Assignment -4

Inventory Management System for Retailers – Kubernetes / Docker

Assignment Date	20 October 2022
Student Name	RAMESH KUMAR M
Student Roll Number	953719104044
Maximum Marks	2 Marks

Question-1:

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

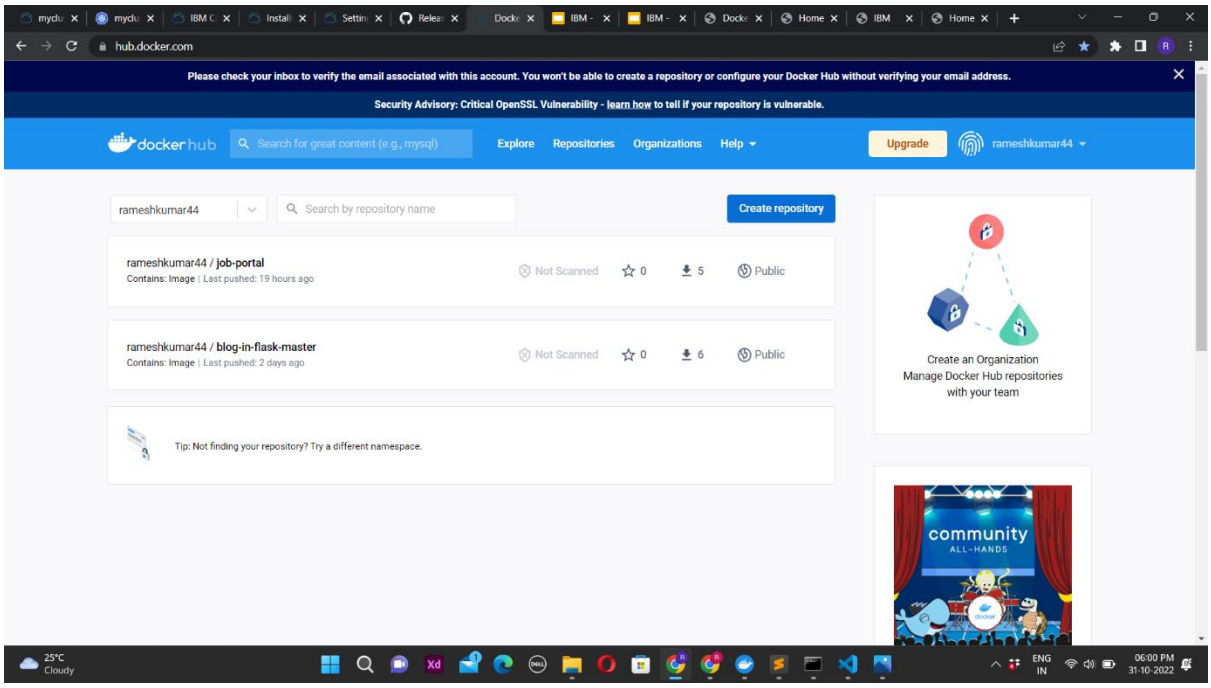
2. Create a dockerfile for the job portal / flask application and deploy it in Docker desktop application.

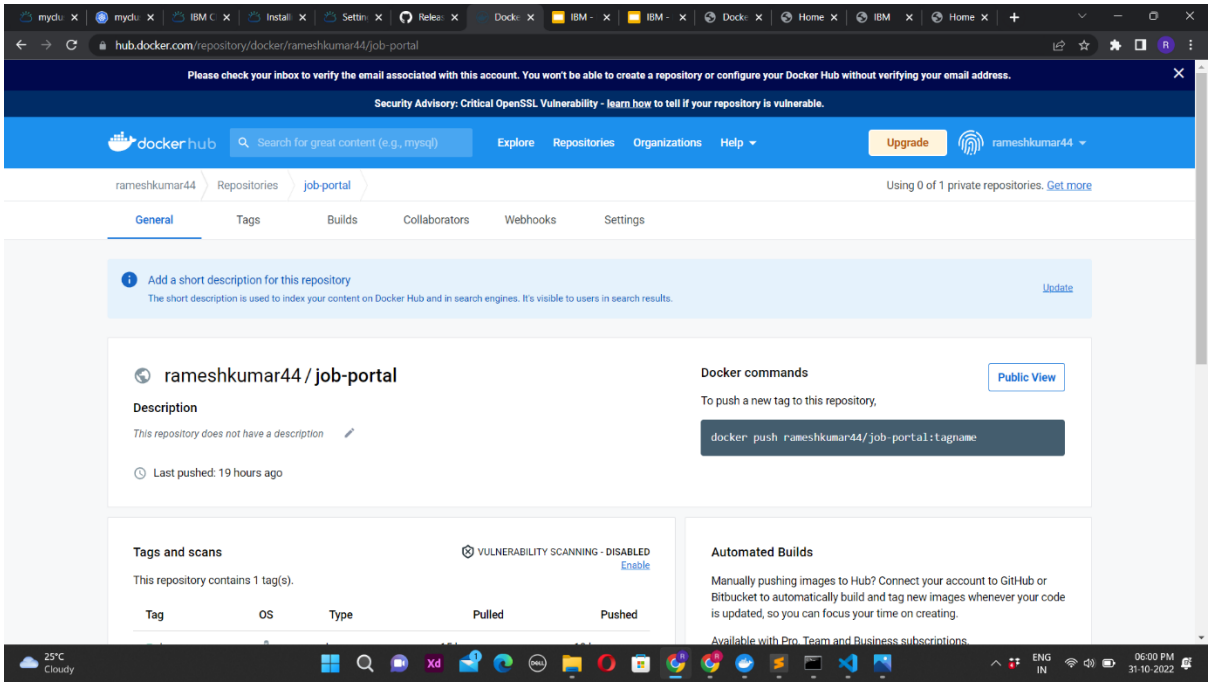
3. Create a IBM container registry and push docker image of flask application or job portal app.

