

Assignment -4

Docker and Kubernetes

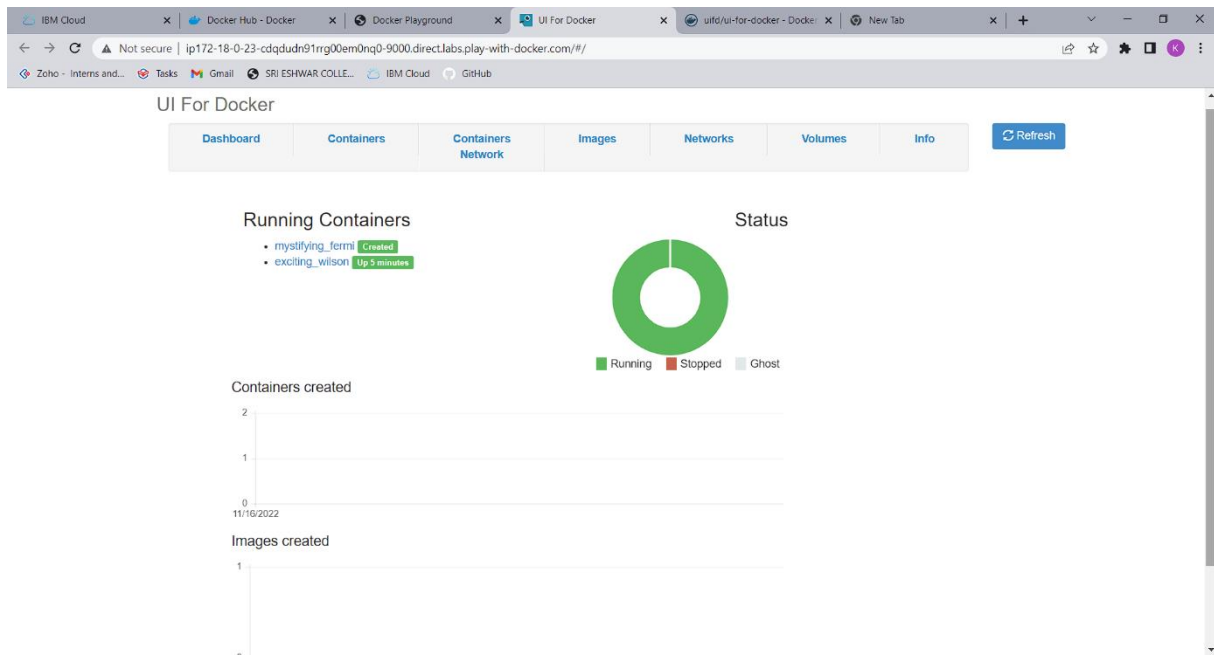
Assignment Date	21 October 2022
Student Name	Kaviyarasan J
Student Roll Number	722819104059
Maximum Marks	2 Marks

Question-1:

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

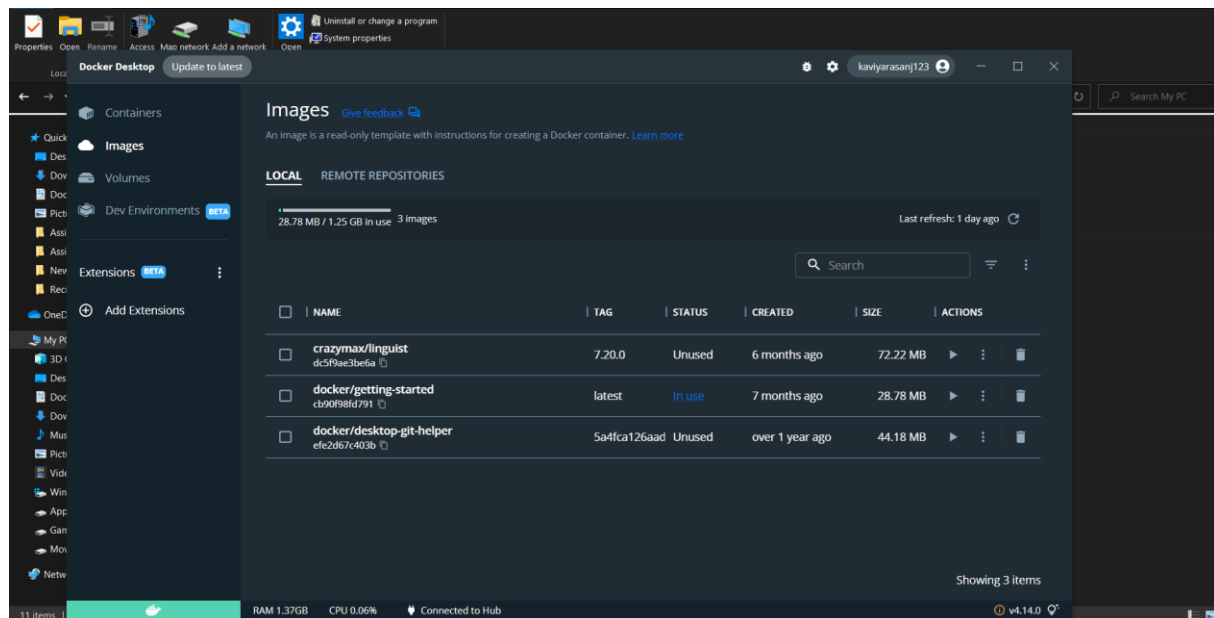
The screenshot shows the Docker Playground interface in a web browser. The browser tabs include 'IBM Cloud', 'Docker Hub - Docker', and 'Docker Playground'. The address bar shows the URL 'labs.play-with-docker.com/p/cdqqudn91rrg00em0nq0#cdqqudn9_cdqe3t791rrg00accnhg'. The interface has a sidebar on the left with a clock showing '03:41:04', a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button. Below this, a list of instances shows '192.168.0.8 node1'. The main area displays the details of the selected instance 'cdqqudn9_cdqe3t791rrg00accnhg'. It shows the IP '192.168.0.8', an 'OPEN PORT' button set to '9000', memory usage '1.61% (64.45MiB / 3.906GiB)', and CPU usage '1.10%'. An SSH command is provided: 'ssh ip172-18-0-23-cdqqudn91rrg00em0nq0@direct.labs.pla'. Below this are 'DELETE' and 'EDITOR' buttons. The bottom section shows a terminal window with the following output:

```
#####  
# WARNING!!!! #  
# This is a sandbox environment. Using personal credentials #  
# is HIGHLY! discouraged. Any consequences of doing so are #  
# completely the user's responsibilities. #  
# #  
# The PWD team. #  
#####  
(node1) (local) root@192.168.0.8 ~  
$ docker pull uifd/ui-for-docker  
Using default tag: latest  
latest: Pulling from uifd/ui-for-docker      841194d080c8: Pull complete  
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834cbadf244870572150b1cb749  
Status: Downloaded newer image for uifd/ui-for-docker:latest  
docker.io/uifd/ui-for-docker:latest  
(node1) (local) root@192.168.0.8 ~  
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker  
593df53328bdc2945e0d562be25a8edcd8e0b0f23474f994287921c2a5c558c  
(node1) (local) root@192.168.0.8 ~  
$
```



