

ASSIGNMENT IV

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Project Name	Customer care registry

QUESTION: 1

1. Pull an image from docker hub and run it in docker playground.
2. Create a docker file for the jobportal application and deploy it in docker desktop application.
3. Create a IBM container registry and deploy hello world app.
 - i, Install Container registry and create namespace.
 - ii, Create IBM cloud login. Pull and Push image.
 - iii, Then IBM container registry.
 - iv, Create a kubernetes cluster in IBM cloud and deploy hello world image or jobportal image and also expose the same app to run in nodeport

PROGRAM:

Deployment.yaml

apiVersion: apps/v1

kind: Deployment

metadata:

name: jobportal

spec:

replicas: 1

selector:

matchLabels:

app: flasknode

template:

metadata:

labels:

app: flasknode

spec:

containers:

- name: flasknode

image: icr.io/helloworld1/newhelloworld

imagePullPolicy: Always

ports:

- containerPort: 5000

Service.yaml

apiVersion: v1

kind: Service

metadata:

name: flask-node-deployment

spec:

ports:

- port: 5000

targetPort: 5000

selector:

app: flasknode

OUT PUT

The screenshot shows a web interface for managing a cloud instance. On the left, a sidebar contains a clock showing 03:49:01, a 'CLOSE SESSION' button, and a list of instances with one instance named '192.168.0.7' and 'node1'. The main panel displays details for the instance 'cdqf5qe3_cdqfadu3tccg00c8ttt0', including its IP address (192.168.0.7), memory usage (1.41%), CPU usage (0.85%), and an SSH command. Below this are 'DELETE' and 'EDITOR' buttons. A terminal window at the bottom shows the execution of Docker commands to pull the 'alpine' image and run a container on port 5000.

```
# is HIGHLY! discouraged. Any consequences of doing so are #
# completely the user's responsibilites. #
# #
# The FWD team. #
#####
[node1] (local) root@192.168.0.7 ~
$ docker pull alpine
Using default tag: latest
latest: Pulling from library/alpine
ca7dd9ec2225: Pull complete
Digest: sha256:b95359c2505145f16c6aa384f9cc74eeff78eb36d308ca4fd902eeeb0a0b161b
Status: Downloaded newer image for alpine:latest
docker.io/library/alpine:latest
[node1] (local) root@192.168.0.7 ~
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
alpine latest bfe296a52501 4 days ago 5.54MB
[node1] (local) root@192.168.0.7 ~
$ docker run -p 5000:5000 alpine
[node1] (local) root@192.168.0.7 ~
$
```

```
C:\Windows\System32\cmd.exe

C:\job-portal-main>docker build -t helloworld .
[+] Building 6.8s (12/12) FINISHED
=> [internal] load build definition from Dockerfile
=> [internal] load .dockerignore
=> [internal] load Dockerfile
=> [internal] load metadata for docker.io/library/python:3.6
=> [1/4] FROM docker.io/library/python:3.6@sha256:f8052a2f98625f66223545470892591867aa802ba7faba0819d9f9180b6f6c
=> [internal] load build context
=> transferring context: 657B
=> CACHED [2/6] WORKDIR /app
=> CACHED [3/6] ADD . /app
=> CACHED [4/6] COPY requirements.txt /app
=> CACHED [5/6] RUN python -m pip install -r requirements.txt
=> CACHED [6/6] RUN python -m pip install flask
=> exporting to image
=> writing image sha256:93cdceebbc92d5a862ac7b17088dc8a18ca7f13d08191ca0447de97728dc52
=> naming to docker.io/library/helloworld

C:\job-portal-main>docker images
'docker' is not recognized as an internal or external command,
operable program or batch file.

C:\job-portal-main>docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
helloworld          latest             93cdceebbc92       5 hours ago        1.08GB
newone              latest             93cdceebbc92       5 hours ago        1.08GB
jobportal            latest             642a3a3d092e       6 hours ago        1.08GB
ritchard/helloworld latest             f44eb69517a3       6 hours ago        1.08GB
httpd               2.4.54             8653efc8c72d       24 hours ago       145MB
httpd               latest             8653efc8c72d       24 hours ago       145MB
ritchard/httpd      latest             8653efc8c72d       24 hours ago       145MB
ubuntu              latest             a8780b586f44       13 days ago        77.9MB
centos               latest             508da3dc9764       14 months ago      231MB
ritchard/nitheshwari/latest             508da3dc9764       14 months ago      231MB

C:\job-portal-main>
```

```
C:\Users\nithe\AppData\Local\Programs\Python\Python310\job-portal>docker run -p 8080:8080 helloworld
* Serving Flask app 'app' (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
* Debug mode: off
* Running on all addresses.
WARNING: This is a development server. Do not use it in a production deployment.
* Running on http://172.17.0.2:5000/ (Press CTRL+C to quit)
```

