

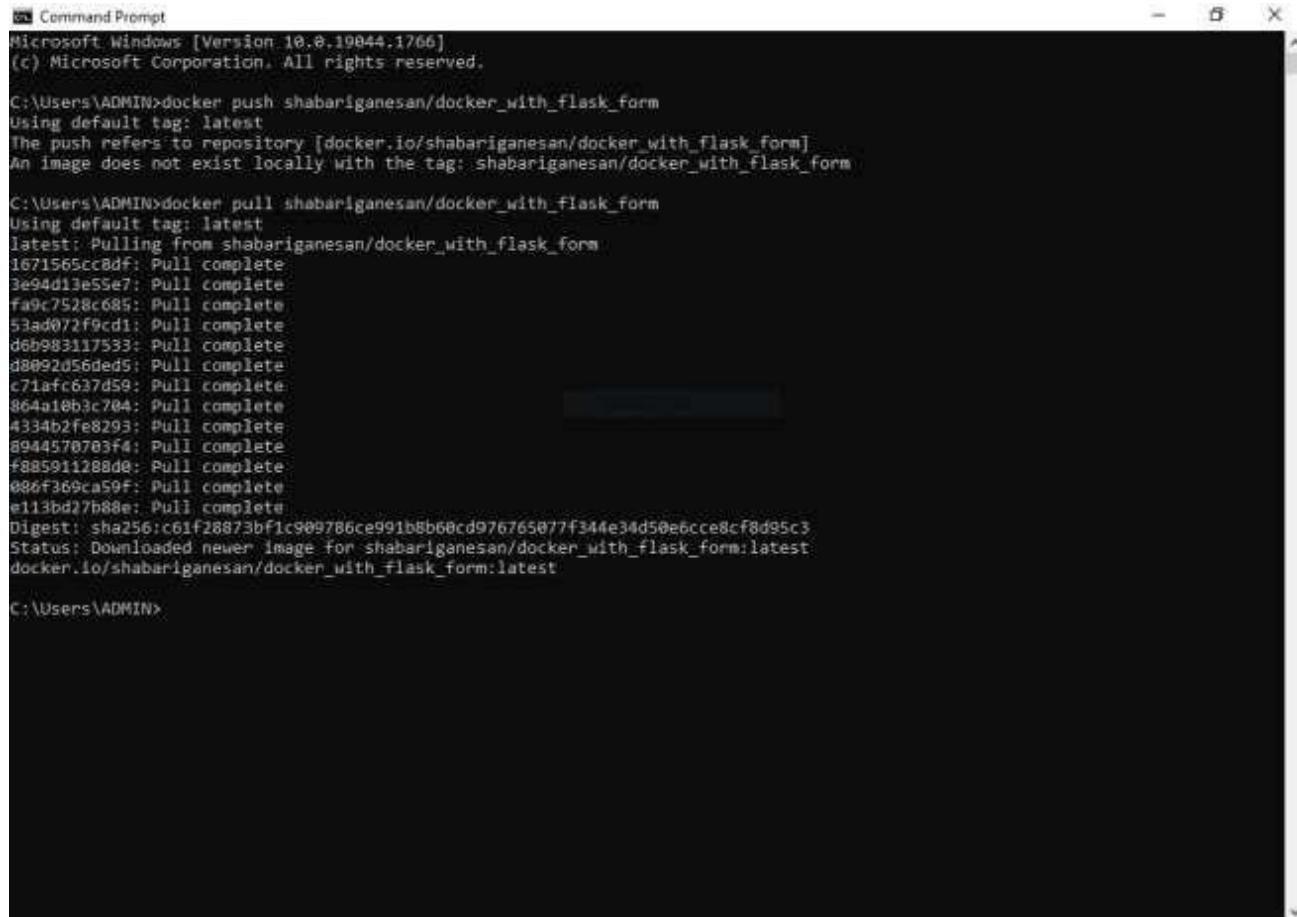
## Assignment -4

### Docker and kubernetes

#### Question-1:

pull an image from docker hub and run it in docker playground.