Question 2:

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



```
C:\Windows\System32\cmd.exe
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 32B
=> [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:d097a4907a8ec079df5ac31872359c2de510f82214c0448e926393b376d3b60d 2.22kB / 2.22kB
=> sha256:542d0638d07c5e3ad24ce21fc889abbc8486a27634c0892886ff71f3f44b104 9.27kB / 9.27kB
=> sha256:0e29d4d541c0d3d09281d21f73a9d1db786c5c1b95074f32b00e0b77a6e1a 54.92MB / 54.92MB
=> sha256:00d29c73b52b92b97d5c07a54f0ef3e921995a296c714b53a32ae67d19231fcd 5.15MB / 5.15MB
=> sha256:c5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d748cd056 10.87MB / 10.87MB
=> sha256:6494a4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793 54.57MB / 54.57MB
=> sha256:6f9f74896df93fe0172f594fab85e0b4e8a041a0fef0d112efc7ead3c78f7 196.51MB / 196.51MB
=> sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 6.29MB / 6.29MB
=> extracting sha256:0e29d4d541c0d3d09281d21f73a9d1db786c5c1b95074f32b00e0b77a6e1a3
=> sha256:9fddfdcd56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 14.21MB / 14.21MB
=> sha256:90829c73b52b92b97d5c07a54f0ef3e921995a296c714b53a32ae67d19231fcd 2.36
=> extracting sha256:c5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d748cd056 4.06
=> sha256:404f0284dbac0432ca522cb09f254b1c91fca6806bfeef0be0b243b2f31bab7 235B / 235B
=> sha256:c4f42be2be53b900ebffcc040c1df13de538434ccc5f5d954a56848a6169a3a3f 2.21MB / 2.21MB
=> sha256:6494a4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793 27.35
=> sha256:6f9f74896df93fe0172f594fab85e0b4e8a041a0fef0d112efc7ead3c78f7 131.45
=> sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 8.25
=> sha256:9fddfdcd56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 11.35
=> sha256:404f0284dbac0432ca522cb09f254b1c91fca6806bfeef0be0b243b2f31bab7 0.05
=> sha256:c4f42be2be53b900ebffcc040c1df13de538434ccc5f5d954a56848a6169a3a3f 2.25
[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 sha256:1756719486df002fed5dee305c5221513f2ff2d1b49a8d242b2a28af0379f19
=> naming to docker.io/library/job-portal-main

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
C:\Users\VK-PC\Desktop\job-portal-main>
```

Question 3:

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

```
Administrator: Windows PowerShell (Job)
PS C:\Windows\system32> docker tag hello-world icr.io/1212ins/hello-world
PS C:\Windows\system32> docker push icr.io/1212ins/hello-world
Using default tag: latest
The push refers to repository [icr.io/1212ins/hello-world]
e07e1baac3f1: Mounted from 00000009/hello-world
latest: digest: sha256:f5d9a1a23620aee155dc22bba70e11d0daee776b9c4b02f1d38a1 size: 529
PS C:\Windows\system32>
```

Question 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

The screenshot shows the IBM Cloud Kubernetes dashboard for a cluster named 'mycluster-kmnr'. The cluster is in a 'Normal' state and expires in 24 days. The 'Worker nodes' tab is selected, showing a single worker node with the following details:

Name	Status	Worker pool	Zone	Private IP	Public IP	Version
00000009	Normal	default	Milan 01	10.144.212.250	169.51.203.187	1.24.7_1543

The dashboard also includes a search bar, navigation tabs (Overview, Worker nodes, Worker pools, DevOps), and a 'Kubernetes dashboard' link.