

Assignment -4
Docker and kubernetes

| | |
|---------------------|-----------------|
| Assignment Date | 10 October 2022 |
| Student Name | Mr. S. Ganesan |
| Student Roll Number | 612419104010 |
| 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
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

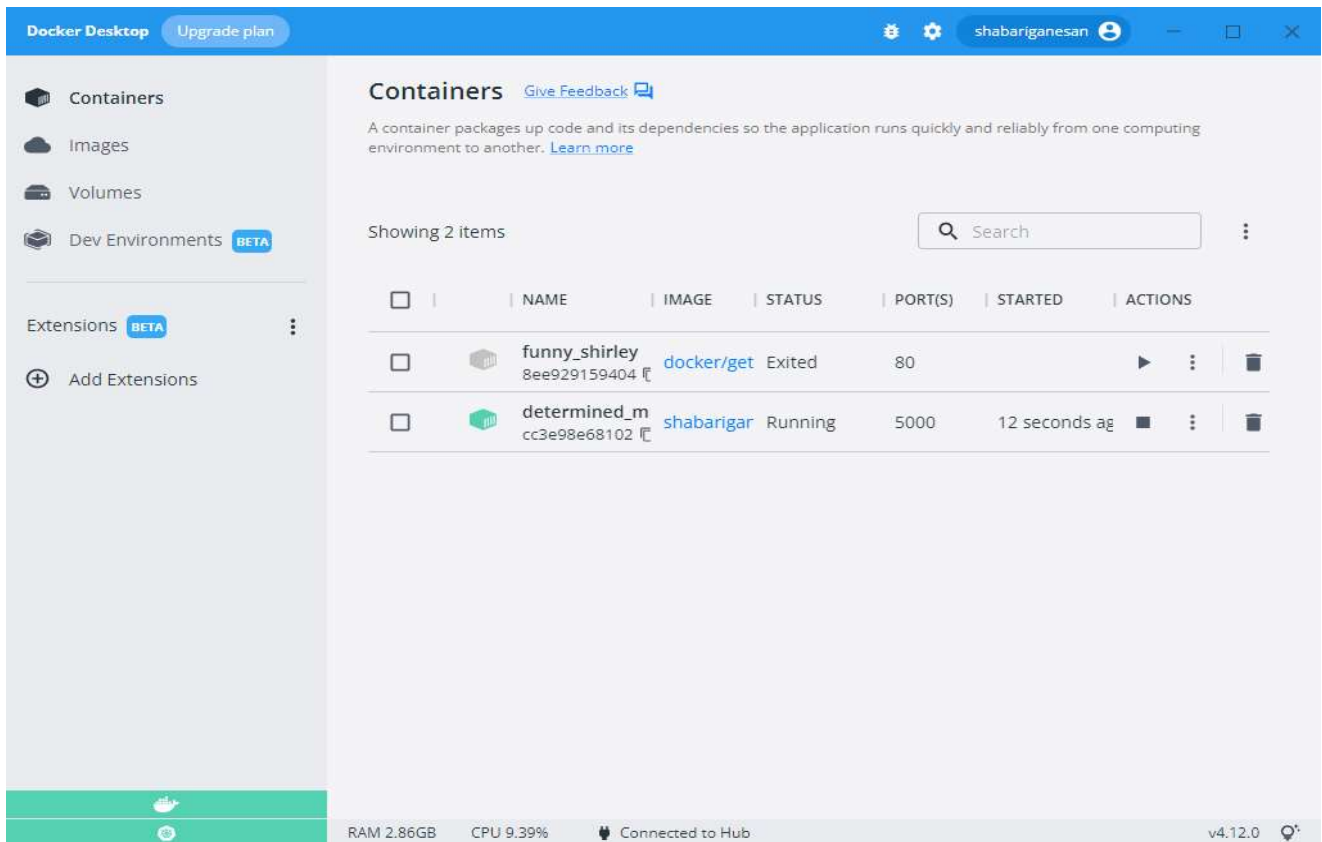
C:\Users\ADMIN>
```

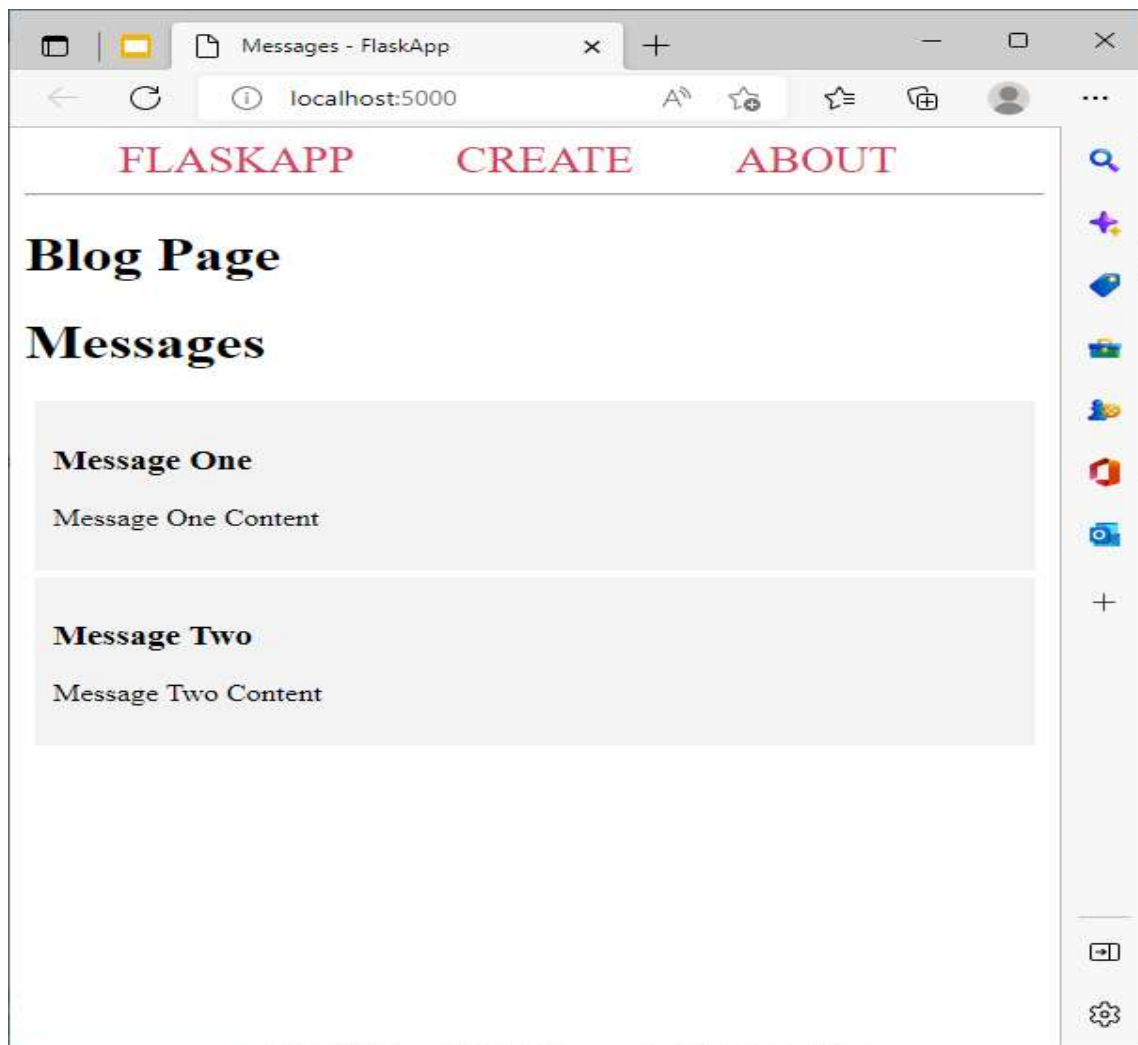
2)run it in docker playground

```
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>
```

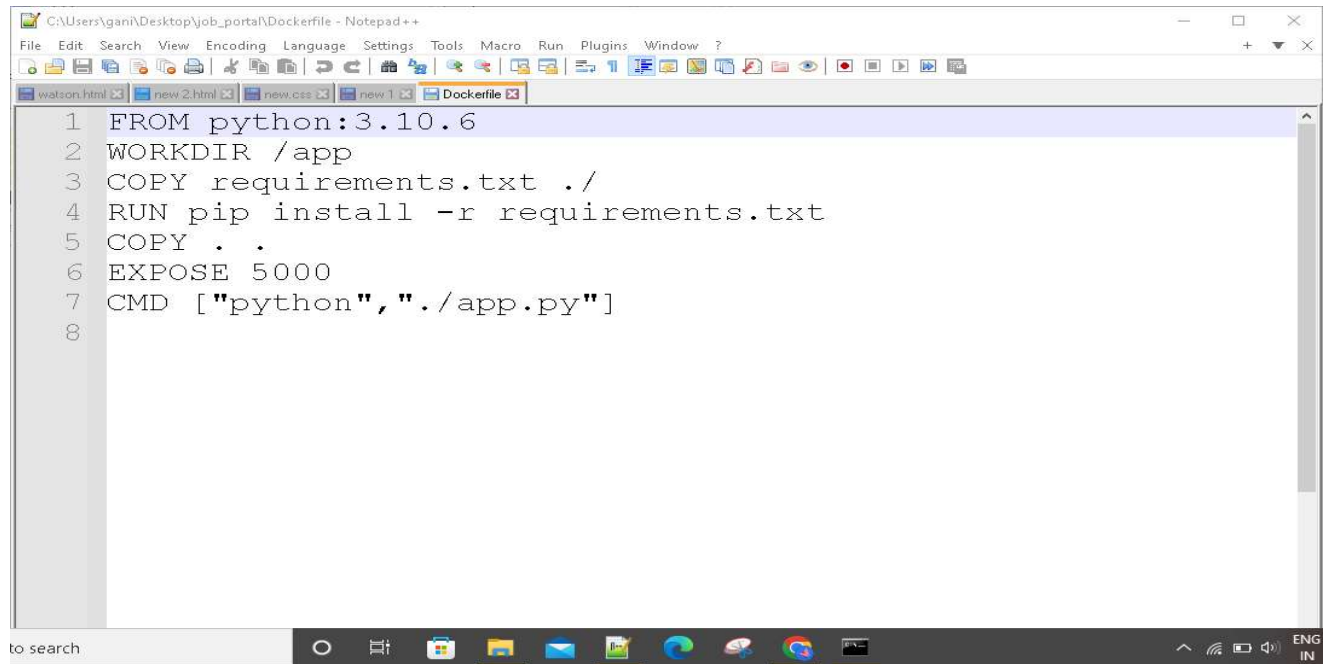




Question-2:

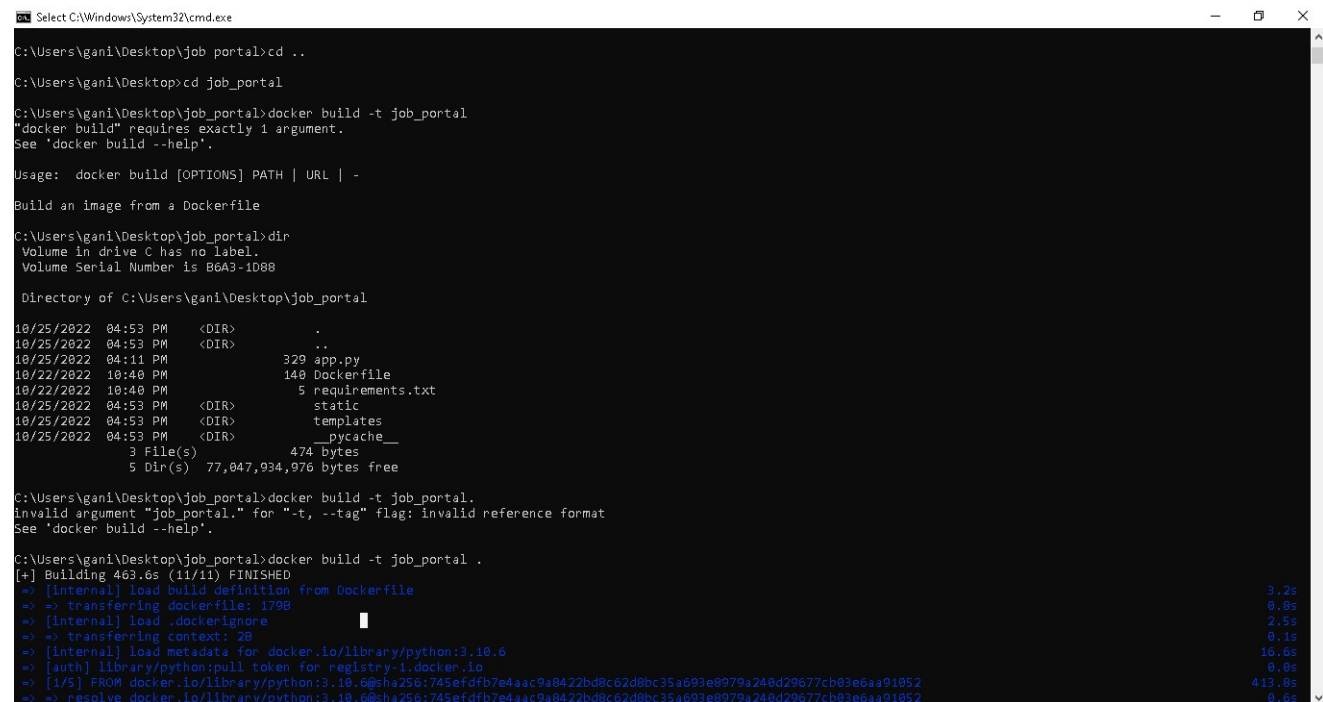
Create a docker file for the jobportal application and deploy it in docker application.

1)Creating a docker file for the jobportal application



```
C:\Users\gani\Desktop\job_portal\Dockerfile - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
Dockerfile
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\gani\Desktop\job_portal>cd ..
