

ASSIGNMENT-IV

DOCKER & KUBERNETES

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Maximum Marks	2 Marks

app.py

The screenshot displays a development environment with Visual Studio Code on the left and a web browser on the right. In VS Code, the Explorer sidebar shows a project named 'APP' with files 'index.html', 'app.py', 'Dockerfile', and 'requirements.txt'. The 'app.py' file is open, showing the following code:

```
1 from flask import Flask
2 import os
3 app = Flask(__name__)
4
5 @app.route("/")
6 def home():
7     return("///SKILL AND JOB RECOMMENDER///")
8
9 if __name__ == "__main__":
10     port = os.environ.get("PORT", 5000)
11     app.run(port=port, host="0.0.0.0")
12
```

The TERMINAL panel at the bottom shows the command 'python app.py' being executed. The output includes Flask's standard startup messages and log entries for incoming requests:

```
PS C:\Users\DELL\Documents\workspace\app> python app.py
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://192.168.42.2:5000
Press CTRL+C to quit
127.0.0.1 - - [12/Nov/2022 19:18:32] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [12/Nov/2022 19:18:32] "GET /favicon.ico HTTP/1.1" 404 -
```

The web browser on the right shows the URL '127.0.0.1:5000' and displays the text '///SKILL AND JOB RECOMMENDER///'.

Dockerfile

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

Requirements.txt

```
1 flask
```

Docker hub

The screenshot shows the Docker Hub repository page for `mouneesh/helloapp`. The page is titled "mouneesh / helloapp" and includes a description: "a quick hello world application in flask on port 5000". It also shows the "Tags and scans" section, which is currently empty, and the "Docker commands" section, which provides the command `docker push mouneesh/helloapp:tagname`. The page is part of a browser window with the address bar showing `hub.docker.com/repository/docker/mouneesh/helloapp`. The Windows taskbar at the bottom shows the date and time as 08:54 AM on 13-11-2022.

Wasm is a fast, light alternative to Linux containers – try it out today in the Docker+Wasm Technical Preview

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mouneesh Repositories helloapp Using 0 of 1 private repositories. [Get more](#)

General Tags Builds Collaborators Webhooks Settings

mouneesh / helloapp

Description
a quick hello world application in flask on port 5000
Last pushed: a few seconds ago

Docker commands
To push a new tag to this repository,
`docker push mouneesh/helloapp:tagname`

Tags and scans
VULNERABILITY SCANNING - DISABLED
This repository is empty. When it's not empty, you'll see a list of the most recent tags here.

Automated Builds
Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.
Available with Pro, Team and Business subscriptions.

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25°C Mostly cloudy 08:54 AM 13-11-2022

The screenshot shows the Docker Hub repository page for `mouneesh/helloapp` after a new tag has been pushed. The "Tags and scans" section now displays a table with one tag, `latest`, which was pushed 3 minutes ago. The "Docker commands" section remains the same. The page is part of a browser window with the address bar showing `hub.docker.com/repository/docker/mouneesh/helloapp`. The Windows taskbar at the bottom shows the date and time as 09:06 AM on 13-11-2022.

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mouneesh Repositories helloapp Using 0 of 1 private repositories. [Get more](#)

General Tags Builds Collaborators Webhooks Settings

mouneesh / helloapp

Description
a quick hello world application in flask on port 5000
Last pushed: 3 minutes ago

Docker commands
To push a new tag to this repository,
`docker push mouneesh/helloapp:tagname`

Tags and scans
VULNERABILITY SCANNING - DISABLED
This repository contains 1 tag(s).