1) pull an image form docker hub

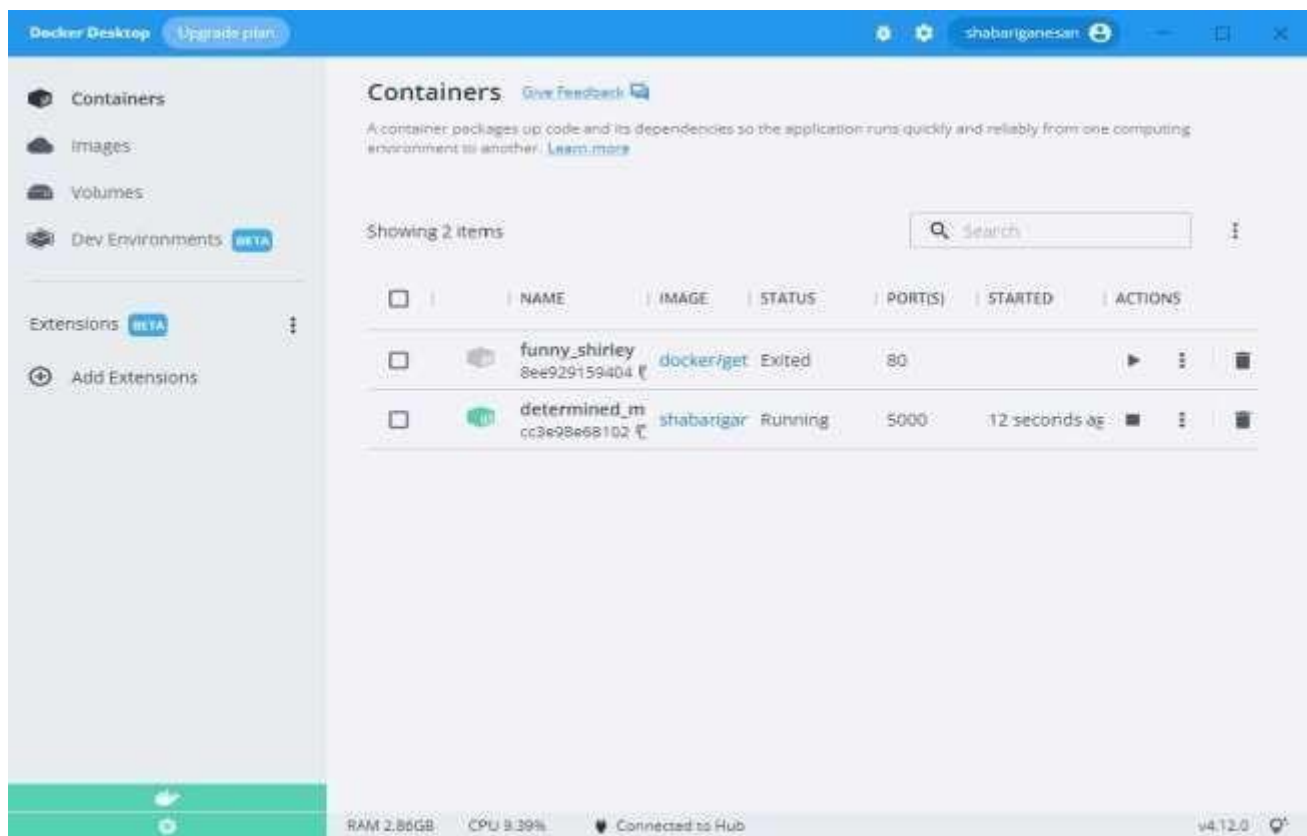
A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The text inside shows the following sequence of commands and outputs:  
Microsoft Windows [Version 10.0.19044.1766]  
(c) Microsoft Corporation. All rights reserved.  
C:\Users\ADMIN>docker push shabariganesan/docker\_with\_flask\_form  
Using default tag: latest  
The push refers to repository [docker.io/shabariganesan/docker\_with\_flask\_form]  
An image does not exist locally with the tag: shabariganesan/docker\_with\_flask\_form  
C:\Users\ADMIN>docker pull shabariganesan/docker\_with\_flask\_form  
Using default tag: latest  
latest: Pulling from shabariganesan/docker\_with\_flask\_form  
1671565cc8df: Pull complete  
3e94d13e55e7: Pull complete  
fa9c7528c685: Pull complete  
53ad072f9cd1: Pull complete  
d6b983117533: Pull complete  
d8092d56ded5: Pull complete  
c71afc637d59: Pull complete  
864a10b3c704: Pull complete  
4334b2fe8293: Pull complete  
8944570703f4: Pull complete  
f885911288d0: Pull complete  
086f369ca59f: Pull complete  
e113bd27b88e: Pull complete  
Digest: sha256:c61f28873bf1c909786ce991b8b60cd976765077f344e34d50e6cce8cf8d95c3  
Status: Downloaded newer image for shabariganesan/docker\_with\_flask\_form:latest  
docker.io/shabariganesan/docker\_with\_flask\_form:latest  
C:\Users\ADMIN>

