

Assignment -4
Docker and kubernetes

Assignment Date	10 October 2022
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Student Roll Number	2019103531
Maximum Marks	2 Marks

Question-1:

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

1) pull an image form docker hub

```
Command Prompt
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
088f369ca59f: 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

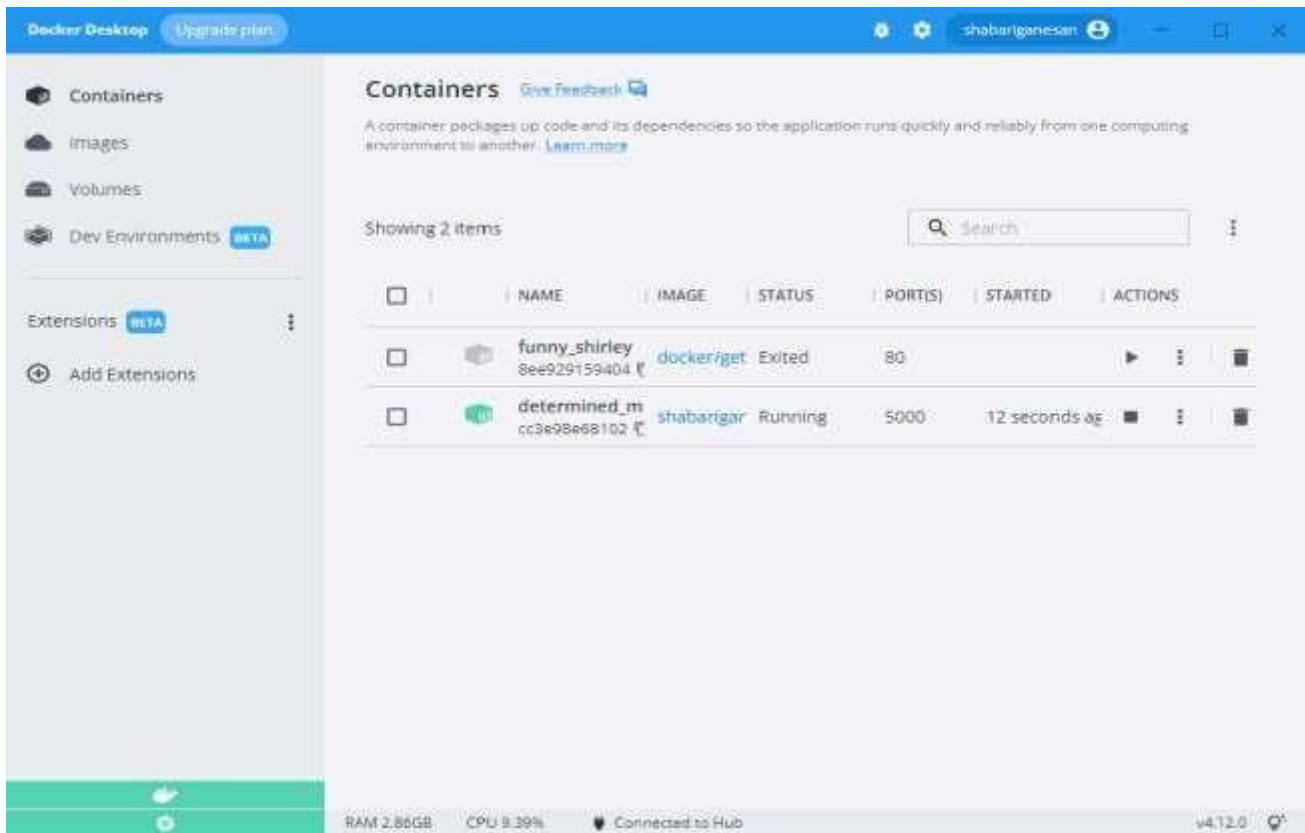
C:\Users\ADMIN>
```

