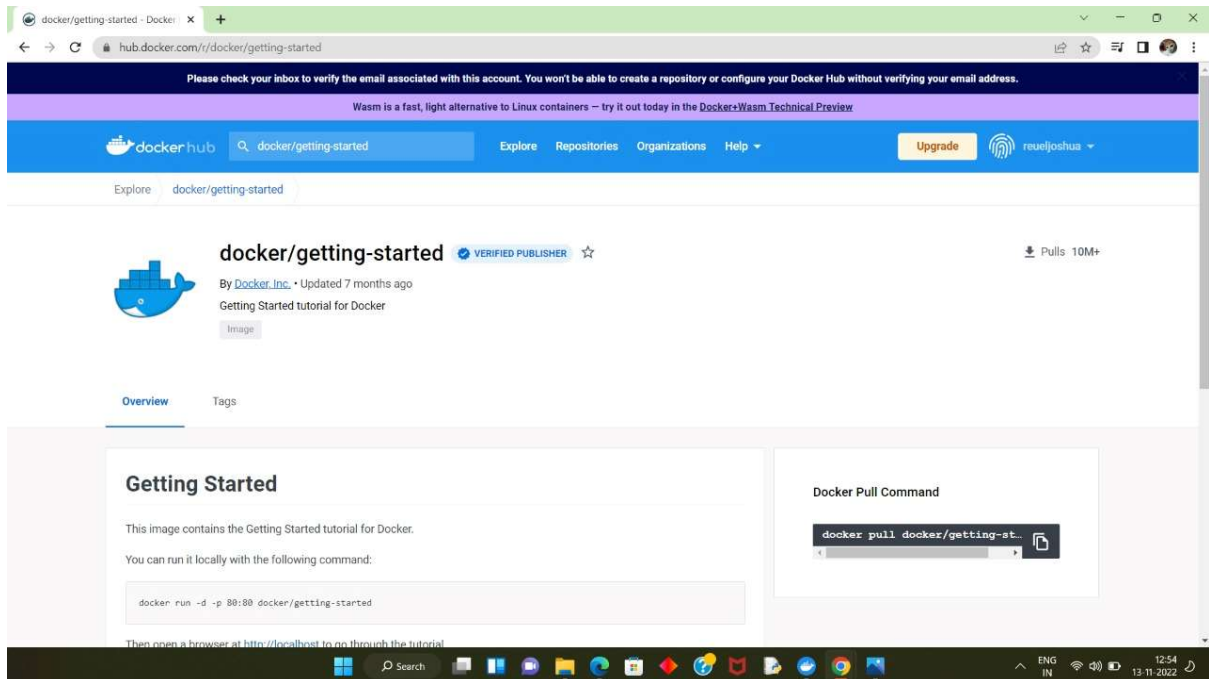


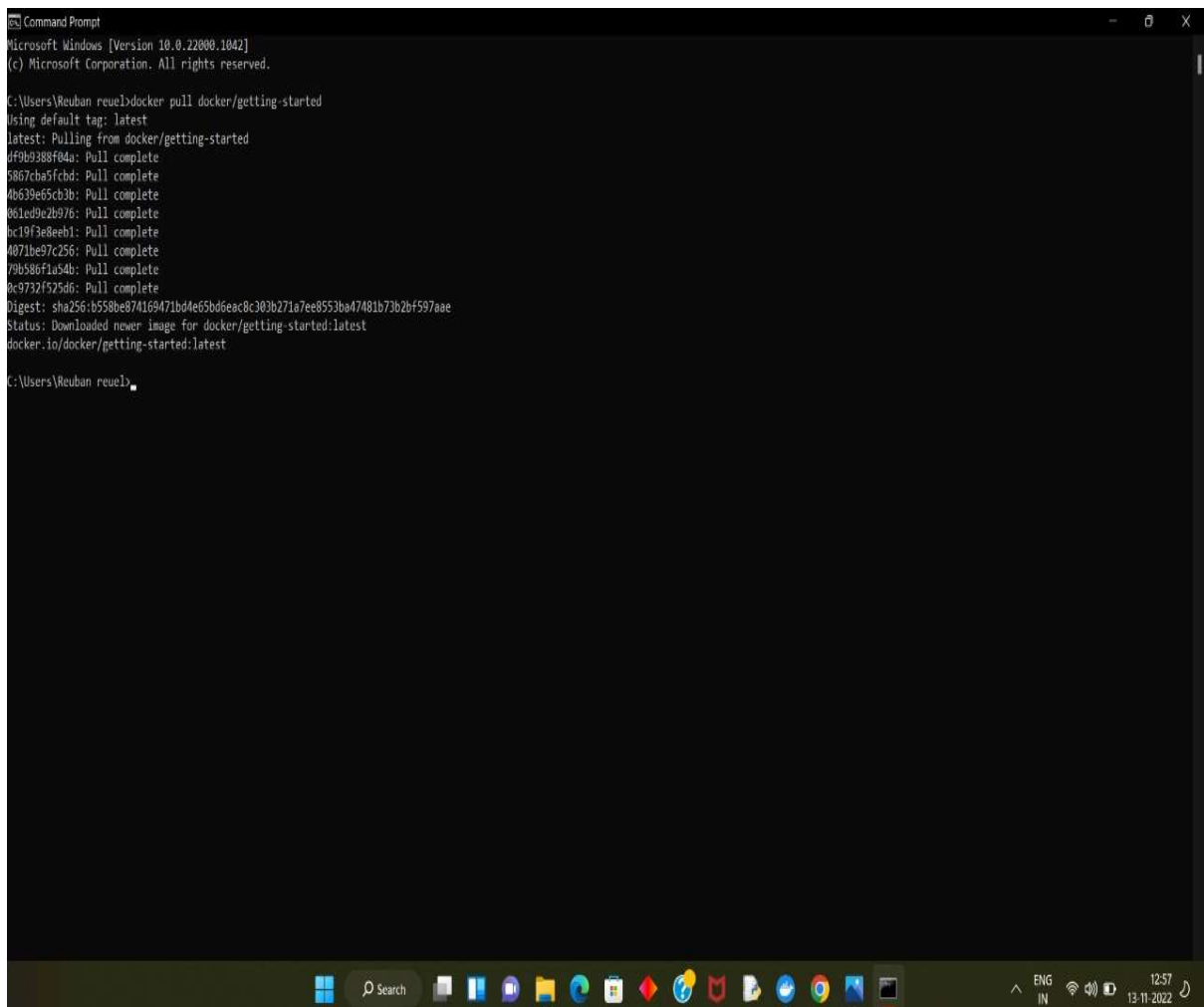
Assignment-4(M. REUEL JOSHUA-910019106033)