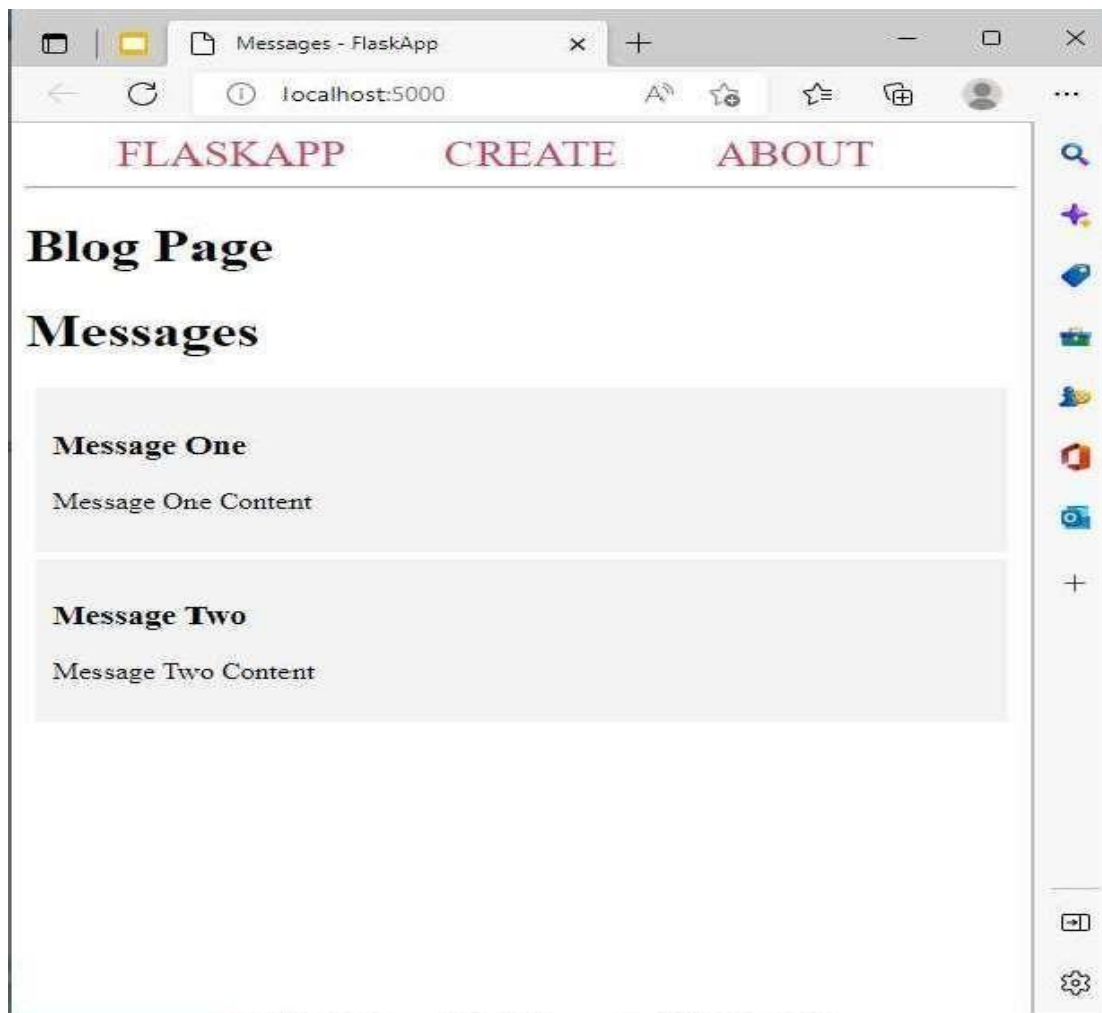
## 2) run it in docker playground

```
Select Command Prompt
Microsoft Windows [Version 10.0.19044.1766]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ADMIN> docker run -d -p 5000:5000 shabariganesan/docker_with_flask_form
cc3e98e68102474e9c89c7674b07ad17a5645a7216d7c854d785197bdb54dee5

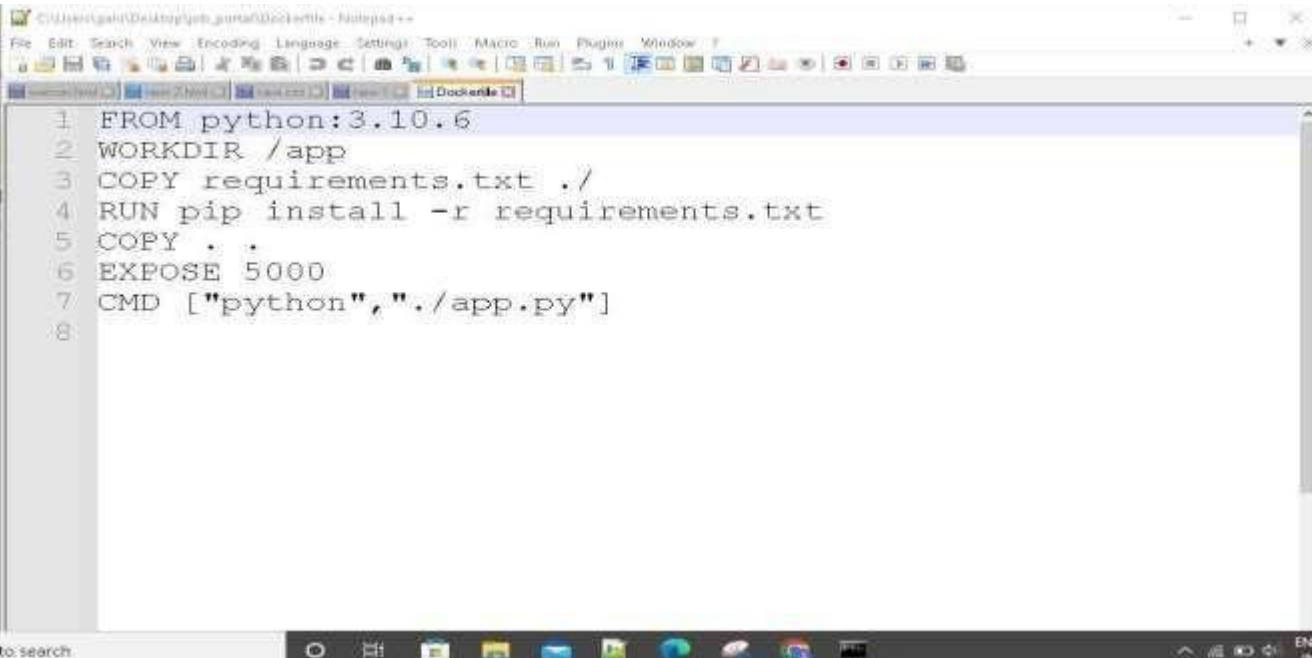
C:\Users\ADMIN>
```