Docker Desktop Upgrade plan

Containers Images Volumes Dev Environments **EXTA**

Extensions **EXTA** Add Extensions

Images on disk Last refresh: about 22 hours ago 222.98 MB total size 1.89 GB / 222.98 MB in use

Images Give feedback

An image is a read-only template with instructions for creating a Docker container. [Learn more](#)

LOCAL REMOTE REPOSITORIES

	NAME	TAG	STATUS	CREATED	SIZE	ACTIONS
<input type="checkbox"/>	helloworld 93cdceebbc92	latest	In use	about 5 hours ago	1.08 GB	▶ ⋮ 🗑
<input type="checkbox"/>	newone 93cdceebbc92	latest	In use	about 5 hours ago	1.08 GB	▶ ⋮ 🗑
<input type="checkbox"/>	jobportal 642a3a3d092e	latest	In use	about 6 hours ago	1.08 GB	▶ ⋮ 🗑
<input type="checkbox"/>	ritchard/helloworld f44eb69517a3	latest	In use	about 6 hours ago	1.08 GB	▶ ⋮ 🗑
<input type="checkbox"/>	httpd 8653efc8c72d	2.4.54	In use	1 day ago	145.19 MB	▶ ⋮ 🗑
<input type="checkbox"/>	httpd 8653efc8c72d	latest	In use	1 day ago	145.19 MB	▶ ⋮ 🗑
<input type="checkbox"/>	ritchard/httpd 8653efc8c72d	latest	In use	1 day ago	145.19 MB	▶ ⋮ 🗑
<input type="checkbox"/>	ubuntu					▶ ⋮ 🗑

Showing 10 items

RAM 1.52GB CPU 0.39% Connected to Hub v1.13.1

```
Microsoft Windows [Version 10.0.22000.1219]
(c) Microsoft Corporation. All rights reserved.

C:\Users\91936>ibmcloud plugin install container-registry
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Attempting to download the binary file...
 11.90 MiB / 11.90 MiB [=====] 100.00% 1m0s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\91936\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry' to show its details.

C:\Users\91936>
```

```
C:\Users\91936>ibmcloud cr region-set global
The region is set to 'global', the registry is 'icr.io'.

OK

C:\Users\91936>ibmcloud cr namespace-add newhelloworld
No resource group is targeted. Therefore, the default resource group for the account ('Default') is targeted.

Adding namespace 'newhelloworld' in resource group 'Default' for account Ritchard M's Account in registry icr.io...

Successfully added namespace 'newhelloworld'

OK

C:\Users\91936>
```

```
Microsoft Windows [Version 10.0.22000.1219]
(c) Microsoft Corporation. All rights reserved.

C:\Users\91936>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com

Email> ritchardmahimai@student.aut.edu.in

Password>
Authenticating...
OK

Targeted account Ritchard M's Account (c0e796459feb45e1a6bb8a7ebfec54ab)

Select a region (or press enter to skip):
1. au-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 9
Targeted region us-south

API endpoint: https://cloud.ibm.com
Region: us-south
User: ritchardmahimai@student.aut.edu.in
Account: Ritchard M's Account (c0e796459feb45e1a6bb8a7ebfec54ab)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

C:\Users\91936>
```

```
Command Prompt
12676416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\91936\.bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry' to show its details.
C:\Users\91936>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com
Email> ritchardmahina@student.autmd.edu.in
Password>
Authenticating...
OK
Targeted account Ritchard M's Account (c0e796459feb45e1a6bb8a7ebfec54ab)

Select a region (or press enter to skip):
1. eu-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 9
Targeted region us-south

API endpoint: https://cloud.ibm.com
Region: us-south
User: ritchardmahina@student.autmd.edu.in
Account: Ritchard M's Account (c0e796459feb45e1a6bb8a7ebfec54ab)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:
C:\Users\91936>
```

```
Command Prompt
Logging 'docker' in to 'icr.io'...
Logged in to 'icr.io'.
OK

C:\Users\91936>docker pull sandeepdoodigani/jobportalapp
Using default tag: latest
latest: Pulling from sandeepdoodigani/jobportalapp
0e29546d541c: Already exists
6a822c72b52b: Already exists
cb8b7ae36172: Already exists
649d4e4811622: Already exists
6f9f74896dfa: Already exists
6e3b1213efc5: Already exists
9fddfdcd56334: Already exists
a04f9004bac: Already exists
c4f42be2be33: Already exists
236c90db64e: Pull complete
86df5f9cfbe4: Pull complete
bba57da07333: Pull complete
96d74d4156fd: Downloading [==>] 3.753MB/89.51MB
778a951e5719: Download complete
OK

C:\Users\91936>docker pull alpine
Using default tag: latest
latest: Pulling from library/alpine
ca7dd9ec2225: Pull complete
Digest: sha256:b95359c2585145f16c6aa384f9cc74eeff78eb36d308ca4fd902eeeb0a0b161b
Status: Downloaded newer image for alpine:latest
docker.io/library/alpine:latest

C:\Users\91936>docker tag hello-world icr.io/newhelloworld/alpine:new
Error response from daemon: No such image: hello-world:latest

C:\Users\91936>docker tag alpine icr.io/newhelloworld/alpine:newapp

C:\Users\91936>docker push icr.io/newhelloworld/alpine:newapp
The push refers to repository [icr.io/newhelloworld/alpine]
e5e13b0c77cb: Pushed
newapp: digest: sha256:3d426b0bfc361d6e8303f51459f17782b219dece42a1c7fe463b6014b189c86d size: 528

C:\Users\91936>
```