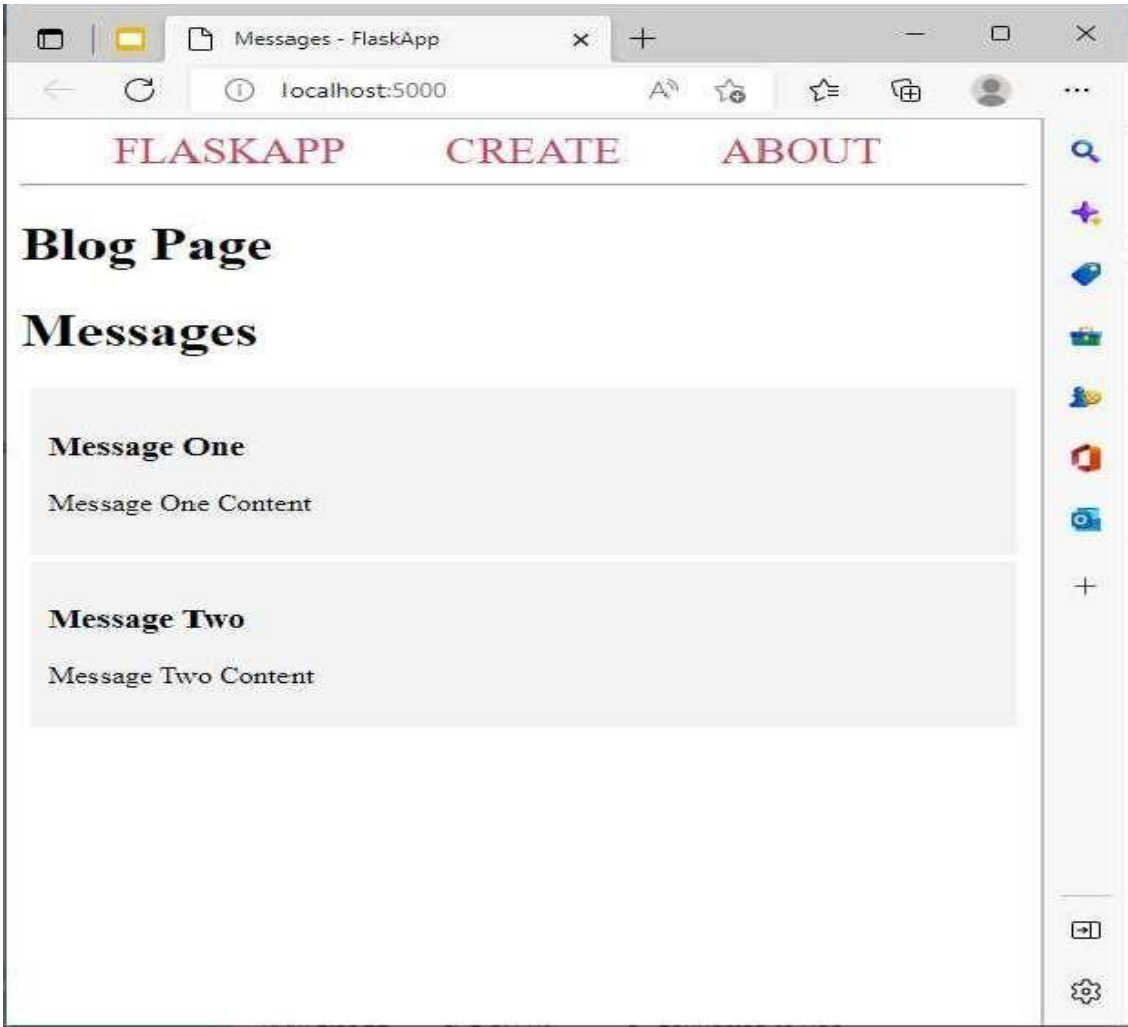
2) run it in docker playground

```
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>
```

