

Assignment - 4 Docker and Kubernetes

Assignment Date	30 october 2022
Student Name	Reshma G
Student Roll Number	410119104045
Maximum Marks	2 Marks

Question-1:

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

```
[node1] (local) root@192.168.0.18 ~
$ docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:e18f0a777aefabe047a671ab3ec3eed05414477c951ab1a6f352a06974245fe7
Status: Downloaded newer image for hello-world:latest
docker.io/library/hello-world:latest
[node1] (local) root@192.168.0.18 ~
$ docker run hel
hello-world:latest
[node1] (local) root@192.168.0.18 ~
$ docker run hello-world
hello-world:latest
[node1] (local) root@192.168.0.18 ~
$ docker run hello-world:latest
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)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

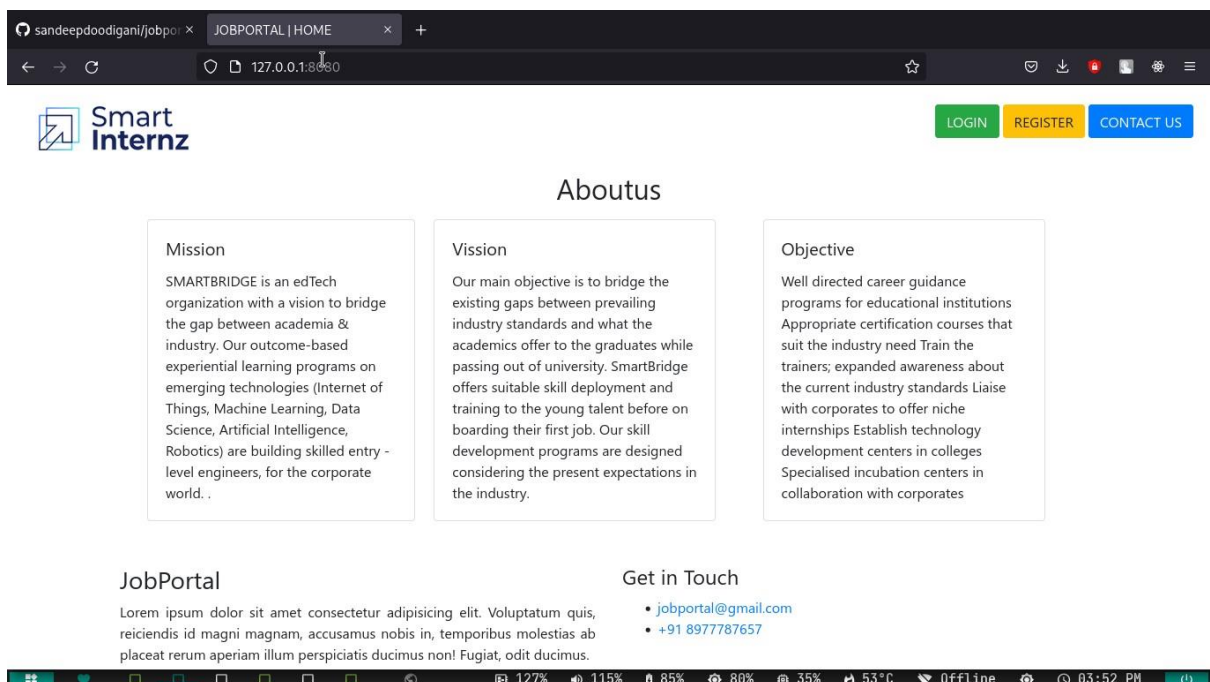
[node1] (local) root@192.168.0.18 ~
$
```

The screenshot shows the Docker Playground web interface. On the left, there's a sidebar with a clock showing 03:56:41, a 'CLOSE SESSION' button, and a list of instances. One instance is listed: '192.168.0.18 node1'. The main area displays details for the selected container 'cdj2d3u0_cdj2e5e3tccg008jlt0'. It shows the IP address '192.168.0.18', memory usage '1.30% (52.05MiB / 3.906GiB)', and CPU usage '0.21%'. There's an 'OPEN PORT' button and an SSH command: 'ssh ip172-18-0-27-cdj2d3u0qau000fq8vj0@direct.labs.play-with-d'. Below this is a terminal window showing a warning message and the prompt '[node1] (local) root@192.168.0.18 ~'.

