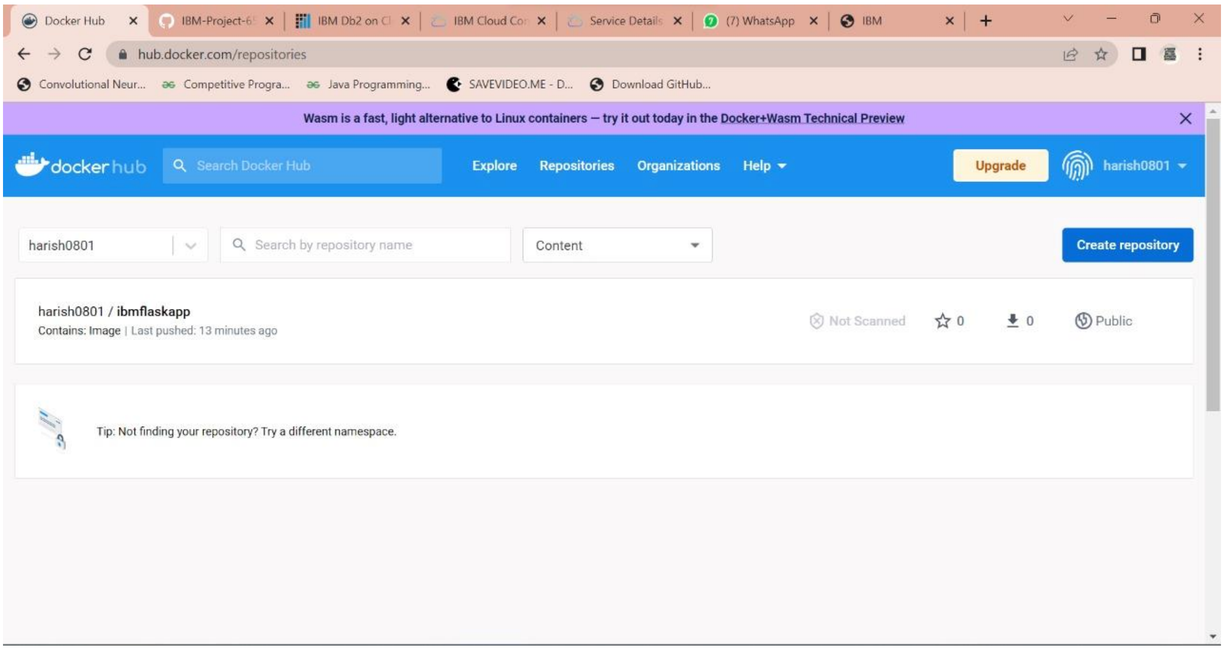
Assignment -4
Inventory Management System for Retailers – Kubernetes / Docker

Assignment Date	20 October 2022
Student Name	GOWTHAM S
Student Roll Number	142219104032
Maximum Marks	2 Marks

Question-1:

1. Pull an Image from docker hub and run it in docker playground.
2. Create a dockerfile for the job portal / flask application and deploy it in Docker desktop application.
3. Create a IBM container registry and push docker image of flask application or job portal app.
4. Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in Nodeport.

Step 1: Pull an Image from docker hub and run it in docker playground.



hub.docker.com/repositories

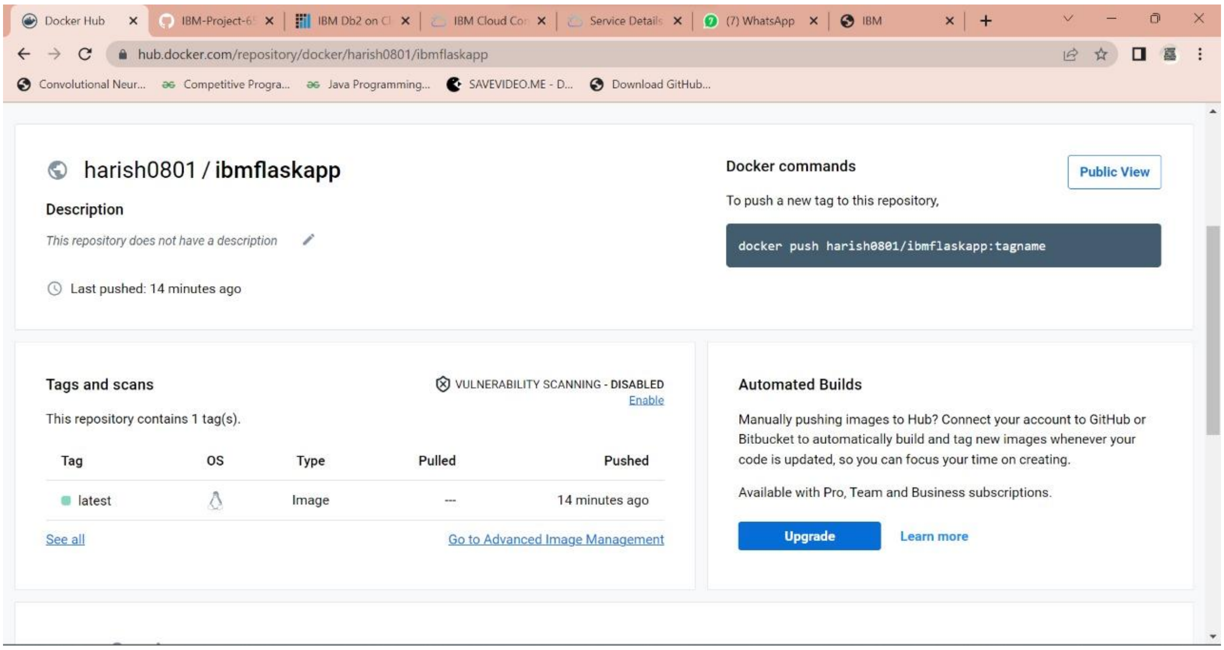
Wasm is a fast, light alternative to Linux containers – try it out today in the Docker+Wasm Technical Preview

harish0801

harish0801 / ibmflaskapp
Contains: Image | Last pushed: 13 minutes ago

Not Scanned ☆ 0 ⬇ 0 Public

Tip: Not finding your repository? Try a different namespace.



harish0801 / **ibmflaskapp**

Description

This repository does not have a description

Last pushed: 14 minutes ago

Docker commands

Public View

To push a new tag to this repository,

```
docker push harish0801/ibmflaskapp:tagname
```

Tags and scans

VULNERABILITY SCANNING - **DISABLED**
Enable

This repository contains 1 tag(s).