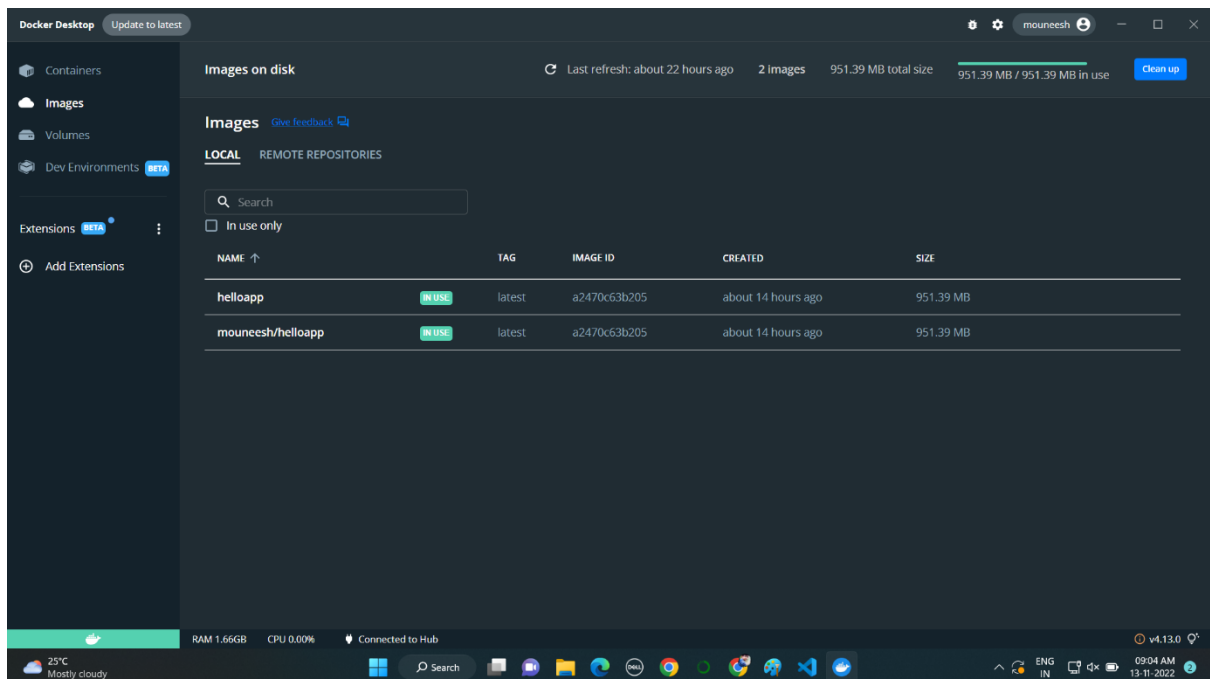
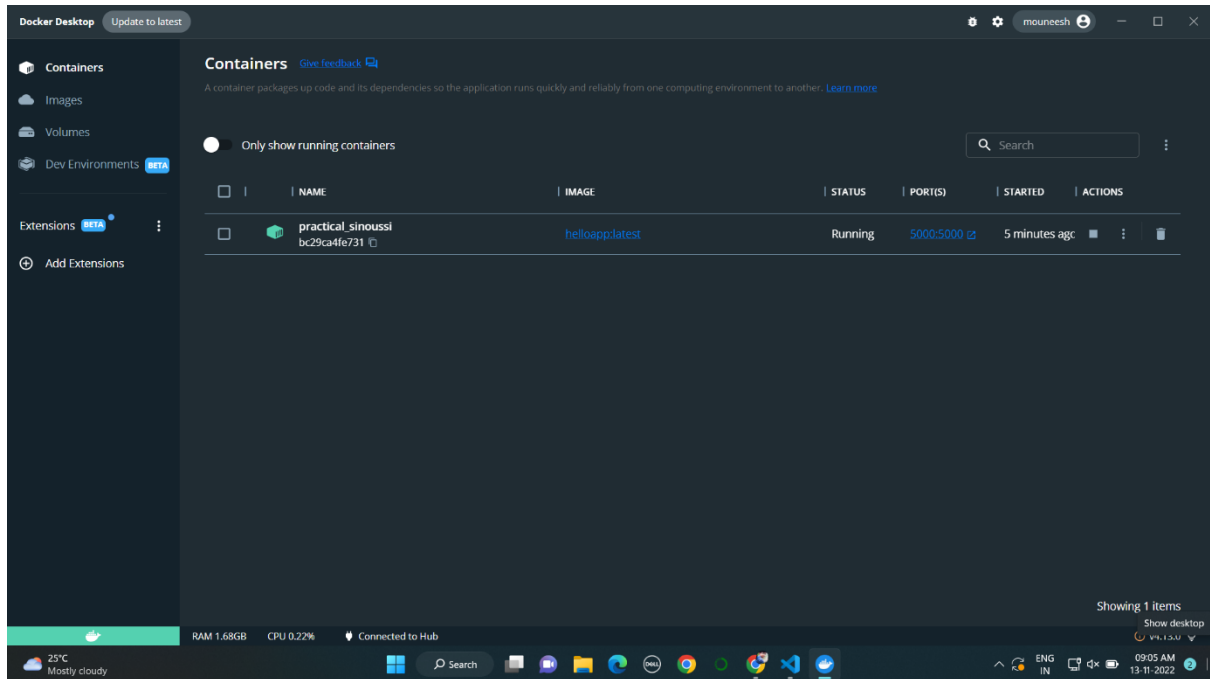
Tag	OS	Type	Pulled	Pushed
latest	linux	Image	—	3 minutes ago