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

## 1) Creating a docker file for the jobportal application

A screenshot of a Notepad++ window titled "C:\Users\gabri\Desktop\gabri\gabri\dockerfile - Notepad++". The window displays a Dockerfile with the following content:

```
1 FROM python:3.10.6
2 WORKDIR /app
3 COPY requirements.txt ./
4 RUN pip install -r requirements.txt
5 COPY . .
6 EXPOSE 5000
7 CMD ["python", "./app.py"]
8
```

The first line is highlighted in blue. The window has a menu bar (File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, ?) and a toolbar. The taskbar at the bottom shows various application icons and the system clock.

## 2) deploy in in dokcer application

```
C:\Users\gan1\Desktop>cd ..
C:\Users\gan1\Desktop>cd job_portal
C:\Users\gan1\Desktop\job_portal>docker build -t job_portal
'docker build' requires exactly 1 argument.
See 'docker build --help'.

Usage: docker build [OPTIONS] PATH | URL | -

Build an image from a Dockerfile

C:\Users\gan1\Desktop\job_portal>dir
Volume in drive C has no label.
Volume Serial Number is 86A3-10B2

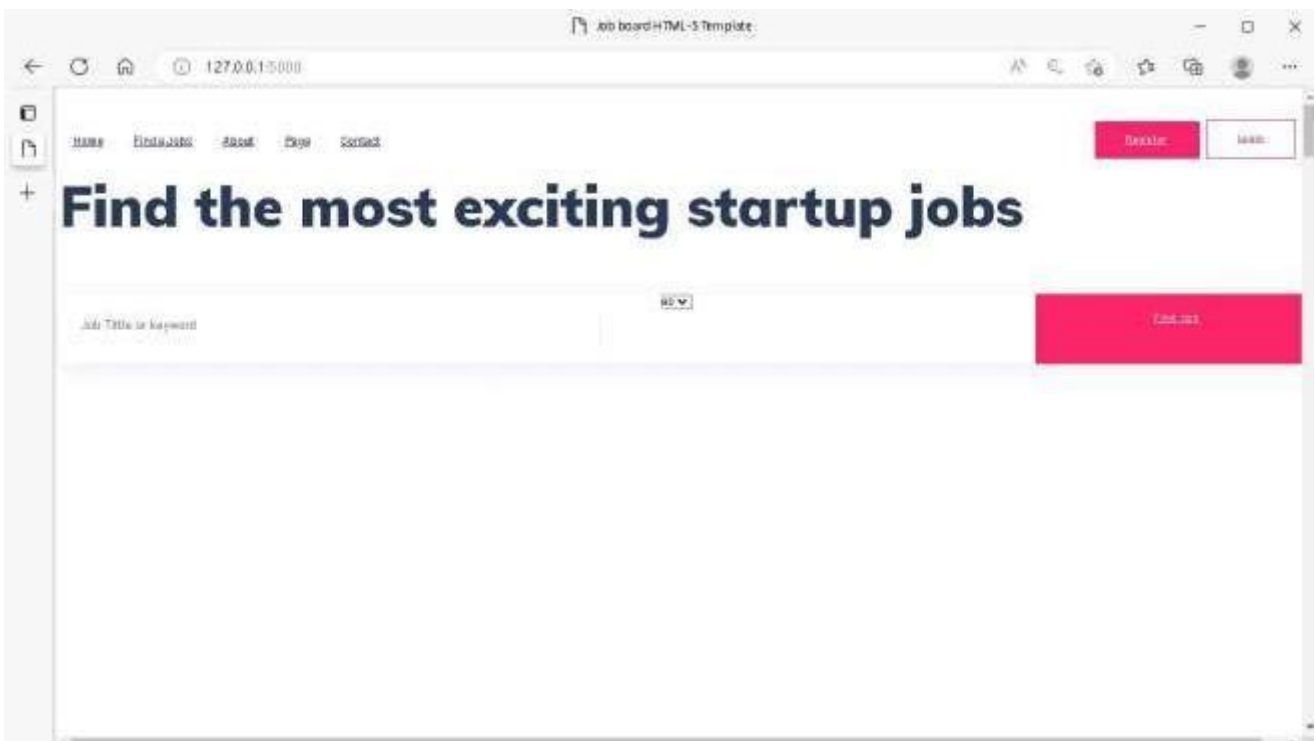
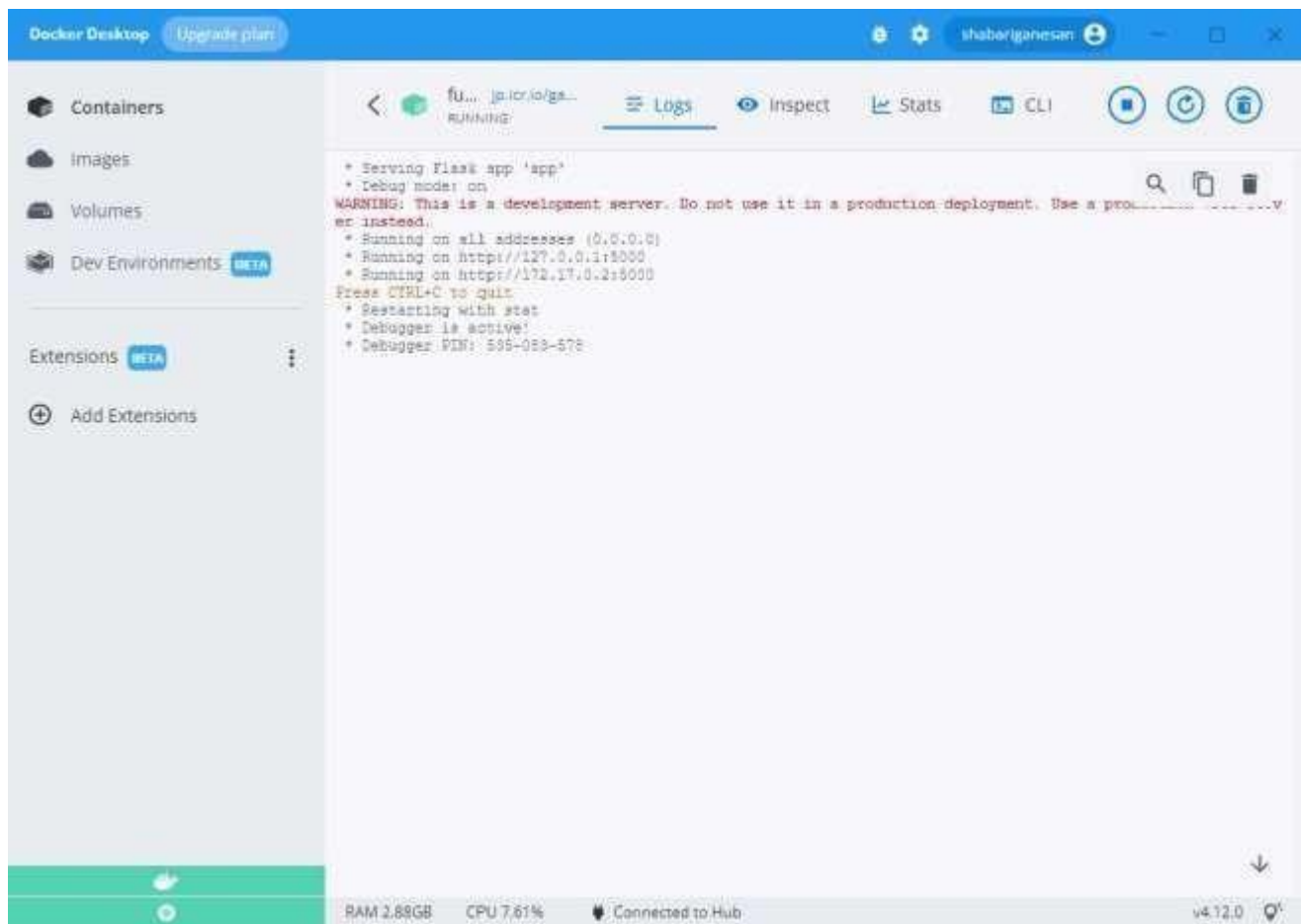