TASK-1) Pull an image from dockerhub and run it in Docker Playground

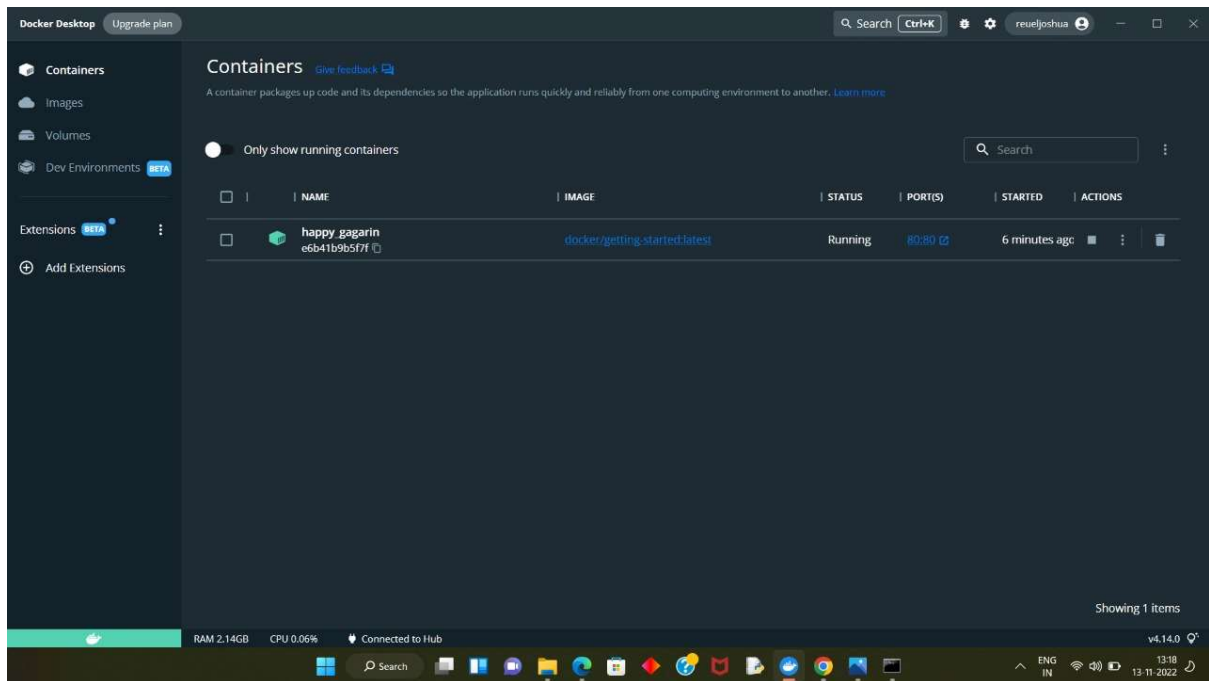
- PULL AN IMAGE FROM DOCKER HUB VIA COPIYING COMMAND