Tag	OS	Type	Pulled	Pushed
🟩 latest	🐧	Image	---	14 minutes ago

See all

Go to Advanced Image Management

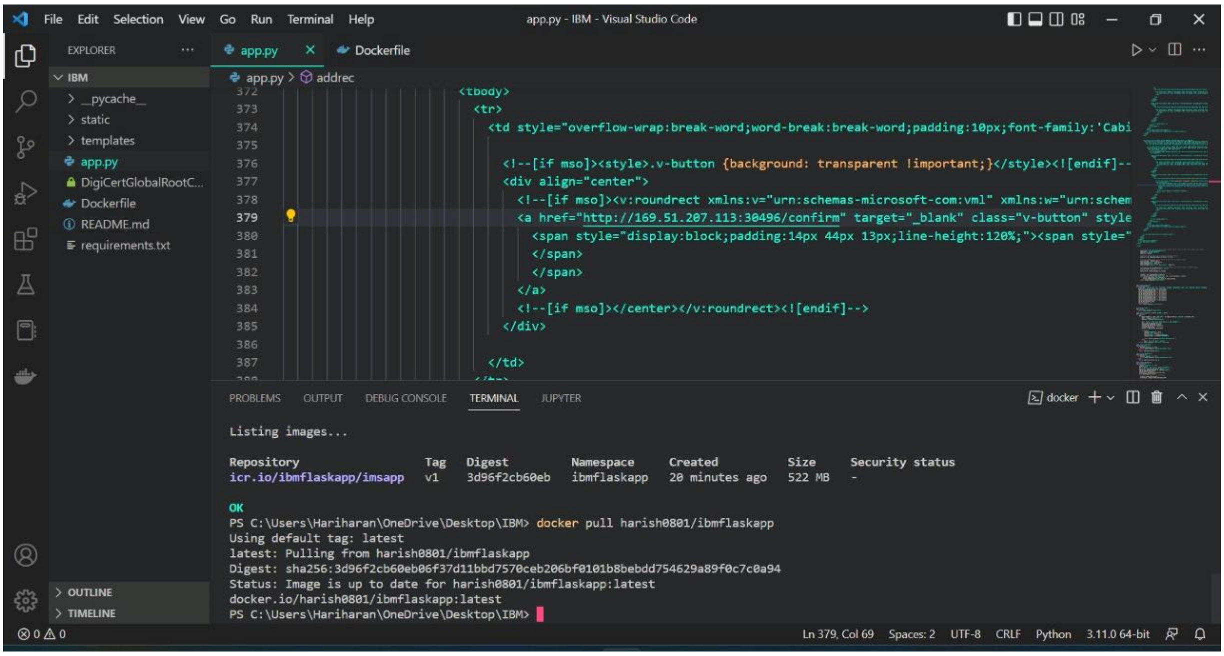
Automated Builds

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.