Directory of C:\Users\gan1\Desktop\job_portal

10/25/2022  04:50 PM    <DIR>          .
10/25/2022  04:53 PM    <DIR>          ..
10/25/2022  04:11 PM                320 app.py
10/22/2022  10:40 PM               148 Dockerfile
10/22/2022  10:40 PM                  $ requirements.txt
10/25/2022  04:53 PM    <DIR>          static
10/25/2022  04:53 PM    <DIR>          templates
10/25/2022  04:53 PM    <DIR>          __pycache__
                   3 File(s)      474 bytes
                   5 Dir(s)   77,947,834,576 bytes free

C:\Users\gan1\Desktop\job_portal>docker build -t job_portal:
Invalid argument "job_portal:" for "-t, --tag" flag: Invalid reference format
See 'docker build --help'.

C:\Users\gan1\Desktop\job_portal>docker build -t job_portal:.
[+] Building 0s (11/11) FINISHED
=> [internal] load build definition from Dockerfile
=> [transfering Dockerfile] 0MB
=> [internal] load metadata for docker.io/docker
=> [transfering docker.io]
=> [internal] load metadata for docker.io/library/python:3.8.10-slim
=> [pull] docker.io/library/python:3.8.10-slim
=> [build] python:3.8.10-slim
=> [install] FROM docker.io/library/python:3.8.10-slim
=> [cmd] ["python"]
```