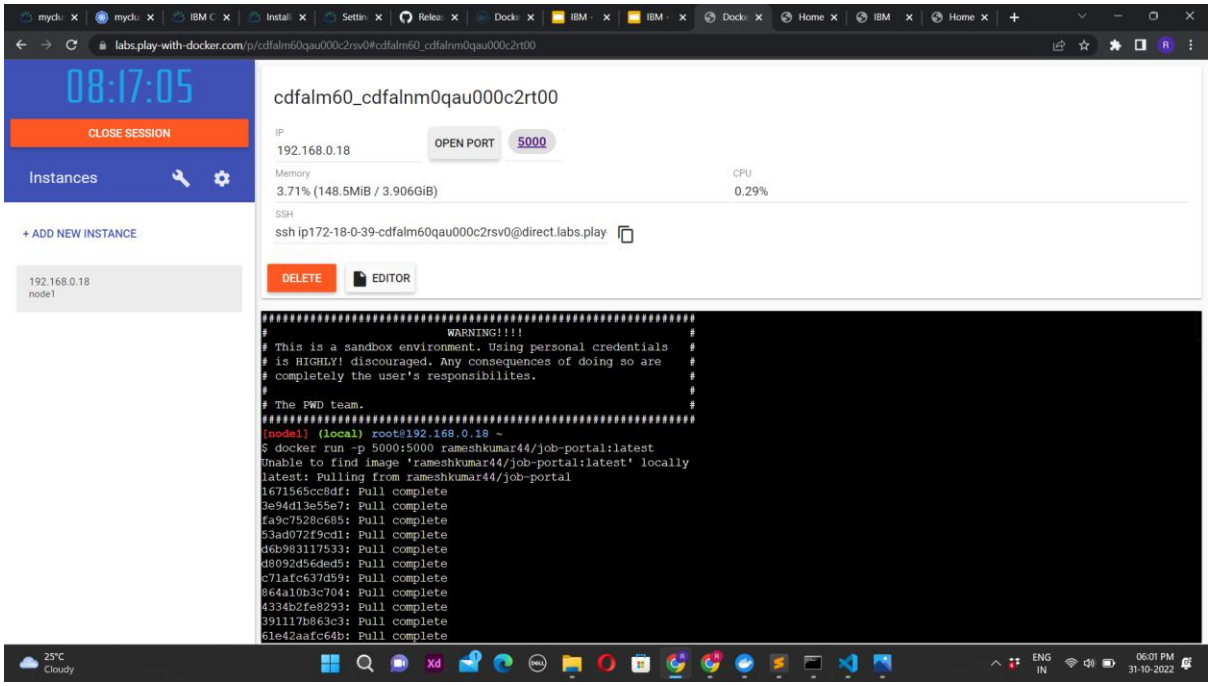
4. Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in Nodeport.

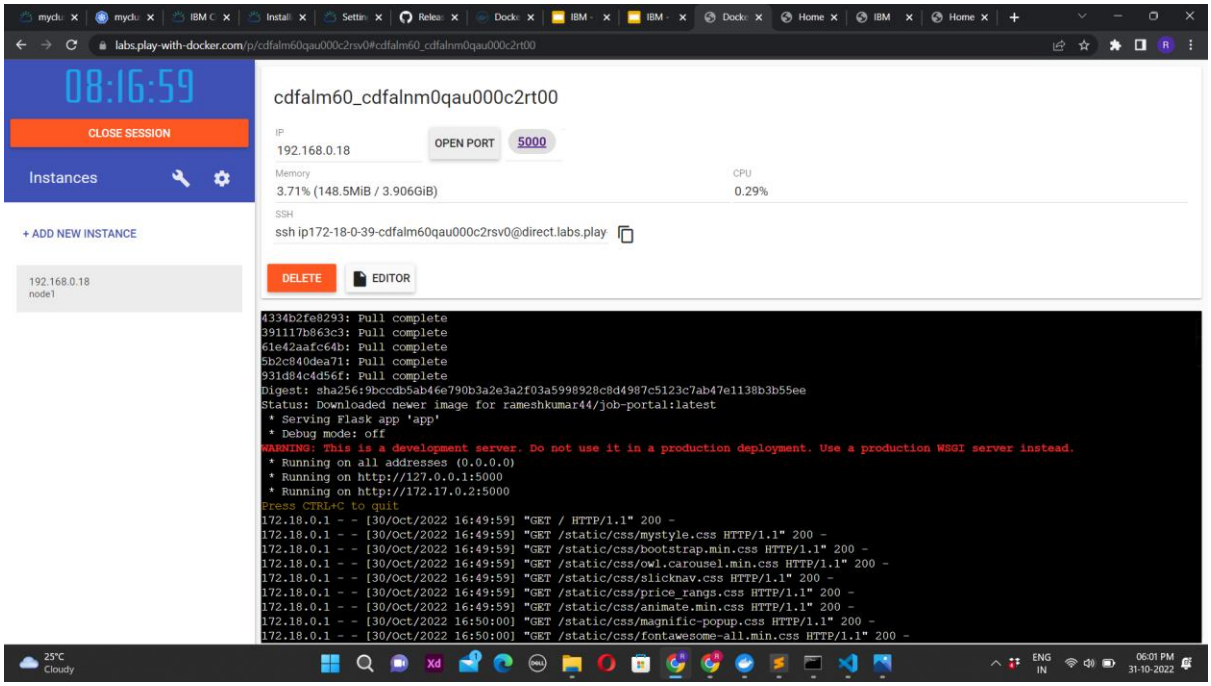
Solution: **All the required files are uploaded in the ASSIGNMENTS/RAMESH KUMAR M (TEAM MEMBER)/ASSIGNMENT 4 folder in the Git repo. Please verify it sir/mam.