IBM Cloud Container Registry Repositories

Search resources and products...

Location: Global

Search

Create

Name	Image count	Namespace	Last updated
alpine icr.io/newhelloworld/alpine	1	newhelloworld	5 days ago
Digest 3d426b0bfc36	Manifest type Docker	Tags newapp	Created 5 days ago
	Size 3 MB	Security status No issues	

Items per page: 25 1-1 of 1 item

IBM Cloud Kubernetes Clusters Overview

Search resources and products...

Clusters / helloworld1

Normal Expires in 30 days Add tags

Help Kubernetes dashboard Actions...

Expires in 30 days: Be sure to back up your data, your cluster will be deleted in 30 days. To access the full capabilities of the service, try out a standard cluster.

Node status	Add-on status	Master status	Ingress status
1 of 1 Normal	0 of 0 Normal	Normal	Healthy
Details	Details	Docs	Docs

Details

Cluster ID cdqrcu7f9ve262b33r50	Version 1.24.8_1544	Infrastructure Classic	Zones Milan 01
Created 11/17/2022, 9:50 AM	Resource group Default	Image security enforcement Enable	

Node health

IBM Cloud console showing the 'helloworld1' cluster. The 'Worker nodes' tab is selected, displaying a table of worker pools.

Name	Status	Worker pool	Zone	Private IP	Public IP	Version
000000e5	Normal	default	Milan 01	10.144.194.190	169.51.207.220	1.24.7_1543

Additional details for the worker pool:

- ID: kube-cdgrcu7f0ve262b33r50-helloworld1-default-000000e5
- Status: --
- Flavor: Free - 2 vCPUs 4GB RAM
- Private VLAN: 2218181
- Public VLAN: 2218179

Items per page: 25 | 1-1 of 1 item

Kubernetes dashboard showing the 'Create' form for a new workload.

Create

Workloads: Cron Jobs, Daemon Sets, Deployments, Jobs, Pods, Replica Sets, Replication Controllers, Stateful Sets

Service: Ingresses, Ingress Classes, Services

Config and Storage: Config Maps, Persistent Volume Claims

Create from input | Create from file | **Create from form**

App name: helloworld1

Container image: icr.io/newhelloworld/alpine@sha256:3d426b0bfc361d6e8303f51459f17782b219d

Number of pods: 1

Service: None

Namespace: default

Buttons: Deploy, Preview, Cancel, Show advanced options

IBM x CAD-B6-6 x ASSIGNM x IBM Cloud x helloworld x (4) Whats x IBM-Proje x IBM-EPBL x Microsoft x IBM notice x

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdqr0u7f0ve262b33r50/service/#/overview?namespace=default

kubernetes default Search

Overview

Workloads

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses

Ingress Classes

Services

Config and Storage

Config Maps

Persistent Volume Claims

Workloads

Workload Status

Pending: 1

Deployments

Pending: 1

Pods

Pending: 1

Replica Sets

Deployments

Name	Images	Labels	Pods	Created
helloworld1	Show all	Show all	0 / 1	6 seconds ago

29°C

AQI 157

Search

ENG

INTL

10:50 am

17/11/2022