running in docker desktop 1

### Question-3: Create albm container registry and deploy helloworld app or jobportalapp

#### 1) create a ibm container registry

```
Command Prompt
Account: Ganesan S's Account (2a239674b9ba463891acc3c4fcbe0a99)
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 'ibmcloud plugin show container-registry' to show its details.

C:\Users\ADMIN>
```

#### 2) deploy helloworld or jobportal

```
C:\Windows\system32\cmd.exe
54ac05a6fa8b: Retrying in 1 second
8d51c618126f: Retrying in 1 second
9ff6e4d46744: Waiting
a30d1d47b5a1: Waiting
055ed1b74428: Waiting
Failed to lookup host: jp.lcr.io

C:\Users\ganesh\Desktop\job_portal>docker push jp.lcr.io/ganesh/job/job_portal
Using default tag: latest
The push refers to repository [jp.lcr.io/ganesh/job/job_portal]
1503b1584025: layer already exists
80e94195e186: Pushed
48c2a744c12b: layer already exists
9b72c7835466: layer already exists
bfc1deb0136e: layer already exists
1f123106024c: layer already exists
3d6eb1152931: Pushed
190796cdf3b1: Pushed
54ac05a6fa8b: Retrying in 1 second
8d51c618126f: Pushed
9ff6e4d46744: Pushed
a30d1d47b5a1: Pushed
055ed1b74428: Pushing [=====] 89.88MB/124MB
^C
C:\Users\ganesh\Desktop\job_portal>docker push jp.lcr.io/ganesh/job/job_portal
Using default tag: latest
The push refers to repository [jp.lcr.io/ganesh/job/job_portal]
1503b1584025: layer already exists
80e94195e186: layer already exists
48c2a744c12b: layer already exists
9b72c7835466: layer already exists
bfc1deb0136e: layer already exists
1f123106024c: layer already exists
3d6eb1152931: layer already exists
190796cdf3b1: layer already exists
54ac05a6fa8b: Pushed
8d51c618126f: layer already exists
9ff6e4d46744: layer already exists
a30d1d47b5a1: layer already exists
055ed1b74428: Pushed
latest: digest: sha256:e93189a7197eeb9200660854e899cf61a96ede099998c8c7a2147a7962fc207 size: 3952

C:\Users\ganesh\Desktop\job_portal>
C:\Users\ganesh\Desktop\job_portal>
```



