

## ASSIGNMENT-4

Assignment Date	28 October 2022
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Maximum Marks	2 Marks

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

The screenshot shows the Docker Playground interface in a web browser. The browser tabs include Docker Hub, IBM-EPBL/IBM-Proje..., IBM, Assignments-CapD/..., Docker Playground, ulfd/ui-for-docker, and sandeepdoodigani/jo... The address bar shows the URL: labs.play-with-docker.com/p/cdof5j791rrg00fboiig#cdof5j79\_cdof5tf91rrg00fboiig. The interface has a blue sidebar on the left with a clock showing 02:59:51, a 'CLOSE SESSION' button, an 'Instances' section with a magnifying glass and gear icon, and a '+ ADD NEW INSTANCE' button. Below this, a list of instances shows '192.168.0.18 node1'. The main area displays the details of the selected instance 'cdof5j79\_cdof5tf91rrg00fboiig'. It shows the IP address '192.168.0.18' with an 'OPEN PORT' button, memory usage '30.37% (1.186GiB / 3.906GiB)', CPU usage '0.19%', and an SSH command: 'ssh ip172-18-0-40-cdof5j791rrg00fboiig@direct.labs.play-w'. There are 'DELETE' and 'EDITOR' buttons. At the bottom, a terminal window shows the command 'docker pull sandeepdoodigani/jobportalapp' and its output, including the image name, tag, and a list of layers being pulled from Docker Hub. The terminal output ends with 'Status: Downloaded newer image for sandeepdoodigani/jobportalapp:latest'.

```
[node1] (local) root@192.168.0.18 ~
$ docker pull sandeepdoodigani/jobportalapp
Using default tag: latest
latest: Pulling from sandeepdoodigani/jobportalapp
0e29546d541c: Pull complete
9b829c73b52b: Pull complete
cb5b7ae36172: Pull complete
6494e4811622: Pull complete
6f9f74896d4a: Pull complete
9e3b1213efc5: Pull complete
9fddfd563334: Pull complete
404f02044bae: Pull complete
c4f42be2be53: Pull complete
296c00cd64e4: Pull complete
86df5f9cfbe4: Pull complete
b0a57da07333: Pull complete
96d74d4156fd: Pull complete
778a951e5719: Pull complete
Digest: sha256:e8590bc86f5d2ef2f85536f570fe49a5fec2093ebfd146f5aa63dcde9f9bdd24
Status: Downloaded newer image for sandeepdoodigani/jobportalapp:latest
docker.io/sandeepdoodigani/jobportalapp:latest
```

The screenshot shows a Docker Playground interface. On the left, there's a sidebar with a clock showing 03:53:23, a 'CLOSE SESSION' button, and a list of instances. The main area displays details for a container named 'cdpiqu0\_cdpiqu0qau000b95j10'. It shows the IP address 192.168.0.18, memory usage at 31.88%, and CPU usage at 0.81%. Below this, there's a terminal window showing the container's output. The output indicates that several Docker images were pulled successfully, including 'sha256:6f9f74896d4fa: Pull complete', 'sha256:be3b1213efc5: Pull complete', 'sha256:9fddfd56334: Pull complete', 'sha256:404f02044bac: Pull complete', 'sha256:c4f42be2be53: Pull complete', 'sha256:296c00c0db64e: Pull complete', 'sha256:86df5f9cfbe4: Pull complete', 'sha256:b0a57da07333: Pull complete', 'sha256:96d74d4156fd: Pull complete', and 'sha256:778a951e5719: Pull complete'. The terminal also shows a warning about the development server and the application running on http://172.17.0.2:8080/.

The screenshot shows a web application titled 'Smart Internz'. The header includes the logo, navigation links (LOGIN, REGISTER, CONTACT US), and a title 'Aboutus'. The main content area is divided into three columns: Mission, Vision, and Objective. The 'Mission' column describes SMARTBRIDGE as an edTech organization with a vision to bridge the gap between academia and industry. The 'Vision' column states the main objective is to bridge existing gaps between industry standards and what the academics offer to the graduates while passing out of university. The 'Objective' column lists well-directed career guidance programs for educational institutions, appropriate certification courses that suit the industry need, training for the trainees, expanded awareness about the current industry standards, and liaison with corporates to offer niche internships. The footer contains a 'JobPortal' section with a placeholder text and a 'Get in Touch' section with contact information.