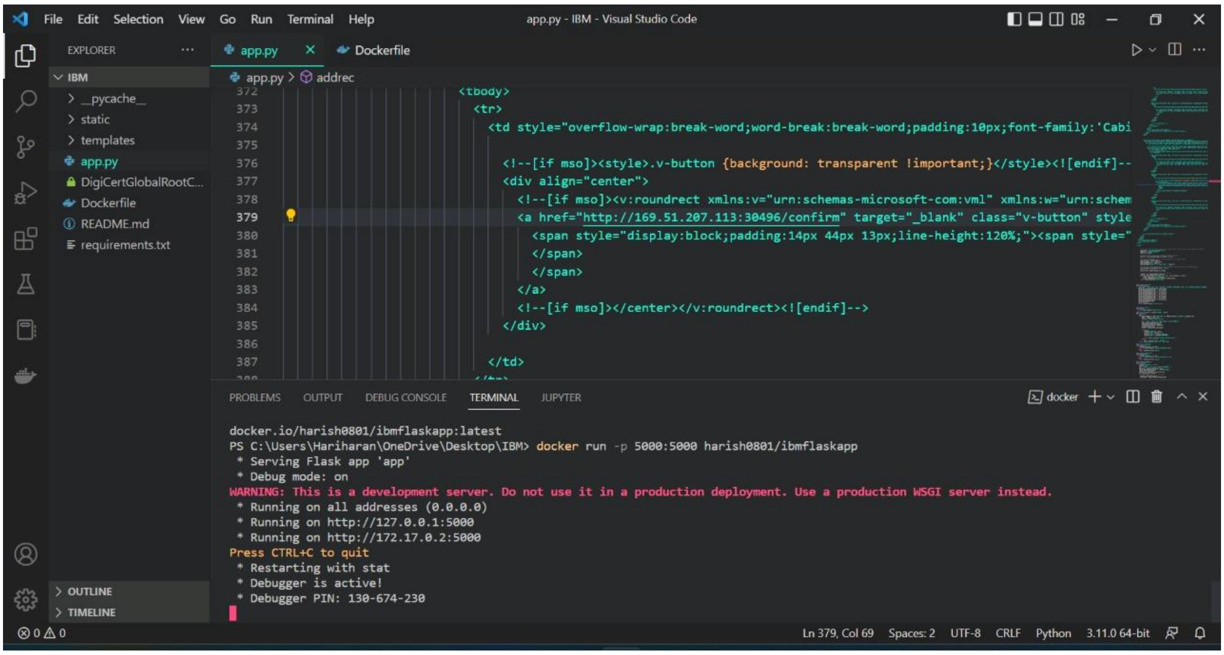
Upgrade

Learn more



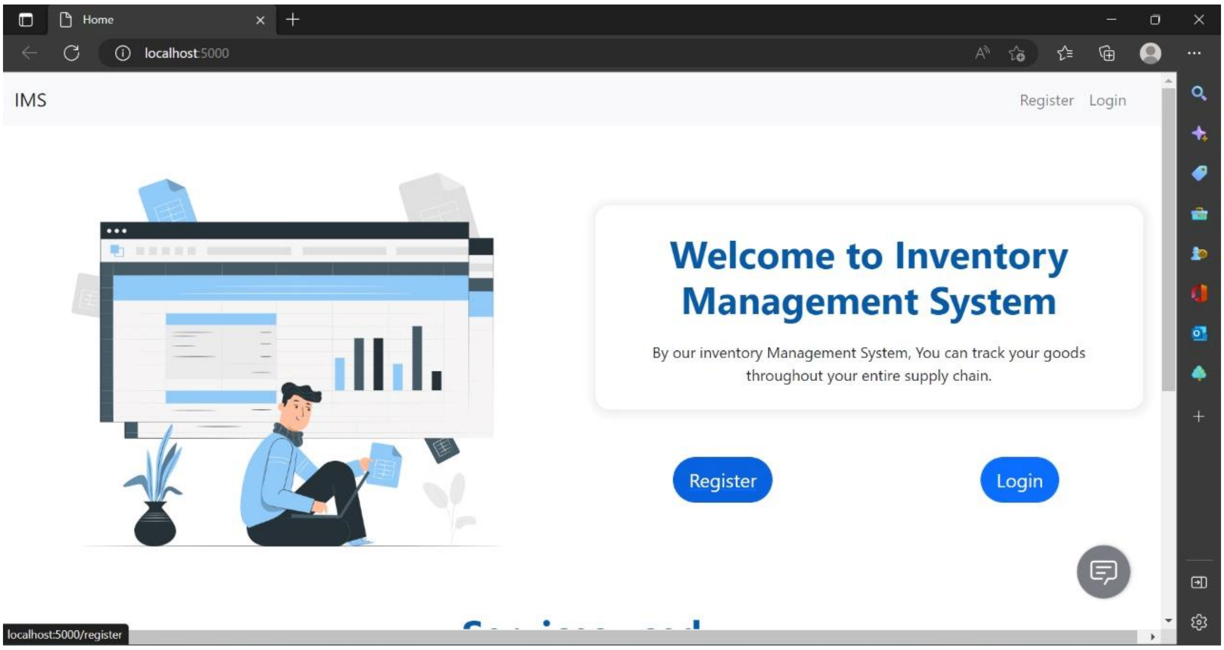
```
            <tbody>
              <tr>
                <td style="overflow-wrap:break-word;word-break:break-word;padding:10px;font-family:'Cabi

                  <!--[if mso]><style>.v-button {background: transparent !important;}</style><![endif]--
                  <div align="center">
                    <!--[if mso]><v:roundrect xmlns:v="urn:schemas-microsoft-com:vml" xmlns:w="urn:schem
                    <a href="http://169.51.207.113:30496/confirm" target="_blank" class="v-button" style
                      <span style="display:block;padding:14px 44px 13px;line-height:120%;"><span style="
                      </span>
                      </span>
                    </a>
                    <!--[if mso]></center></v:roundrect><![endif]-->
                  </div>

                </td>
```

```
Listing images...

Repository                 Tag   Digest         Namespace     Created          Size     Security status
icr.io/ibmflaskapp/imsapp  v1    3d96f2cb60eb   ibmflaskapp   20 minutes ago   522 MB   -

OK
PS C:\Users\Hariharan\OneDrive\Desktop\IBM> docker pull harish0801/ibmflaskapp
Using default tag: latest
latest: Pulling from harish0801/ibmflaskapp
Digest: sha256:3d96f2cb60eb06f37d11bbd7570ceb206bf0101b8bebdd754629a89f0c7c0a94
Status: Image is up to date for harish0801/ibmflaskapp:latest
docker.io/harish0801/ibmflaskapp:latest
PS C:\Users\Hariharan\OneDrive\Desktop\IBM>
```



```
            <tbody>
              <tr>
                <td style="overflow-wrap:break-word;word-break:break-word;padding:10px;font-family:'Cabi

                  <!--[if mso]><style>.v-button {background: transparent !important;}</style><![endif]--
                  <div align="center">
                    <!--[if mso]><v:roundrect xmlns:v="urn:schemas-microsoft-com:vml" xmlns:w="urn:schem
                    <a href="http://169.51.207.113:30496/confirm" target="_blank" class="v-button" style
                      <span style="display:block;padding:14px 44px 13px;line-height:120%;"><span style="
                      </span>
                      </span>
                    </a>
                    <!--[if mso]></center></v:roundrect><![endif]-->
                  </div>

                </td>
```

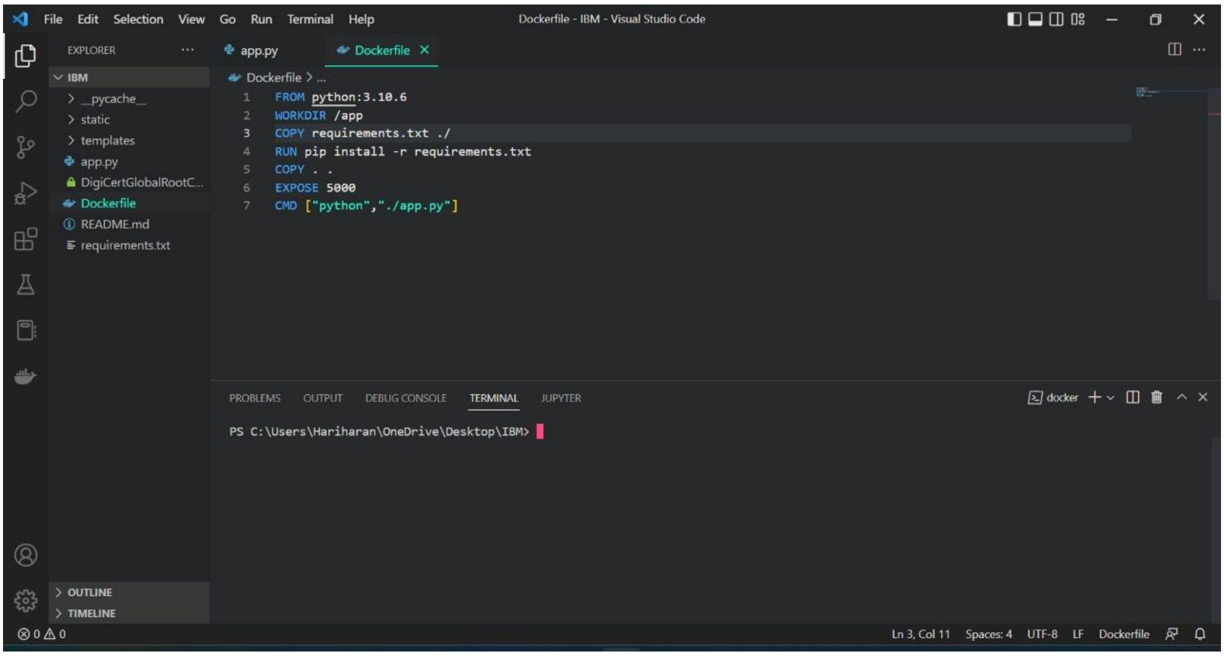
```
docker.io/harish0801/ibmflaskapp:latest
PS C:\Users\Hariharan\OneDrive\Desktop\IBM> docker run -p 5000:5000 harish0801/ibmflaskapp
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5000
 * Running on http://172.17.0.2:5000
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 130-674-230
```



Welcome to Inventory Management System

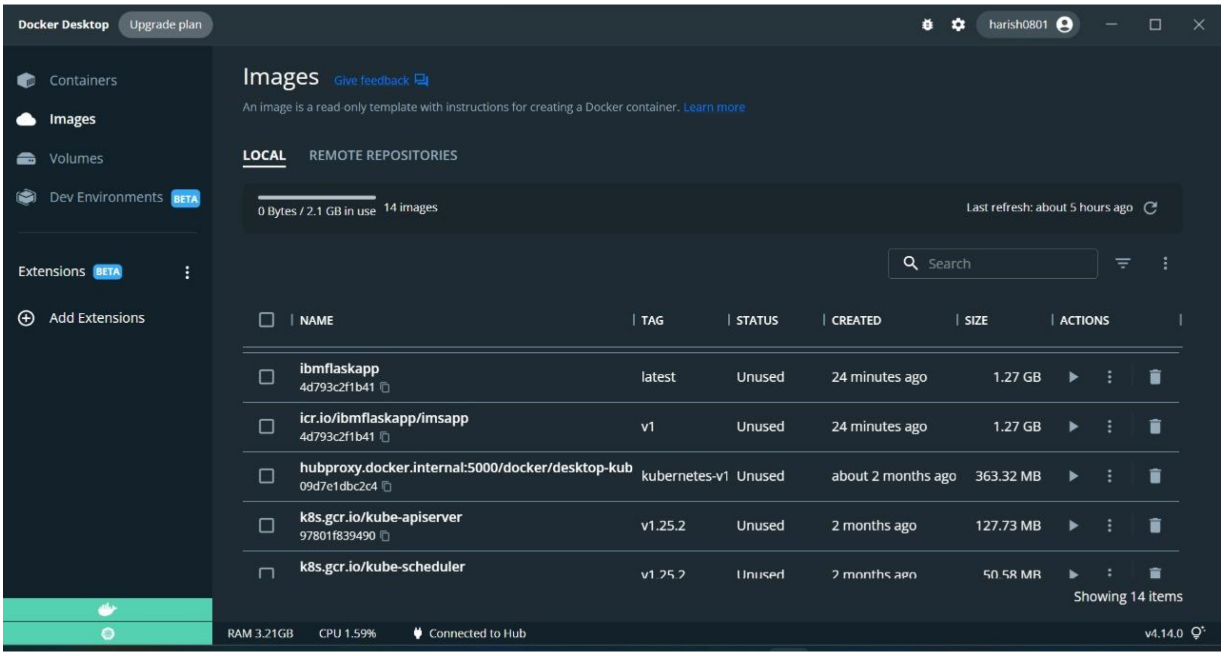
By our inventory Management System, You can track your goods throughout your entire supply chain.