IBM Cloud Container Registry Repositories

Location: Tokyo

Search

Create

Name	Image count	Namespace	Last update
job_portal jp.cir.io/ganeshjob/job_portal	1	ganeshjob	1 day
docker_with_flask_form jp.cir.io/newnamespace/docker_with_flask_form	1	newnamespace	4 days

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

IBM Cloud CU\_2.1...exe Show all

IBM Cloud Container Registry Images

Location: Tokyo

View by: Digest Search

Create

Repository@digest	Tags	Manifest type	Created	Size	Security status
ganeshjob/job_portal@sha256:e93189a7c97e...	latest	Docker	1 day ago	558 KB	23 issues
newnamespace/docker_with_flask_form@sha256:cd3f2d873bdf...	latest	Docker	4 days ago	558 KB	23 issues

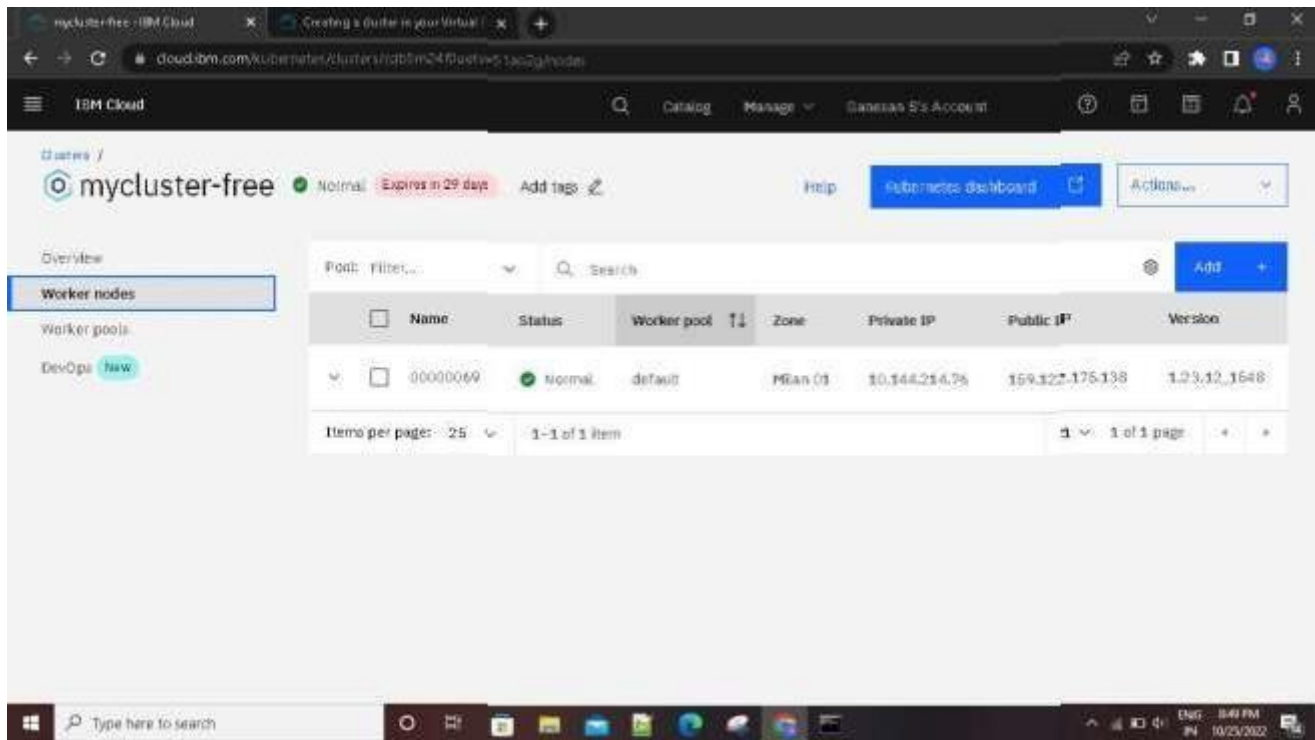
Items per page: 25 1-2 of 2 items 1 1 of 1 page

