

Assignment - 4
Docker and kubernetes

Assignment Date	10 October 2022
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Student Roll Number	814719104039
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
080f309ca59f: 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

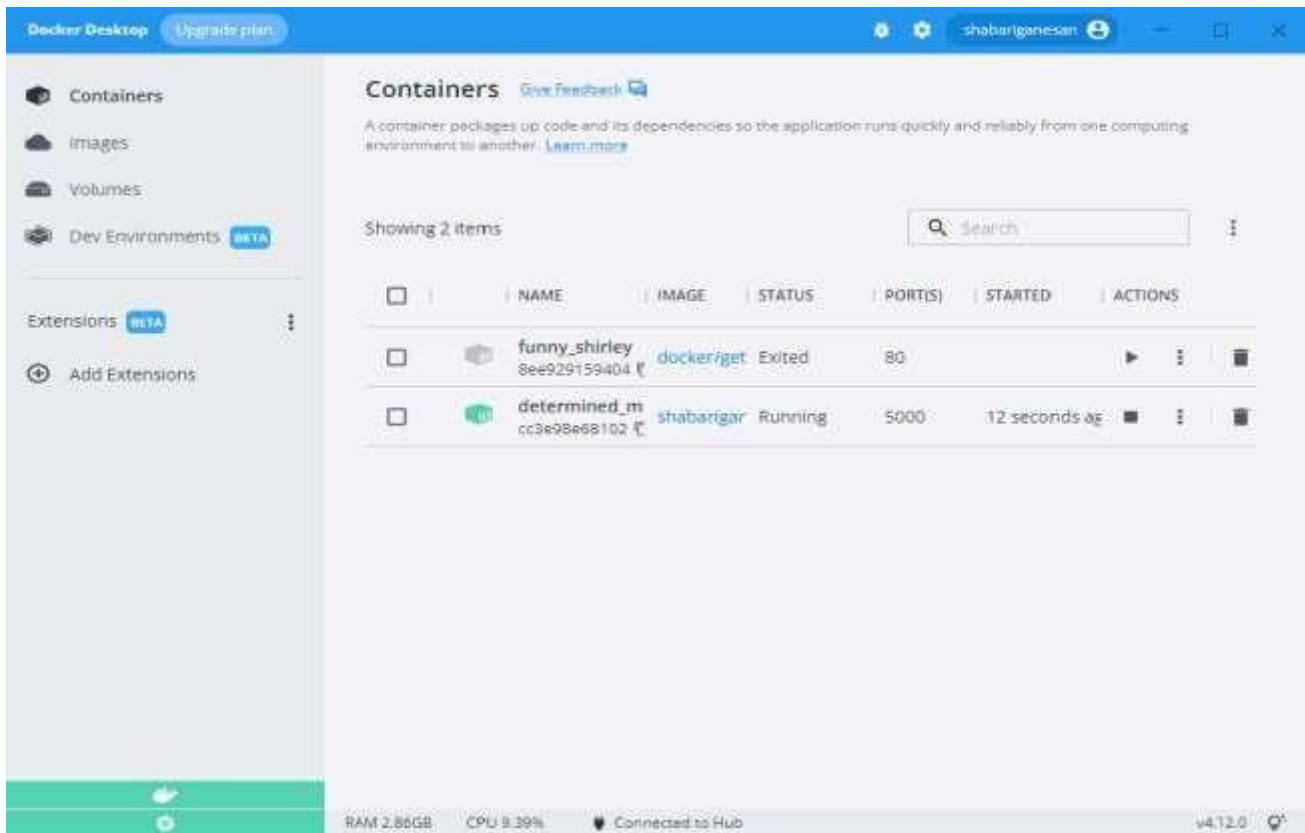
C:\Users\ADMIN>
```

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>
```

