

Assignment -4

Inventory Management System for Retailers – Kubernetes / Docker

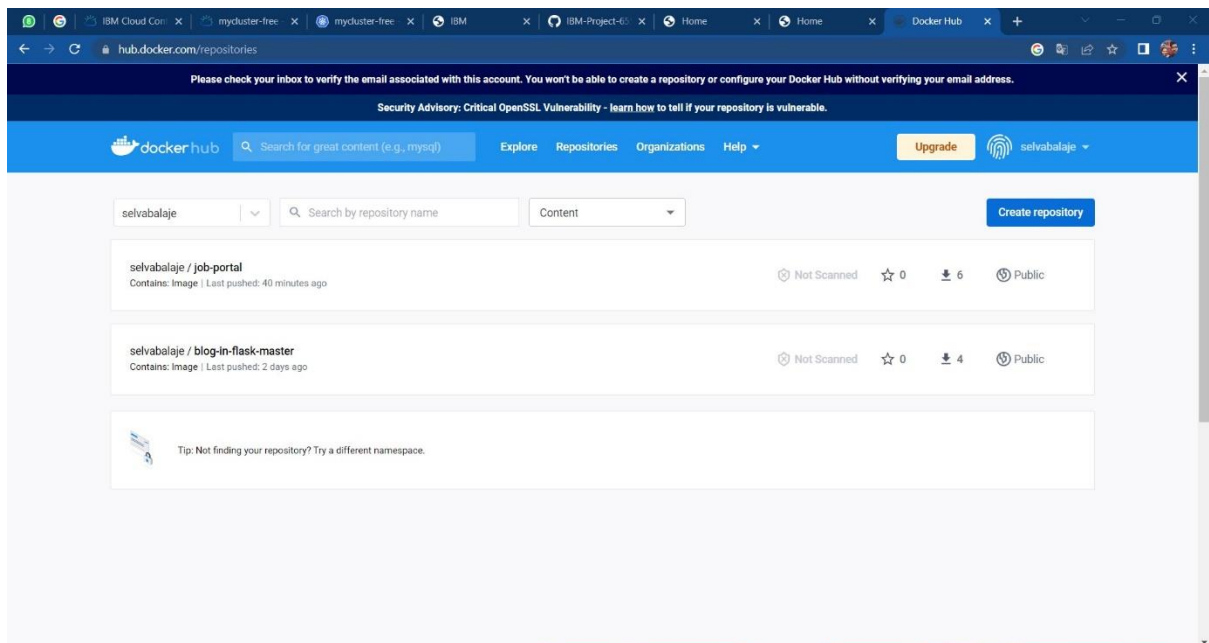
Assignment Date	20 October 2022
Student Name	SELVA BALAJE R
Student Roll Number	953719104049
Maximum Marks	2 Marks

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.

Solution: **All the required files are uploaded in the ASSIGNMENTS/PADMANABAN P (TEAM LEADER)/ASSIGNMENT 4 folder in the Git repo. Please verify it sir/mam.

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



hub.docker.com/repository/docker/selvabalaje/job-portal

Please check your inbox to verify the email associated with this account. You won't be able to create a repository or configure your Docker Hub without verifying your email address.

dockerhub Search for great content (e.g., mysql) Explore Repositories Organizations Help Upgrade selvabalaje

selvabalaje Repositories job-portal Using 0 of 1 private repositories. Get more

General Tags Builds Collaborators Webhooks Settings

1 Add a short description for this repository
The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results. Update

selvabalaje / job-portal

Description
This repository does not have a description
Last pushed: 43 minutes ago

Docker commands
To push a new tag to this repository,
docker push selvabalaje/job-portal:tagname

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

Tag	OS	Type	Pulled	Pushed
latest		Image	---	43 minutes ago

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.

Docker Playground Home Docker Hub

labs.play-with-docker.com/p/cdhkj4u3tccg00fmsq0g#cdhkj4u3_cdhkj6u3tccg00fmsq1g

03:34:31
CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

cdhkj4u3_cdhkj6u3tccg00fmsq1g

IP: 192.168.0.18 OPEN PORT 5000

Memory: 27.99% (1.093GiB / 3.906GiB) CPU: 0.60%

SSH: ssh ip172-18-0-14-cdhkj4u3tccg00fmsq0g@direct.labs.play

DELETE EDITOR

```
[node1] [local] root@192.168.0.18 ~
$ docker run -p 5000:5000 selvabalaje/job-portal:latest
Unable to find image 'selvabalaje/job-portal:latest' locally
latest: Pulling from selvabalaje/job-portal
1671565cc8df: Pull complete
3e94d13e5e7: Pull complete
fa9c7528c685: Pull complete
53ad072f9cd1: Pull complete
d6b983117533: Pull complete
d8092d56ded5: Pull complete
c71af637d59: Pull complete
964a10b3c704: Pull complete
4134b2fe8293: Pull complete
93d089bea4fc: Pull complete
6bf9086955e6: Pull complete
9858a2a054c4: Pull complete
33ece61efca2: Pull complete
Digest: sha256:c3fadc9987c2177506df7ddbf8ac701f98b3417b5380a7bce0f214f8f82db48e
Status: Downloaded newer image for selvabalaje/job-portal:latest
* 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)
```

Docker Playground Home Docker Hub

labs.play-with-docker.com/p/cdhkj4u3tccg00fmsq0g#cdhkj4u3_cdhkj6u3tccg00fmsq1g

03:33:35

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.18 node1

cdhkj4u3_cdhkj6u3tccg00fmsq1g

IP: 192.168.0.18 OPEN PORT 5000

Memory: 28.00% (1.094GiB / 3.906GiB) CPU: 0.47%

SSH: ssh ip172-18-0-14-cdhkj4u3tccg00fmsq0g@direct.labs.play

DELETE EDITOR


```
864a10b3c704: Pull complete
4334b2fe8293: Pull complete
93d089bea4fc: Pull complete
6bf9086955e6: Pull complete
9858a2a054c4: Pull complete
33ee61efc02: Pull complete
Digest: sha256:c3fadc9907c2177506df7ddb6ac701f90b3417b5380a7bce0f214f9f62db48e
Status: Downloaded newer image for selvabalaie/job-portal:latest
* 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://172.17.0.2:5000
Press CTRL+C to quit
root@192.168.0.18 ~
$ docker run -p 5000:5000 selvabalaie/job-portal:latest
* 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://172.17.0.2:5000
```