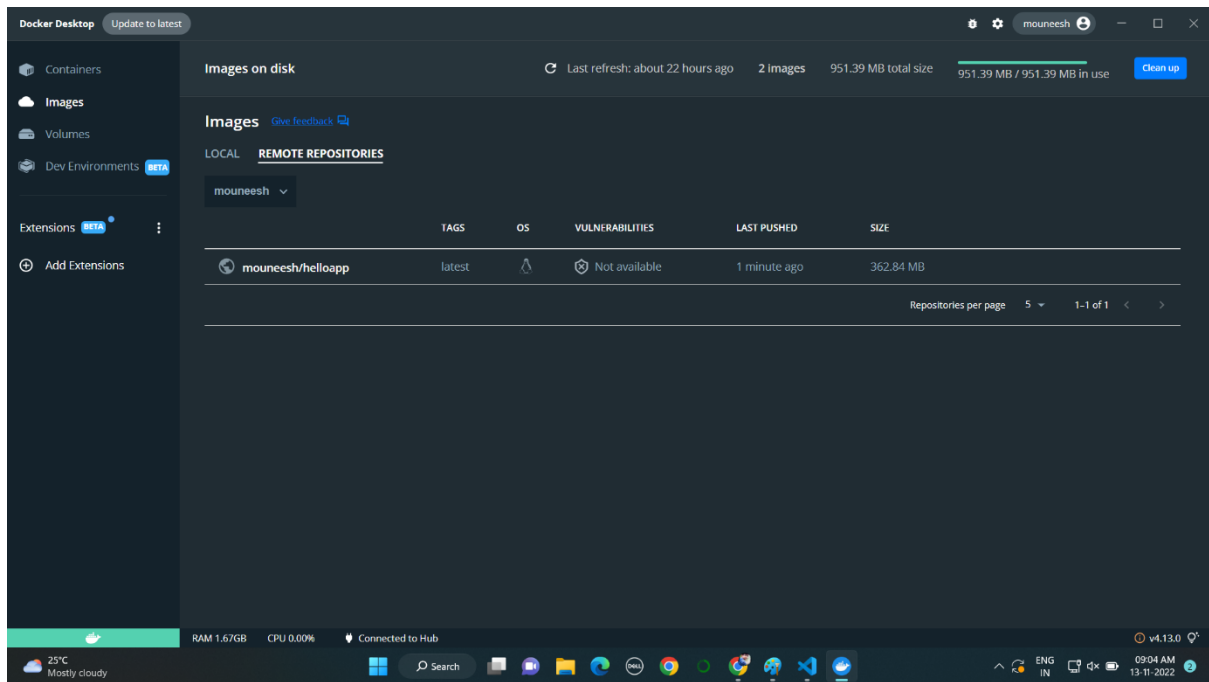
[See all](#) [Go to Advanced Image Management](#)

Automated Builds
Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.
Available with Pro, Team and Business subscriptions.