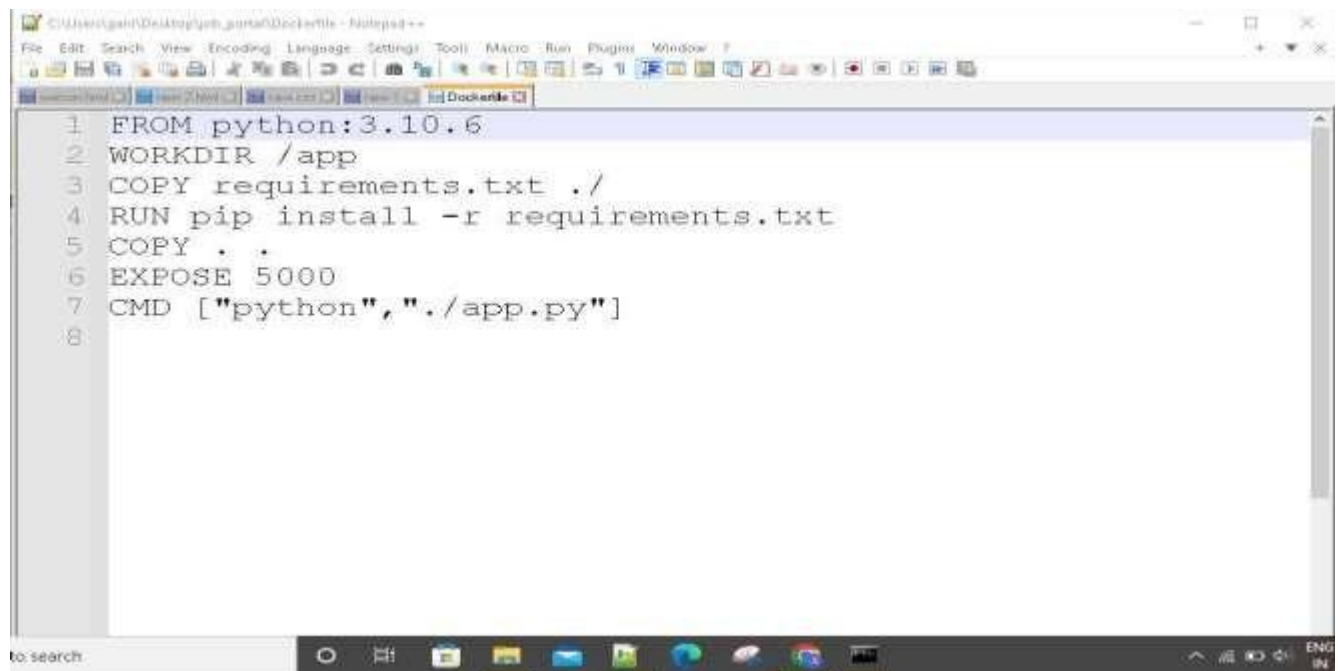




Question-2:

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

1) Creating a docker file for the jobportal application

A screenshot of a Notepad++ window titled "C:\Users\gaur\Desktop\gaur\gaur\Dockertile - 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.