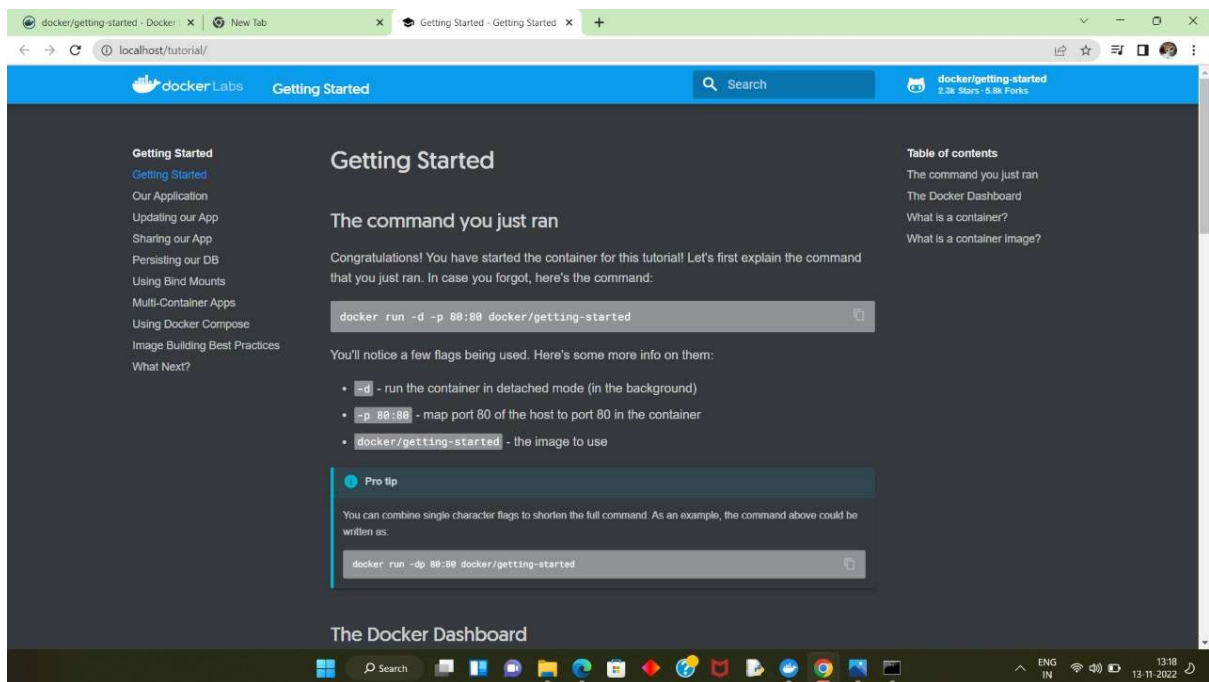
- PASTE AND RUN THE COMMAND IN CMD TO PULL THE IMAGE



- IMAGE IS RUNNING IN DOCKER DESKTOP



- IMAGE IS RUNNING IN LOCALHOST



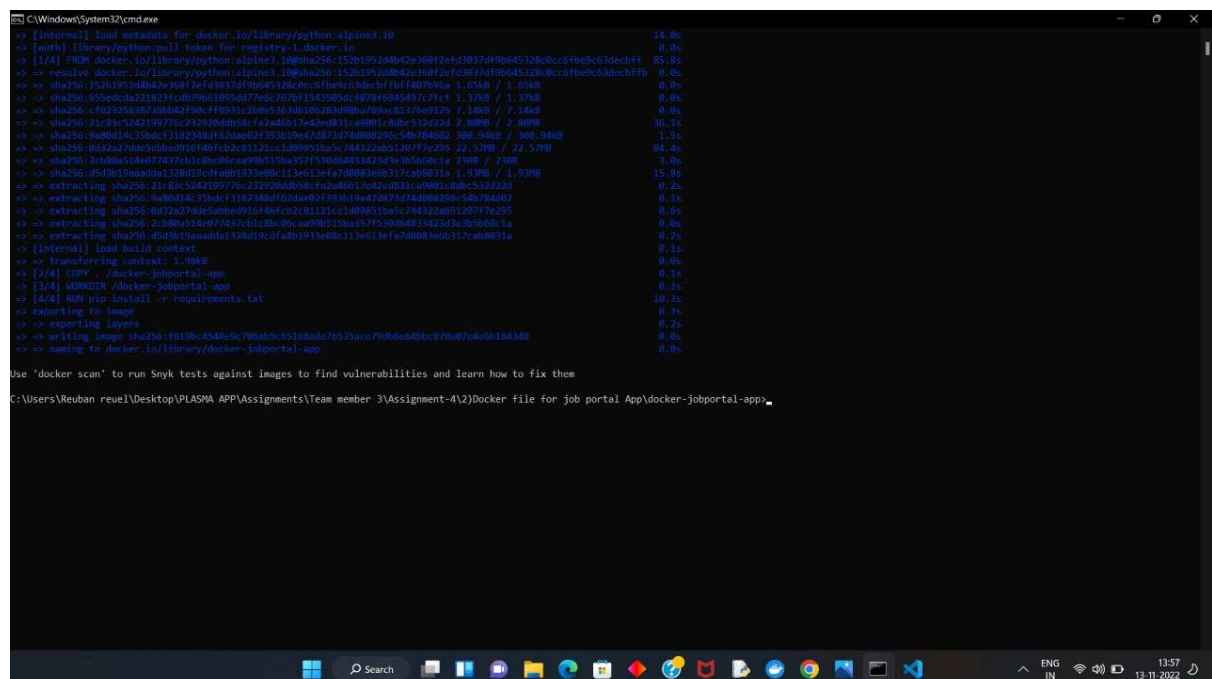
TASK-1 SUCCESSFULLY COMPLETED!