C:\Users\gani\Desktop>cd job_portal
C:\Users\gani\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\gani\Desktop\job_portal>dir
Volume in drive C has no label.
Volume Serial Number is B6A3-1D88

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

10/25/2022  04:53 PM  <DIR>          .
10/25/2022  04:53 PM  <DIR>          ..
10/25/2022  04:11 PM                329 app.py
10/22/2022  10:40 PM               140 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)  77,047,934,976 bytes free

C:\Users\gani\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\gani\Desktop\job_portal>docker build -t job_portal .
[+] Building 463.6s (11/11) FINISHED
=> [Internal] load build definition from Dockerfile 3.2s
=> => transferring dockerfile: 179B 0.8s
=> [Internal] load .dockerignore 2.5s
=> => transferring context: 2B 0.1s
=> [Internal] load metadata for docker.io/library/python:3.10.6 16.6s
[auth] library/python:pull token for registry-1.docker.io 0.0s
=> [1/5] FROM docker.io/library/python:3.10.6@sha256:745efdfb7e44ac9a8422bd8c62d8bc35a693e0979a240d29677cb83e6aa91052 413.8s
=> => resolve docker.io/library/python:3.10.6@sha256:745efdfb7e44ac9a8422bd8c62d8bc35a693e0979a240d29677cb83e6aa91052 0.6s
```

```
Select C:\Windows\System32\cmd.exe
>> [Internal] load build definition from Dockerfile
>> => transferring dockerfile: 179B
>> [Internal] load .dockerignore
>> => transferring context: 2B
>> [Internal] load metadata for docker.io/library/python:3.10.6
>> [auth] library/python:pull token for registry-1.docker.io
>> [1/5] FROM docker.io/library/python:3.10.6@sha256:745efdfb7e4aac9a8422bd8c62d8bc35a693e0979a240d29677cb03e6aa91052
>> => resolve docker.io/library/python:3.10.6@sha256:745efdfb7e4aac9a8422bd8c62d8bc35a693e0979a240d29677cb03e6aa91052
>> sha256:745efdfb7e4aac9a8422bd8c62d8bc35a693e0979a240d29677cb03e6aa91052 2.35kB / 2.35kB
>> sha256:8d1f943ceaff3b3ce05df5c0926e7958836b048b760176bf9c56d8f374c13fca 2.22kB / 2.22kB