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

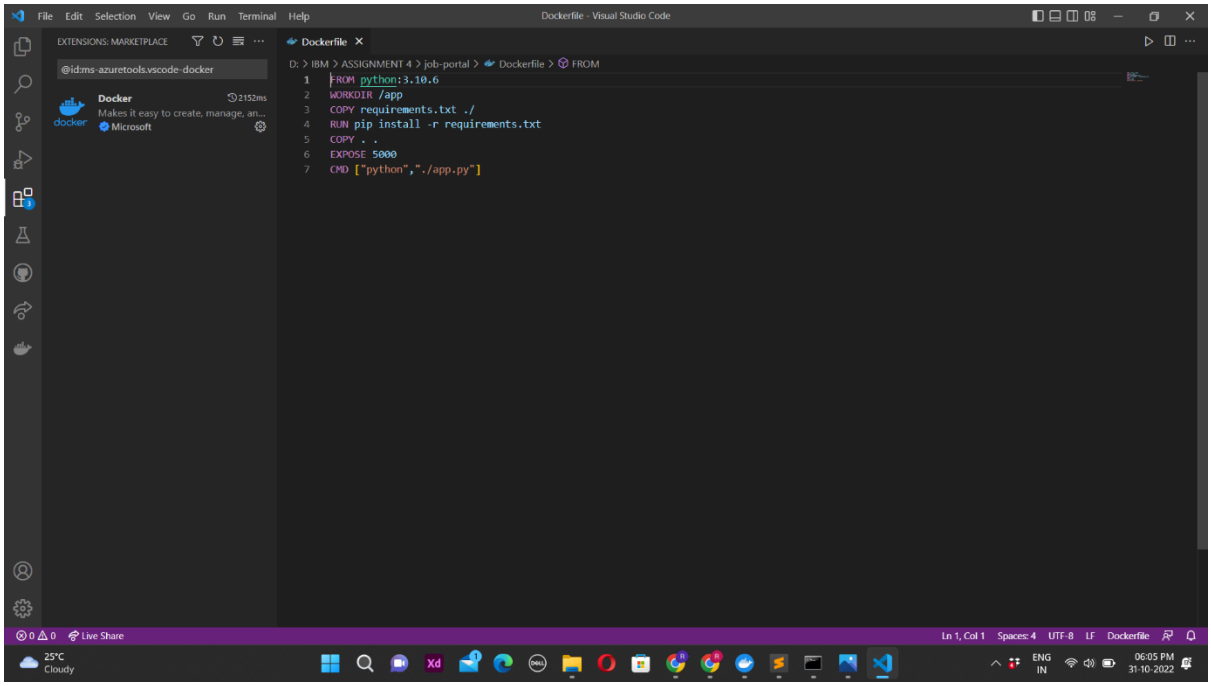


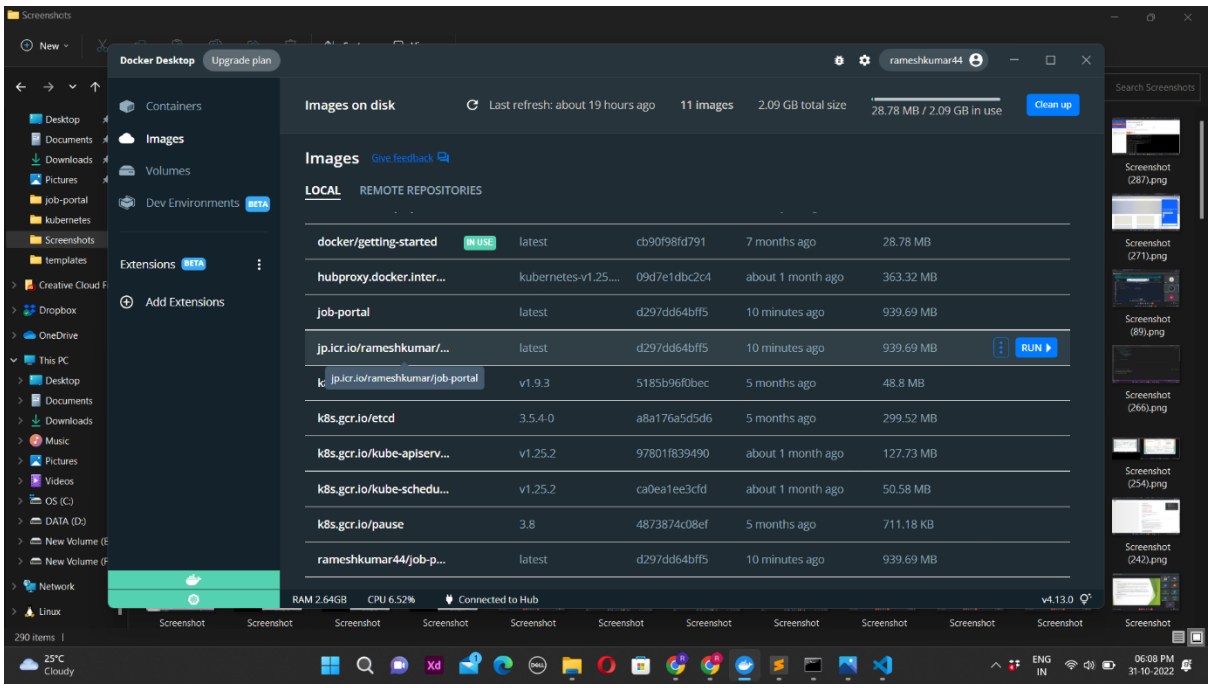

hub.docker.com/repository/docker/rameshkumar44/job-portal
Please check your inbox to verify the email associated with this account. You won't be able to create a repository or configure your Docker Hub without verifying your email address.
Security Advisory: Critical OpenSSL Vulnerability - learn how to tell if your repository is vulnerable.
docker hub
Search for great content (e.g., mysql)
Explore
Repositories
Organizations
Help
Upgrade
rameshkumar44
rameshkumar44 / Repositories / job-portal
Using 0 of 1 private repositories. Get more
General
Tags
Builds
Collaborators
Webhooks
Settings
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
rameshkumar44 / job-portal
Description
This repository does not have a description
Last pushed: 19 hours ago
Docker commands
Public View
To push a new tag to this repository,
docker push rameshkumar44/job-portal:tagname
Tags and scans
VULNERABILITY SCANNING - DISABLED
Enable
This repository contains 1 tag(s).
Tag
OS
Type
Pulled
Pushed
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
Cloudy
ENG
IN
06:00 PM
31-10-2022