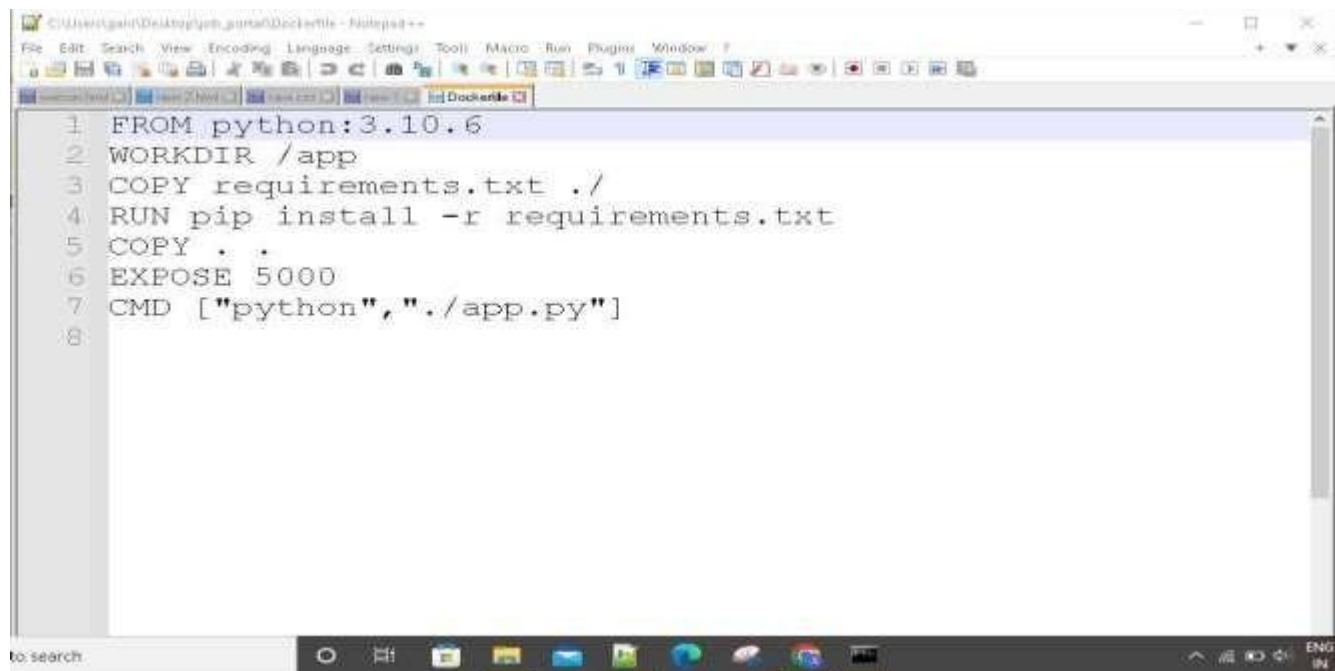




Question-2:

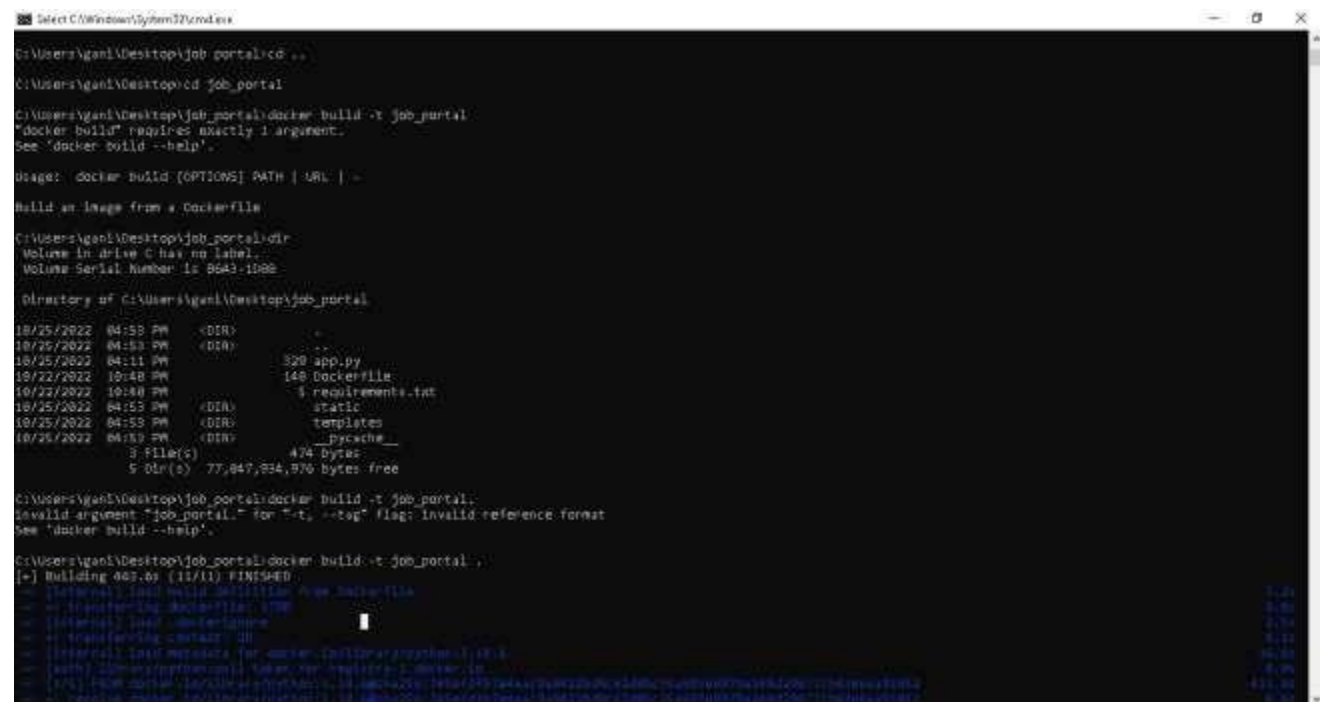
Create a docker file for the jobportal application and deploy it in docker application.