>> sha256:d25a66380b10283603ff696d777b0a5cd1b9126fb0be7d118095749466cf04 8.53kB / 8.53kB
>> sha256:1671565cc8df8c305c9b6d1d3fbc164e71d01f1b043c6d179580428f09a9da2e 55.01MB / 55.01MB
>> sha256:f49c7528e6521612908067bf362a7702e7b1da595ab0546a4508030657d6 10.00MB / 10.00MB
>> sha256:3e04d13e5e744ef17ff21376f57fb95c7e1706031f8704a90260968d81f6e4 5.16MB / 5.16MB
>> sha256:53a4972f0cd18f6eb93b182b28e758e11acc0ef60babef0bf1843c08de1901a 54.58MB / 54.58MB
>> sha256:d6b983117533b718374f1701ef593dd2fa6613c7908c6553be8e2a150e6448a 196.79MB / 196.79MB
>> sha256:d8092d56ded5476fe7c302256eb4dc6ff495aefb4dd28aa18dbcb7581e24a6c 6.20MB / 6.20MB
>> extracting sha256:1671565cc8df8c305c9b6d1d3fbc164e71d01f1b043c6d179580428f09a9da2e 23.4s
>> sha256:c71afc637d59adc44c5fd3c348504df82b35bbb204f0057ea22c6ac8a1d285a5 20.02MB / 20.02MB
>> sha256:864a10b3c704553e08cb5fcd12fbaee1c07048f6365f0fa35e84a285413da40b 234B / 234B