IBM Cloud CU\_2.1...exe Show all



**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 noteport**

**1) Creating a kubernetes cluster in ibm cloud**



**2) deploy helloworld image or jobportal image and also expose the same app to run in noteport**

```
C:\Windows\System32\cmd.exe
10/16/2022 12:28 PM          3,721 windows shortcut.txt
08/25/2022 08:40 PM          2,897 YouTube.lnk
          24 File(s)      804,677,196 bytes
          9 Dir(s)  79,221,886,976 bytes free

C:\Users\gani\Desktop>cd deploy
The system cannot find the path specified.

C:\Users\gani\Desktop>kubectl apply -f kubernetes/depoly.yaml
error: the path "kubernetes/depoly.yaml" does not exist

C:\Users\gani\Desktop>kubectl apply -f depoly.yaml
error: the path "depoly.yaml" does not exist

C:\Users\gani\Desktop>kubectl apply -f C:\Users\gani\Desktop\deploy.yaml
deployment.apps/flask-app created

C:\Users\gani\Desktop>
```

mycluster-free - IBM Cloud mycluster-free - Kubernetes Dashb... flask-app-with-ibm-kubernetes-ex...

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdb5m24l0uehvv51ao2g/service/#/pod?namespace=default

kubernetes default Search

Workloads > Pods

Workloads

- Ones Jobs
- Daemon Sets
- Deployments
- Jobs
- Pods**
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses
- Services

Config and Storage

- Config Maps
- Persistent Volume Claims
- Secrets
- Storage Classes

U Usage

Waiting for more data to display chart...

Memory Usage

Waiting for more data to display chart...

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created
flask-app-79447b5c8c-4d8ww	gcr.io/geneshop/job_0-1rtal	Show all	10.144.214.76	Running	0	0.000	37.250K	5 minutes ago
flask-app-79447b5c8c-qpmv5	Show all	Show all	10.144.214.76	Running	0	0.000	31.430K	5 minutes ago
flask-app-79447b5c8c-vzqps	Show all	Show all	10.144.214.76	Running	0	0.000	37.330K	5 minutes ago

mycluster-free - IBM Cloud mycluster-free - Kubernetes Dashb... 127.0.0.1 172.21.159.01

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdb5m24l0uehvv51ao2g/service/#/log/default/flask-app-79447b5c8c-4d8ww/pod?na...

kubernetes default Search

Workloads > Pods > flask-app-79447b5c8c-4d8ww > Logs

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

- Ingresses
- Services

Config and Storage

- Config Maps
- Persistent Volume Claims
- Secrets
- Storage Classes

Cluster

- Cluster Role Bindings
- Cluster Roles
- Events
- Namespaces

Logs from flask-app-cont... in flask-app-7944...

```
ving Flask app 'app'
ing model on
ll[WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.][0m
ming on all addresses (0.0.0.0)
ming on http://127.0.0.1:5000
ming on http://172.21.159.01:5000
Press CTRL-C to quit[0m
starting with stat
anager is active!
anager PID: 336-487-549
```

from Oct 26, 2022 to Oct 26, 2022 UTC

```

C:\Windows\System32\cmd.exe
C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")
C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")
C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")
C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
error from server (AlreadyExists): services "flask-service" already exists
C:\Windows\system32>
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
^C
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.
C:\Windows\system32\kubectl proxy
Starting to serve on 127.0.0.1:8001
^C
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
^C
C:\Windows\system32\kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.
C:\Windows\system32\kubectl -n kubernetes-dashboard get pods
No resources found in kubernetes-dashboard namespace.
C:\Windows\system32\kubectl expose deployment flask-app --type=NodePort --name=flask-service
error from server (AlreadyExists): services "flask-service" already exists
C:\Windows\system32\kubectl get ing
NAME          CLASS    HOSTS      ADDRESS      PORTS      AGE
flask-app-ingress  cncn    *          *            80         27m
C:\Windows\system32\kubectl get svc
NAME          TYPE          CLUSTER-IP      EXTERNAL-IP    PORT(S)      AGE

```