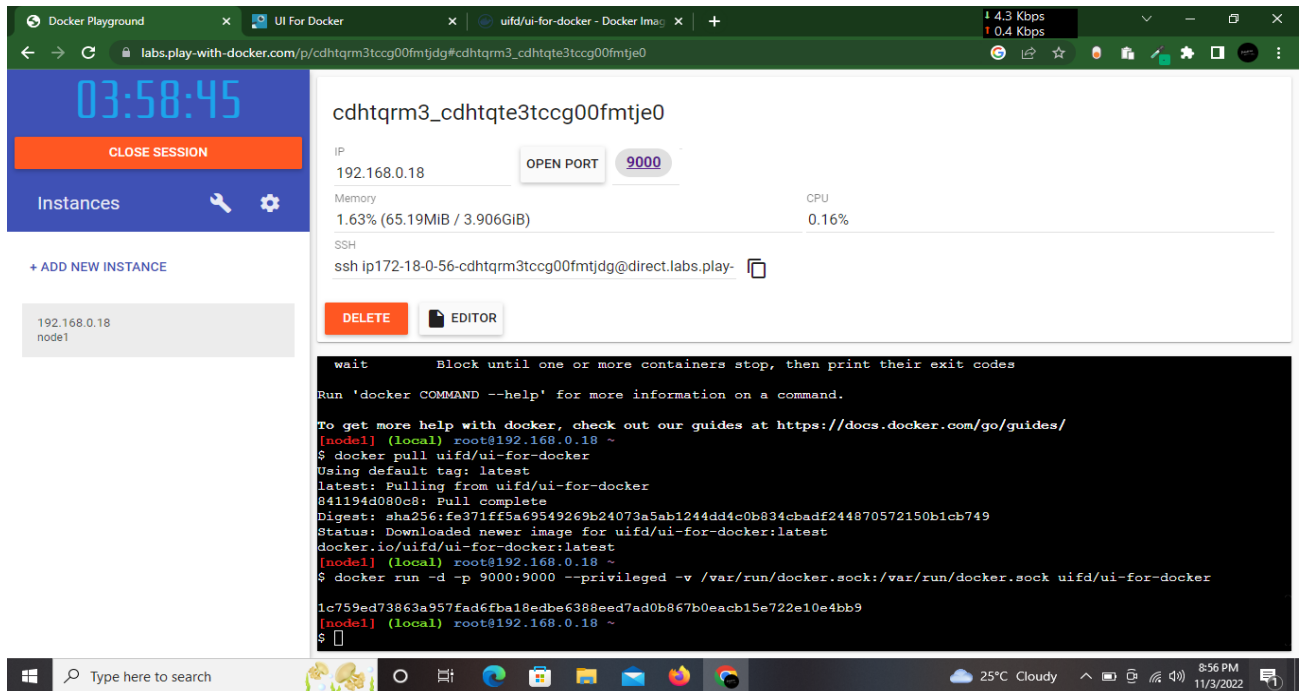


Assignment -4

Docker and Kubernetes

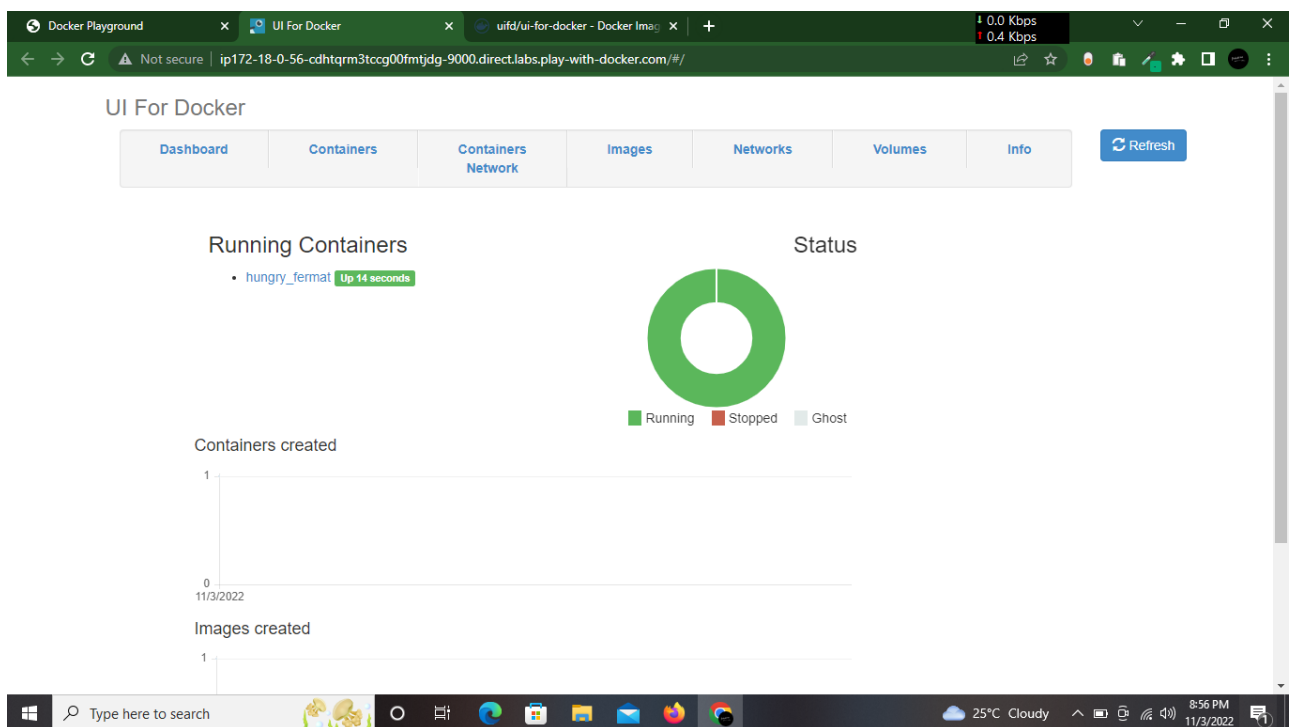
1.Pull an image from docker hub and run it in docker Playground.