Step 2: Create a dockerfile for the job portal / flask application and deploy it in Docker desktop application.


File Edit Selection View Go Run Terminal Help
Dockerfile - IBM - Visual Studio Code
EXPLORER
IBM
__pycache__
static
templates
app.py
DigiCertGlobalRootC...
Dockerfile
README.md
requirements.txt
OUTLINE
TIMELINE
app.py
Dockerfile
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER
docker
Ln 3, Col 11 Spaces: 4 UTF-8 LF Dockerfile

```
FROM python:3.10.6
WORKDIR /app
COPY requirements.txt ./
RUN pip install -r requirements.txt
COPY . .
EXPOSE 5000
CMD ["python","./app.py"]
```

```
PS C:\Users\Hariharan\OneDrive\Desktop\IBM>
```



Images

An image is a read-only template with instructions for creating a Docker container. Learn more

0 Bytes / 2.1 GB in use 14 images

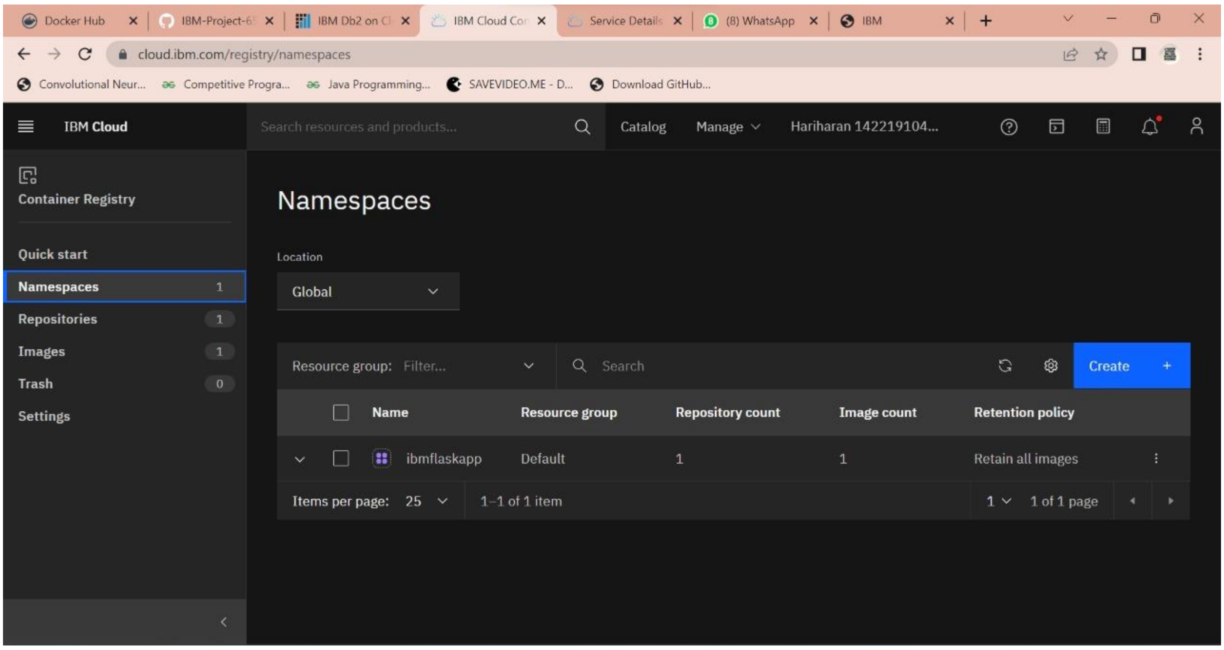
Last refresh: about 5 hours ago

NAME	TAG	STATUS	CREATED	SIZE
ibmflaskapp 4d793c2f1b41	latest	Unused	24 minutes ago	1.27 GB
icr.io/ibmflaskapp/imsapp 4d793c2f1b41	v1	Unused	24 minutes ago	1.27 GB
hubproxy.docker.internal:5000/docker/desktop-kub 09d7e1dbc2c4	kubernetes-v1	Unused	about 2 months ago	363.32 MB
k8s.gcr.io/kube-apiserver 97801f839490	v1.25.2	Unused	2 months ago	127.73 MB
k8s.gcr.io/kube-scheduler	v1.25.2	Unused	2 months ago	50.58 MB

Showing 14 items

RAM 3.21GB CPU 1.59% Connected to Hub v4.14.0

Step 3: Create a IBM container registry and push docker image of flask application or job portal app.



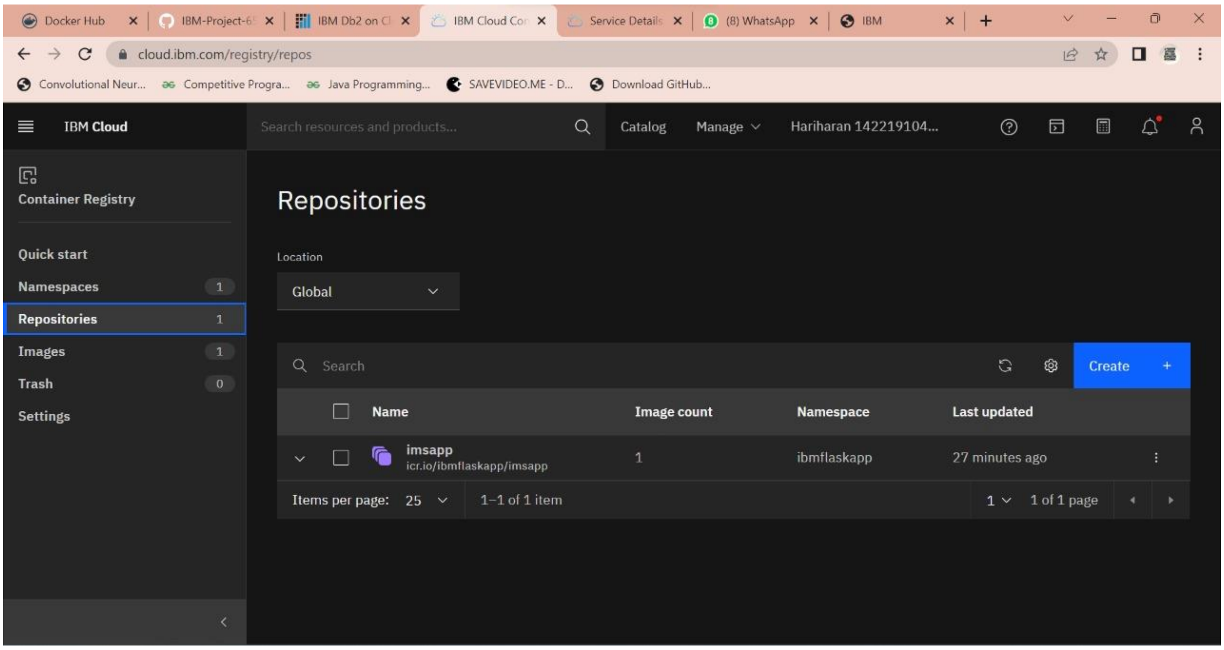
Namespaces

Location: Global

Resource group: Filter...