Question-2:

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

```
Building wheel for ibm-db (PEP 517): finished with status 'done'
Created wheel for ibm-db: filename=ibm_db-3.1.3-cp36-cp36m-linux_x86_64.whl size=41482979 sha256=6fcaba8ebcf614ea3fd78e2b9c3ef69600aaa956fae830ec9a9
bd92447a2a2f
Stored in directory: /root/.cache/pip/wheels/58/78/af/4faa623f6620b3a77d185e6a874a6a37e65309091a06e0ba63
Successfully built ibm-db
Installing collected packages: zipp, typing-extensions, MarkupSafe, importlib-metadata, dataclasses, Werkzeug, Jinja2, itsdangerous, click, ibm-db, Flask
Successfully installed Flask-2.0.3 Jinja2-3.0.3 MarkupSafe-2.0.1 Werkzeug-2.0.3 click-8.0.4 dataclasses-0.8 ibm-db-3.1.3 importlib-metadata-4.8.3 itsda
ngerous-2.0.1 typing-extensions-4.1.1 zipp-3.6.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended t
o use a virtual environment instead: https://pip.pypa.io/warnings/venv
WARNING: You are using pip version 21.2.4; however, version 21.3.1 is available.
You should consider upgrading via the '/usr/local/bin/python3 -m pip install --upgrade pip' command.
Removing intermediate container 3c44acd8703f
--> 44ff69d024eb
Step 6/8 : RUN python3 -m pip install ibm_db
--> Running in c615193bf839
Requirement already satisfied: ibm_db in /usr/local/lib/python3.6/site-packages (3.1.3)
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended t
o use a virtual environment instead: https://pip.pypa.io/warnings/venv
WARNING: You are using pip version 21.2.4; however, version 21.3.1 is available.
You should consider upgrading via the '/usr/local/bin/python3 -m pip install --upgrade pip' command.
Removing intermediate container c615193bf839
--> 1dc537ce66c9
Step 7/8 : EXPOSE 8080
--> Running in 93956fa303f0
Removing intermediate container 93956fa303f0
--> 5efa0d34a57c
Step 8/8 : CMD ["python", "app.py"]
--> Running in 0d667ae09a5d
Removing intermediate container 0d667ae09a5d
--> 667ce7d694d9
Successfully built 667ce7d694d9
Successfully tagged assignment_4:latest
darkshadow@jobportal-application:~$ docker run -p 8080:80 -d assignment_4:latest
48114be8c40b11d0c9fff913529305410b14baa2b9943e0e5ccf892f657f057d
darkshadow@jobportal-application:~$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
48114be8c40b   assignment_4:latest   "python app.py"         4 seconds ago   Up 3 seconds   8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp   competent_ride
darkshadow@jobportal-application:~$
```