>> sha256:4334b2fe8293d19ddc1c3559093aae08f21601a7c85a31c6da6c0dc48fb6ed3c 3.04MB / 3.04MB
>> extracting sha256:3e04d13e5e744ef17ff21376f57fb95c7e1706031f8704a90260968d81f6e4 2.3s
>> extracting sha256:f49c7528e6521612908067bf362a7702e7b1da595ab0546a4508030657d6 3.0s
>> extracting sha256:53a4972f0cd18f6eb93b182b28e758e11acc0ef60babef0bf1843c08de1901a 21.2s
>> extracting sha256:d6b983117533b718374f1701ef593dd2fa6613c7908c6553be8e2a150e6448a 30.8s
>> extracting sha256:d8092d56ded5476fe7c302256eb4dc6ff495aefb4dd28aa18dbcb7581e24a6c 3.3s
>> extracting sha256:c71afc637d59adc44c5fd3c348504df82b35bbb204f0057ea22c6ac8a1d285a5 3.4s
>> extracting sha256:864a10b3c704553e08cb5fcd12fbaee1c07048f6365f0fa35e84a285413da40b 0.0s
>> extracting sha256:4334b2fe8293d19ddc1c3559093aae08f21601a7c85a31c6da6c0dc48fb6ed3c 1.2s
>> [Internal] load build context
>> => transferring context: 526.95kB
>> [2/5] WORKDIR /app
>> [3/5] COPY requirements.txt ./
>> [4/5] RUN pip install -r requirements.txt
>> [5/5] COPY . .