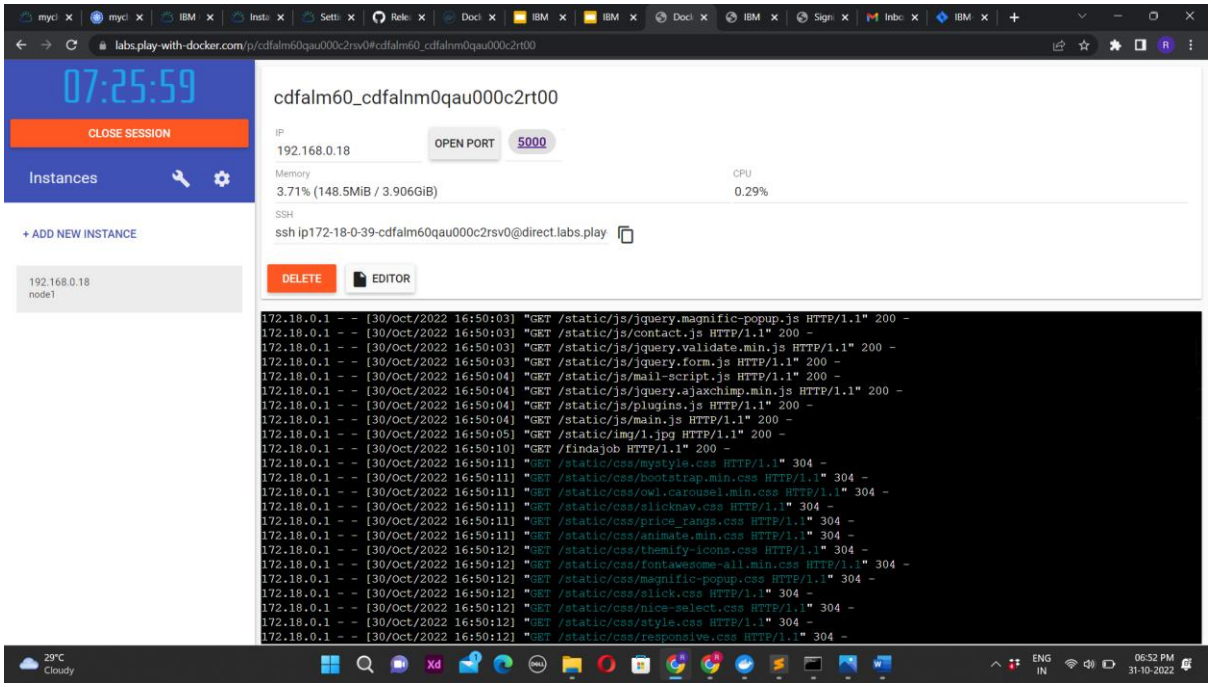

labs.play-with-docker.com/p/cdfalm60qau000c2rsv0#cdfalm60_cdfalnm0qau000c2rt00
08:17:05
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.18
node1
cdfalm60_cdfalnm0qau000c2rt00
IP
192.168.0.18
OPEN PORT
5000
Memory
3.71% (148.5MiB / 3.906GiB)
CPU
0.29%
SSH
ssh ip172-18-0-39-cdfalm60qau000c2rsv0@direct.labs.play
DELETE
EDITOR
WARNING!!!!
This is a sandbox environment. Using personal credentials is HIGHLY! discouraged. Any consequences of doing so are completely the user's responsibilites.
The PWD team.
[node1] (local) root@192.168.0.18 ~
$ docker run -p 5000:5000 rameshkumar44/job-portal:latest
Unable to find image 'rameshkumar44/job-portal:latest' locally
latest: Pulling from rameshkumar44/job-portal
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
391117b863c3: Pull complete
61e42aafc64b: Pull complete
25°C
Cloudy
ENG
IN
06:01 PM
31-10-2022



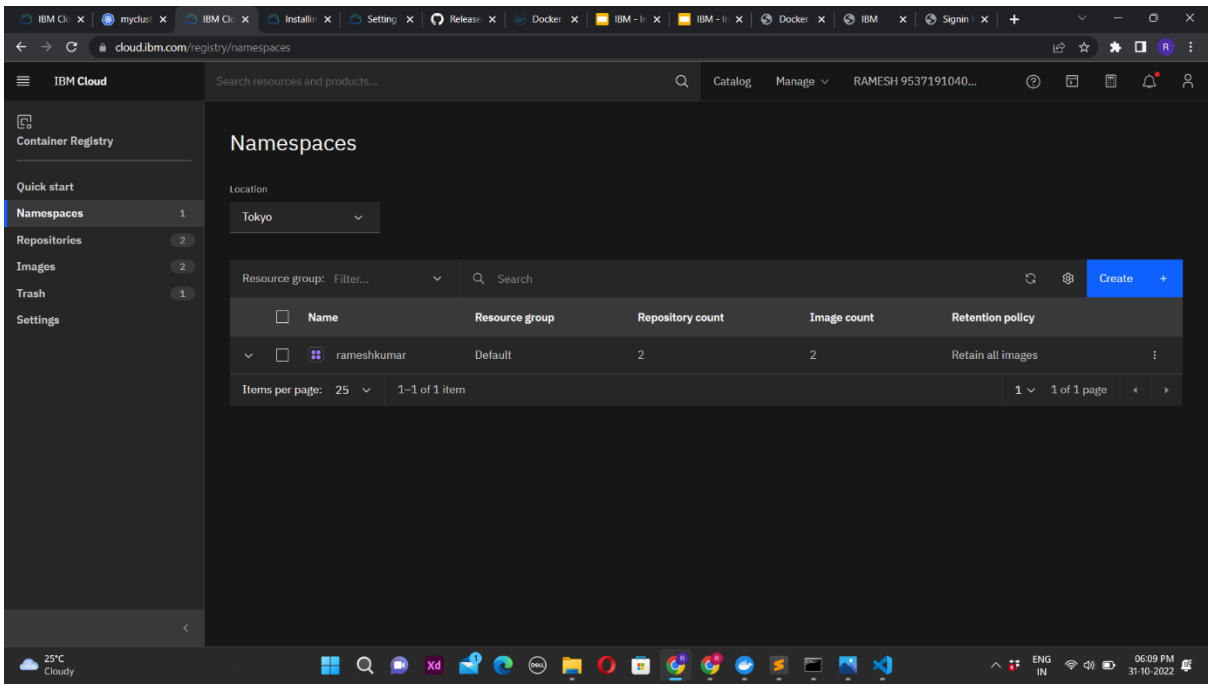
Step 2: Create a dockerfile for the job portal / flask application and deploy it in Docker desktop application.