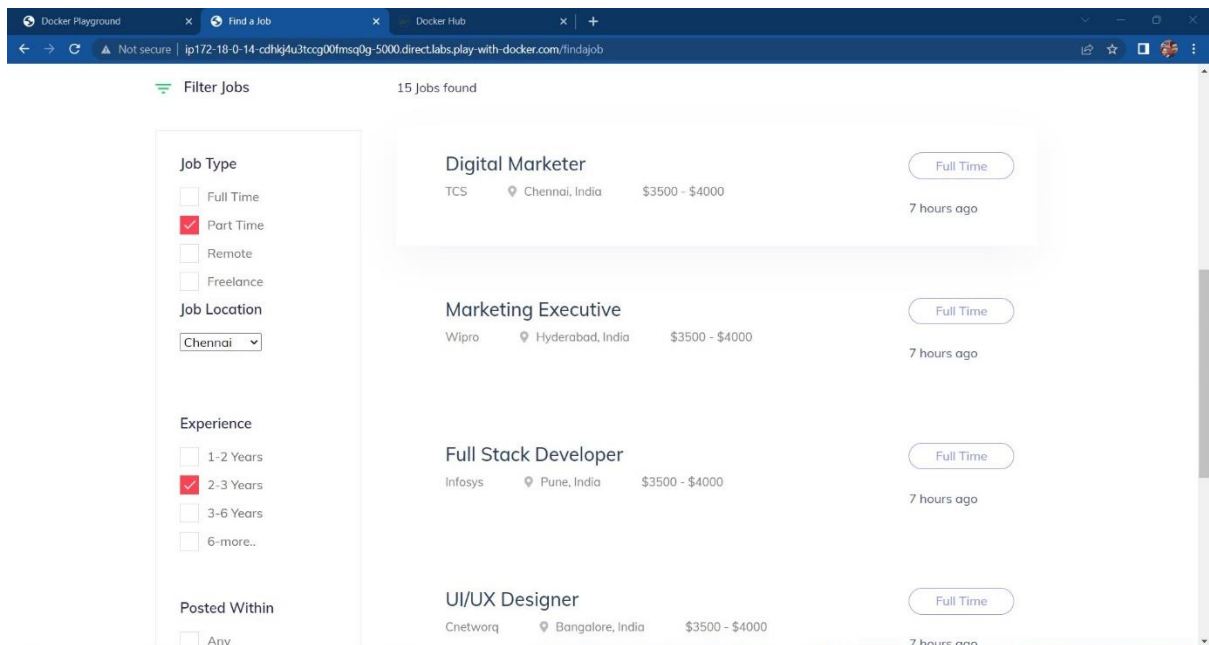
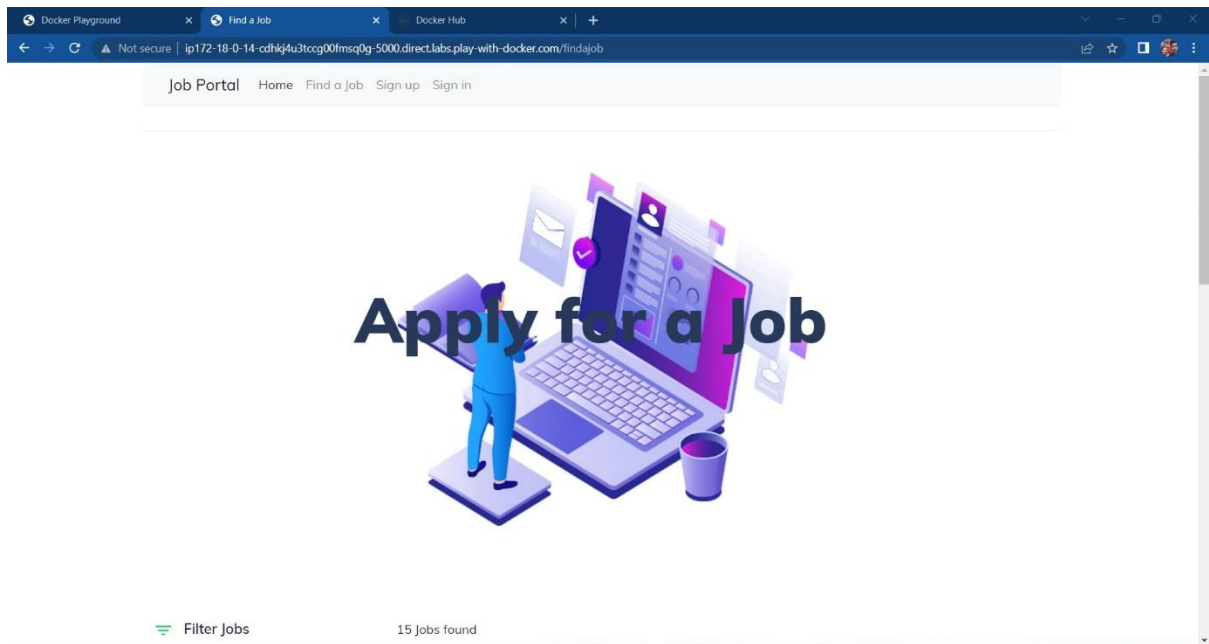
Docker Playground Home Docker Hub

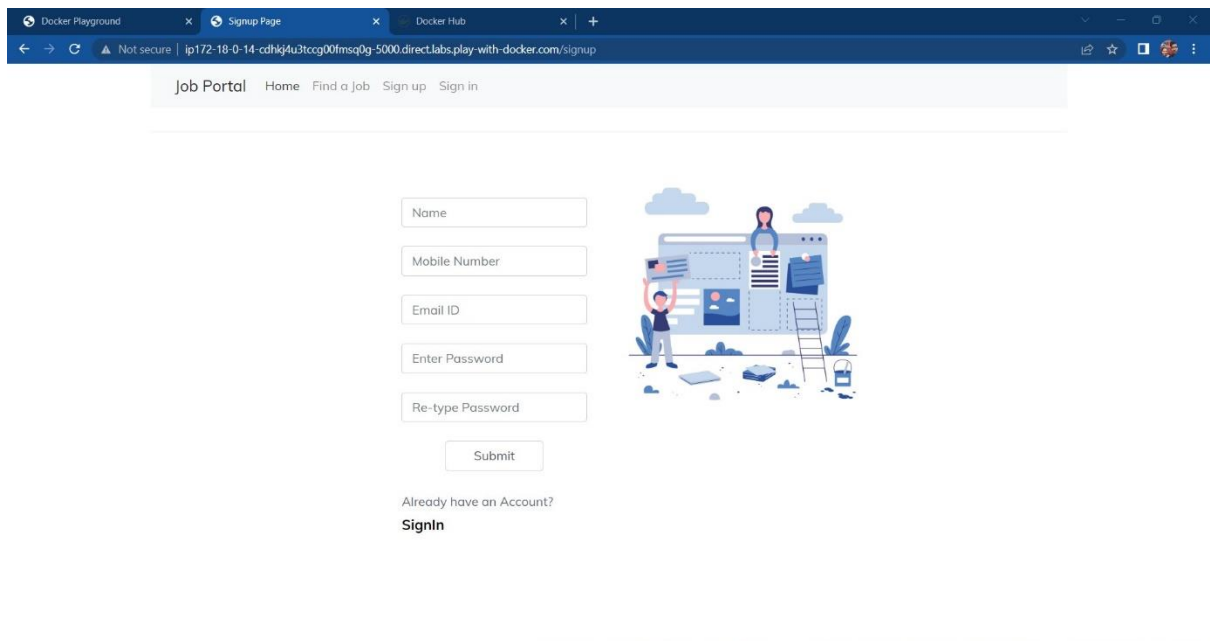
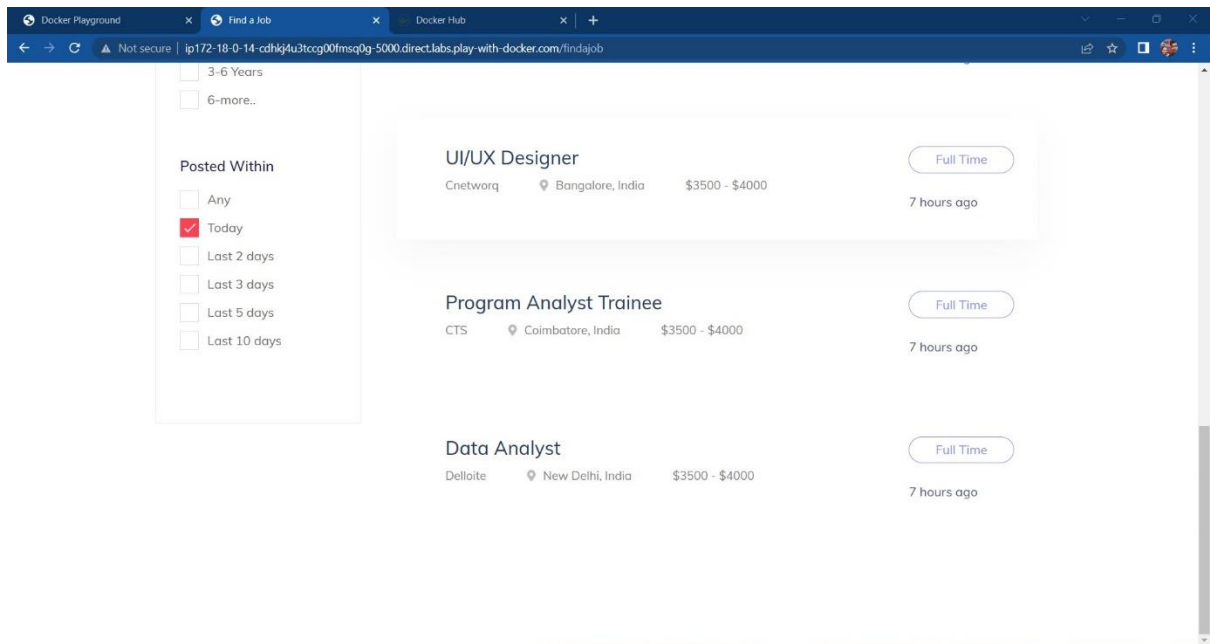
Not secure | ip172-18-0-14-cdhkj4u3tccg00fmsq0g-5000.direct.labs.play-with-docker.com

