

ASSIGNMENT 4

Assignment Date	17 October 2022
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Student roll no	211419104310
Maximum Marks	2 Marks

Questions:

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 helloworld app or jobportal app.
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

Output:

Pull image in docker:

```
root@admin:/home/ash/Desktop... root@admin:/home/ash/Desktop... root@admin:/home/ash/Desktop... root@admin:/home/ash/Desktop... root@admin:/home/ash/Desktop...
node 13-alpine3.10 9e3fc25f69d2 2 years ago 114MB
postgres 10.10 9a05a2b9e69f 3 years ago 211MB
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker tag flaskapp:1.0 icr.io/helloind/python:1.0
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker push icr.io/helloind/python:1.0
The push refers to repository [icr.io/helloind/python]
f7a508b1c151: Pushed
>7b353df37a8: Pushing [=====>] 12.38MB
7216ce2329ba: Pushed
>f61ccc2347a: Pushed
>fc1deb8136e: Pushed
lf123186824c: Pushed
3d6eb1152931: Pushing [=====>] 7.748MB/57.12MB
l00796cdf3b1: Pushing [=====>] 11.14MB/18.48MB
54acb5a6fa0b: Pushing [>] 4.294MB/528.7MB
3d51c618126f: Pushing [>] 1.063MB/152MB
>ff6e4d46744: Waiting
>89d1d47b5a1: Waiting
>55ed1b7a428: Waiting
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker push icr.io/helloind/python:1.0
The push refers to repository [icr.io/helloind/python]
f7a508b1c151: Layer already exists
>7b353df37a8: Layer already exists
7216ce2329ba: Layer already exists
>f61ccc2347a: Layer already exists
>fc1deb8136e: Layer already exists
lf123186824c: Layer already exists
3d6eb1152931: Pushed
l00796cdf3b1: Pushed
54acb5a6fa0b: Pushed
3d51c618126f: Pushed
>ff6e4d46744: Pushed
>89d1d47b5a1: Pushed
>55ed1b7a428: Pushed
l.0: digest: sha256:9d7b9f369391c18d6aa88270ebb467ab6b93b3f18e61a46c9467b7fa5cc4b404 size: 3050
```

Run Docker:

```
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/ac
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker run -p5000:5000 flakapp:1.0
Unable to find image 'flakapp:1.0' locally
docker: Error response from daemon: pull access denied for flakapp, repository does not exist or may require 'docker lo
quested access to the resource is denied.
See 'docker run --help'.
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker run -p5000:5000 -t flakapp:1.0
Unable to find image 'flakapp:1.0' locally
docker: Error response from daemon: pull access denied for flakapp, repository does not exist or may require 'docker lo
quested access to the resource is denied.
See 'docker run --help'.
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker run -p5000:5000 -t flakapp
Unable to find image 'flakapp:latest' locally
docker: Error response from daemon: pull access denied for flakapp, repository does not exist or may require 'docker lo
quested access to the resource is denied.
See 'docker run --help'.
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker run -p5000:5000 -t flaskapp:1.0
docker: Error response from daemon: driver failed programming external connectivity on endpoint silly_bardeen (717385e0
d59728f1e3577afe801b18edb0257c07b377889d): Bind for 0.0.0.0:5000 failed: port is already allocated.
ERRO[0002] error waiting for container: context canceled
root@admin:/home/ash/Desktop/Flask ClassWorrk# docker run -t flaskapp:1.0
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.3:5000
Press CTRL+C to quit
172.17.0.1 - - [23/Oct/2022 17:21:29] "GET / HTTP/1.1" 200 -
172.17.0.1 - - [23/Oct/2022 17:21:29] "GET /favicon.ico HTTP/1.1" 404 -
172.17.0.1 - - [23/Oct/2022 17:21:50] "GET / HTTP/1.1" 200 -
```

Docker Playground:

The screenshot shows the Docker Playground interface in a web browser. The top bar displays the URL `labs.play-with-docker.com/p/cdagodu0qau0009n3080#cdagodu0_cdagolu0qau0009n309g`. The main interface is divided into a left sidebar and a right content area.

Left Sidebar:

- A large digital clock showing **03:56:24**.
- A red button labeled **CLOSE SESSION**.
- A section titled **Instances** with a key icon and a gear icon.
- A button labeled **+ ADD NEW INSTANCE**.
- A list of instances showing `192.168.0.8` and `node1`.