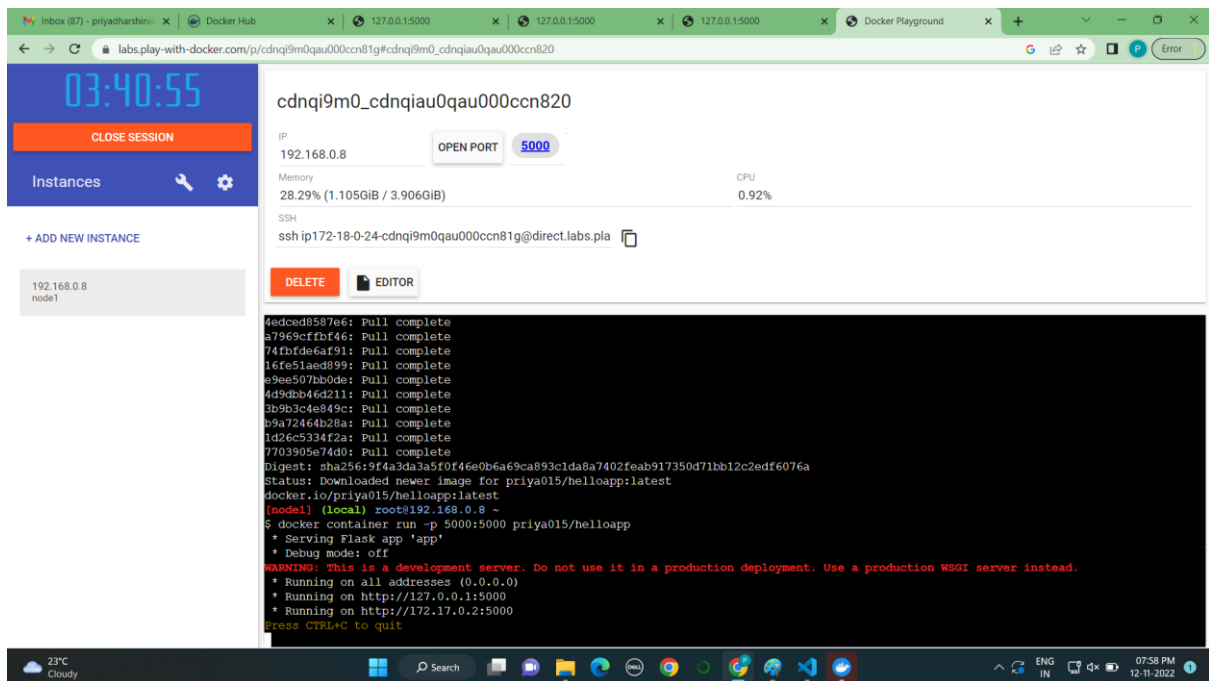
25°C Mostly cloudy 09:06 AM 13-11-2022

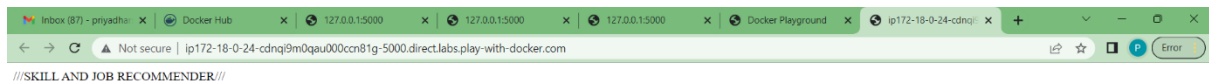