Question – 3

3. Create a IBM container registry and deploy helloworld app or jobportalapp.

```
darkshadow* ~ - ▸ ibmcloud login
API endpoint: https://cloud.ibm.com
Region: in-che

Email> 410119104055@smartinternz.com

Password>
Authenticating...
OK

Targeted account THANGARAJ M's Account (090631b425dc4e1ebb7be4a5d22a1316)

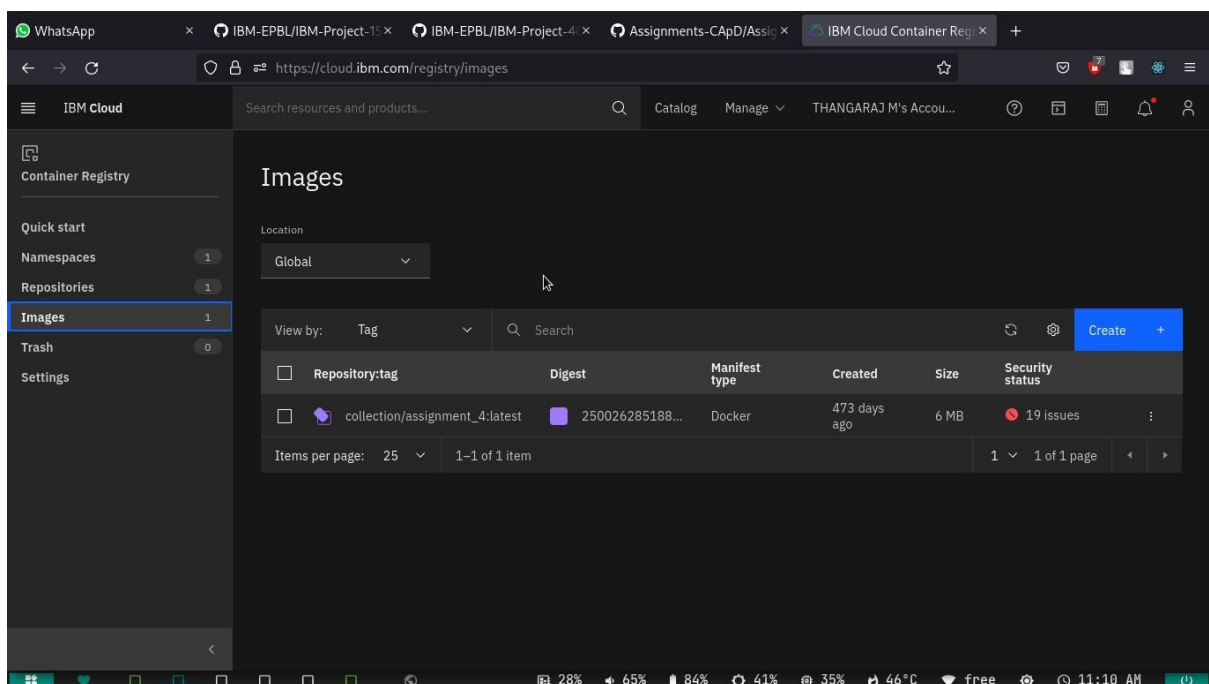
API endpoint:      https://cloud.ibm.com
Region:           in-che
User:             410119104055@smartinternz.com
Account:          THANGARAJ M's Account (090631b425dc4e1ebb7be4a5d22a1316)
Resource group:   No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:
darkshadow* ~ - ▸ ibmcloud cr login
Logging 'docker' in to 'icr.io'...
Logged in to 'icr.io'.

OK
darkshadow* ~ - ▸ docker push icr.io/collection/assignment 4:latest
The push refers to repository [icr.io/collection/assignment_4]
8bbc5f111671: Layer already exists
72e830a4dff5: Layer already exists
Put "https://icr.io/v2/collection/assignment_4/blobs/uploads/c6a4ad95-aff4-4613-94c3-bdf150906264? state=dsXik9dd0vfQum2mNBx8zfJw1TwbFBRMBwdRtEMqZ7IKShbWUio1j1jb2xsZWNoaw9uL2Fc2lnbmllbnRlbnNlIiwE0YVWQ5Ni1hZmY0LTQ2MTM0OTRjMy1iZGYxNTA5MDYyNjQlLCJPZmZzZX0iOjE4OTUsIlNOYX0ZWRBdCI6IjIwMiJmTmTEmTVUVDUUGMzg6NTVaIn%3D&digest=sha256%3A25fc249f6cc8c92fbca45d7e2d15bdfcf9fa689d911644d23b3al4bc76981e3c": dial tcp 169.60.98.86:443: i/o timeout
darkshadow* ~ - ▸ docker push icr.io/collection/assignment 4:latest
The push refers to repository [icr.io/collection/assignment_4]
8bbc5f111671: Layer already exists
72e830a4dff5: Layer already exists
latest: digest: sha256:250026285188ad3b74eeea456cd2ec56c7a841e45054c8cd4422bf0a800686978 size: 739
darkshadow* ~ - ▸
```

0 dark

0 dark

darkshadow




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.

WhatsApp x KubernetesDemo/deploy x IBM Cloud Container Reg x mycluster-free - Kubernetes x New Account | SendGrid x +

← → ↻ 🔒 https://eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdpid3mf0l25t4750hig/service/#/deployment/d ☆

 **kubernetes** default 🔍 Search + 🔔 👤

☰ Workloads > Deployments > assignment4-cad26 ⋮ ↻ ✎ 🗑

Workloads ^N

- Cron Jobs
- Daemon Sets
- Deployments
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses ^N
- Ingress Classes
- Services ^N

Config and Storage

- Config Maps ^N

Metadata

Name	Namespace	Created	Age	UID
assignment4-cad26	default	Nov 15, 2022	a minute ago	28ec7bb6-7516-42e6-a88a-3bf3049b0ffd

Labels

k8s-app: assignment4-cad26

Annotations

deployment.kubernetes.io/revision: 1

Resource information

Strategy	Min ready seconds	Revision history limit
RollingUpdate	0	10

Selector

k8s-app: assignment4-cad26

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