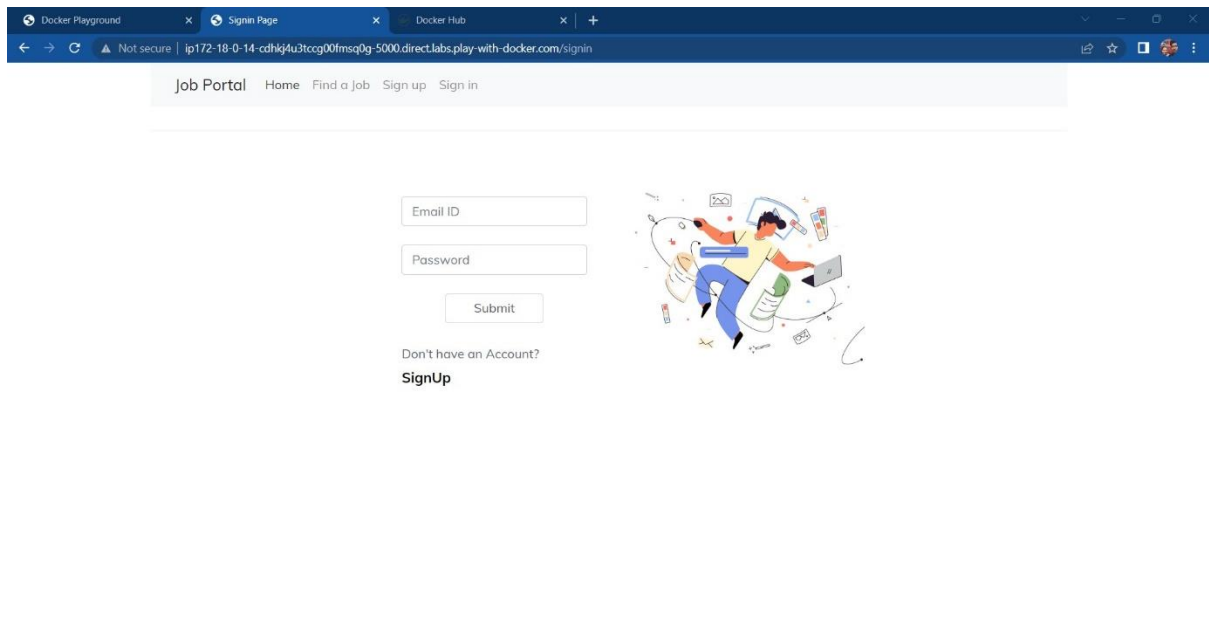
Job Portal Home Find a Job Sign up Sign in