Docker



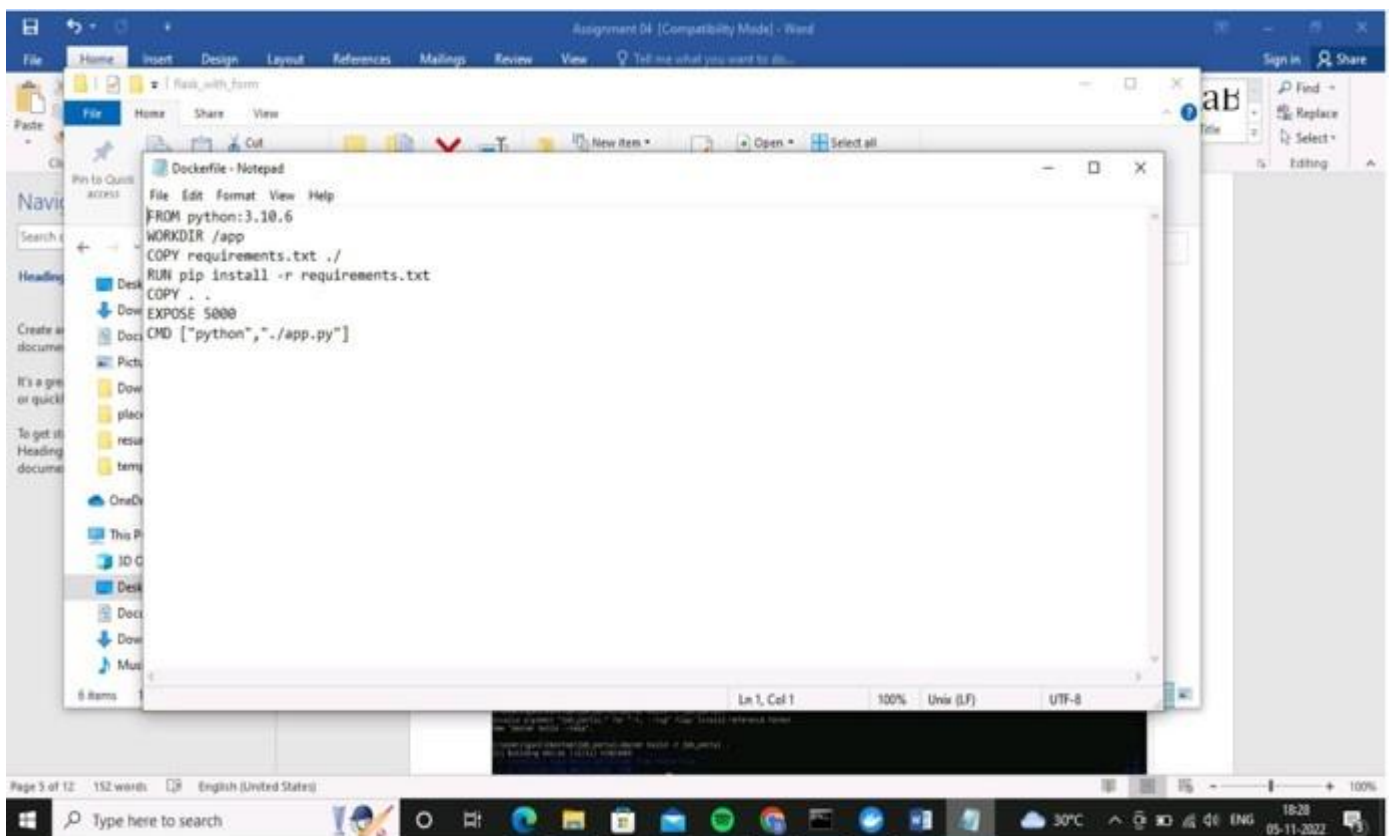


Dockerplayground

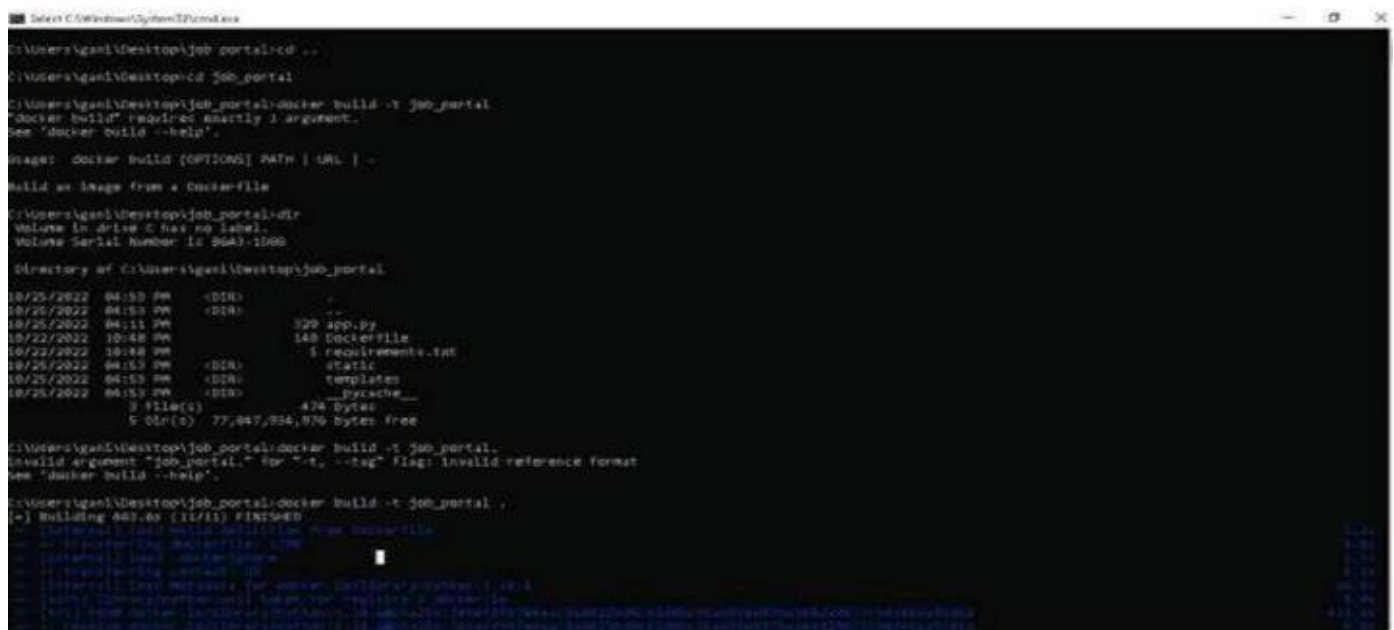