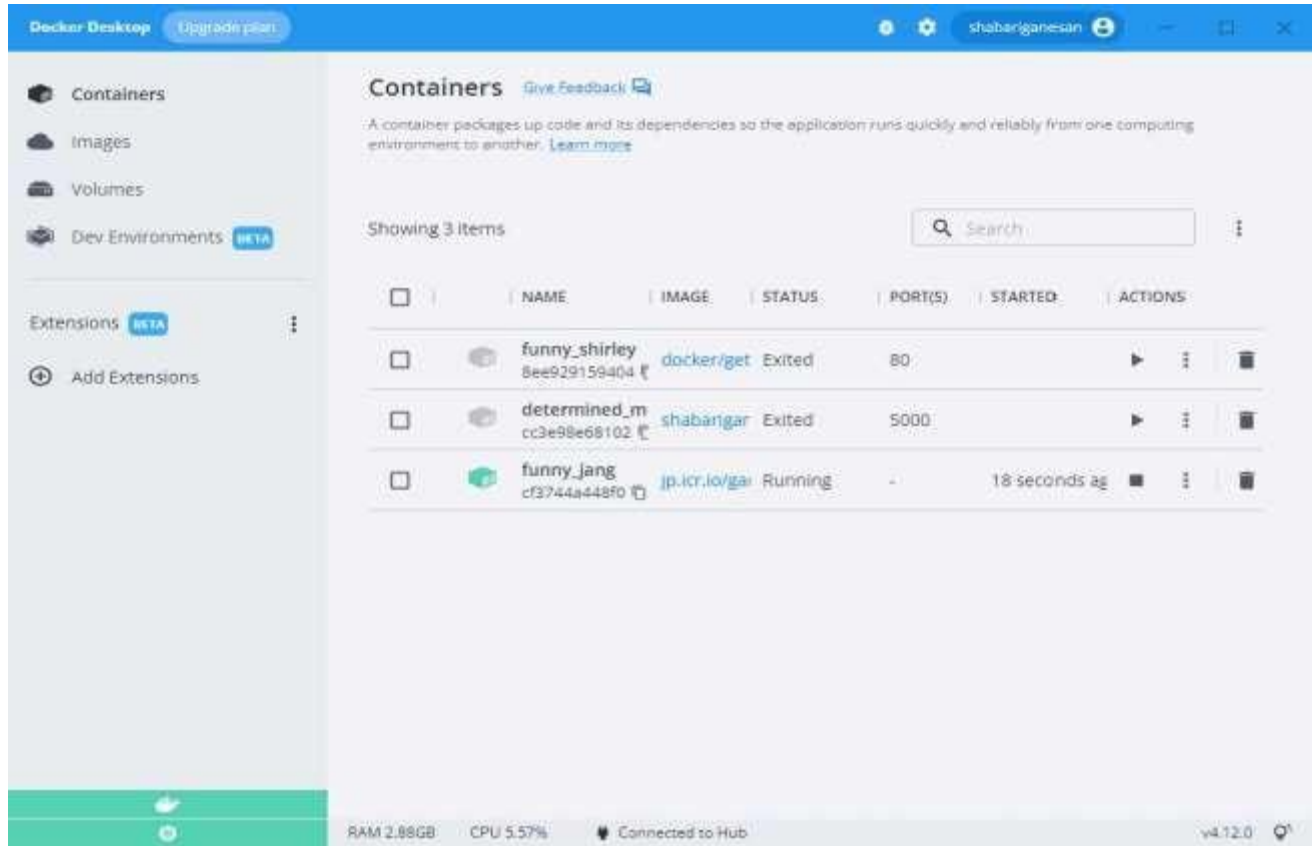
2) deploy in in dokcer application

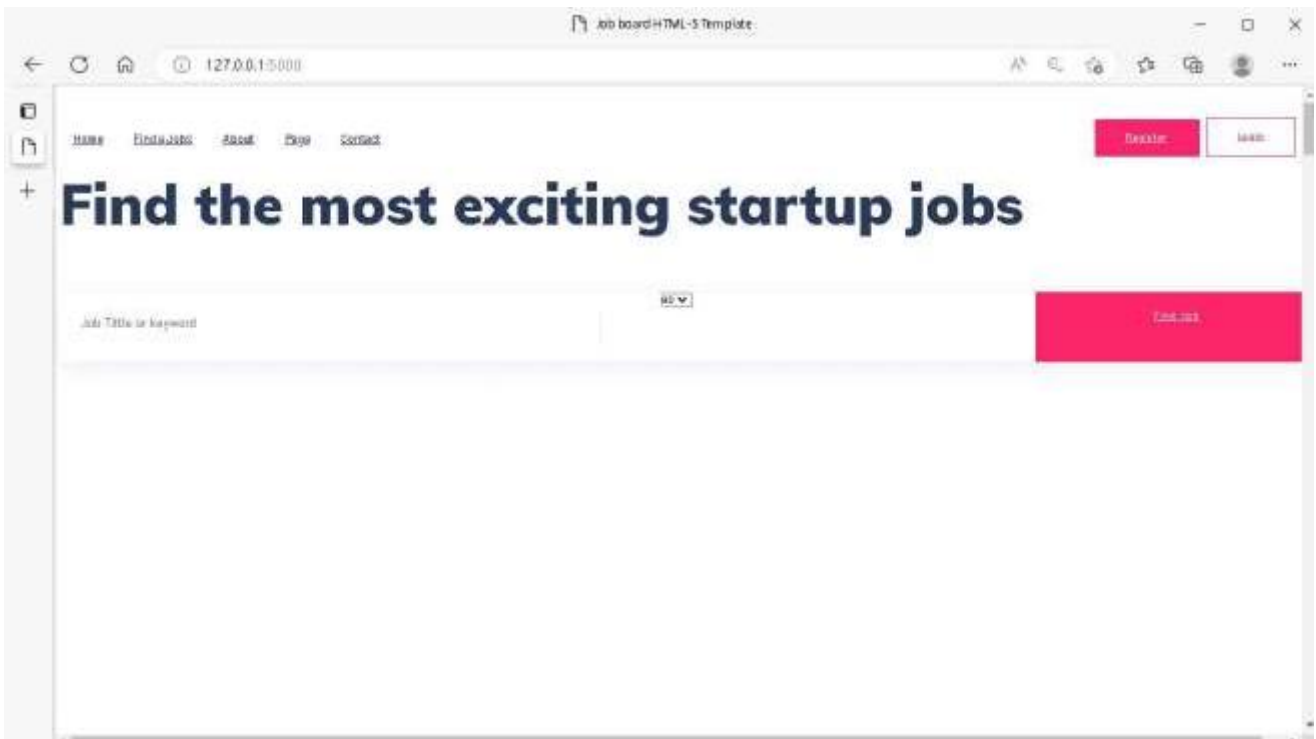
```
Select C:\Users\System32\cmd.exe
```

```
C:\Users\ganil\Desktop>job_portal.<cd ..>  
C:\Users\ganil\Desktop><cd job_portal>  
C:\Users\ganil\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\ganil\Desktop\job_portal><dir>  
Volume in drive C has no label.  
Volume Serial Number is B64B-0D98  
  
Directory of C:\Users\ganil\Desktop\job_portal  
  
18/25/2022   04:53 PM     <DIR>          .  
18/25/2022   04:53 PM     <DIR>          ..  
18/25/2022   04:11 PM                520 app.py  
18/22/2022   10:48 PM               148 Dockerfile  
18/22/2022   10:48 PM                 $ requirements.txt  
18/25/2022   04:53 PM     <DIR>          static  
18/25/2022   04:53 PM     <DIR>          templates  
18/25/2022   04:53 PM     <DIR>          __pycache__  
             3 File(s)              474 bytes  
             5 Dir(s)    77,847,934,976 bytes free  
  
C:\Users\ganil\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\ganil\Desktop\job_portal><docker build -t job_portal ,>  
[+] Building 0s (11/11) FINISHED  
=> [internal] load build definition from Dockerfile  
=> [transfering]> Dockerfile 17kB  
=> [internal] load .dockerignore  
=> [transfering]> default 0B  
=> [internal] load metadata for docker.io/library/python:3.10-slim  
=> [auth] docker.io/pkgsms/authn-token-v1:pull-secret: pull secret for registry.docker.io  
=> [build] Run command /bin/sh -c set -ex; apt-get update; pip install flask==2.0.2; curl https://raw.githubusercontent.com/jackfranklin/docker-demos/master/...  
=> [export] Push image 400MB (vulnerability scan took 1.0s)  
=> [push] Push image 400MB (vulnerability scan took 1.0s)
```

```

[...]
```





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
9ff6e4d46744: Waiting
e80d1d47b5a1: Waiting
655ed1b74428: 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
9ff6e4d46744: Pushed
e80d1d47b5a1: Pushed
655ed1b74428: 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
9ff6e4d46744: Layer already exists
e80d1d47b5a1: Layer already exists
655ed1b74428: Pushed
latest: digest: sha256:e93189a7c97eeb893086668454e896cf61a46eda939998c8c7a2147a7961fc207 size: 3852

