

- 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 19:53:10, a 'CLOSE SESSION' button, and a list of instances: '192.168.0.18 node1' and '192.168.0.17 node2'. The main area displays details for the selected instance (192.168.0.17): IP, Memory, CPU, and an SSH command. Below this are 'DELETE' and 'EDITOR' buttons. The terminal window shows the following commands and output:

```
[node2] (local) root@192.168.0.17 ~
$ docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
sandeepdoodigani/sandeeplasmaapp  latest         5653112dee63   16 months ago  105MB
<none>              <none>         965940f98fa5   6 years ago    8.1MB
[node2] (local) root@192.168.0.17 ~
$ docker run -p 8080:8080 sandeepdoodigani/sandeeplasmaapp
* 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.
```

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

The screenshot shows a code editor with a Dockerfile. The file content is as follows:

```
1 FROM python:3.6
2 WORKDIR /app
3 ADD . /app
4 COPY requirements.txt /app
5 RUN python3 -m pip install -r requirements.txt
6 RUN python3 -m pip install ibm_db
7 EXPOSE 5000
8 CMD ["python", "app.py"]
```

The screenshot shows the Docker Desktop interface. The 'Images on disk' section is active, displaying a table of local images. The table has columns for NAME, TAG, IMAGE ID, CREATED, and SIZE. One image is listed: 'job-portal-main' with tag 'latest', image ID '501dbd70f3fa', created 5 minutes ago, and size 1.08 GB. The interface also shows a search bar, a 'Give feedback' link, and a status bar at the bottom indicating RAM usage (2.24GB), CPU usage (0.23%), and connection to Docker Hub.

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

```
Command Prompt
Account: Ganesan S's Account (2a239674b9ba463891acc3c4fcb0a99)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

New version 2.11.1 is available.
Change logs: https://github.com/IBM-Cloud/ibm-cloud-cli-release/releases/tag/v2.11.1
TIP: use 'ibmcloud config --check-version=false' to disable update check.

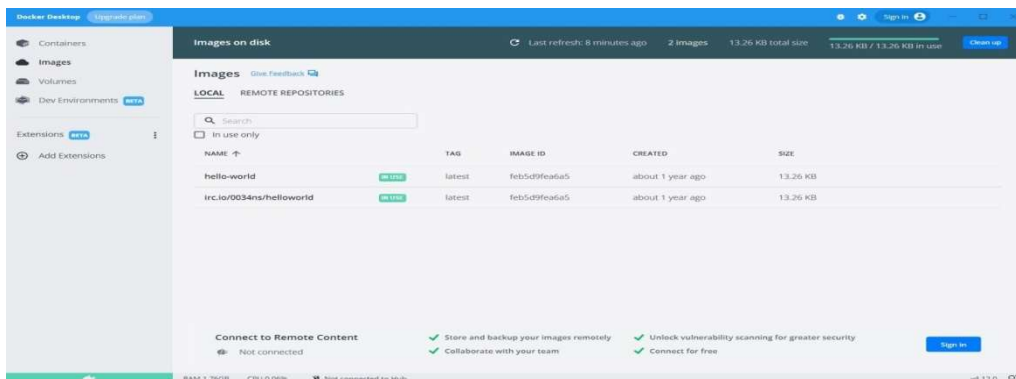
Do you want to update? [y/N] > y

Installing version '2.11.1'...
Downloading...
 14.88 MiB / 14.88 MiB [=====] 100.00% 2s
15604696 bytes downloaded
Saved in C:\Users\ADMIN\bluemix\tmp\bx_2625690972\IBM_Cloud_CLI_2.11.1_amd64.exe

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

C:\Users\ADMIN>
```

```
C:\Windows\system32\cmd.exe
ibmcloud> docker push jp.icr.io/ganesh/job_portal
The push refers to repository [jp.icr.io/ganesh/job_portal]
120b115a0a5: Layer already exists
80e04f0e100: Pushed
40e2a7de120: Layer already exists
9072c7835400: Layer already exists
b7f1e0e0100: Layer already exists
1f123100024: Layer already exists
70e0b1152951: Pushed
100796c0f301: Pushed
1a4c0e0ad0: Pushing in 1 second
80f5c4a0744: Pushed
80f5c4a0744: Pushed
80f5c4a0744: Pushed
650ed1b7a428: Pushing [=====] 00.00MB/124KB
C
C:\Windows\system32\cmd.exe
ibmcloud> docker push jp.icr.io/ganesh/job_portal
The push refers to repository [jp.icr.io/ganesh/job_portal]
120b115a0a5: Layer already exists
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40e2a7de120: Layer already exists
9072c7835400: Layer already exists
b7f1e0e0100: Layer already exists
1f123100024: Layer already exists
70e0b1152951: Pushed
100796c0f301: Layer already exists
1a4c0e0ad0: Pushed
80f5c4a0744: Layer already exists
80f5c4a0744: Layer already exists
650ed1b7a428: Pushed
1a4c0e0ad0: Pushed
C:\Windows\system32\cmd.exe
ibmcloud>
```



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