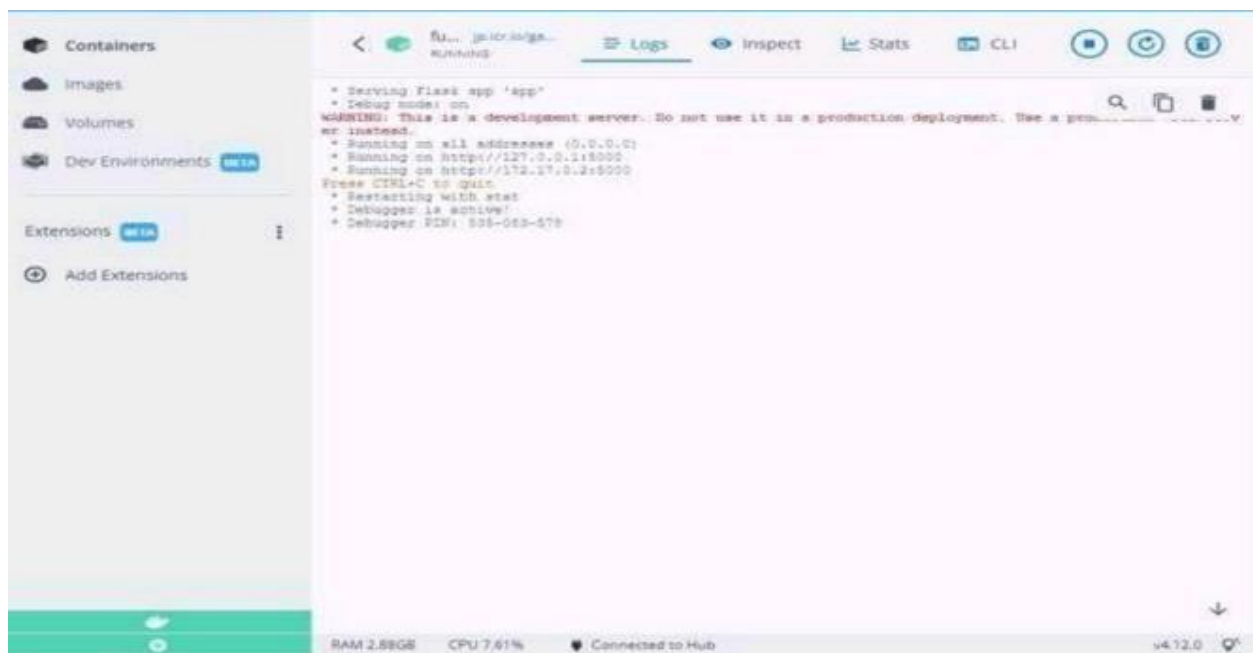
2. Create a docker file for the jobportal application and deploy it in Docker desktop application.