Name	Resource group	Repository count	Image count	Retention policy
ibmflaskapp	Default	1	1	Retain all images

Items per page: 25 1–1 of 1 item 1 1 of 1 page

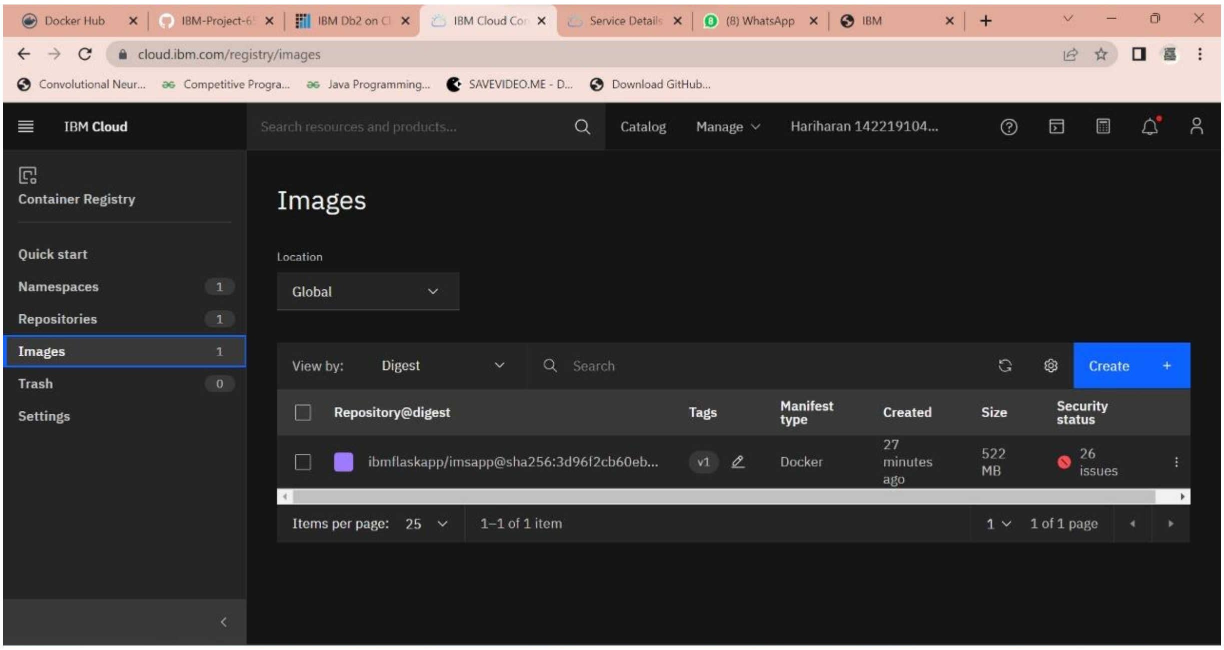


Repositories

Location: Global

Name	Image count	Namespace	Last updated
imsapp icr.io/ibmflaskapp/imsapp	1	ibmflaskapp	27 minutes ago

Items per page: 25 1–1 of 1 item 1 1 of 1 page



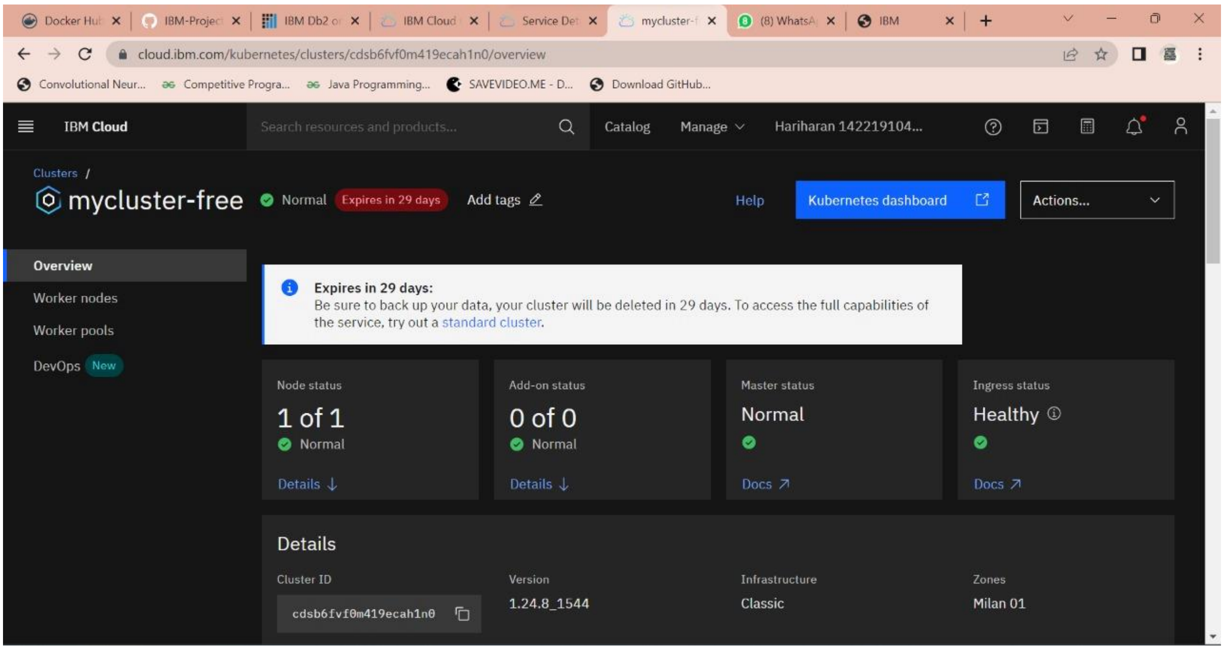
Location: Global

View by: Digest

Repository@digest	Tags	Manifest type	Created	Size	Security status
ibmflaskapp/imsapp@sha256:3d96f2cb60eb...	v1	Docker	27 minutes ago	522 MB	26 issues

Items per page: 25 | 1–1 of 1 item | 1 | 1 of 1 page

Step 4: Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in Nodeport.