>> exporting to image
>> => exporting layers
>> => writing image sha256:c450817622a20f1173f9d9da336f8fce5d470a73c535863d978001ba398152d7
>> => naming to docker.io/library/job_portal
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
C:\Users\gnan\Desktop>job_portal>-
```

Containers

Images

Volumes

Dev Environments BETA

Extensions BETA

Add Extensions

Containers Give Feedback

A container packages up code and its dependencies so the application runs quickly and reliably from one computing environment to another. [Learn more](#)

Showing 3 items

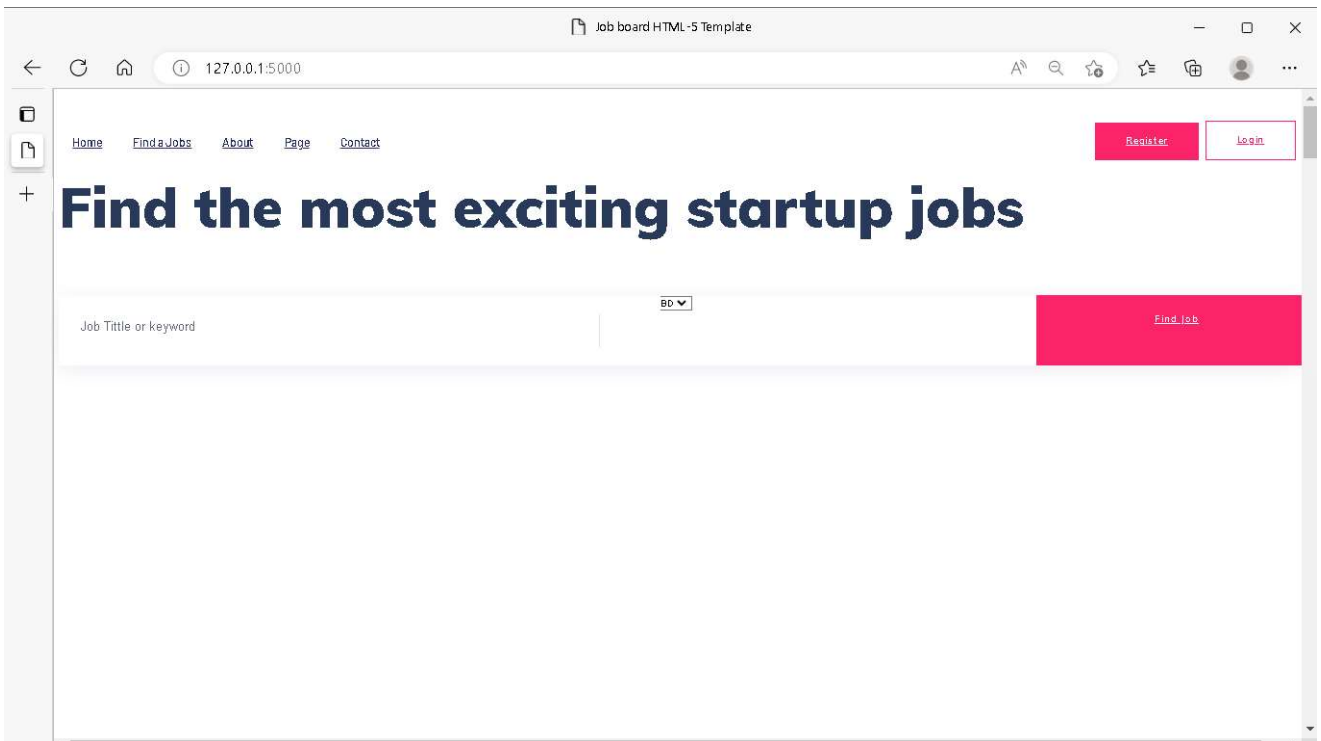
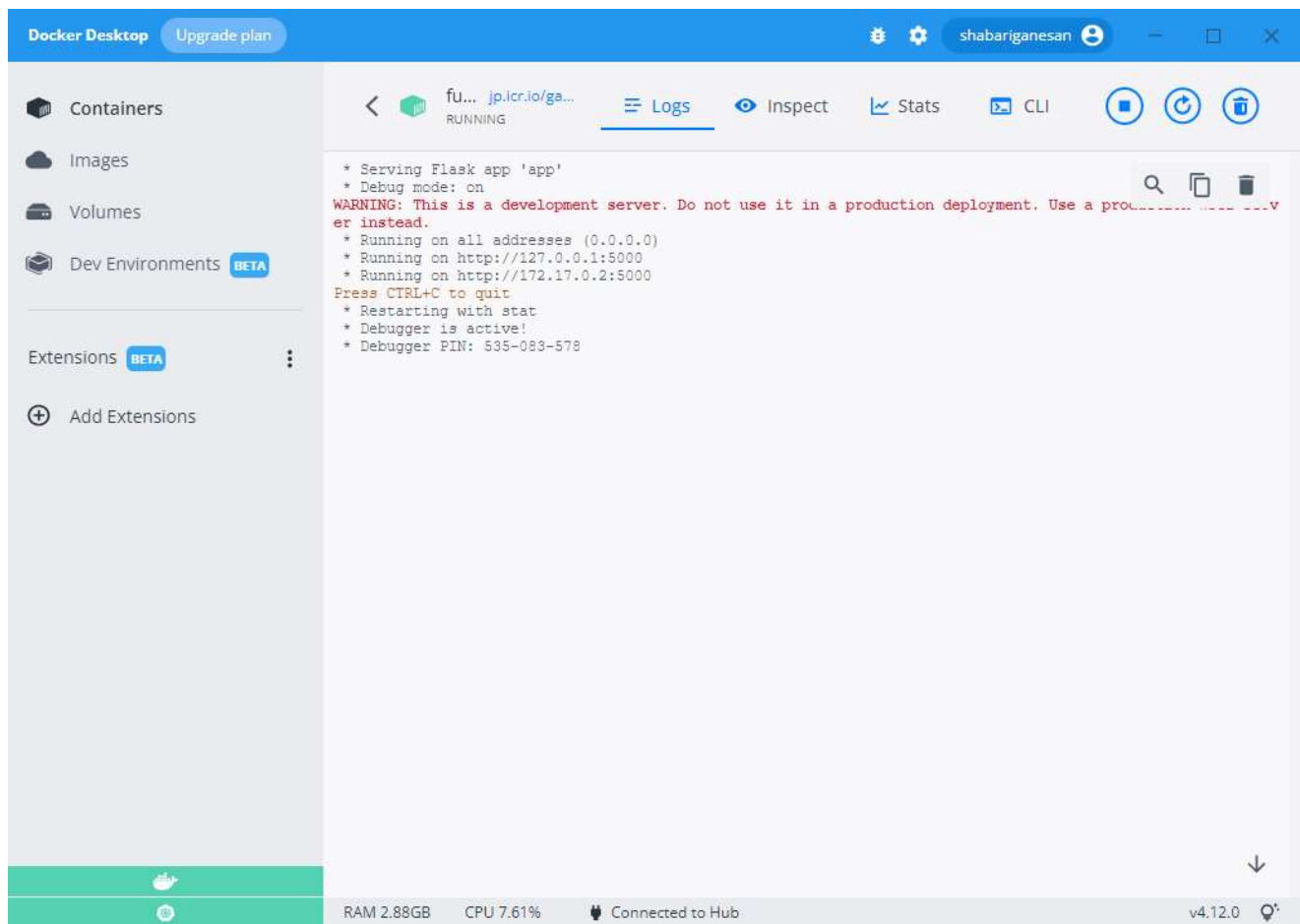
| | NAME | IMAGE | STATUS | PORT(S) | STARTED | ACTIONS |
|--------------------------|--|---------------|---------|---------|---------------|--|
| <input type="checkbox"/> | <div>funny_shirley</div> <div>8ee929159404</div> | docker/get | Exited | 80 | | <div><div></div><div></div><div></div></div> |
| <input type="checkbox"/> | <div>determined_m</div> <div>cc3e98e68102</div> | shabarigar | Exited | 5000 | | <div><div></div><div></div><div></div></div> |
| <input type="checkbox"/> | <div>funny_jang</div> <div>cf3744a448f0</div> | jp.icr.io/gai | Running | - | 18 seconds ag | <div><div></div><div></div><div></div></div> |

RAM 2.88GB

CPU 5.57%

Connected to Hub

v4.12.0



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
54acb5a6fa0b: Retrying in 1 second
8d51c618126f: Retrying in 1 second
9ff6e4d46744: Waiting
a89d1d47b5a1: Waiting
655ed1b7a428: Waiting
Failed to lookup host: jp.icr.io



C:\Users\gan1\Desktop\job_portal>docker push jp.icr.io/ganeshjob/job_portal
Using default tag: latest
The push refers to repository [jp.icr.io/ganeshjob/job_portal]
15e3b158a025: Layer already exists
8be94fb5e186: Pushed
48c2a7a4c12b: Layer already exists
9b72c7835466: Layer already exists
bfc1deb8136e: Layer already exists
