

Assignment -4

Docker and Kubernetes

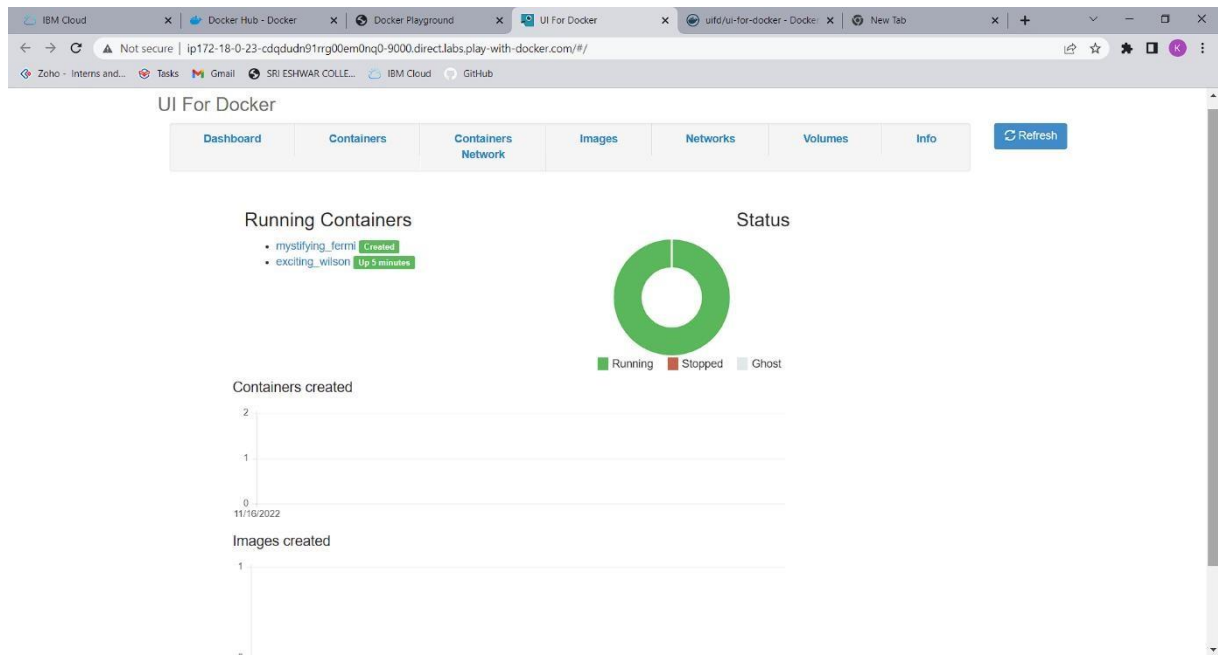
Assignment Date	21 October 2022
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Student Roll Number	722819104020
Maximum Marks	2 Marks

Question-1:

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

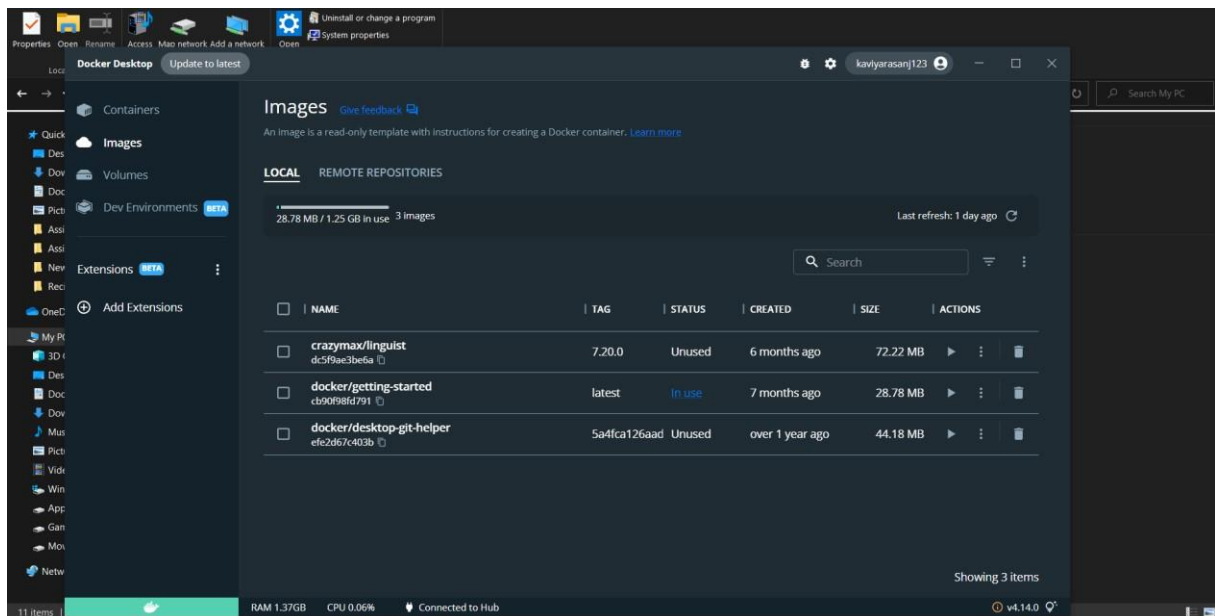
The screenshot shows the Docker Playground interface in a web browser. The browser tabs include 'IBM Cloud', 'Docker Hub - Docker', and 'Docker Playground'. The address bar shows the URL: `labs.play-with-docker.com/p/cdqdu9n91rrg00em0nq0#cdqdu9n9_cdq3t791rrg00accnhg`. The interface has a sidebar on the 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' with the name 'node1'. The main panel displays the instance details for 'cdqdu9n9_cdq3t791rrg00accnhg', including IP '192.168.0.8', Memory '1.61% (64.45MiB / 3.906GiB)', CPU '1.10%', and an SSH command: `ssh ip172-18-0-23-cdqdu9n91rrg00em0nq0@direct.labs.pla`. Below the details are 'DELETE' and 'EDITOR' buttons. The bottom section is 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:fe371ff5a69549269b24073a5ab1244dd4c0b834cbadf244870572150bcb749  
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  
993df53328bcd2945e0d562be25a8edcd8e0b0f23474f994287921c2a5c558c  
[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:d897a4907a8ec079df5ac31872359c2de510f82214c0448e926393b376d3b60d 2.22kB / 2.22kB
-> sha256:54208638d07c5e3ad24c6e21fc889abbc8486a27634c0892086ff71f3f44b104 9.27kB / 9.27kB
-> sha256:8e29546541c0b3092102173a941d078665c1b95074f320899e07776e1a3 54.97MB / 54.97MB
-> sha256:9b029c73b2b097d5c07a54f0ef3e921995a296c711453a33aa67010231fcd 5.15MB / 5.15MB
-> sha256:c5b7ae361722f070eca53f35823e21baa85d61d5d95c5a95ab53d748cd056 10.87MB / 10.87MB
-> sha256:6494e4811622b31c027ccac322ca463937f0805f569a93e6f15c01aade718793 54.57MB / 54.57MB
-> sha256:6f9f74896dfa93fe0172f594fabae5e0b4a8a041a0fef09112efc7e4d3c78f7 196.53MB / 196.53MB
-> sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 6.20MB / 6.20MB
-> extracting sha256:0e29546d541c0b3092102173a941d078665c1b95074f320899e07776e1a3 27.3s
-> sha256:9fddfd56334f2a6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 14.21MB / 14.21MB
-> extracting sha256:9b029c73b2b097d5c07a54f0ef3e921995a296c711453a33aa67010231fcd 2.3s
-> extracting sha256:c0507ae301722f070eca53f35823e21baa85d61d5d95c5a95ab53d748cd056 4.0s
-> sha256:404f0204bac0432ca522cbb0f254b1c91fca0800bfeaf0be0b743b2f31bab7 235B / 235B
-> sha256:c4f42be2be53b90ebffce04e10f13de538434ccc5f5d954a56848a6169a3a3f 2.21MB / 2.21MB
-> extracting sha256:6494e4811622b31c027ccac322ca463937f0805f569a93e6f15c01aade718793 27.3s
-> extracting sha256:6f9f74896dfa93fe0172f594fabae5e0b4a8a041a0fef09112efc7e4d3c78f7 131.4s
-> extracting sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 8.2s
-> extracting sha256:9fddfd56334f2a6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 11.3s
-> extracting sha256:404f0204bac0432ca522cbb0f254b1c91fca0800bfeaf0be0b743b2f31bab7 0.0s
-> extracting sha256:c4f42be2be53b90ebffce04e10f13de538434ccc5f5d954a56848a6169a3a3f 2.2s
-> [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 sha256:1756719486df002fed5dee305c5221513f2ff2d1b49a8d242b22a28af0379f19
-> 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 (800)
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]
e0f0e1baac5f1: mounted from 8000ins/hello-world
latest: digest: sha256:c4f42be2be53b90ebffce04e10f13de538434ccc5f5d954a56848a6169a3a3f size: 52s
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 ID '00000009'. The node is in a 'Normal' state and is part of the 'default' worker pool in the 'Milan 01' zone. The node's private IP is 10.144.212.250 and its public IP is 169.51.203.187. The node's version is 1.24.7_1543. The dashboard also includes a search bar, a catalog, and a management menu.

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