TASK-2) Create a Dockerfile for job portal app and deploy it in docker desktop

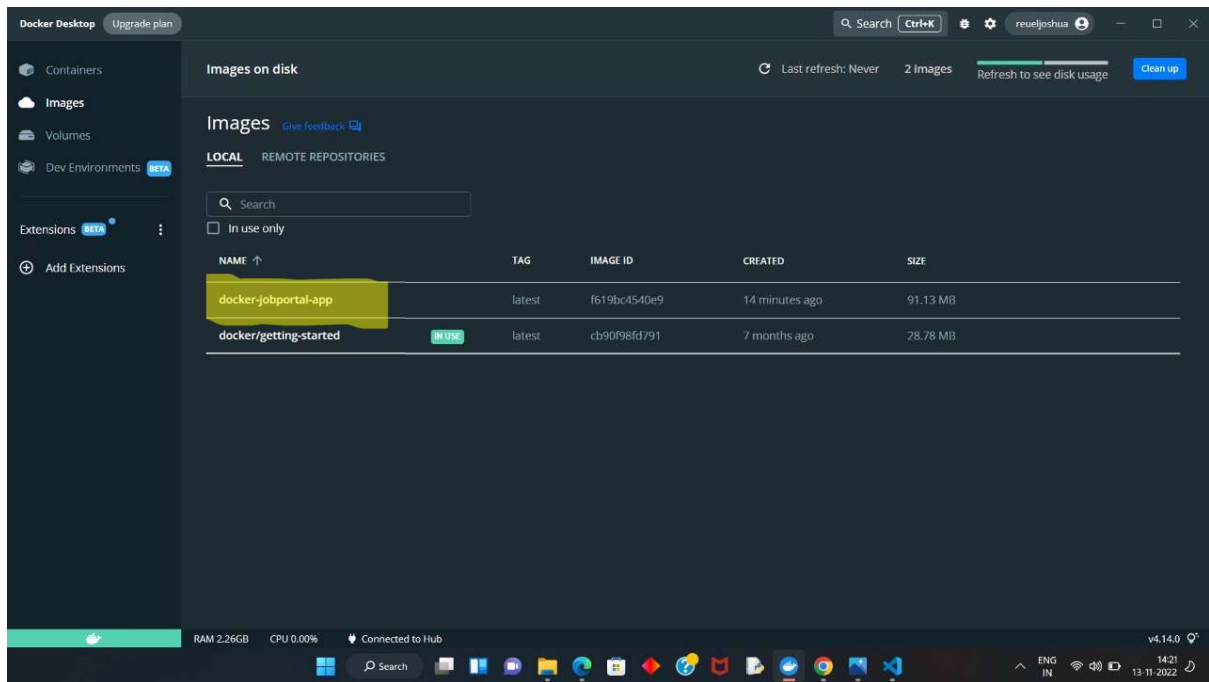
-
- The screenshot displays the Visual Studio Code editor with a project named 'jobportal-app'. The Explorer sidebar on the left shows the project structure under the heading '2) DOCKER FILE FOR JOB PORTAL APP'. The files listed are 'templates', 'jobportal.html', 'Dockerfile', 'jobportal.py', and 'requirements.txt'. The 'Dockerfile' is currently open in the main editor. The Dockerfile content is as follows:
- ```

1 FROM python:3.8-slim
2 WORKDIR /app
3 COPY . /app
4 @app.route('/')
5 def jobportal():
6 return render_template('jobportal.html')
7
8
9 if __name__ == "__main__":
10 app.run(host='0.0.0.0', port=5000, debug=True)
11

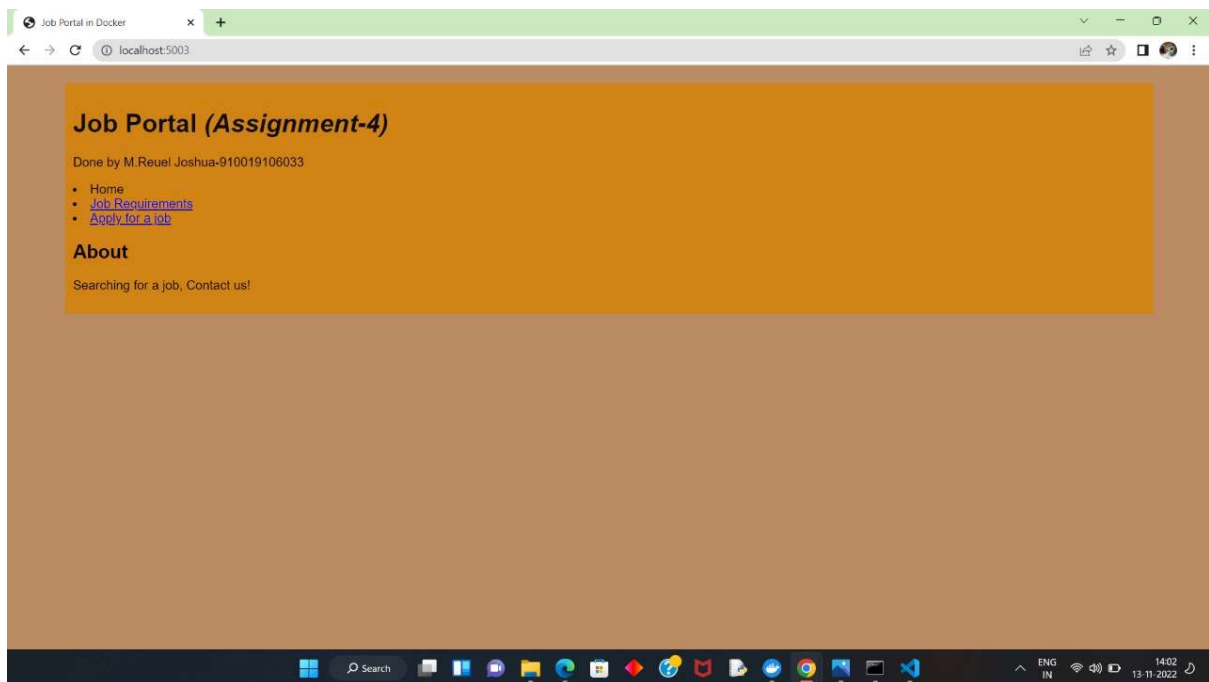
```
- A notification at the bottom right of the editor asks: "Do you want to install the recommended extensions for Python?". The notification includes buttons for "Install" and "Show Recommendations".