The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a clock showing 03:58:45, a 'CLOSE SESSION' button, and a list of instances with one instance named 'node1' at IP 192.168.0.18. The main area displays the instance details for 'cdhtqrm3_cdhtqte3tccg00fmtje0', including its IP (192.168.0.18), memory usage (1.63%), CPU usage (0.16%), and an SSH command. Below this, a terminal window shows the following commands and output:

```
wait Block until one or more containers stop, then print their exit codes
Run 'docker COMMAND --help' for more information on a command.

To get more help with docker, check out our guides at https://docs.docker.com/go/guides/
[node1] (local) root@192.168.0.18 ~
$ docker pull uifd/ui-for-docker
Using default tag: latest
latest: Pulling from uifd/ui-for-docker
841194d080e8: Pull complete
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834ebadf244870572150b1cb749
Status: Downloaded newer image for uifd/ui-for-docker:latest
docker.io/uifd/ui-for-docker:latest
[node1] (local) root@192.168.0.18 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
1c759ed73863a957fad6fba18edbe6388eed7ad0b867b0eacb15e722e10e4bb9
[node1] (local) root@192.168.0.18 ~
$
```



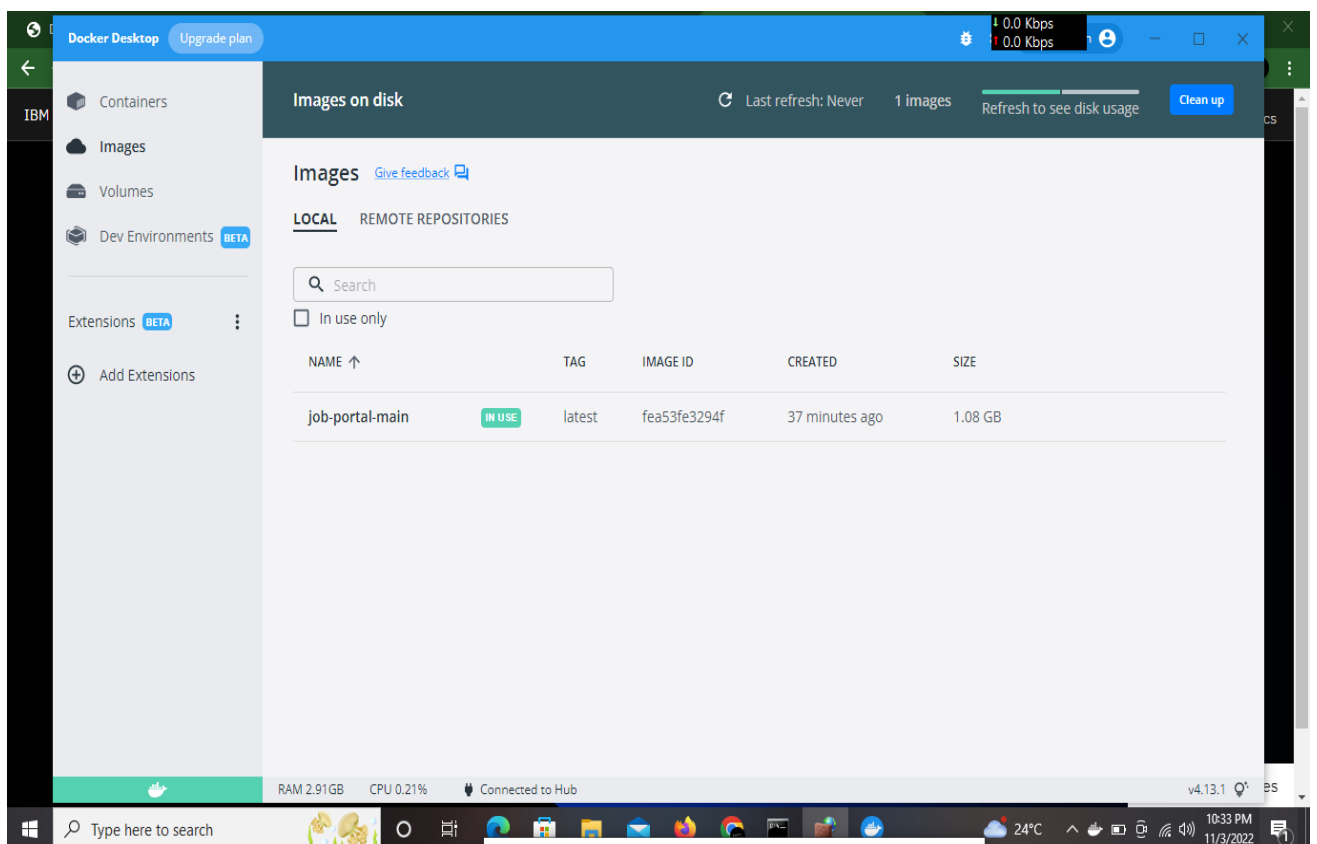
The screenshot shows the 'UI For Docker' application interface. It has a navigation bar with tabs: Dashboard, Containers, Containers Network, Images, Networks, Volumes, and Info. The 'Containers' tab is selected. The main area displays 'Running Containers' with a list showing 'hungry_ferret' is 'Up 14 seconds'. A donut chart shows the status of containers: Running (green), Stopped (red), and Ghost (grey). Below the chart, there are two line graphs: 'Containers created' and 'Images created', both showing a count of 1 on 11/3/2022. The bottom of the interface shows a Windows taskbar with the system clock at 8:56 PM on 11/3/2022.

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

```
Command Prompt
=> => transferring context: 28
=> [internal] load metadata for docker.io/library/python:3.6
=> [auth] library/python:pull token for registry-1.docker.io
=> [1/6] FROM docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc
=> => resolve docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc
=> sha256:d097a4907a8ec079df5ac31872359c2de510f82214c0448e926393b376d3b60d 2.22kB / 2.22kB
=> sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d740cdd56 10.87MB / 10.87MB
=> sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc 1.86kB / 1.86kB
=> sha256:54260638d07c5e3ad24c6e21fc889abb8486a27634c0892086ff7f1f3f44b104 9.27kB / 9.27kB
=> sha256:0e29546d541cbbd389281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3 54.92MB / 54.92MB
=> sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 5.15MB / 5.15MB
=> sha256:6494e4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793 54.57MB / 54.57MB
=> sha256:6f9f74896df93fe0172f594faba85e0b4e8a0481a0fef9112efc7e4d3c78f7 196.51MB / 196.51MB
=> sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 6.29MB / 6.29MB
=> sha256:9fddfd56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 14.21MB / 14.21MB
=> sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7 235B / 235B
=> sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d954a56848a6169a3a3f 2.21MB / 2.21MB
=> extracting sha256:0e29546d541cbbd389281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3 3.9s
=> extracting sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 0.3s
=> extracting sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d740cdd56 0.4s
=> extracting sha256:6494e4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793 4.2s
=> extracting sha256:6f9f74896df93fe0172f594faba85e0b4e8a0481a0fef9112efc7e4d3c78f7 11.9s
=> extracting sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 0.8s
=> extracting sha256:9fddfd56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 0.9s
=> extracting sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7 0.0s
=> extracting sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d954a56848a6169a3a3f 0.3s
=> [internal] load build context
=> => transferring context: 625B
=> [auth] library/python:pull token for registry-1.docker.io
=> [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:fea53fe3294f2f702eba74475f589b629df42a18ed0e87bbddacffefc58bf00c
=> => naming to docker.io/library/job-portal-main

C:\Users\user\Desktop\job-portal-main>docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
job-portal-main latest fea53fe3294f 29 minutes ago 1.08GB

C:\Users\user\Desktop\job-portal-main>
```



3.Create a IBM container registry and deploy helloworld app

IBM Cloud Container Registry - New Tab

cloud.ibm.com/registry/namespaces

Search resources and products...