1f123186824c: Layer already exists
3d6eb1152931: Pushed
100796cdf3b1: Pushed
54acb5a6fa0b: Retrying in 1 second
8d51c618126f: Pushed
9ff6e4d46744: Pushed
a89d1d47b5a1: Pushed
655ed1b7a428: Pushing [=====] 89.98MB/124MB
rc
C:\Users\gan1\Desktop\job_portal>docker push jp.icr.io/ganeshjob/job_portal
Using default tag: latest
The push refers to repository [jp.icr.io/ganeshjob/job_portal]
15e3b158a025: Layer already exists
8be94fb5e186: Layer already exists
48c2a7a4c12b: Layer already exists
9b72c7835466: Layer already exists
bfc1deb8136e: Layer already exists
1f123186824c: Layer already exists
3d6eb1152931: Layer already exists
100796cdf3b1: Layer already exists
54acb5a6fa0b: Pushed
8d51c618126f: Layer already exists
9ff6e4d46744: Layer already exists
a89d1d47b5a1: Layer already exists
655ed1b7a428: Pushed
latest: digest: sha256:e93189a7c97eeb09d86668a54e896cf61aa6eda839998c8c7a2147a7963fc287 size: 3052

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

IBM Cloud Container Registry Repositories

Location: Tokyo

Search: Refresh Settings Create +

| <input type="checkbox"/> | Name | Image count | Namespace | Last updated |
|--------------------------|--|-------------|-----------------|--------------|
| <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/newnamtamespace/docker_with_flask_form | 1 | newnamtamespace | 4 days |





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

IBM_Cloud_CLI_2.1....exe Show all ×

IBM Cloud Container Registry Images

Location: Tokyo

View by: Digest Search: Refresh Settings Create +

| <input type="checkbox"/> | Repository@digest | Tags | Manifest type | Created | Size | Security status |
|--------------------------|---|--|---------------|------------|--------|-----------------|
| <input type="checkbox"/> |  ganeshjob/job_portal@sha256:e93189a7c97e... | latest  | Docker | 1 day ago | 356 MB | 23 issues |