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


IBM Cloud Container Registry Repositories

Location: Tokyo

Search

Create

Name	Image count	Namespace	Last update
job_portal jp.icr.io/ganeshjob/job_portal	1	ganeshjob	1 day
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 Container Registry Images

Location: Tokyo

View by: Digest Search

Create

Repository@digest	Tags	Manifest type	Created	Size	Security status
ganeshjob/job_portal@sha256:e93189a7097e...	latest	Docker	1 day ago	556 MB	23 issues
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

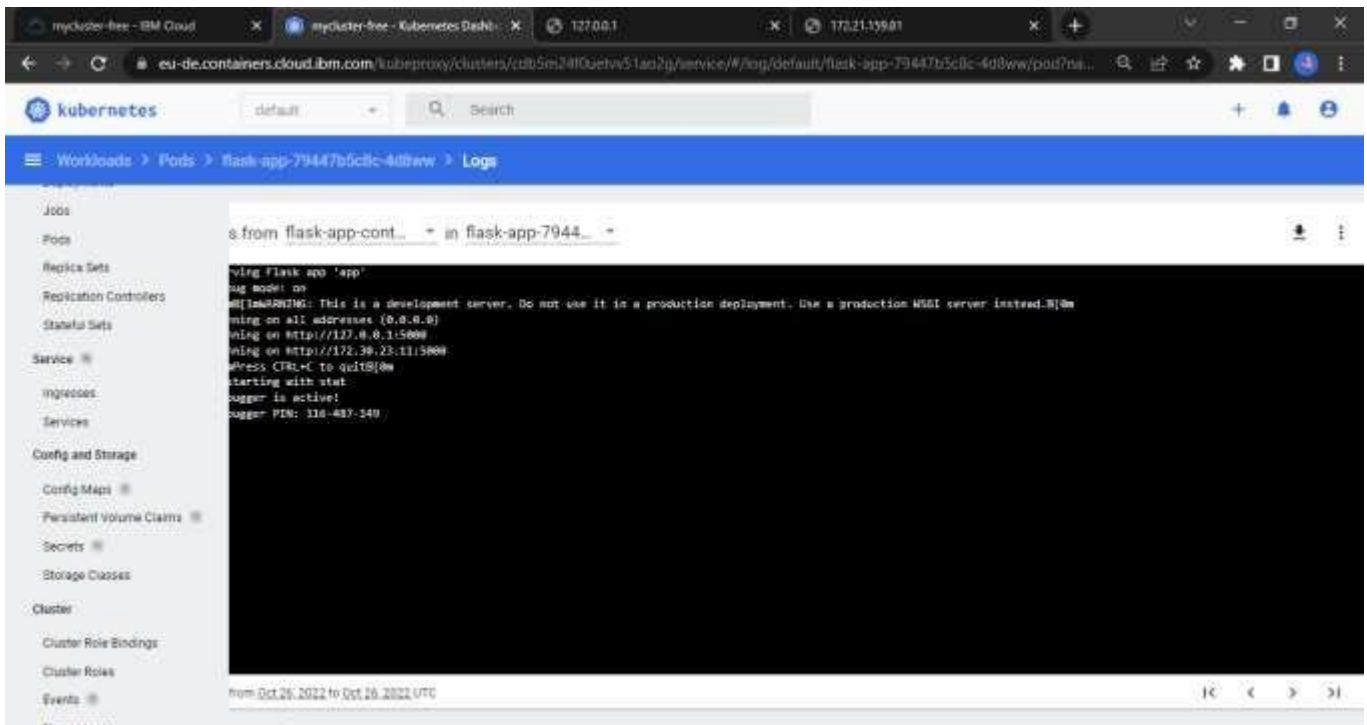
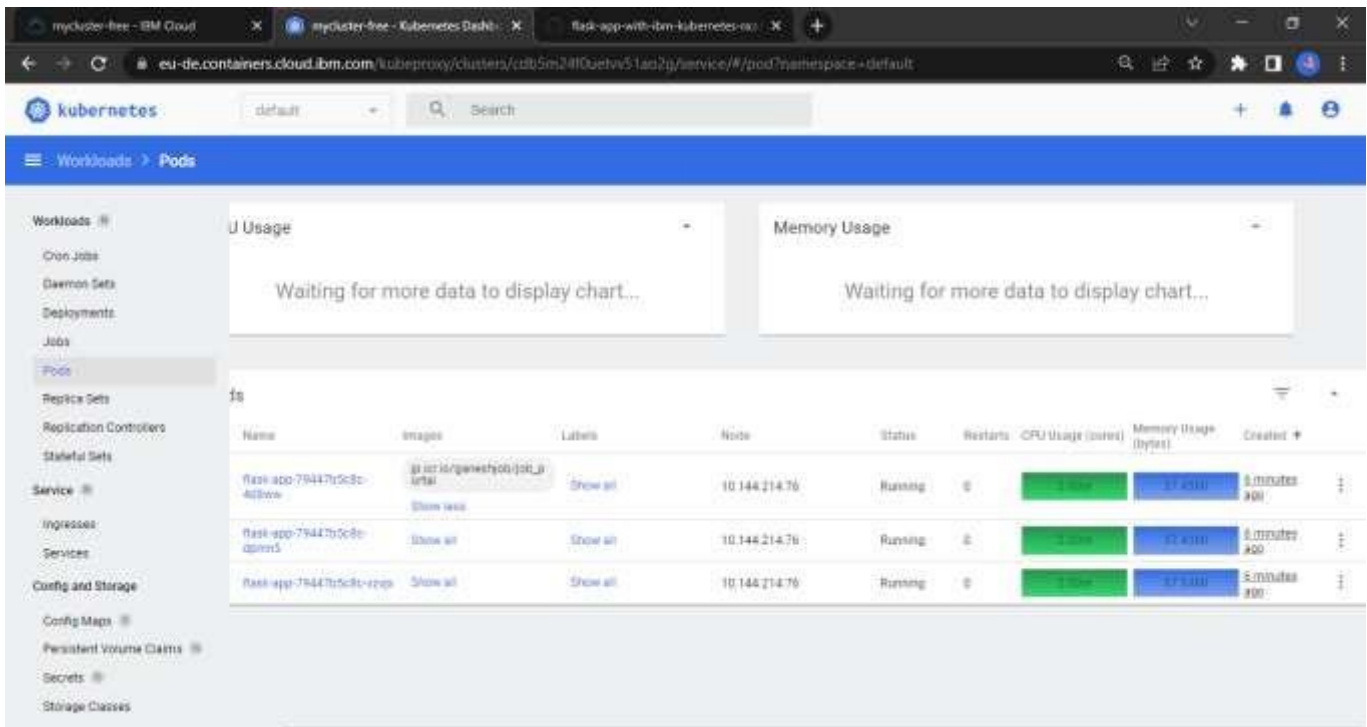
C:\Users\gani\Desktop>cd deploy
The system cannot find the path specified.

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 kubernetesh-dashboard get deploy
^C
C:\Windows\system32\kubectl -n kubernetesh-dashboard get deploy
No resources found in kubernetesh-dashboard namespace.

C:\Windows\system32\kubectl -n kubernetesh-dashboard get deploy
No resources found in kubernetesh-dashboard namespace.

C:\Windows\system32\kubectl proxy
Starting to serve on 127.0.0.1:8001
^C
C:\Windows\system32\kubectl -n kubernetesh-dashboard get deploy
^C
C:\Windows\system32\kubectl -n kubernetesh-dashboard get deploy
No resources found in kubernetesh-dashboard namespace.

C:\Windows\system32\kubectl -n kubernetesh-dashboard get pods
No resources found in kubernetesh-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
```