Right Content Area:

The title is `cdagodu0_cdagolu0qau0009n309g`. Below it, the IP address is `192.168.0.8` with an **OPEN PORT** button. The **Memory** and **CPU** usage are shown as empty bars. The **SSH** section displays the command `ssh ip172-18-0-20-cdagodu0qau0009n3080@direct.labs.play-with-c` with a copy icon. There are **DELETE** and **EDITOR** buttons.



Terminal Window:

```
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS
00183bfe1385   mongo    "docker-entrypoint.s..." 15 seconds ago Up 13 seconds 27017/tcp, 0.0
tcp_mongodb
[node1] (local) root@192.168.0.8 ~
$ docker start mongodb
mongodb
[node1] (local) root@192.168.0.8 ~
$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
mongo         latest   lcca5cf68239   2 weeks ago    695MB
[node1] (local) root@192.168.0.8 ~
$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS
00183bfe1385   mongo    "docker-entrypoint.s..." About a minute ago Up About a minute 27017/
0->3001/tcp_mongodb
[node1] (local) root@192.168.0.8 ~
```

labs.play-with-docker.com/p/cdagodu0qau0009n3080#cdagodu0_cdagolu0qau0009n309g

03:53:15

CLOSE SESSION

Instances  

+ ADD NEW INSTANCE

192.168.0.8


node1

cdagodu0_cdagolu0qau0009n309g


IP
192.168.0.8

OPEN PORT

Memory CPU

SSH
ssh ip172-18-0-20-cdagodu0qau0009n3080@direct.labs.play-with-docker.com 

DELETE

 EDITOR

```
$ docker run -d -p6010:3000 hello-world
9b7c8f4adb31df3a7ceaf431f63e2eae868a579059402bc72b630b7e5e911875
^[[D[node1] (local) root@192.168.0.8 ~
$ docker run -d -p6020:3000 hello-world
6b0f1699a8ced253d9df780a42eeff298a0c2fb2c6389e709681da2e63879b0b
[node1] (local) root@192.168.0.8 ~
$ docker run -p6120:3000 hello-world

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
```

Container Registry:

cloud.ibm.com/registry/repos

IBM Cloud

Search resources and products...

Q Catalog Manage ASWIN s's Account

Container Registry

Quick start

Namespaces 1

Repositories 2

Images 2

Trash 0



Settings

Repositories

Location
Global

Q Search

Create +

<input type="checkbox"/>	Name	Image count	Namespace	Last updated	
<input checked="" type="checkbox"/>	 python icr.io/helloind/python	1	helloind	11 hours ago	:
<input checked="" type="checkbox"/>	 app icr.io/helloind/app	1	helloind	395 days ago	:

Items per page: 25 1-2 of 2 items 1 1 of 1 page

← → ⌂ Not secure | 172.17.0.3:5000

Templates was Created successfully Welcomee

hai

KUBERNETES:

dashboard-adminuser.yaml

apiVersion: v1

kind: ServiceAccount

metadata:

name: admin-user

namespace: kubernetes-dashboard

apiVersion: v1

kind: Secret

metadata:

name: admin-user-token

namespace: kubernetes-dashboard

annotations:

kubernetes.io/service-account.name: admin-user

type: kubernetes.io/service-account-token

apiVersion: rbac.authorization.k8s.io/v1

kind: ClusterRoleBinding

metadata:

name: admin-user

roleRef:

apiGroup: rbac.authorization.k8s.io

kind: ClusterRole

name: cluster-admin

subjects:

- kind: ServiceAccount

name: admin-user

namespace: kubernetes-dashboard

Flask-deployment.yaml

apiVersion: apps/v1

kind: Deployment

metadata:

name: flask-app

spec:

replicas: 3

selector:

matchLabels:

app: flask-app

template:

metadata:

labels:

app: flask-app

spec:

containers:

- name: flask-app-container

image: flask-app-testing

imagePullPolicy: Never

ports:

- containerPort: 5000

protocol: TCP

Flask_ingress.yaml:

apiVersion: networking.k8s.io/v1

kind: Ingress

metadata:

name: flask-app-ingress

annotations:

kubernetes.io/ingress.class: nginx

nginx.ingress.kubernetes.io/ssl-redirect: "false"

spec:

ingressClassName: nginx

rules:

- http:

paths:

backend:

service:

name: flask-app-service

port:

```
    number: 5000
  path: /
  pathType: Prefix
```

Flask_service.yaml:

```
apiVersion: v1
kind: Service
metadata:
  name: flask-app-service
spec:
  type: ClusterIP
  ports:
    - port: 5000
  selector:
    app: flask-app
```