196.51MB / 196.51MB
=> sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 6.29MB / 6.29MB
=> extracting sha256:0e29546d541cdbd309281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3
=> sha256:9fddfdc56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 14.21MB / 14.21MB
=> extracting sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd
=> extracting sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d05cd5a95ab53d740cdd56
=> sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7 235B / 235B
=> sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d054a56848a6169a3a3f 2.21MB / 2.21MB
=> extracting sha256:6494e4811622b31c027ccac322ca463937fd805f509a93e6f15c01aade718793
=> extracting sha256:6f9f74896dfa93fe8172f594faba85e0b4e8a0481a0fefd9112efc7e4d3c78f7
=> extracting sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743
=> extracting sha256:9fddfdc56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752
=> extracting sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7
=> extracting sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d054a56848a6169a3a3f
[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 sha256:1756719486df002fad5dae305c5221513f2ff2d1b49a8d242b22a28af0379f19
=> 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


Containers
Images
Volumes
Dev Environments BETA
Extensions BETA
Add Extensions
Images on disk
Last refresh: about 1 hour ago
1 images
0 Bytes total size
Refresh to see disk usage
Clean up
Images
Give feedback
LOCAL
REMOTE REPOSITORIES
Search
In use only
NAME
TAG
IMAGE ID
CREATED
SIZE
job-portal-main
latest
1756719486df
less than a minute ago
1.08 GB
RAM 2.53GB
CPU 1.56%
Connected to Hub
v4.13.0

\QUESTION-3:

1. 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
```




```
{
  "ServiceId": "com.ibm.cloudoe.orion.client.deploy",
  "Params": {
    "Target": {
      "Url": "https://api.ng.bluemix.net",
      "Org": "bluemix_devops@ibm.com",
      "Space": "demo"
    },
    "Name": "simple-website-ae7f5ff6",
    "Instrumentation": {}
  },
  "Path": "manifest.yml",
  "Type": "Cloud Foundry"
}
```

QUESTION-4:

1. 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 abuthahir-add <your_abuthahir>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/clouddatabases-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>

Hello World!

Thanks for creating an IBM Cloud Databases for PostgreSQL database.

Add a word to the database

The word hello is defined as a greeting Add

Database output

The word **bye** is defined as **a goodbye**
The word **bye** is defined as **a farewell**
The word **hello** is defined as **a greeting**
The word **hello** is defined as **a greeting**
The word **hello bob** is defined as **a greeting**
The word **hello bob** is defined as **a greeting**