Find the most exciting startup jobs

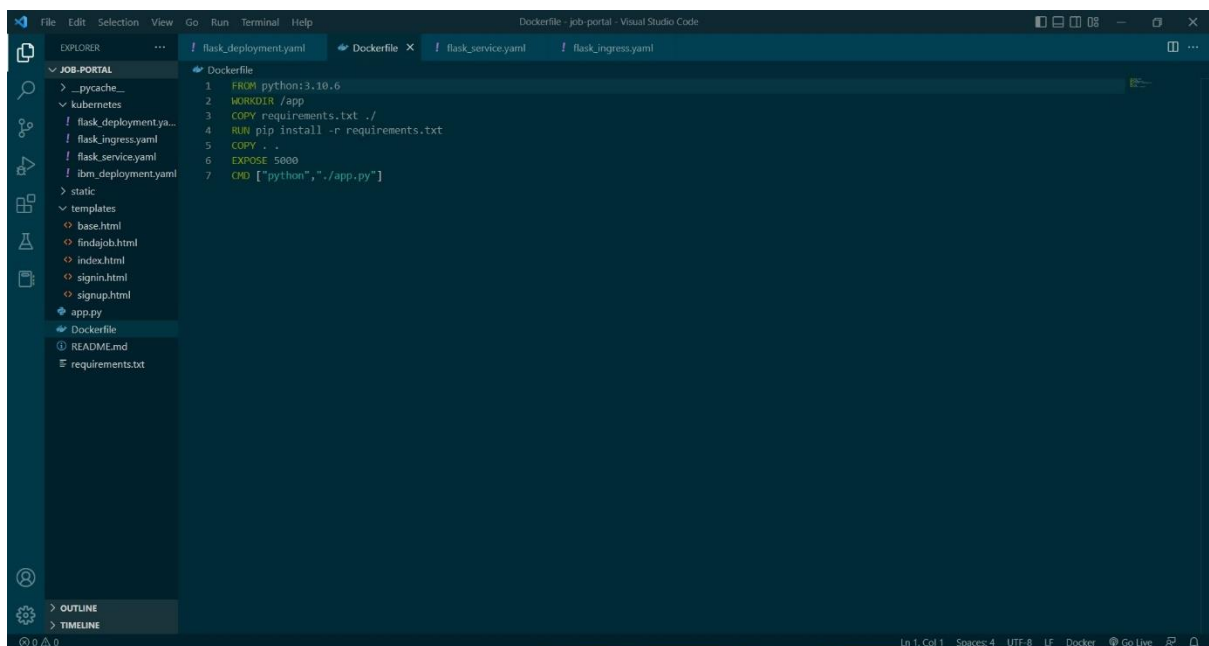


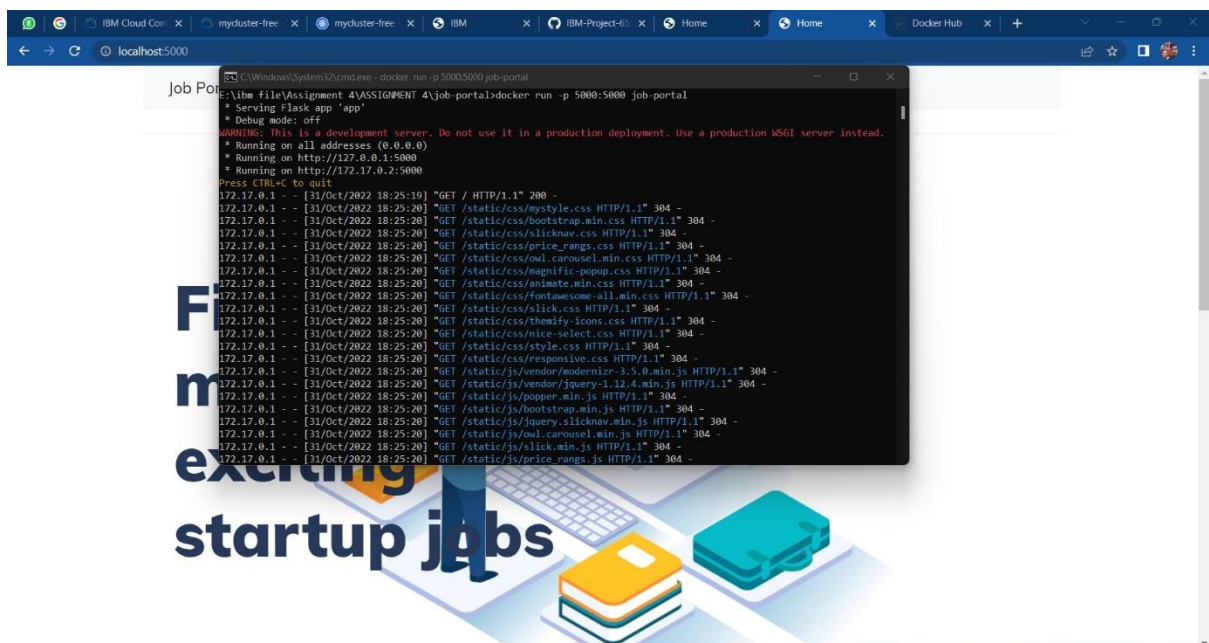
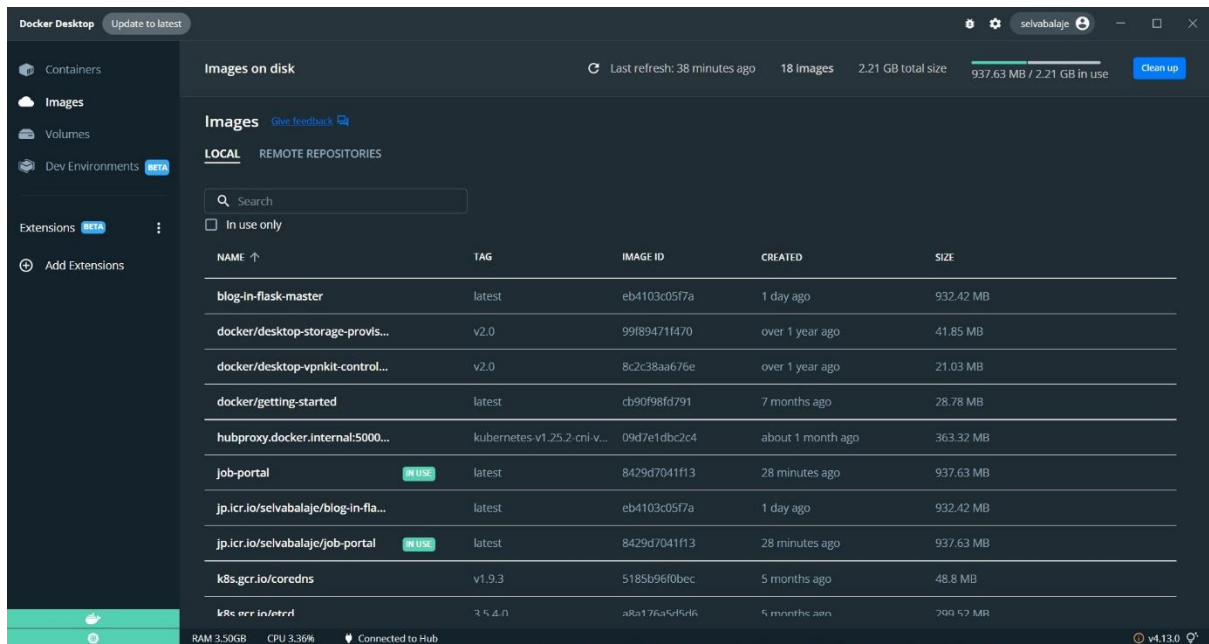