| <input type="checkbox"/> |  newnamtamespace/docker_with_flask_form@sha256:c61f28873bf1... | latest  | Docker | 4 days ago | 356 MB | 23 issues |

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

IBM_Cloud_CLI_2.1....exe Show all ×

Question-4: Create a kubernetes cluster in ibm cloud

The screenshot displays the IBM Cloud Kubernetes Clusters management interface. The browser address bar shows the URL `cloud.ibm.com/kubernetes/clusters/cdb5m24f0uetwv51ao2g/nodes`. The page header includes the IBM Cloud logo, a search bar, and navigation links for Catalog, Manage, and the user's account (Ganesan S's Account). The main content area is titled "Clusters / mycluster-free" and includes status indicators: a green checkmark for "Normal" and a red "Expires in 29 days" warning. There are buttons for "Add tags", "Help", "Kubernetes dashboard", and "Actions...".

On the left sidebar, the "Worker nodes" tab is selected under the "Overview" section. The main area shows a table of worker nodes. The table has columns for Name, Status, Worker pool, Zone, Private IP, Public IP, and Version. A single node is listed with the name "00000069", status "Normal", worker pool "default", zone "Milan 01", private IP "10.144.214.76", public IP "159.122.175.138", and version "1.23.12_1b48".

| Name | Status | Worker pool | Zone | Private IP | Public IP | Version |
|----------|--------|-------------|----------|---------------|-----------------|--------------|
| 00000069 | Normal | default | Milan 01 | 10.144.214.76 | 159.122.175.138 | 1.23.12_1b48 |

At the bottom of the table, there are pagination controls: "Items per page: 25" and "1-1 of 1 item".

The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system tray on the right indicates the language is "ENG IN", the time is "8:49 PM", and the date is "10/25/2022".