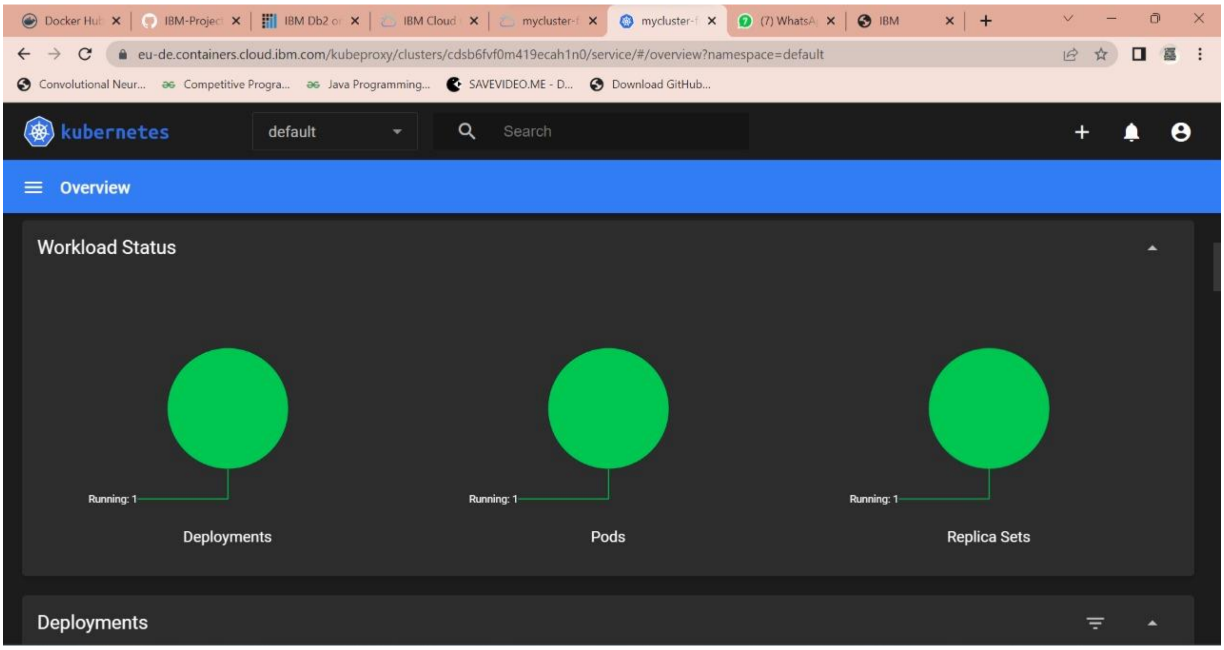
mycluster-free Normal Expires in 29 days Add tags

Expires in 29 days:
Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a standard cluster.

Node status	Add-on status	Master status	Ingress status
1 of 1 Normal Details	0 of 0 Normal Details	Normal Docs	Healthy Docs

Details

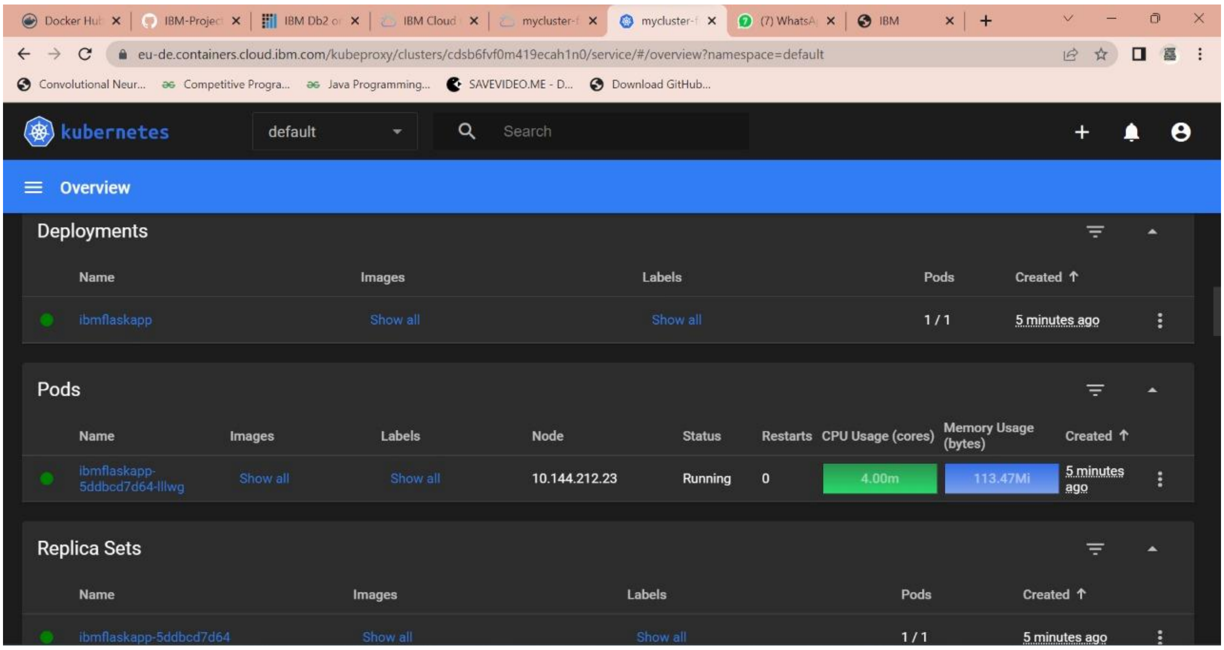
Cluster ID	Version	Infrastructure	Zones
cdsb6fvf0m419ecah1n0	1.24.8_1544	Classic	Milan 01



eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdsb6fvf0m419ecah1n0/service/#/overview?namespace=default

Workload Status

Deployments



eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdsb6fvf0m419ecah1n0/service/#/overview?namespace=default