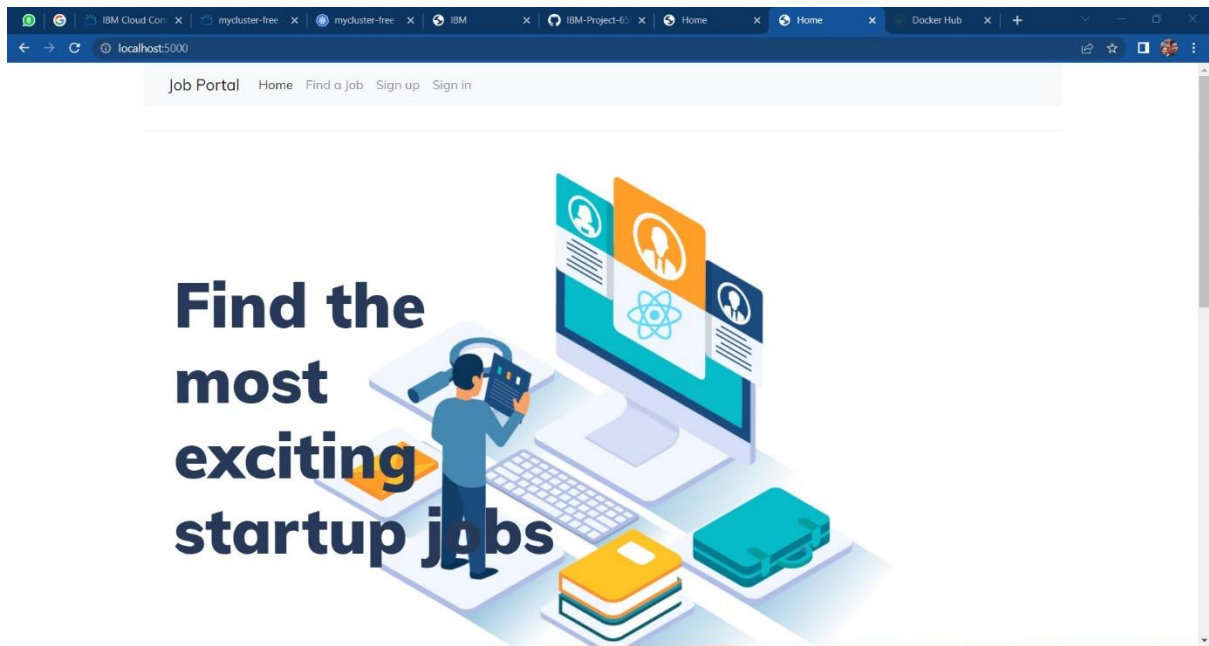




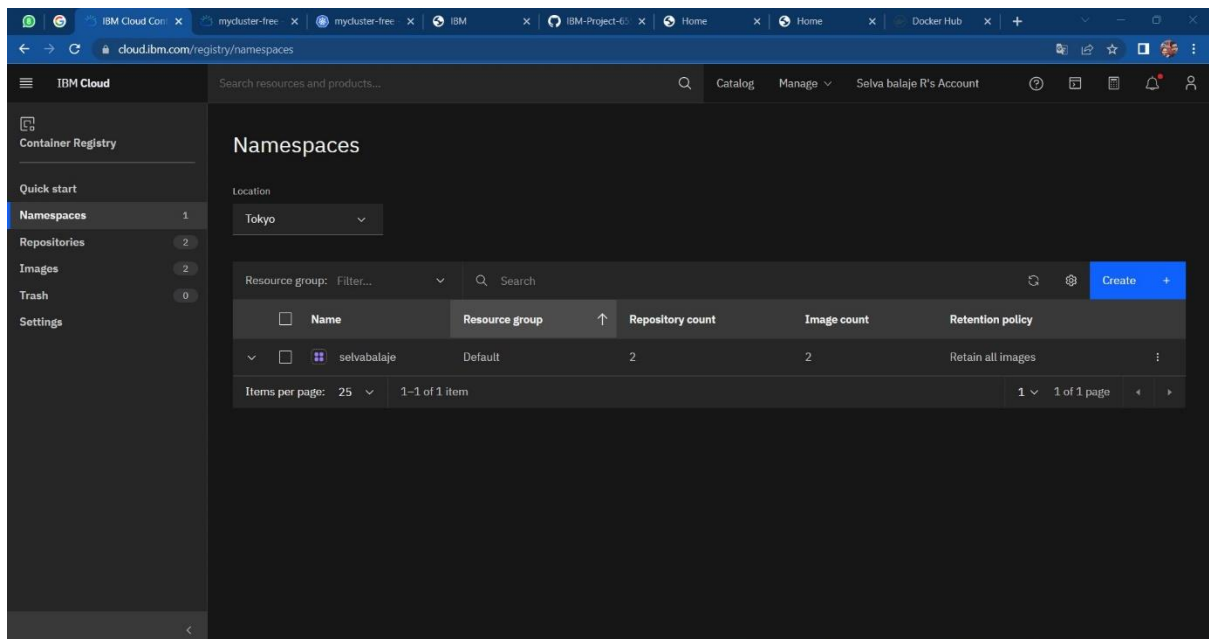
Step 2: Create a dockerfile for the job portal / flask application and deploy it in Docker desktop application.







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



IBM Cloud Container Registry Repositories

Location: Tokyo

Name	Image count	Namespace	Last updated
job-portal jp.icr.io/selvabalaje/job-portal	1	selvabalaje	1 hour ago
blog-in-flask-master jp.icr.io/selvabalaje/blog-in-flask-master	1	selvabalaje	2 days ago

Items per page: 25 1-2 of 2 items

IBM Cloud Container Registry Images

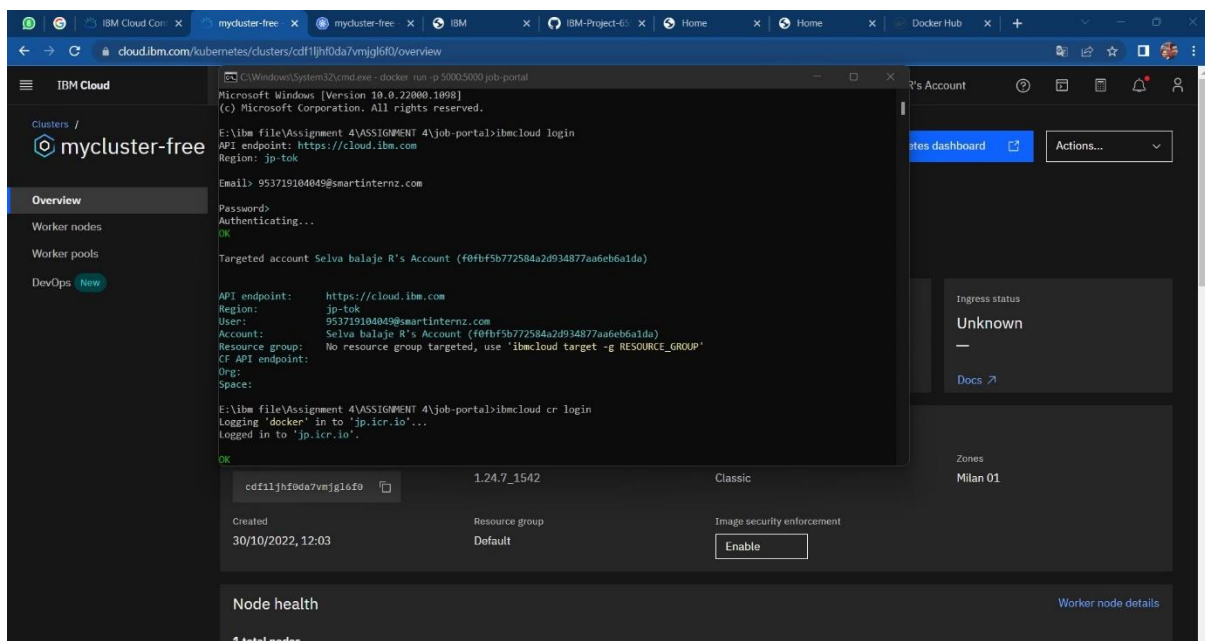
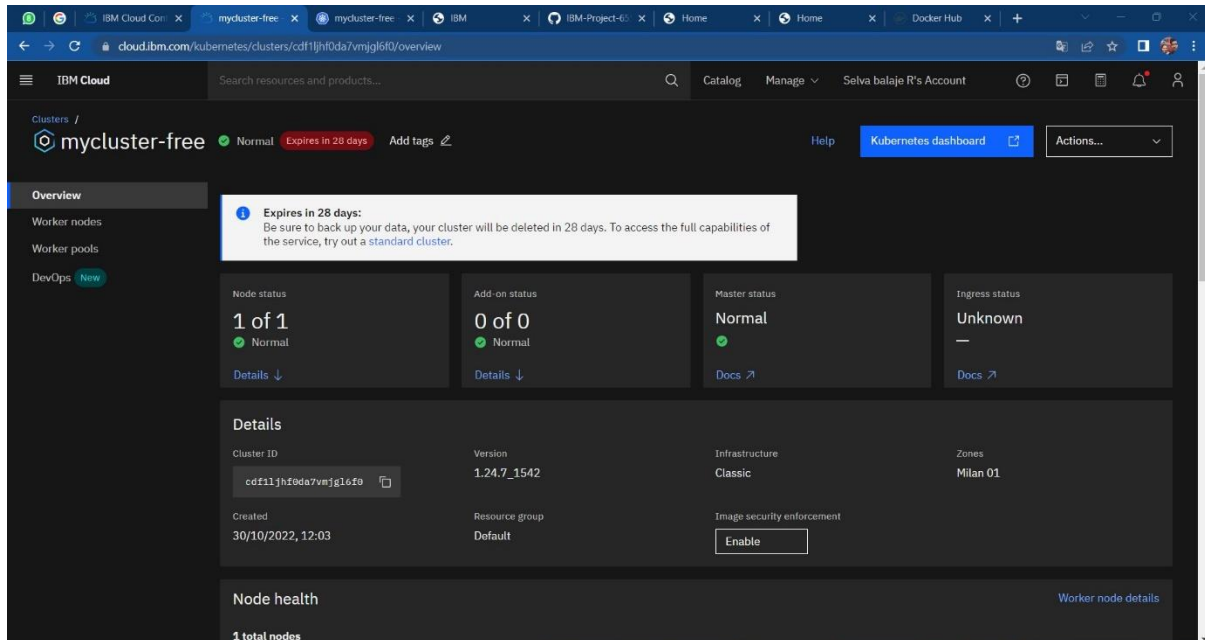
Location: Tokyo

View by: Digest

Repository@digest	Tags	Manifest type	Created	Size	Security status
selvabalaje/job-portal@sha256:c3fadc9987c2...	latest	Docker	1 hour ago	360 MB	24 issues
selvabalaje/blog-in-flask-master@sha256:d27973686891...	latest	Docker	2 days ago	356 MB	23 issues

Items per page: 25 1-2 of 2 items

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.