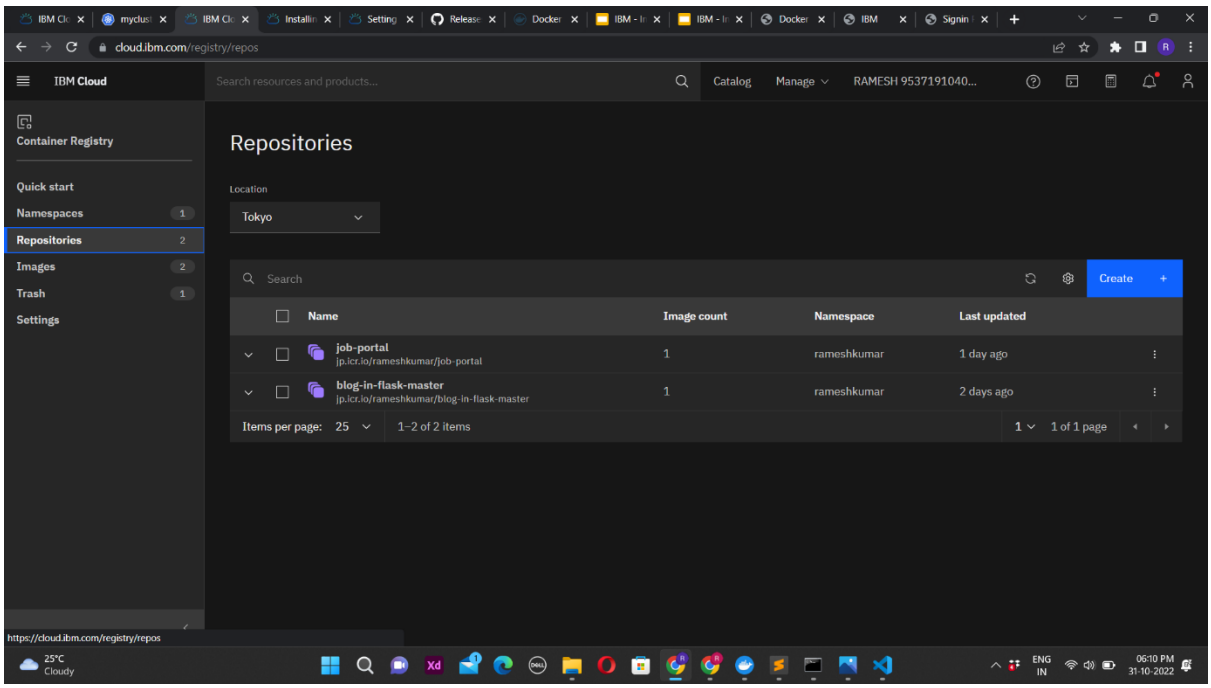


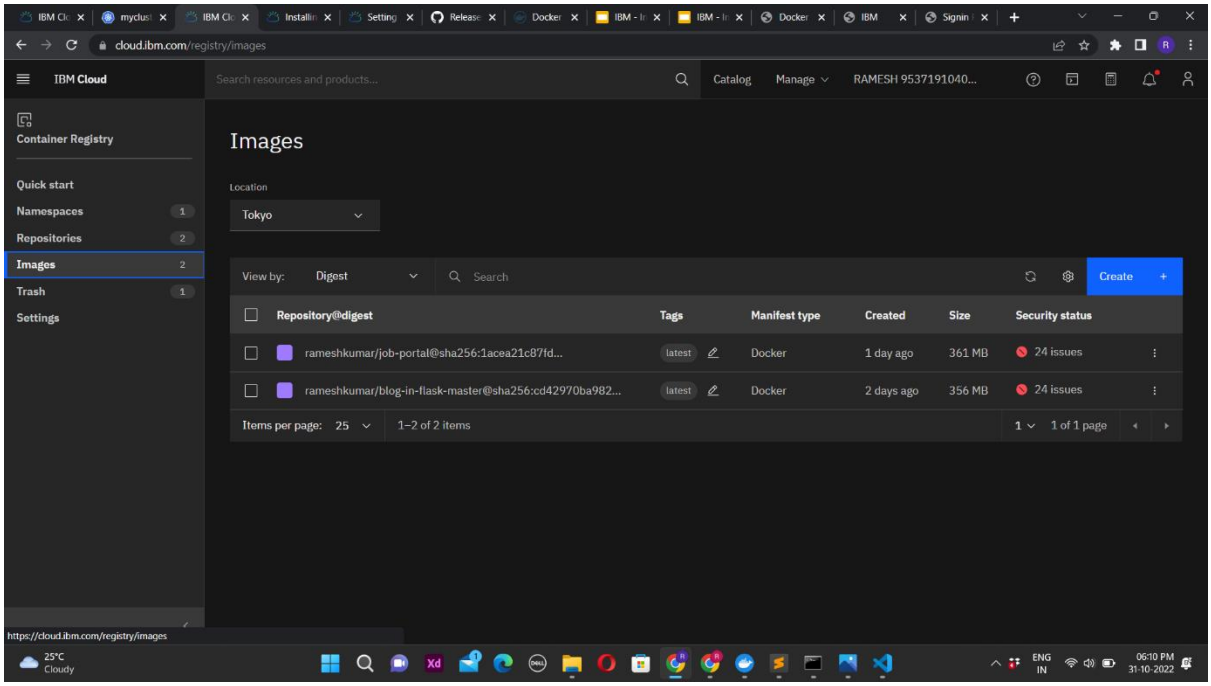

Docker Desktop
Upgrade plan
rameshkumar44
Containers
Images
Volumes
Dev Environments
Extensions
Add Extensions
Images on disk
Last refresh: about 19 hours ago
11 images
2.09 GB total size
28.78 MB / 2.09 GB in use
Clean up
Images
Give feedback
LOCAL
REMOTE REPOSITORIES
docker/getting-started
IN USE
latest
cb90f98fd791
7 months ago
28.78 MB
hubproxy.docker.inter...
kubernetes-v1.25....
09d7e1dbc2c4
about 1 month ago
363.32 MB
job-portal
latest
d297dd64bff5
10 minutes ago
939.69 MB
jp.icr.io/rameshkumar/...
latest
d297dd64bff5
10 minutes ago
939.69 MB
RUN
jp.icr.io/rameshkumar/job-portal
v1.9.3
5185b96f0bec
5 months ago
48.8 MB
k8s.gcr.io/etcd
3.5.4-0
a8a176a5d5d6
5 months ago
299.52 MB
k8s.gcr.io/kube-apiserv...
v1.25.2
97801f839490
about 1 month ago
127.73 MB
k8s.gcr.io/kube-schedu...
v1.25.2
ca0ea1ee3cfd
about 1 month ago
50.58 MB
k8s.gcr.io/pause
3.8
4873874c08ef
5 months ago
711.18 KB
rameshkumar44/job-p...
latest
d297dd64bff5
10 minutes ago
939.69 MB
RAM 2.64GB
CPU 6.52%
Connected to Hub
v4.13.0