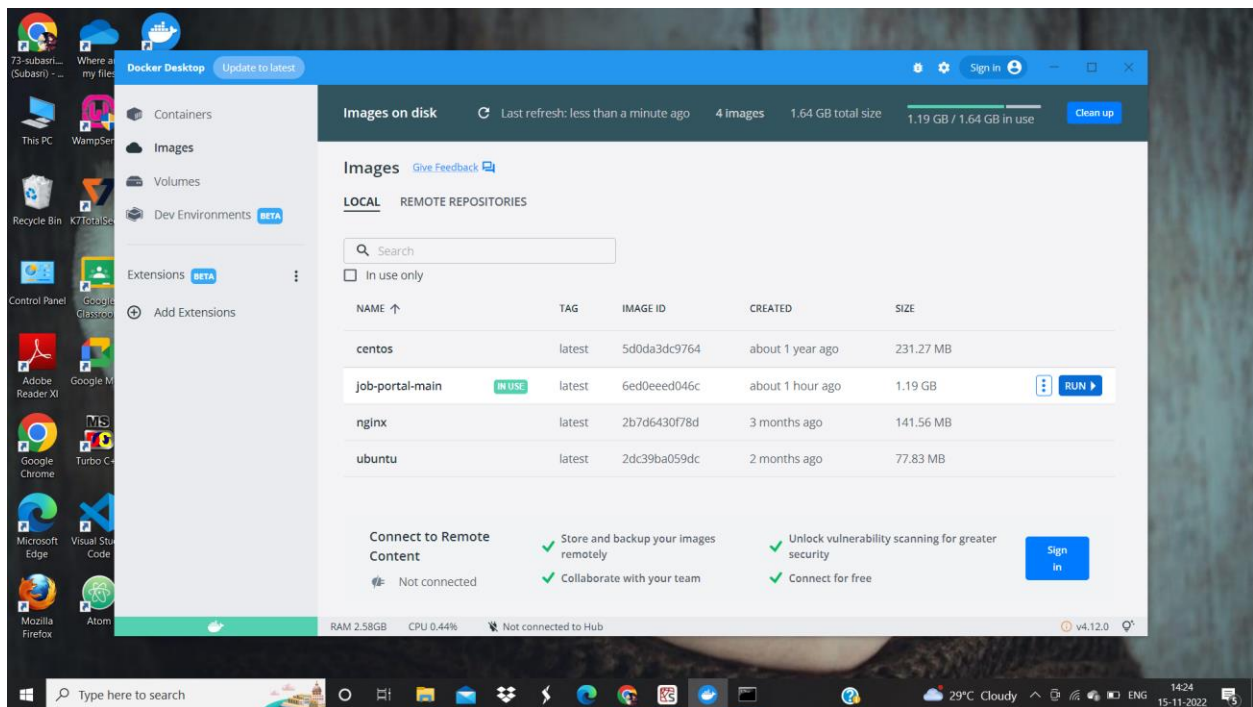
2.Create a docker file for the job portal application and deploy it in Docker desktop application.

```
Select Command Prompt - docker run -p 5000:5000 job-portal-main
-> sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d954a56848a0109a3a3f 2.21MB / 2.21MB 179.5s
-> extracting sha256:6f9f74896dffa93fe0172f594faba85e0bde8a0481a0fef0112efc7edd3c78f7 15.6s
-> extracting sha256:5e3b1213efc50508e78bd602833945c164de2a37205e06a62dada823124dc743 0.4s
-> extracting sha256:9f681f636334f2edefad70241bf5e7459c4bd0109c5497076f41c1244a096792 1.2s
-> extracting sha256:404f0204dbac0432ca522cbb9f25d81c91cea6808bfeef0be0b243b2f31ba07 0.0s
-> extracting sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d954a56848a0109a3a3f 0.7s
-> [2/6] WORKDIR /app 1.2s
-> [3/6] ADD . /app 6.2s
-> [4/6] COPY requirements.txt /app 0.2s
-> [5/6] RUN python3 -m pip install -r requirements.txt 1940.4s
-> [6/6] RUN python3 -m pip install ibm_db 2.6s
-> exporting to image 3.9s
-> exporting layers 3.8s
-> writing image sha256:6ed0eed046cb1b9ed947507581b307a29a2843ba7309d5b881238ca357383c 0.0s
-> naming to docker.io/library/job-portal-main 0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

C:\job-portal-main> docker images
REPOSITORY          TAG          IMAGE ID       CREATED        SIZE
job-portal-main      latest       6ed0eed046c   40 minutes ago 1.19GB
ubuntu              latest       2dc39ba059dc  2 months ago  77.8MB
nginx               latest       2b7d6430f78d  2 months ago  142MB
centos              latest       5d0da3dc9764  14 months ago 231MB

C:\job-portal-main> docker run -p 5000:5000 job-portal-main
* 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)
```