IBM Cloud

clusters / mycluster-free

Overview

Worker nodes

Worker pools

DevOps [New](#)

```
E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal\ibmcloud cr login
Logging 'docker' in to 'jp.icr.io'...
Logged in to 'jp.icr.io'.

OK

E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal\ibmcloud plugin list
Listing installed plug-ins...

Plugin Name          Version  Status  Private endpoints supported
container-registry    1.0.2    true    true
container-service[kubernetes-service/ks]  1.0.459  false   false
observe-service[ob]   1.0.82   false   false

E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal\docker push jp.icr.io/selvabalaje/job-portal
Using default tag: latest
The push refers to repository [jp.icr.io/selvabalaje/job-portal]
d1e94296717c: Pushed
23df497abdb1: Mounted from selvabalaje/blog-in-flask-master
79270488747d: Mounted from selvabalaje/blog-in-flask-master
1646c2188de8: Mounted from selvabalaje/blog-in-flask-master
bfc1deb8136e: Mounted from selvabalaje/blog-in-flask-master
1f123186824c: Mounted from selvabalaje/blog-in-flask-master
3d0eb1152931: Mounted from selvabalaje/blog-in-flask-master
100796cdf3b1: Mounted from selvabalaje/blog-in-flask-master
54acb5a6fa0b: Mounted from selvabalaje/blog-in-flask-master
8d51c618126f: Mounted from selvabalaje/blog-in-flask-master
9f6e4d46744: Mounted from selvabalaje/blog-in-flask-master

cd11jhf0da7vmjgl6f0 1.24.7_1542 Classic

Created 30/10/2022, 12:03 Resource group Default Image security enforcement Enable

Node health 1 total nodes
```

Worker node details

IBM Cloud

clusters / mycluster-free

Overview

Worker nodes

Worker pools

DevOps [New](#)

```
E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal\docker push jp.icr.io/selvabalaje/job-portal
Using default tag: latest
The push refers to repository [jp.icr.io/selvabalaje/job-portal]
d1e94296717c: Pushed
23df497abdb1: Mounted from selvabalaje/blog-in-flask-master
79270488747d: Mounted from selvabalaje/blog-in-flask-master
1646c2188de8: Mounted from selvabalaje/blog-in-flask-master
bfc1deb8136e: Mounted from selvabalaje/blog-in-flask-master
1f123186824c: Mounted from selvabalaje/blog-in-flask-master
3d0eb1152931: Mounted from selvabalaje/blog-in-flask-master
100796cdf3b1: Mounted from selvabalaje/blog-in-flask-master
54acb5a6fa0b: Mounted from selvabalaje/blog-in-flask-master
8d51c618126f: Mounted from selvabalaje/blog-in-flask-master
9f6e4d46744: Mounted from selvabalaje/blog-in-flask-master
a89d1d47b5a1: Mounted from selvabalaje/blog-in-flask-master
635ed1b7a28: Mounted from selvabalaje/blog-in-flask-master
latest: digest: sha256:c3fad9987c2177506df7ddbf8ac701f98b3417b5380a7bce0f214f8f82db48e size: 3054

E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal\kubectl config current-context
mycluster-free/cd11jhf0da7vmjgl6f0

E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal\kubectl apply -f kubernetes/ibm-deployment.yaml
Unable to connect to the server: failed to refresh token: oauth2: cannot fetch token: 400 Bad Request
Response: {"errorCode": "BXIIW0408t", "errorMessage": "Provided refresh token is expired.", "context": {"requestId": "en2wd2c-560d8775da6728ada56a1e089f36c0", "requestType": "Incoming.Identity.Token", "userAgent": "Go-http-client/2.0", "url": "https://identity-1.ap-north-1.amazonaws.com", "instanceId": "iamid-7.10-14613-293c9a8-6778f68cf-zfpwg", "threadId": "e5098", "host": "identity-1.10-14613-293c9a8-6778f68cf-zfpwg", "startTime": "31.10.2022 18:18:36:519 UTC", "endTime": "31.10.2022 18:18:36:526 UTC", "elapsedTime": "7", "locale": "en_US", "clusterName": "iam-id-prod-ap-north-tok84"}}

E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal\ibmcloud ks cluster config --cluster cd11jhf0da7vmjgl6f0

cd11jhf0da7vmjgl6f0 1.24.7_1542 Classic

Created 30/10/2022, 12:03 Resource group Default Image security enforcement Enable

Node health 1 total nodes
```

Worker node details

IBM Cloud

Clusters / mycluster-free

Overview

Worker nodes

Worker pools

DevOps **New**

```
E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal>kubectl apply -f kubernetes/ibm_deployment.yaml
deployment.apps/job-portal created
E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal>kubectl apply -f kubernetes/flask_service.yaml
service/flask-app-service configured
E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal>kubectl apply -f kubernetes/flask_ingress.yaml
ingress.networking.k8s.io/flask-app-ingress unchanged
E:\ibm file\Assignment 4\ASSIGNMENT 4\job-portal>kubectl describe svc flask-app-service
Name: flask-app-service
Namespace: default
Labels: <none>
Annotations: <none>
Selector: app=job-portal
Type: NodePort
IP Family Policy: SingleStack
IP Families: IPv4
IP: 172.21.170.240
IPs: 172.21.170.240
Port: <unset> 5000/TCP
TargetPort: <unset> 32437/TCP
Endpoints: 172.30.255.18:5000,172.30.255.19:5000,172.30.255.20:5000
Session Affinity: None
External Traffic Policy: Cluster
Events: <none>
```

cd1ljhf0da7vmjgl6f0 1.24.7_1542 Classic

Created 30/10/2022, 12:03 Resource group Default Image security enforcement **Enable**