- RUN THE JOB PORTAL APP DOCKER IMAGE USING CMD



- CHECK IN LOCALHOST:5003 FOR JOB PORTAL APP IN DOCKER

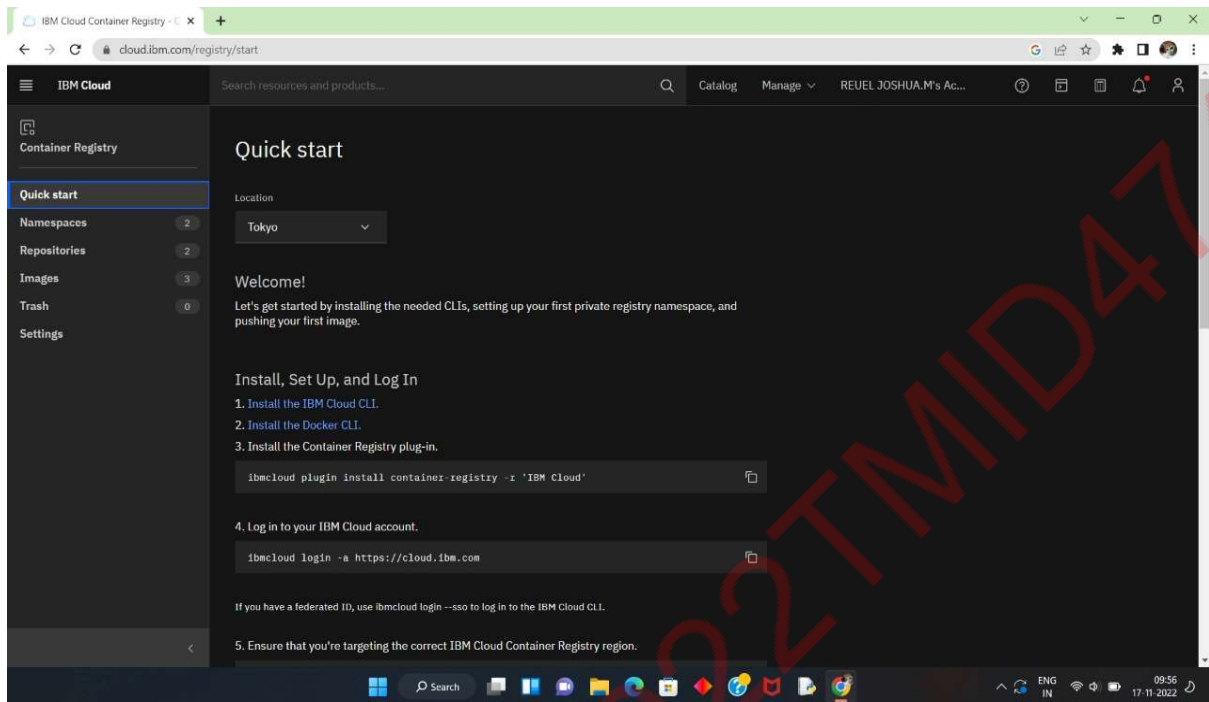


**TASK-2 COMPLETED SUCCESSFULLY!**

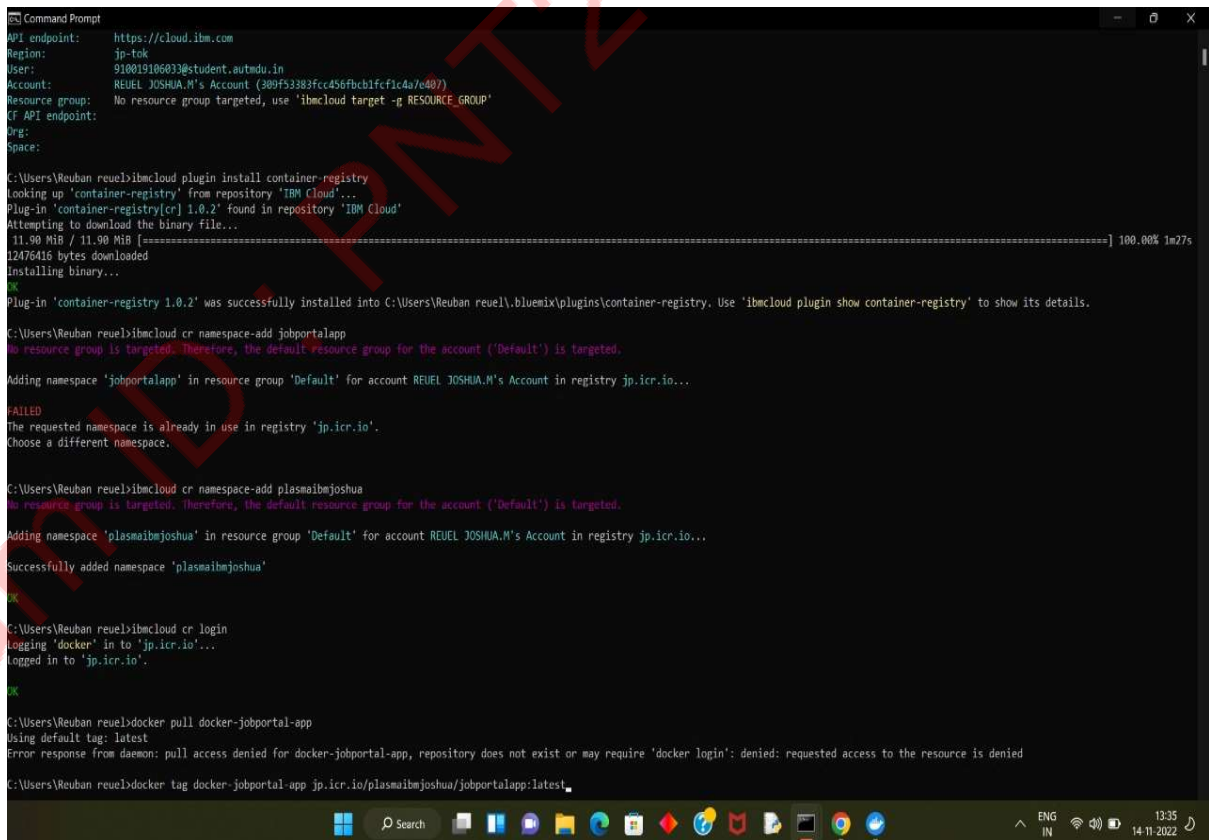
## Assignment-4(M.REUEL JOSHUA-910019106033)