3.Create a IBM container registry and deploy hello world app or job portal app.

```
Command Prompt
update      Update CLI to the latest version
version     Print the version
help, h     Show help

Enter 'ibmcloud help [command]' for more information about a command.

ENVIRONMENT VARIABLES:
  IBMCLD_COLOR=false          Do not colorize output
  IBMCLD_VERSION_CHECK=false  Do not check latest version for update
  IBMCLD_HTTP_TIMEOUT=5       A time limit for HTTP requests
  IBMCLD_API_KEY=api_key_value API Key used for login
  IBMCLD_CR_VPC_URL=url_value The custom server URL to use when obtaining an instance identity token and IAM token as a VPC VSI compute resource. This value will replace the default server endpoint of the VPC VSI instance identity token service.
  IBMCLD_CR_TOKEN=cr_token_value Compute resource token used for login. Can either be a token string or a path to a @file.
  IBMCLD_CR_PROFILE=profile_value The name, ID, or CRN of the linked trusted IAM profile to be used when obtaining the IAM access token. If authenticating as a VPC VSI compute resource, only specifying a trusted profile CRN or ID is supported.
  IBMCLD_TRACE=true           Print API request diagnostics to stdout
  IBMCLD_TRACE=path/to/trace.log Append API request diagnostics to a log file
  IBMCLD_HOME=path/to/dir     Path to config directory

GLOBAL OPTIONS:
  --version, -v          Print the version
  --help, -h             Show help

C:\Users\SUBASRI>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% 1m16s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\SUBASRI\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry' to show its details.

C:\Users\SUBASRI>
```

```
Command Prompt
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/access-tokens/

C:\Users\SUBASRI>ibmcloud cr login
Logging 'docker' in to 'icr.io'...
Logged in to 'icr.io'.

OK

C:\Users\SUBASRI>docker tag job-portal-main icr.io/jobportalapp1/job-portal-main:jobportaltest

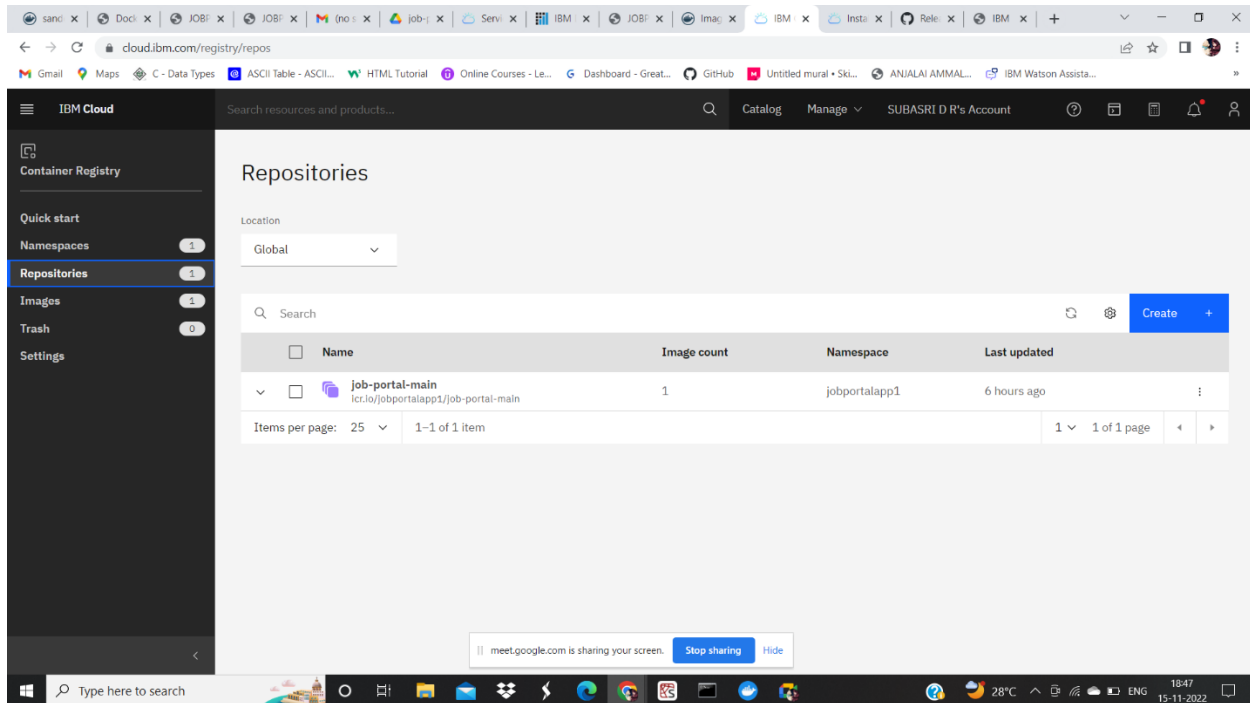
C:\Users\SUBASRI>docker push icr.io/jobportalapp1/job-portal-main:jobportaltest
The push refers to repository [icr.io/jobportalapp1/job-portal-main]
9185ffa09a1: Pushed
7467e01a2478: Pushed
2a3bfe6f6e05: Pushed
7e44c22986a1: Pushed
55f5b2973be3: Pushed
aa4c888c19f6: Pushed
8ba9f690e8ba: Pushed
3e607d59ef9f: Pushed
1e18e7e1fcc2: Pushed
c3a0d93bd24: Pushed
26a504e63be4: Pushed
8bf42db0de72: Pushed
31892cc314cb: Pushed
11936051f93b: Pushed
jobportaltest: digest: sha256:4bd4729ed4c18776a95cbe8a5eded1c1fc2e675fb34f023703b28d8c278f66d size: 3263

C:\Users\SUBASRI>
C:\Users\SUBASRI>ibmcloud cr image-list
Listing images...

Repository          Tag          Digest          Namespace      Created      Size      Security status
icr.io/jobportalapp1/job-portal-main  jobportaltest  4bd4729ed4c1     jobportalapp1   3 hours ago  472 MB    -

OK

C:\Users\SUBASRI>
```