Namespaces

Location: Global

Resource group: Filter... Search Create +

| <input type="checkbox"/> | Name | Resource group | Repository count | Image count | Retention policy | |
|-------------------------------------|----------------------|----------------|------------------|-------------|-------------------|---|
| <input checked="" type="checkbox"/> | jobportalap | Default | 1 | 1 | Retain all images | : |
| <input type="checkbox"/> | jobportalapplication | Default | 0 | 0 | Retain all images | : |

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

Type here to search 23°C Partly cloudy 1:43 AM 11/7/2022

IBM Cloud Container Registry - New Tab

cloud.ibm.com/registry/repos

Search resources and products...

Repositories

Location: Global

Search Create +

| <input type="checkbox"/> | Name | Image count | Namespace | Last updated | |
|-------------------------------------|---|-------------|-------------|--------------|---|
| <input checked="" type="checkbox"/> | testrepo icr.io/jobportalap/testrepo | 1 | jobportalap | 3 days ago | : |

Items per page: 25 1-1 of 1 item 1 1 of 1 page

Type here to search 23°C Partly cloudy 1:43 AM 11/7/2022

```
Command Prompt - docker run -p 4000:4000 icr.io/jobportalap/testrepo@sha256:ef3608d0cf4c21ce5e9c5e42caa10349538d25697a6e8660476a5b5558c89898
11936051f93b: Layer already exists
jobportaltest: digest: sha256:ef3608d0cf4c21ce5e9c5e42caa10349538d25697a6e8660476a5b5558c89898 size: 3259

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

Repository          Tag          Digest          Namespace      Created      Size      Security status
icr.io/jobportalap/testrepo  jobportaltest  ef3608d0cf4c  jobportalap    3 days ago  435 MB    -

OK

C:\Users\user> docker run -p 5070:5070 icr.io/jobportalap/testrepo
Unable to find image 'icr.io/jobportalap/testrepo:latest' locally
docker: Error response from daemon: manifest for icr.io/jobportalap/testrepo:latest not found: manifest unknown: manifest unknown.
See 'docker run --help'.

C:\Users\user> docker pull icr.io/jobportalap/testrepo
Using default tag: latest
Error response from daemon: manifest for icr.io/jobportalap/testrepo:latest not found: manifest unknown: manifest unknown

C:\Users\user> docker run -p 4000:4000 icr.io/jobportalap/testrepo@sha256:ef3608d0cf4c21ce5e9c5e42caa10349538d25697a6e8660476a5b5558c89898
* 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)
```

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

The screenshot displays the IBM Cloud Kubernetes Dashboard for a cluster named 'mycluster-free'. The cluster is currently in a 'Pending' state, as indicated by the 'Node status' section showing '1 of 1' nodes pending. A prominent banner at the top of the main content area states 'Expires in 30 days: Be sure to back up your data, your cluster will be deleted in 30 days. To access the full capabilities of the service, try out a standard cluster.' The 'Details' section provides further information: Cluster ID is 'cdk2eopf0u0ekek', Version is '1.24.7_1542', Infrastructure is 'Classic', and Zones are 'Milan 01'. The cluster was created on '11/7/2022, 3:00 AM'. The right-hand sidebar contains a 'Help' section with links to 'Log in to your cluster', 'Deploy your app', 'Expose your app', 'Add storage to your app', 'Connect integrations', 'Install add-ons', and 'Troubleshoot'. The top navigation bar includes a search bar and links to 'Catalog', 'Manage', and the user's account 'Mahadevan M's Account'.

mycluster-free - IBM Cloud

Inbox (10) - devamaha632@...

IBM-Project-40862-1660636

Getting Started with Kubernetes

Install and Set Up kubect...

cloud.ibm.com/kubernetes/clusters/cdk2eopf0u0ekek974e0/nodes

IBM Cloud

Search resources and products...

Catalog

Manage

Mahadevan M's Account

Clusters /

mycluster-free

Help

Kubernetes dashboard

Actions...

Preparing master, workers...

Expires in 30 days

Add tags

Overview

Worker nodes

Worker pools

DevOps New

Search

| Name | Status | Worker pool | Zone | Private IP | Public IP |
|----------|--------|-------------|----------|---------------|----------------|
| 000000d9 | Normal | default | Milan 01 | 10.144.194.66 | 169.51.205.176 |

Items per page: 25 1-1 of 1 item 1 1 of 1 page

Help

Log in to your cluster

Deploy your app

Expose your app

Add storage to your app

Connect integrations

Install add-ons

Troubleshoot

Type here to search

23°C Mostly clear

3:16 AM 11/7/2022