**TASK-3)** Push the Docker image for job portal app to IBM Container Registry

- **LOGIN TO IBM CLOUD AND CREATE IBM CONTAINER REGISTRY**



- **LOGIN TO IBM CLOUD CLI USING CMD**



- LOGIN TO DOCKER CLI AND PUSH THE IMAGE TO IBM CONTAINER REGISTRY

```
C:\Users\Reuban reuel>ibmcloud cr login
Adding namespace 'plasmaibmjoshua' in resource group 'Default' for account REUEL JOSHUA.M's Account in registry jp.icr.io...
Successfully added namespace 'plasmaibmjoshua'

C:\Users\Reuban reuel>ibmcloud cr login
Logging 'docker' in to 'jp.icr.io'...
logged in to 'jp.icr.io'

C:\Users\Reuban reuel>docker pull docker-jobportal-app
Using default tag: latest
Error response from daemon: pull access denied for docker-jobportal-app, repository does not exist or may require 'docker login': denied: requested access to the resource is denied

C:\Users\Reuban reuel>docker tag docker-jobportal-app jp.icr.io/plasmaibmjoshua/jobportalapp:latest

C:\Users\Reuban reuel>docker push jp.icr.io/plasmaibmjoshua/jobportalapp:latest
The push refers to repository [jp.icr.io/plasmaibmjoshua/jobportalapp]
6d4304765770: Pushed
5f70b1ba086: Pushed
42ab398f8a84: Pushed
4e633e2489a3: Pushed
798f2b6d71c: Pushed
e1c1f46b85cc: Pushed
8570e770731c: Pushed
1b3ee35aacca: Pushed
latest: digest: sha256:4a5193f2282bec8134b6bfa597627fd63ad903dd0c80b7feb6d7f12b4cbd892f size: 1993

C:\Users\Reuban reuel>ibmcloud cr image-list
Listing images...

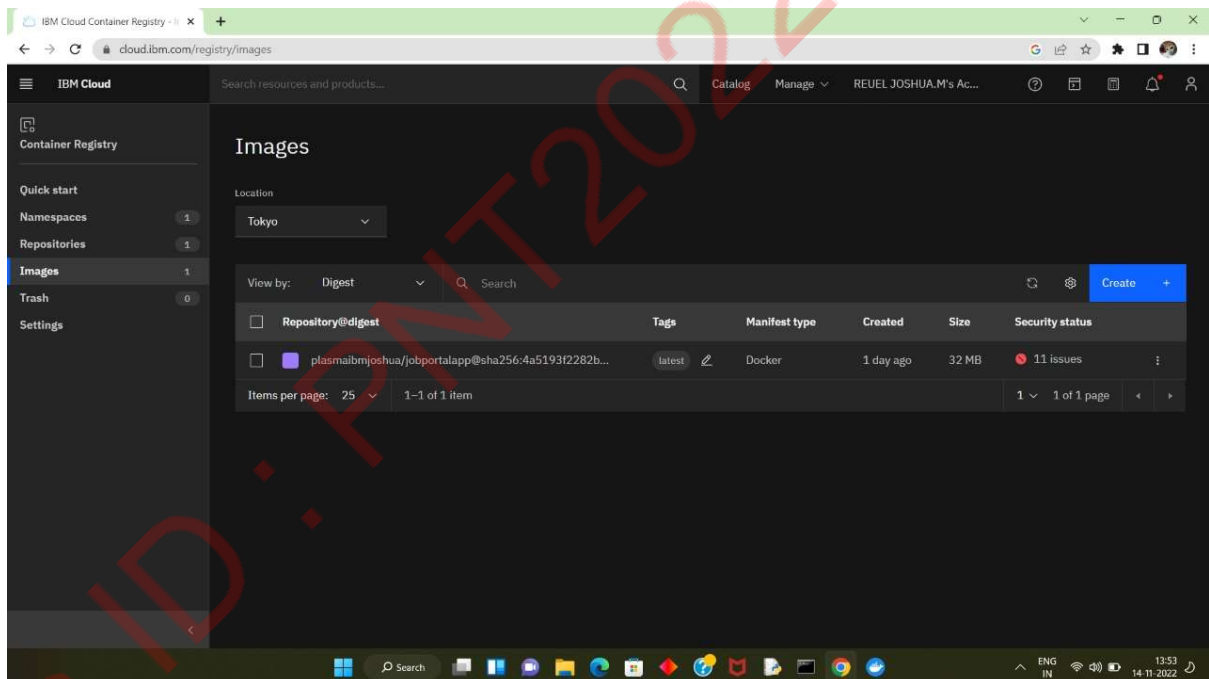
Repository Tag Digest Namespace Created Size Security status
jp.icr.io/plasmaibmjoshua/jobportalapp latest 4a5193f2282b plasmaibmjoshua 23 hours ago 32 MB -

C:\Users\Reuban reuel>ibm logout
'ibm' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Reuban reuel>ibmcloud logout
Logging out...

C:\Users\Reuban reuel>
```

- OUTPUT IN IBM CONTAINER REGISTRY



TASK-3) COMPLETED SUCCESSFULLY!