4. Create a Kubernetes cluster in IBM cloud and deploy hello world image or job portal image and also expose the same app to run in node port.

```

Command Prompt
api-resources Print the supported API resources on the server
api-versions Print the supported API versions on the server, in the form of "group/version"
config Modify kubeconfig files
plugin Provides utilities for interacting with plugins
version Print the client and server version information

Usage:
  kubectl [flags] [options]

Use "kubectl <command> --help" for more information about a given command.
Use "kubectl options" for a list of global command-line options (applies to all commands).

C:\Users\SUBASRI>ibmcloud plugin install kubernetes-service
Looking up 'kubernetes-service' from repository 'IBM Cloud'...
Plug-in 'container-service[kubernetes-service/ks] 1.0.459' found in repository 'IBM Cloud'
Plug-in 'container-service[kubernetes-service/ks] 1.0.459' was already installed. Do you want to re-install it or not? [y/N] > y
Attempting to download the binary file...
26.86 MB / 26.86 MB [=====] 100.00% 21s
28168192 bytes downloaded
Installing binary...
OK
Plug-in 'container-service 1.0.459' was successfully installed into C:\Users\SUBASRI\bluemix\plugins\container-service. Use 'ibmcloud plugin show container-service' to show its details.

C:\Users\SUBASRI>cd C:\job-portal-main
C:\job-portal-main>kubectl apply -f deployment.yaml
deployment.apps/job-portal-main configured
C:\job-portal-main>kubectl apply -f service.yaml
service/job-portal-main configured
C:\job-portal-main>kubectl get pods
NAME READY STATUS RESTARTS AGE
flask-node-deployment-7f5dc9d8cd-57vld 0/1 ErrImagePull 0 5h57m
job-portal-main-668fcc7c86-kj5vn 1/1 Terminating 0 167m
job-portal-main-677b754f79-jc8g2 1/1 Running 0 26s
C:\job-portal-main>kubectl get service
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
flask-node-deployment ClusterIP 10.103.200.80 <none> 5080/TCP 5h57m
job-portal-main ClusterIP 10.107.155.3 <none> 5080/TCP 5h57m
kubernetes ClusterIP 10.96.0.1 <none> 443/TCP 10h
C:\job-portal-main>

```

## SKILL/JOB RECOMMENDER

LOGIN

REGISTER

CONTACT US

### Aboutus

#### Mission

This is an edTech organization with a vision to bridge the gap between academia & industry. Our outcome-based experiential learning programs on emerging technologies (Internet of Things, Machine Learning, Data Science, Artificial Intelligence, Robotics) are building skilled entry - level engineers, for the corporate world.

#### Vision

Our main objective is to bridge the existing gaps between prevailing industry standards and what the academics offer to the graduates while passing out of university. This offers suitable skill deployment and training to the young talent before on boarding their first job. Our skill development programs are designed considering the present expectations in the industry.

#### Objective

Well directed career guidance programs for educational institutions  
Appropriate certification courses that suit the industry need  
Train the trainers; expanded awareness about the current industry standards  
Liaise with corporates to offer niche internships  
Establish technology development centers in colleges  
Specialised incubation centers in collaboration with corporates.