labs.play-with-docker.com/p/cdfalm60qau000c2rsv0#cdfalm60_cdfalnm0qau000c2rt00
07:25:59
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.18
node1
cdfalm60_cdfalnm0qau000c2rt00
IP
192.168.0.18
OPEN PORT
5000
Memory
3.71% (148.5MiB / 3.906GiB)
CPU
0.29%
SSH
ssh ip172-18-0-39-cdfalm60qau000c2rsv0@direct.labs.play
DELETE
EDITOR
172.18.0.1 - - [30/Oct/2022 16:50:03] "GET /static/js/jquery.magnific-popup.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:03] "GET /static/js/contact.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:03] "GET /static/js/jquery.validate.min.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:03] "GET /static/js/jquery.form.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:04] "GET /static/js/mail-script.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:04] "GET /static/js/jquery.ajaxchimp.min.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:04] "GET /static/js/plugins.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:04] "GET /static/js/main.js HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:05] "GET /static/img/1.jpg HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:10] "GET /findajob HTTP/1.1" 200 -
172.18.0.1 - - [30/Oct/2022 16:50:11] "GET /static/css/mystyle.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:11] "GET /static/css/bootstrap.min.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:11] "GET /static/css/owl.carousel.min.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:11] "GET /static/css/slicknav.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:11] "GET /static/css/price_rangs.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:11] "GET /static/css/animate.min.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:12] "GET /static/css/themify-icons.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:12] "GET /static/css/fontawesome-all.min.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:12] "GET /static/css/magnific-popup.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:12] "GET /static/css/slick.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:12] "GET /static/css/nice-select.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:12] "GET /static/css/style.css HTTP/1.1" 304 -
172.18.0.1 - - [30/Oct/2022 16:50:12] "GET /static/css/responsive.css HTTP/1.1" 304 -

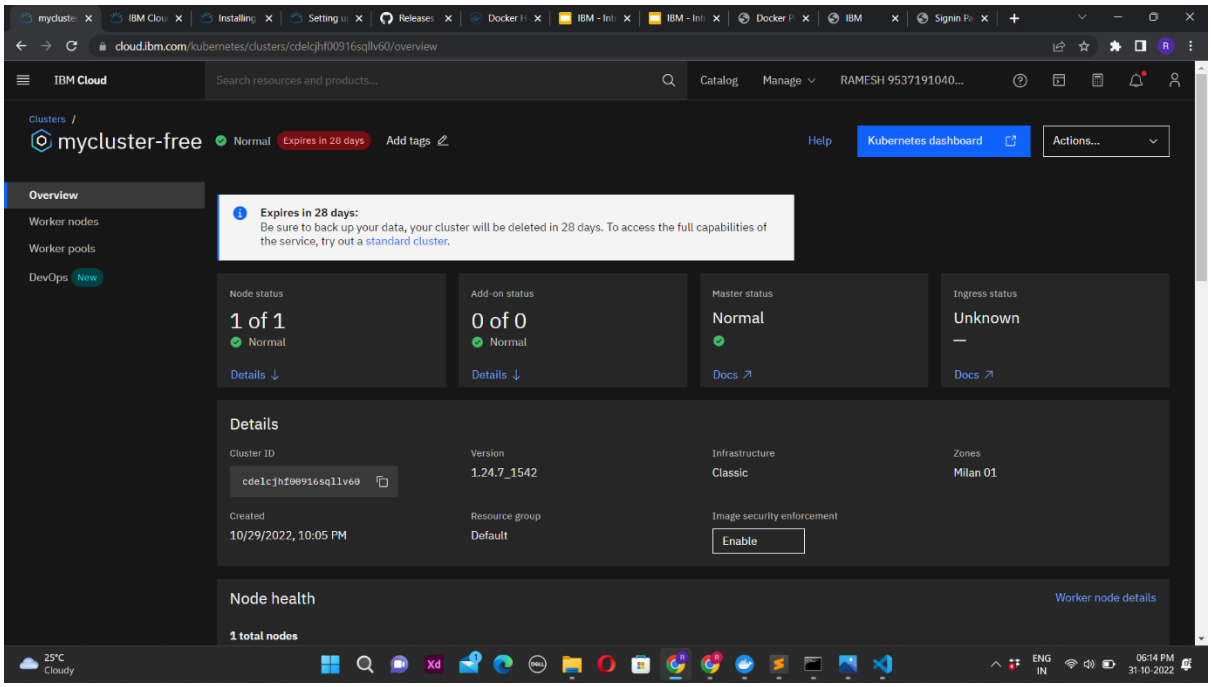
3: Create a IBM container registry and push docker image of flask application or job portal app.