# Assignment-4(M.REUEL JOSHUA-910019106033)

**TASK-4):** Create Kubernetes cluster in IBM cloud and deploy app in Kubernetes cluster

- **Create Kubernetes Cluster in IBM Cloud**

The screenshot shows the IBM Cloud console interface for a Kubernetes cluster named 'joshua-cluster'. The cluster is in a 'Normal' state and is scheduled to expire in 30 days. The overview page displays the following details:

- Node status:** 1 of 1 Normal
- Add-on status:** 0 of 0 Normal
- Master status:** Normal
- Ingress status:** Healthy

The 'Details' section provides the following information:

| Cluster ID           | Version     | Infrastructure | Zones    |
|----------------------|-------------|----------------|----------|
| cdpqqqtj08vnqp8tpdkg | 1.24.7_1542 | Classic        | Milan 01 |

Additional details include: Created on 11/15/2022 at 8:47 PM, Resource group set to Default, and Image security enforcement enabled.

- **Deploy Flask-app in Kubernetes Cluster using CMD**

```
C:\Windows\System32\cmd.exe
C:\Users\Reuban reuel\Desktop\flaskapp\kubernetes>ibmcloud login
API endpoint: https://cloud.ibm.com
Region: eu-de

Email> 910019106033@student.autmdu.in
Password>
Authenticating...
OK

Targeted account REUEL JOSHUA.M's Account (309f53383fcc456fbc1fc1c4a7e407)

API endpoint: https://cloud.ibm.com
Region: eu-de
User: 910019106033@student.autmdu.in
Account: REUEL JOSHUA.M's Account (309f53383fcc456fbc1fc1c4a7e407)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

C:\Users\Reuban reuel\Desktop\flaskapp\kubernetes>kubect1 create -f ibm_deployment.yaml
deployment.apps/flask-app created

C:\Users\Reuban reuel\Desktop\flaskapp\kubernetes>kubect1 create -f flask_services.yaml
error: the path "flask_services.yaml" does not exist

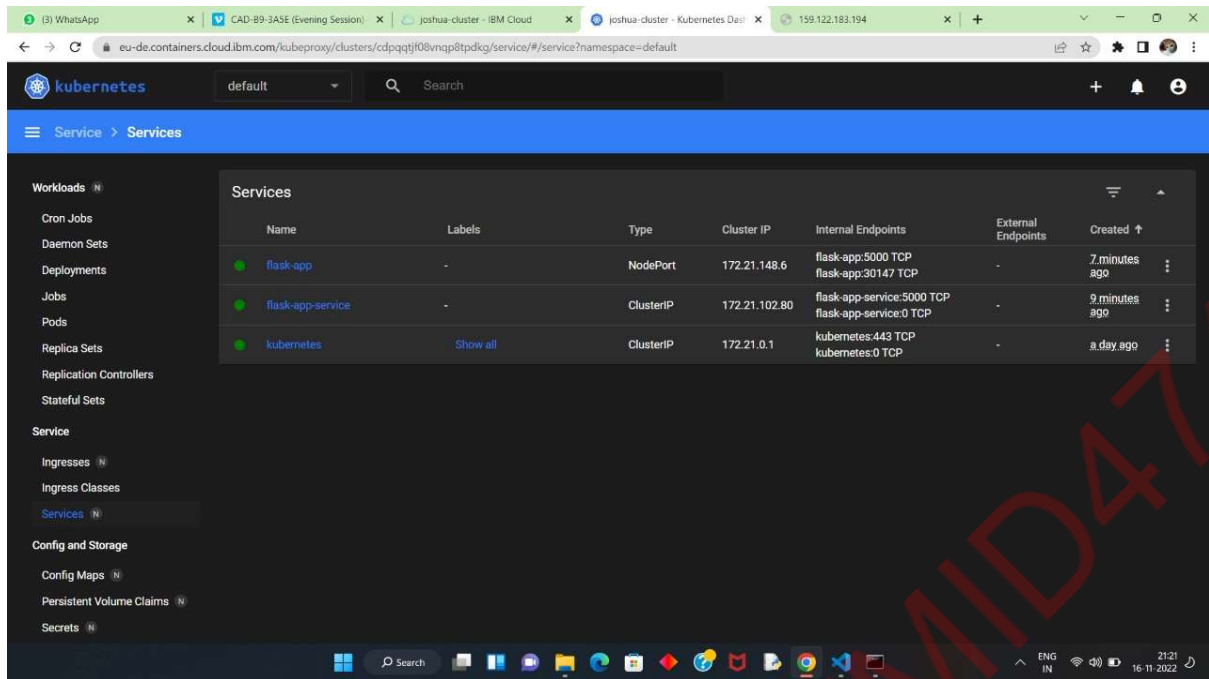
C:\Users\Reuban reuel\Desktop\flaskapp\kubernetes>kubect1 create -f flask_service.yaml
service/flask-app-service created

C:\Users\Reuban reuel\Desktop\flaskapp\kubernetes>kubect1 expose deployment flask-app --type=NodePort
service/flask-app exposed

C:\Users\Reuban reuel\Desktop\flaskapp\kubernetes>kubect1 get services flask-app
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
flask-app NodePort 172.17.148.6 <none> 5000:30147/TCP 2m29s

C:\Users\Reuban reuel\Desktop\flaskapp\kubernetes>
```