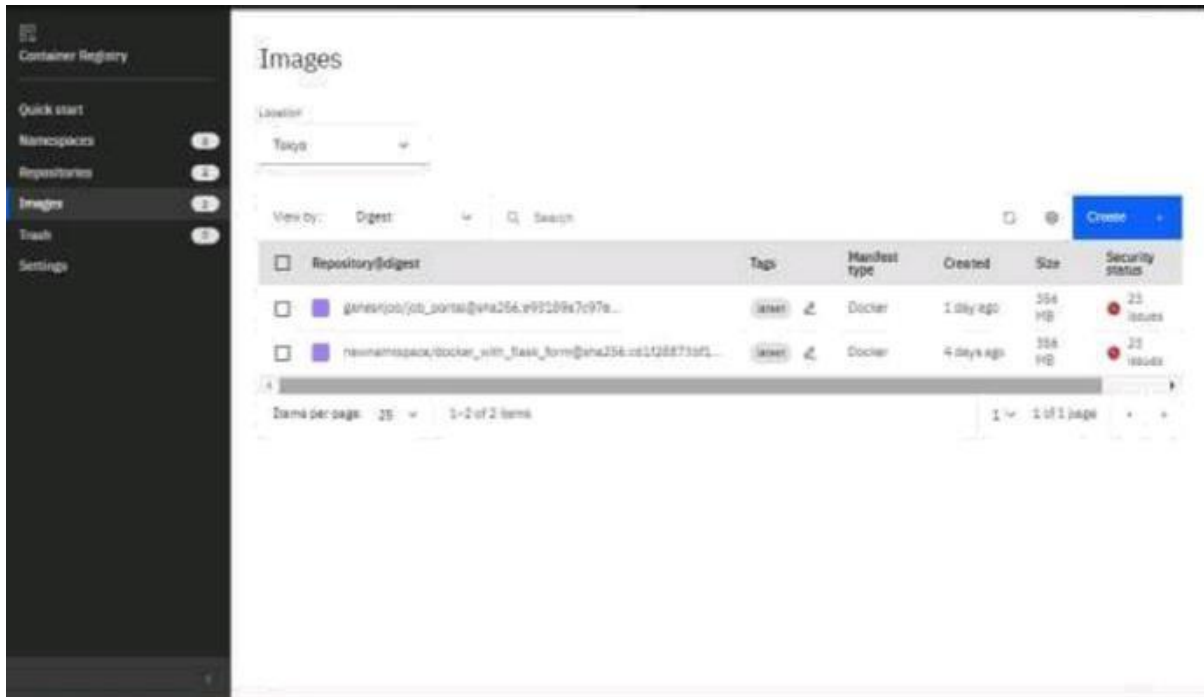
Deploy in docker application



Running in docker desktop



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



Deploy helloworld or jobportal

```
C:\Windows\system32\cmd.exe
3a4cb5a6fa8b: Retrying in 1 second
0d51c618126f: Retrying in 1 second
0ff6e4d6744: Waiting
090d1d4705a1: Waiting
055ed1b74420: Waiting
Failed to lookup host: jp.icr.io

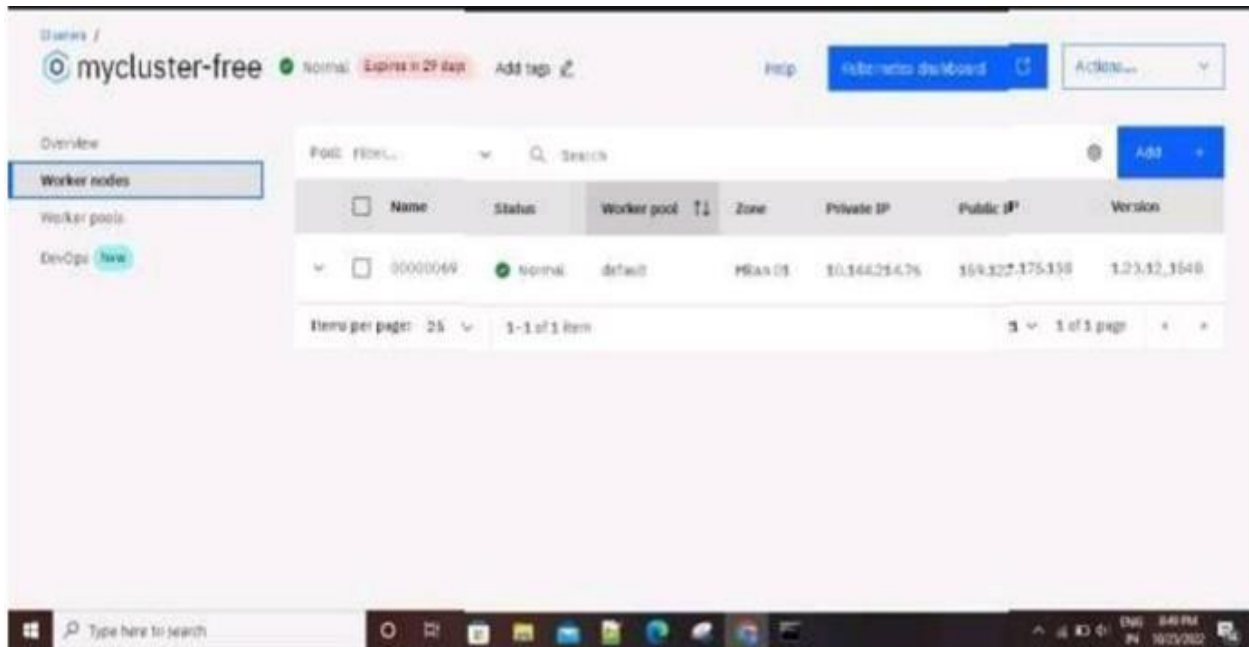
C:\Users\ganesh\Desktop\job_portal>docker push jp.icr.io/ganesh/job/job_portal
Using default tag: latest
The push refers to repository [jp.icr.io/ganesh/job/job_portal]
15eb1504625: Layer already exists
09e94105e106: Layer already exists
48c2a74c12b: Layer already exists
0b72c7015466: Layer already exists
0fc1d600136d: Layer already exists
1c123106024c: Layer already exists
1d6eb1152931: Pushed
100796cdf3b1: Pushed
3a4cb5a6fa8b: Retrying in 1 second
0d51c618126f: Pushed
0ff6e4d6744: Pushed
090d1d4705a1: Pushed
055ed1b74420: Pushing [=====] 99.8MB/124MB
OK

C:\Users\ganesh\Desktop\job_portal>docker push jp.icr.io/ganesh/job/job_portal
Using default tag: latest
The push refers to repository [jp.icr.io/ganesh/job/job_portal]
15eb1504625: Layer already exists
09e94105e106: Layer already exists
48c2a74c12b: Layer already exists
0b72c7015466: Layer already exists
0fc1d600136d: Layer already exists
1c123106024c: Layer already exists
1d6eb1152931: Layer already exists
100796cdf3b1: Layer already exists
3a4cb5a6fa8b: Pushed
0d51c618126f: Layer already exists
0ff6e4d6744: Layer already exists
090d1d4705a1: Layer already exists
055ed1b74420: Pushed
latest: digest: sha256:e91109a7c97aeb0908660a54e09c6f61a9bde0309908c87a21a7a79d1fc207 size: 3952

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


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

Creating a kubernetes cluster in ibm cloud



Expose the same app to run in nodeport

```
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  <none>      *          *            80        27m
C:\Windows\system32\kubectl get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE

```