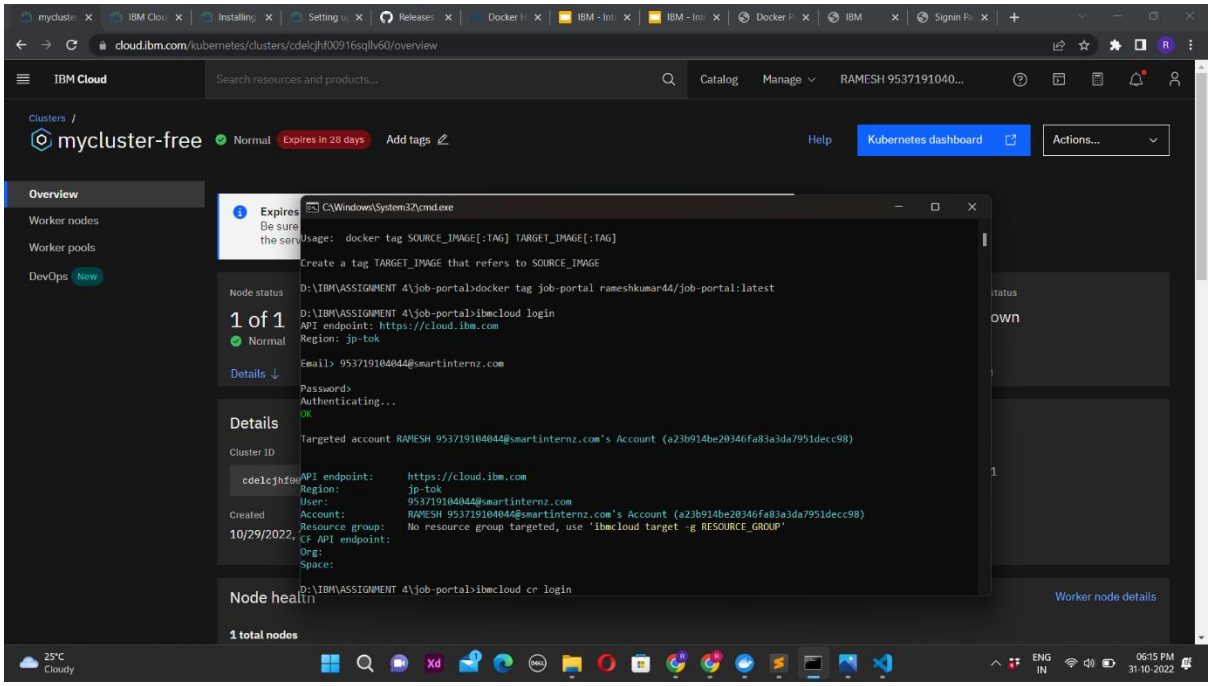


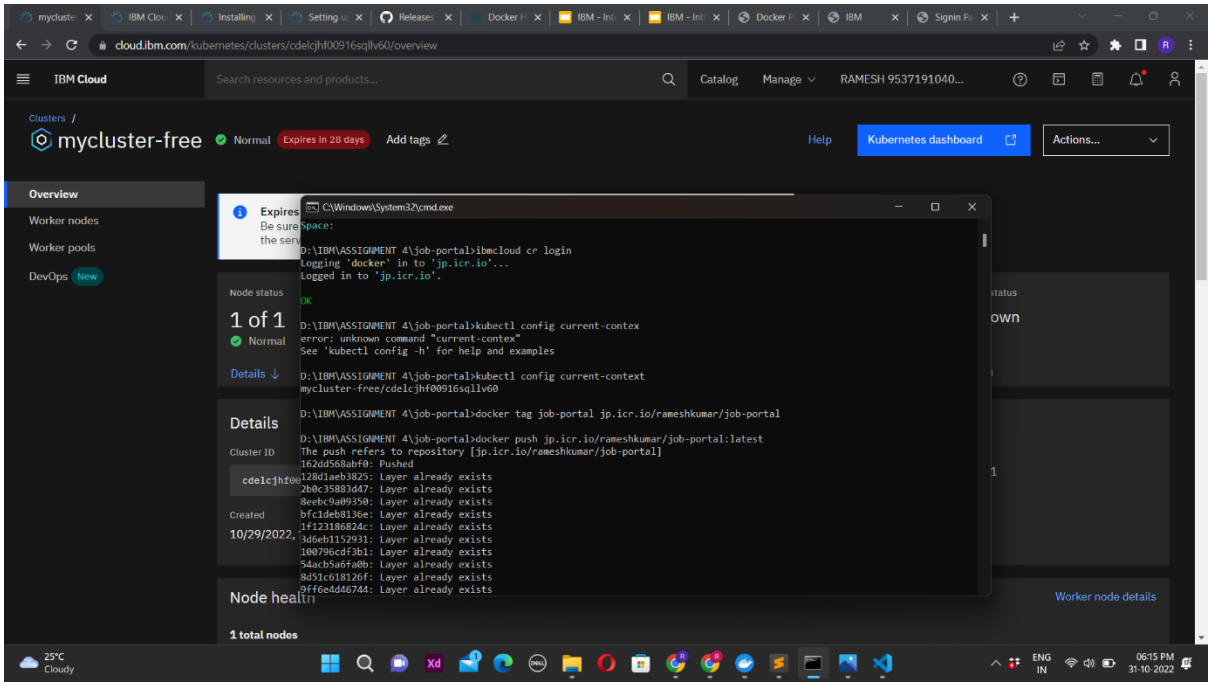


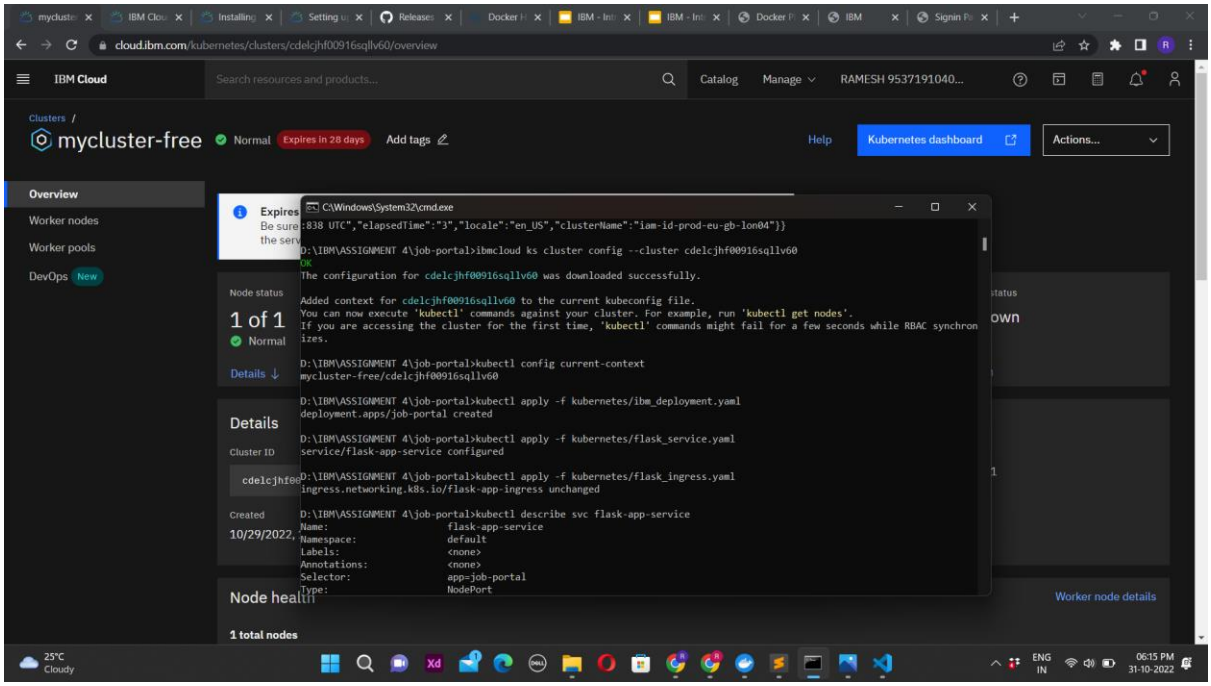