Deployments

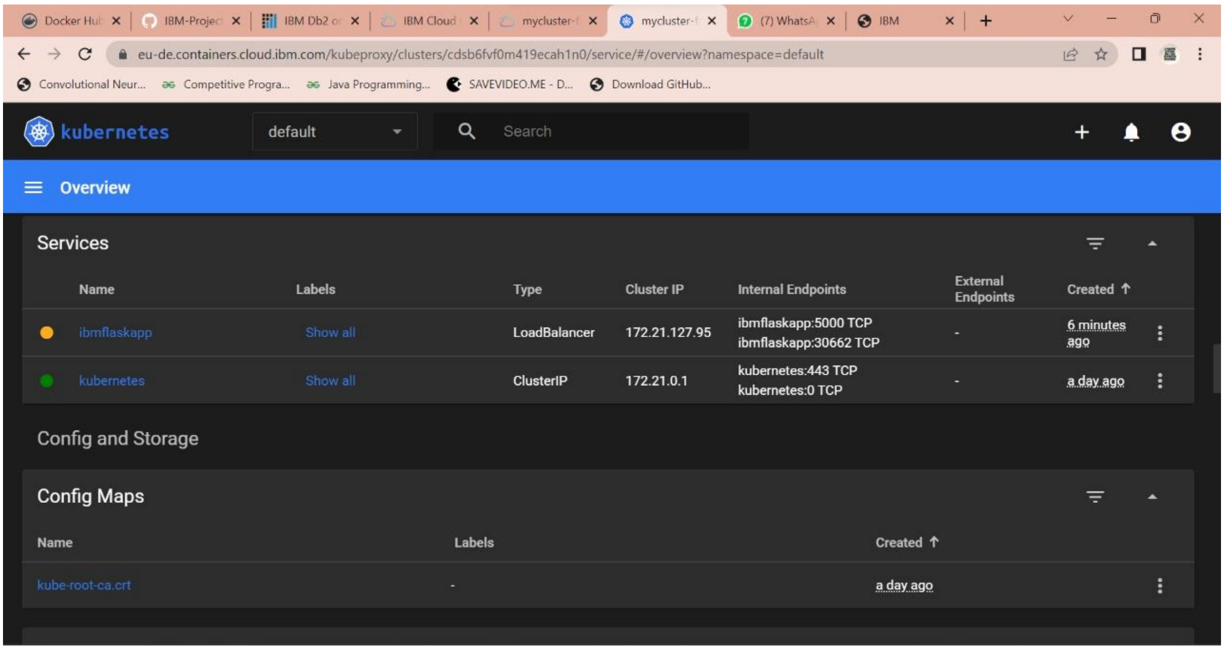
	Name	Images	Labels	Pods	Created ↑
●	ibmflaskapp	Show all	Show all	1 / 1	5 minutes ago

Pods

	Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
●	ibmflaskapp-5ddbcd7d64-lllwg	Show all	Show all	10.144.212.23	Running	0	4.00m	113.47Mi	5 minutes ago

Replica Sets

	Name	Images	Labels	Pods	Created ↑
●	ibmflaskapp-5ddbcd7d64	Show all	Show all	1 / 1	5 minutes ago



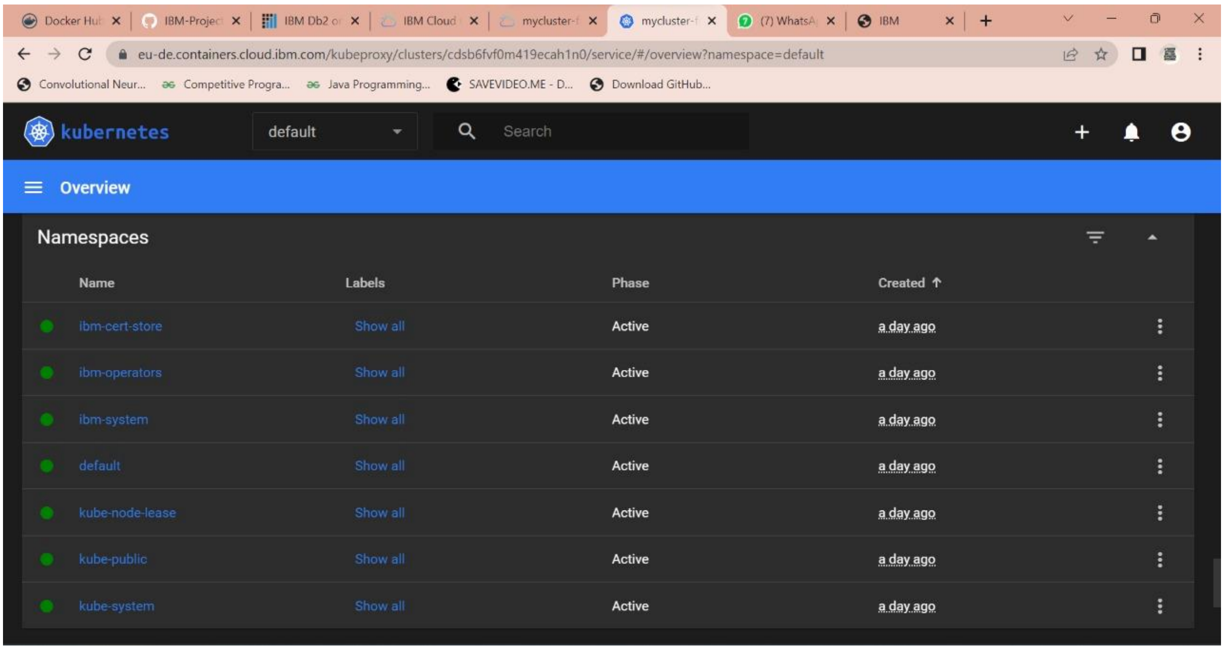
Services

	Name	Labels	Type	Cluster IP	Internal Endpoints	External Endpoints	Created ↑
●	ibmflaskapp	Show all	LoadBalancer	172.21.127.95	ibmflaskapp:5000 TCP ibmflaskapp:30662 TCP	-	6 minutes ago
●	kubernetes	Show all	ClusterIP	172.21.0.1	kubernetes:443 TCP kubernetes:0 TCP	-	a day ago