1) Creating a docker file for the jobportal application



```
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
```

2) deploy in in dokcer application



```
Select C:\Windows\System32\cmd.exe

C:\Users\gan1\Desktop\job_portal>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

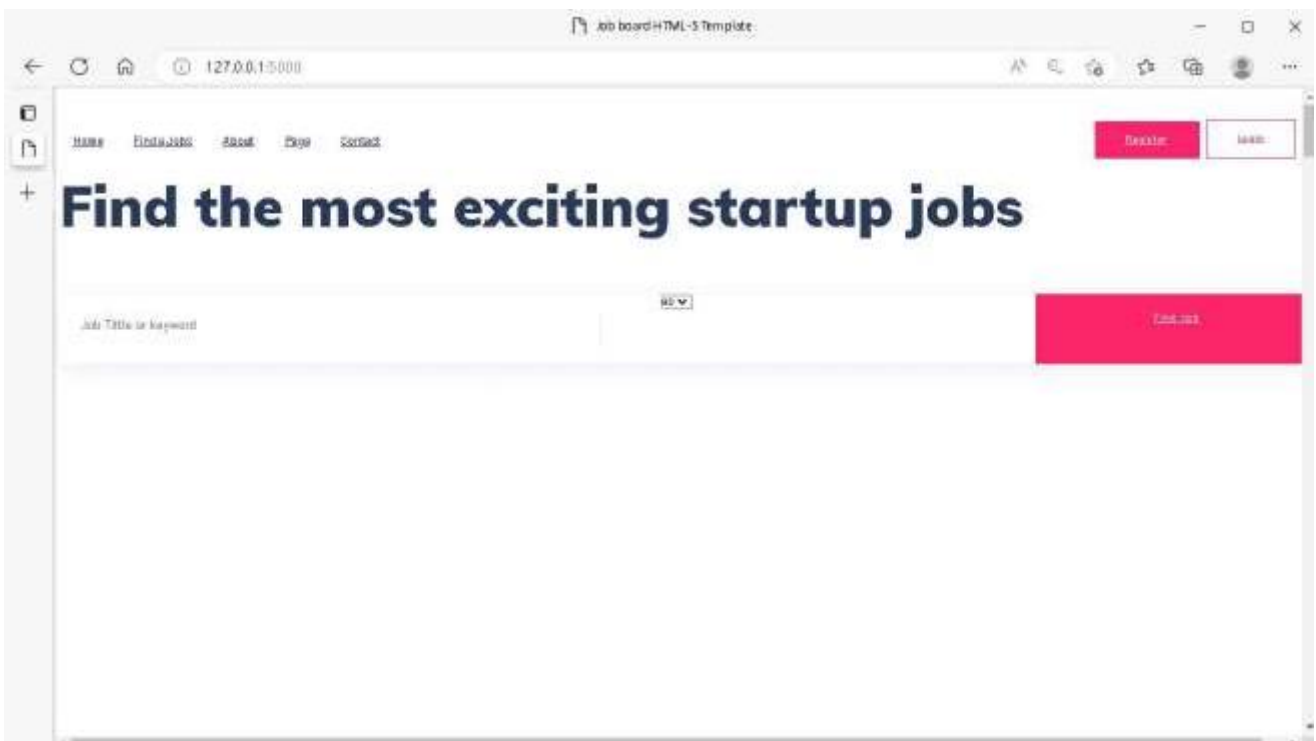
C:\Users\gan1\Desktop\job_portal>dir
Volume in drive C has no label.
Volume Serial Number is 86A3-1D8E

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

10/25/2022  04:50 PM         <DIR>          .
10/25/2022  04:50 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              5 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)  77,847,934,876 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 463.6s (11/11) FINISHED
=> [internal] load build definition from Dockerfile
=> [internal] load Dockerfile: 170s
=> [internal] load .dockerignore
=> [internal] load default context of "/
=> [internal] load metadata for docker.io/library/python:3.10.6
=> [auth] docker.io/library/python:3.10.6: pull access denied, docker.io/library/python:3.10.6: pull denied
[+] Build complete! Please refer to the Docker logs for more details.
```