Node health 1 total nodes

Worker node details

Ingress status Unknown

Zones Milan 01

kubernetes

default Search

Workloads

Workloads

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses

Ingress Classes

Services

Config and Storage

Config Maps

Persistent Volume Claims

Secrets

Workload Status

Running: 2 Deployments

Running: 0 Pods

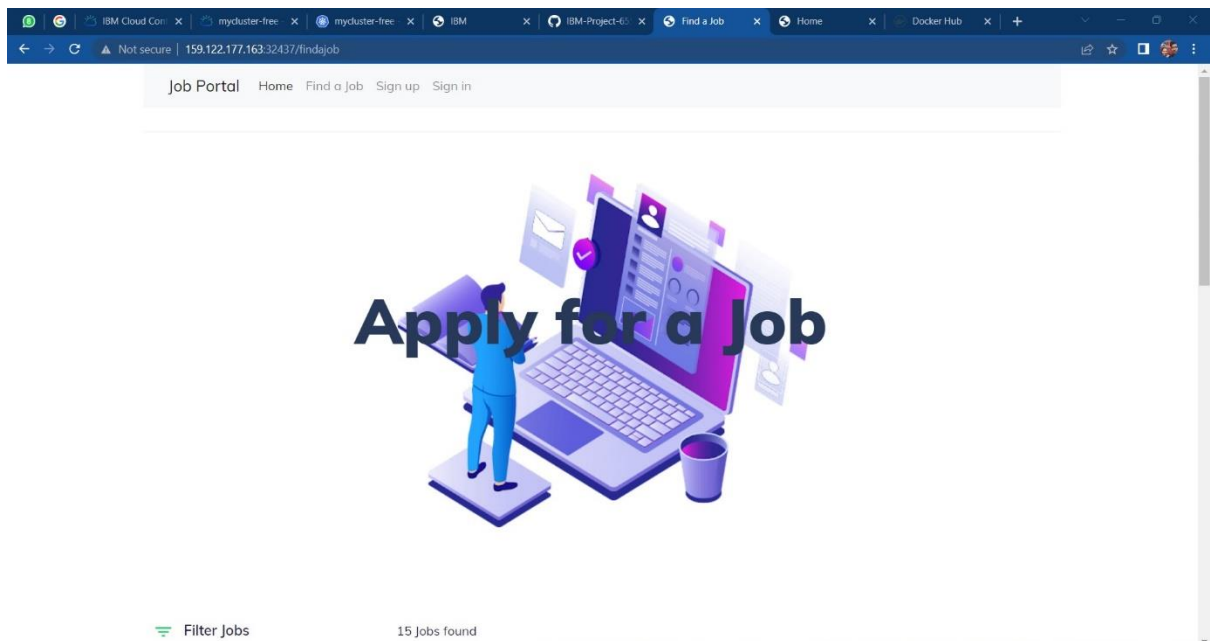
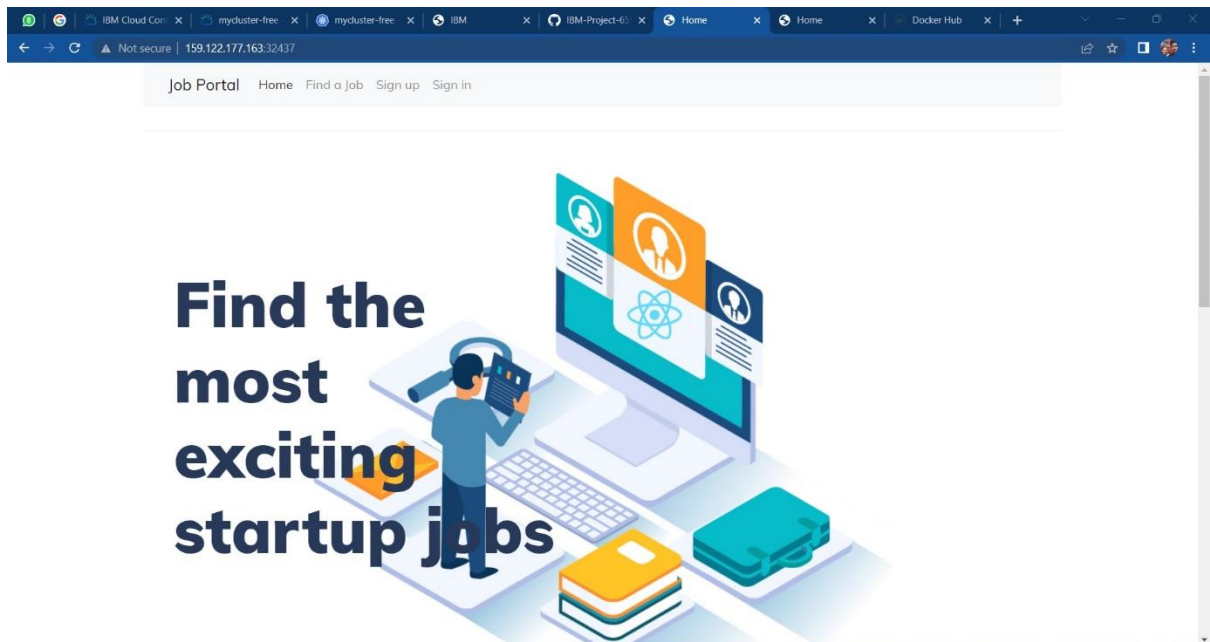
Running: 2 Replica Sets

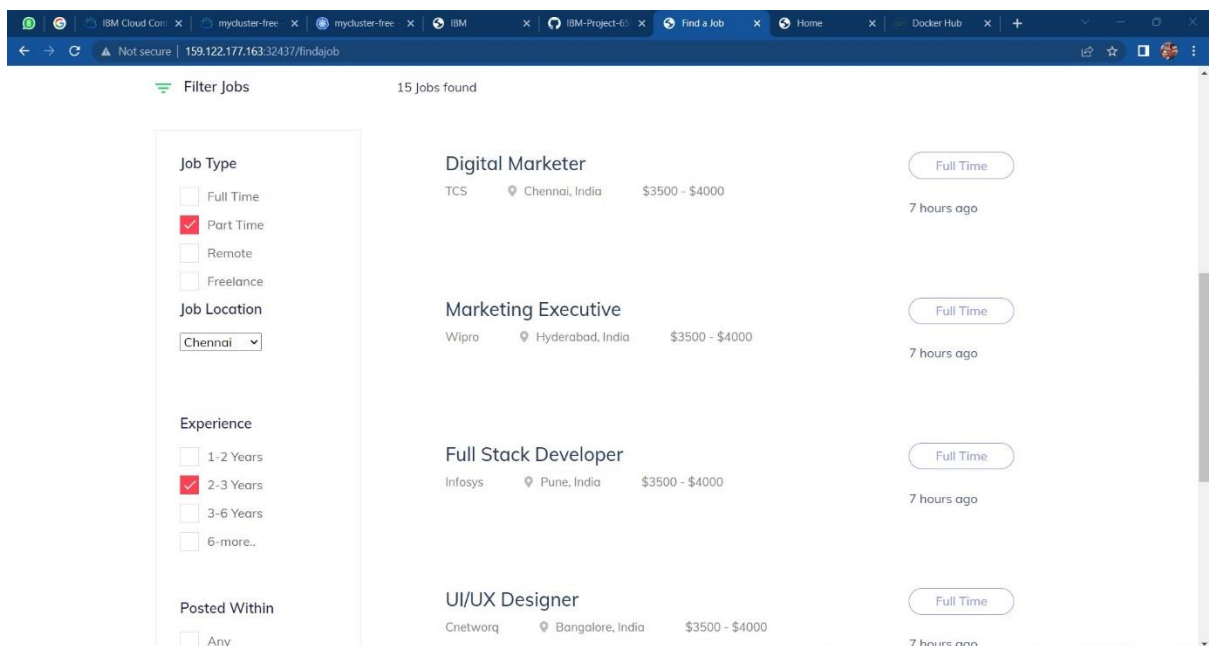
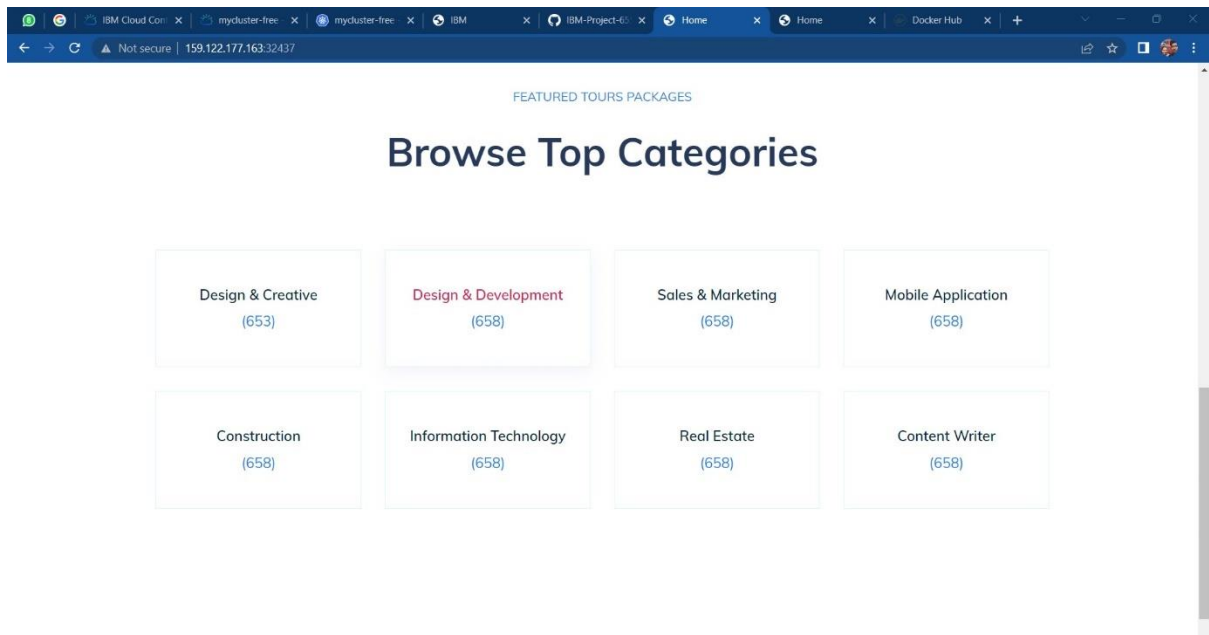
Deployments