Config and Storage

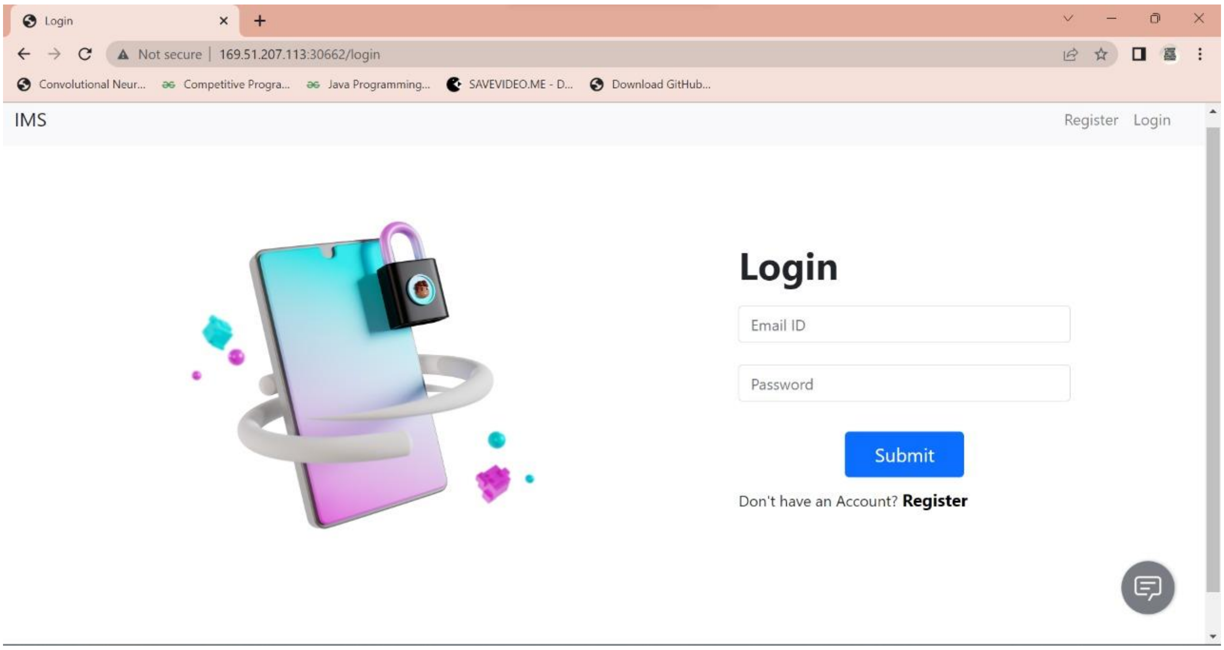
Config Maps

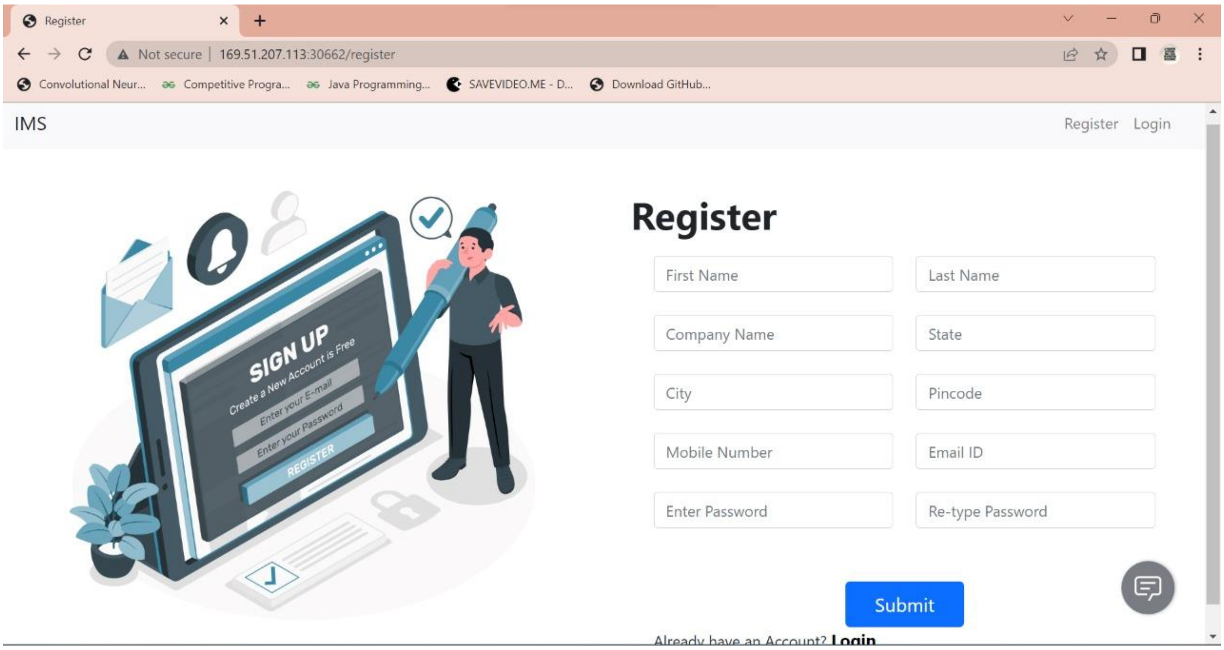
Name	Labels	Created ↑
kube-root-ca.crt	-	a day ago

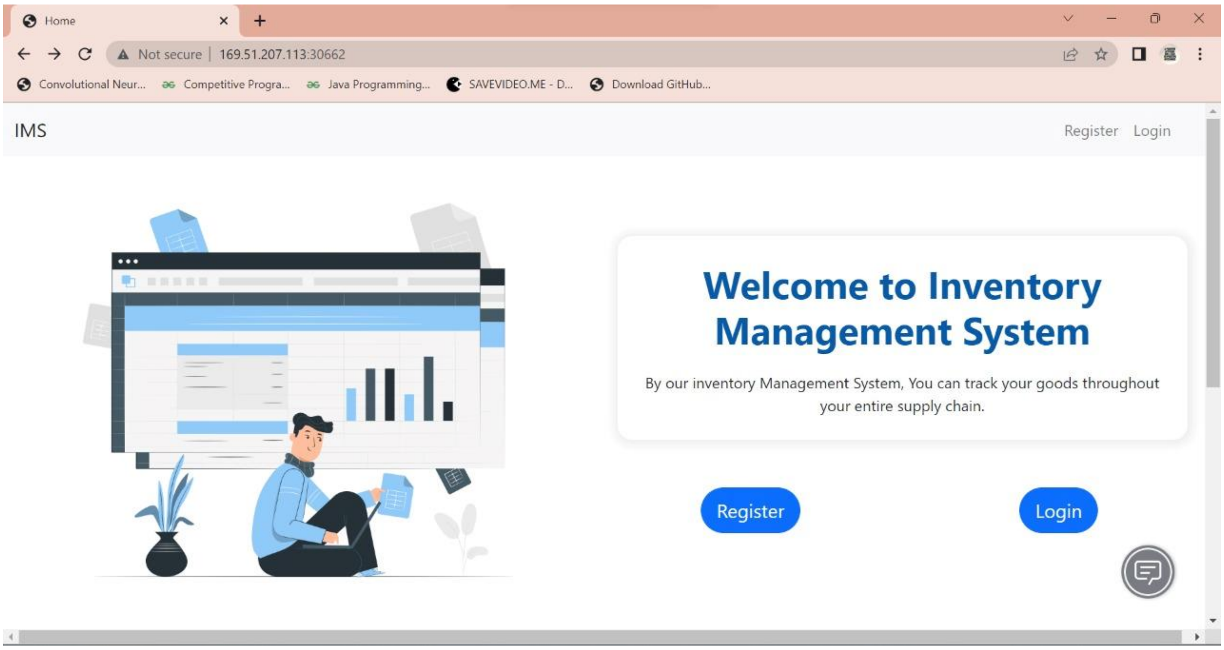


Namespaces

	Name	Labels	Phase	Created ↑
●	ibm-cert-store	Show all	Active	a day ago
●	ibm-operators	Show all	Active	a day ago
●	ibm-system	Show all	Active	a day ago
●	default	Show all	Active	a day ago
●	kube-node-lease	Show all	Active	a day ago
●	kube-public	Show all	Active	a day ago
●	kube-system	Show all	Active	a day ago


Login
Not secure | 169.51.207.113:30662/login
Convolutional Neur...
Competitive Progra...
Java Programming...
SAVEVIDEO.ME - D...
Download GitHub...
IMS
Register
Login
Login
Email ID
Password
Submit
Don't have an Account? Register


Register
Not secure | 169.51.207.113:30662/register
Convolutional Neur...
Competitive Progra...
Java Programming...
SAVEVIDEO.ME - D...
Download GitHub...
IMS
Register
Login
SIGN UP
Create a New Account is Free
Enter your E-mail
Enter your Password
REGISTER
Register
First Name
Last Name
Company Name
State
City
Pincode
Mobile Number
Email ID
Enter Password
Re-type Password
Submit
Already have an Account? Login



Welcome to Inventory Management System

By our inventory Management System, You can track your goods throughout your entire supply chain.

View the deployed Job-portal flask application by clicking the below link:

http://169.51.207.113:30662/