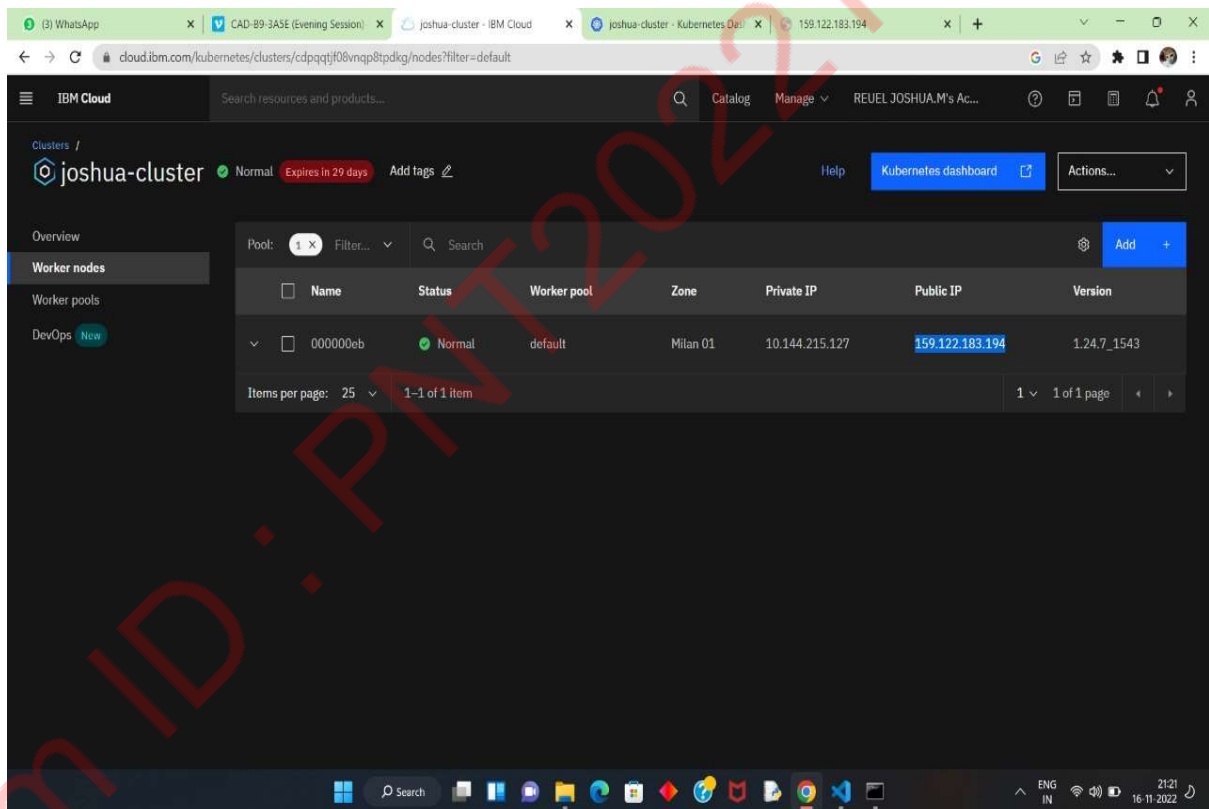
- Generate NodePort Link and check in IBM Kubernetes Dashboard



The screenshot shows the IBM Kubernetes Dashboard interface. The left sidebar contains navigation links for Workloads, Service, and Config and Storage. The main panel displays a table of Services. The 'flask-app' service is highlighted, showing its details including Name, Labels, Type (NodePort), Cluster IP, Internal Endpoints, External Endpoints, and Created time. The 'kubernetes' service is also listed.

| Name              | Labels   | Type      | Cluster IP    | Internal Endpoints                                    | External Endpoints | Created       |
|-------------------|----------|-----------|---------------|-------------------------------------------------------|--------------------|---------------|
| flask-app         | -        | NodePort  | 172.21.148.6  | flask-app:5000 TCP<br>flask-app:30147 TCP             | -                  | 7 minutes ago |
| flask-app-service | -        | ClusterIP | 172.21.102.80 | flask-app-service:5000 TCP<br>flask-app-service:0 TCP | -                  | 9 minutes ago |
| kubernetes        | Show all | ClusterIP | 172.21.0.1    | kubernetes:443 TCP<br>kubernetes:0 TCP                | -                  | a day ago     |

- Check for Node Link in Kubernetes Cluster-Worker Nodes



The screenshot shows the IBM Cloud console interface. The left sidebar contains navigation links for Overview, Worker nodes, Worker pools, and DevOps. The main panel displays a table of Worker nodes. The '0000000eb' node is highlighted, showing its details including Name, Status, Worker pool, Zone, Private IP, Public IP, and Version.

| Name      | Status | Worker pool | Zone     | Private IP     | Public IP       | Version     |
|-----------|--------|-------------|----------|----------------|-----------------|-------------|
| 0000000eb | Normal | default     | Milan 01 | 10.144.215.127 | 159.122.183.194 | 1.24.7_1543 |

**TASK-4) COMPLETED SUCESSFULLY!**