Name	Images	Labels	Pods	Created
job-portal	Show all	-	3 / 3	40 minutes ago
blog-in-flask	Show all	-	5 / 5	a day ago

Workloads									
Pods									
	Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
	job-portal-864894f96-5t2sg	Show all	Show all	10.144.216.57	Running	0	1.00m	20.86Mi	41 minutes ago
	job-portal-864894f96-lxd22	Show all	Show all	10.144.216.57	Running	0	1.00m	21.19Mi	41 minutes ago
	job-portal-864894f96-pil2g	Show all	Show all	10.144.216.57	Running	0	1.00m	20.70Mi	41 minutes ago
	blog-in-flask-575f58686c-wmqff	Show all	Show all	10.144.216.57	Running	0	1.00m	19.82Mi	a day ago
	blog-in-flask-575f58686c-6dggn	Show all	Show all	10.144.216.57	Running	0	1.00m	19.95Mi	a day ago
	blog-in-flask-575f58686c-4j2lj	Show all	Show all	10.144.216.57	Running	0	1.00m	19.97Mi	a day ago
	blog-in-flask-575f58686c-8grkt	Show all	Show all	10.144.216.57	Running	0	1.00m	19.80Mi	a day ago
	blog-in-flask-575f58686c-lp64m	Show all	Show all	10.144.216.57	Running	0	1.00m	20.54Mi	a day ago
Replica Sets									
	Name	Images	Labels				Pods		Created ↑

Workloads									
Workloads	job-portal-864894f96-5t2sg	Show all	Show all	10.144.216.57	Running	0	1.00m	20.86Mi	41 minutes ago
Cron Jobs	job-portal-864894f96-lxd22	Show all	Show all	10.144.216.57	Running	0	1.00m	21.19Mi	41 minutes ago
Daemon Sets	job-portal-864894f96-pil2g	Show all	Show all	10.144.216.57	Running	0	1.00m	20.70Mi	41 minutes ago
Deployments	blog-in-flask-575f58686c-wmqff	Show all	Show all	10.144.216.57	Running	0	1.00m	19.82Mi	a day ago
Jobs	blog-in-flask-575f58686c-6dggn	Show all	Show all	10.144.216.57	Running	0	1.00m	19.95Mi	a day ago
Pods	blog-in-flask-575f58686c-4j2lj	Show all	Show all	10.144.216.57	Running	0	1.00m	19.97Mi	a day ago
Replica Sets	blog-in-flask-575f58686c-8grkt	Show all	Show all	10.144.216.57	Running	0	1.00m	19.80Mi	a day ago
Replication Controllers	blog-in-flask-575f58686c-lp64m	Show all	Show all	10.144.216.57	Running	0	1.00m	20.54Mi	a day ago
Stateful Sets									
Service									
Ingresses									
Ingress Classes									
Services									
Replica Sets									
	Name	Images	Labels				Pods		Created ↑
	job-portal-864894f96	Show all	Show all				3 / 3		41 minutes ago
	blog-in-flask-575f58686c	Show all	Show all				5 / 5		a day ago





☐ 3-6 Years

☐ 6-more..

Posted Within

☐ Any

☒ Today

☐ Last 2 days

☐ Last 3 days

☐ Last 5 days

☐ Last 10 days

UI/UX Designer

Cnetworq

Bangalore, India

\$3500 - \$4000

Full Time

7 hours ago

Program Analyst Trainee

CTS

Coimbatore, India

\$3500 - \$4000

Full Time

7 hours ago

Data Analyst

Delloite

New Delhi, India

\$3500 - \$4000

Full Time

7 hours ago

Job Portal

Home


Find a Job

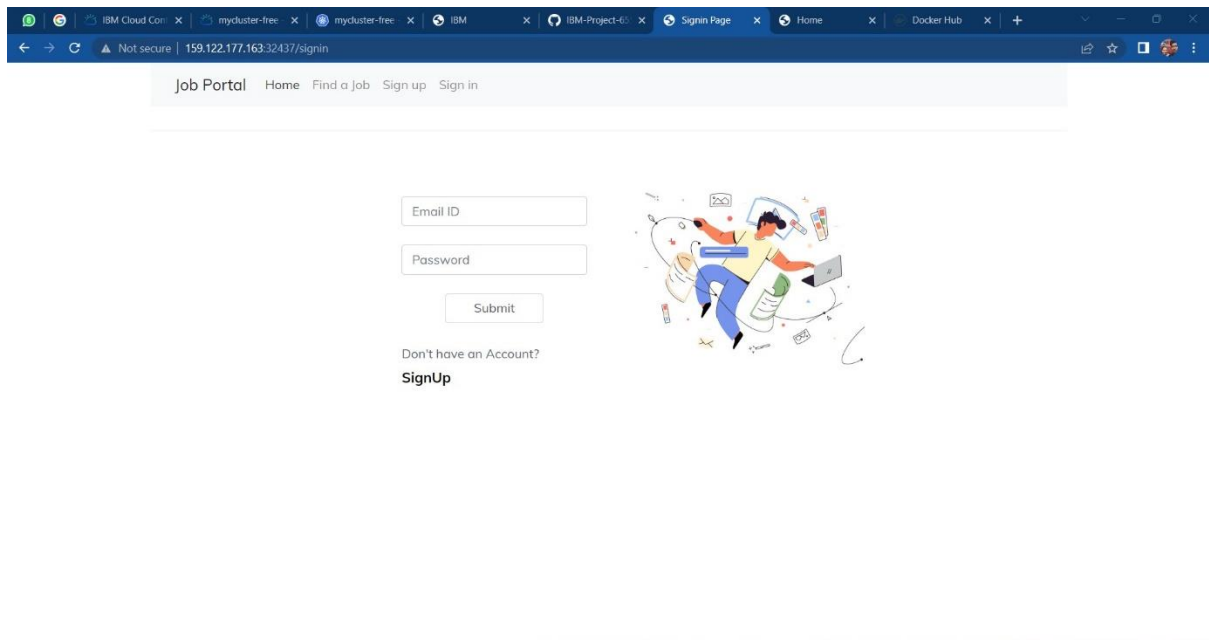
Sign up

Sign in

Already have an Account?

Signin





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

<http://159.122.177.163:32437/>