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
54acb5a6fa8b: Retrying in 1 second
8d51c618126f: Retrying in 1 second
9ff6e4d6744: Waiting
e80d1d47b5e1: Waiting
655ed1b7a428: Waiting
Failed to lookup host: jp.lcr.io

C:\Users\gan1\Desktop\job_portal>docker push jp.lcr.io/ganeshjob/job_portal
Using default tag: latest
The push refers to repository [jp.lcr.io/ganeshjob/job_portal]
1503b1584025: Layer already exists
80e94f05e186: Layer already exists
48c2a7a4c12b: Layer already exists
9b72c7835466: Layer already exists
bfc1deb0130e: Layer already exists
1f123106024c: Layer already exists
3d5eb1152931: Pushed
180796cdf9b1: Pushed
54acb5a6fa8b: Retrying in 1 second
8d51c618126f: Pushed
9ff6e4d6744: Pushed
e80d1d47b5e1: Pushed
655ed1b7a428: Pushing [=====] 89.88MB/134MB
^C
C:\Users\gan1\Desktop\job_portal>docker push jp.lcr.io/ganeshjob/job_portal
Using default tag: latest
The push refers to repository [jp.lcr.io/ganeshjob/job_portal]
1503b1584025: Layer already exists
80e94f05e186: Layer already exists
48c2a7a4c12b: Layer already exists
9b72c7835466: Layer already exists
bfc1deb0130e: Layer already exists
1f123106024c: Layer already exists
3d5eb1152931: Layer already exists
180796cdf9b1: Layer already exists
54acb5a6fa8b: Pushed
8d51c618126f: Layer already exists
9ff6e4d6744: Layer already exists
e80d1d47b5e1: Layer already exists
655ed1b7a428: Pushed
latest: digest: sha256:e93189a7c97eeb93086668454e896cf61a46eda939998c8c7a2147a7961fc207 size: 3852

C:\Users\gan1\Desktop\job_portal>
C:\Users\gan1\Desktop\job_portal>
```


IBM Cloud

Repositories

Location: Tokyo

Search

Create +

<input type="checkbox"/>	Name	Image count	Namespace	Last update
<input type="checkbox"/>	job_portal jp.icr.io/ganeshjob/job_portal	1	ganeshjob	1 day
<input type="checkbox"/>	docker_with_flask_form jp.icr.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

Images

Location: Tokyo

View by: Digest Search

Create +

<input type="checkbox"/>	Repository@digest	Tags	Manifest type	Created	Size	Security status
<input type="checkbox"/>	ganeshjob/job_portal@sha256:e93189a7097e...	latest	Docker	1 day ago	556 MB	23 issues
<input type="checkbox"/>	newnamespace/docker_with_flask_form@sha256:ce1126873af1...	latest	Docker	4 days ago	556 MB	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>
```


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
```