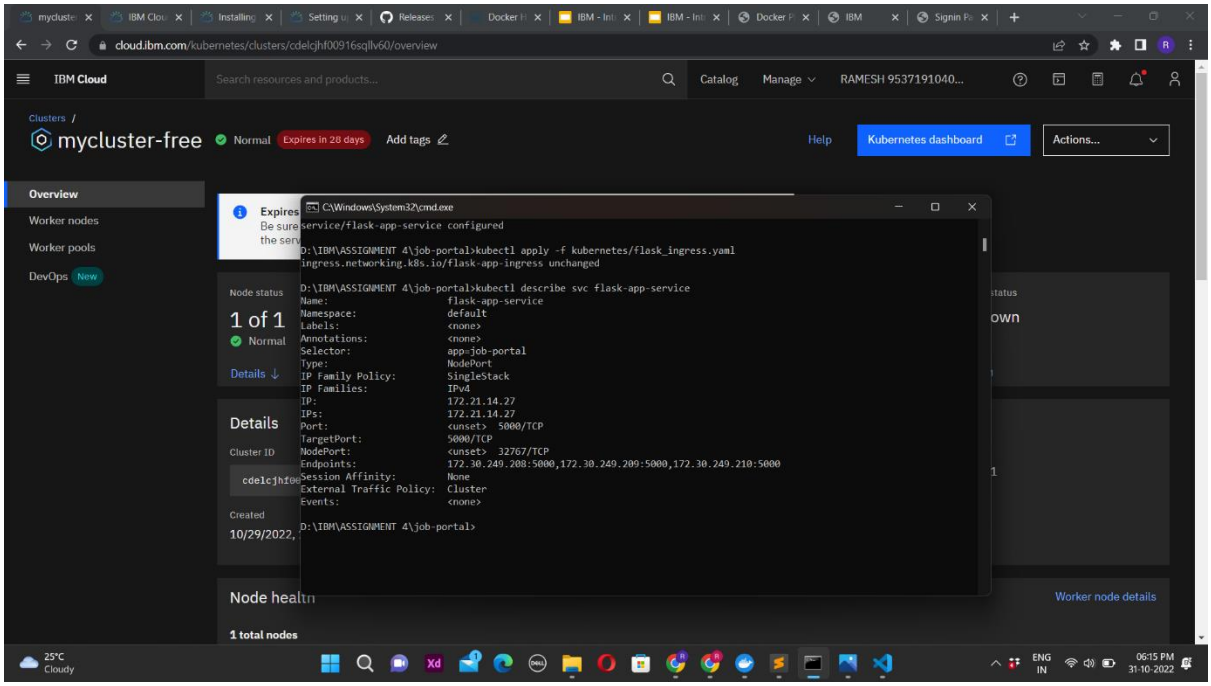
Step 4: Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in Nodeport.

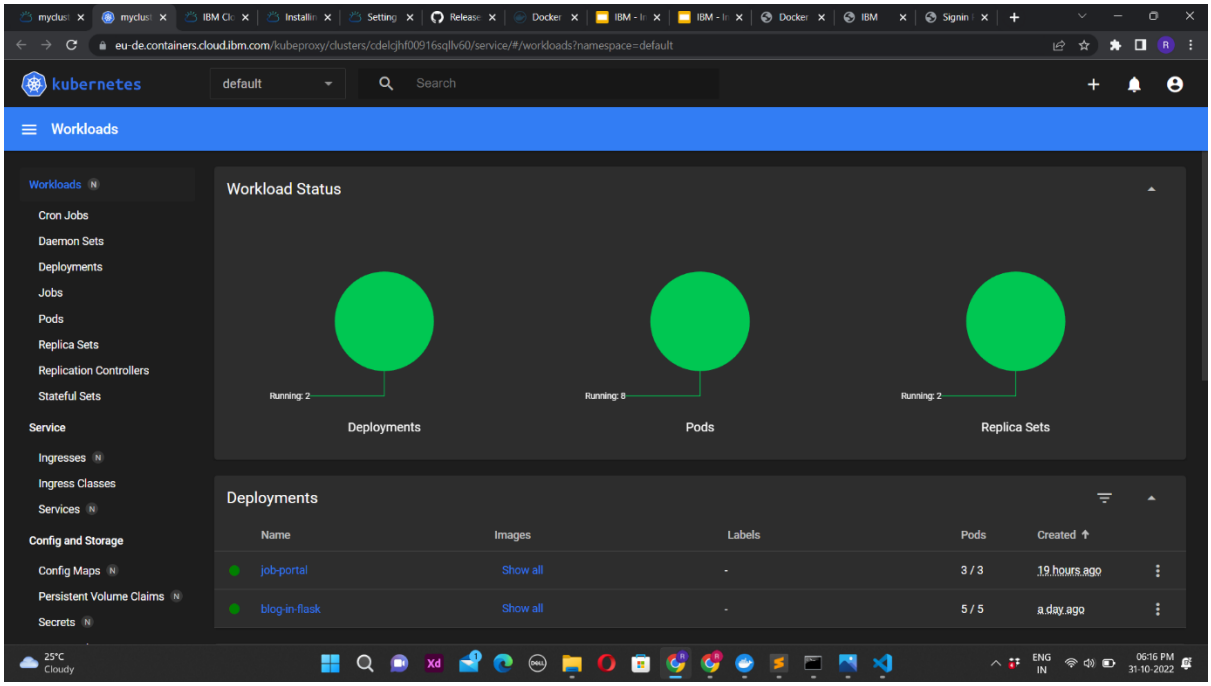


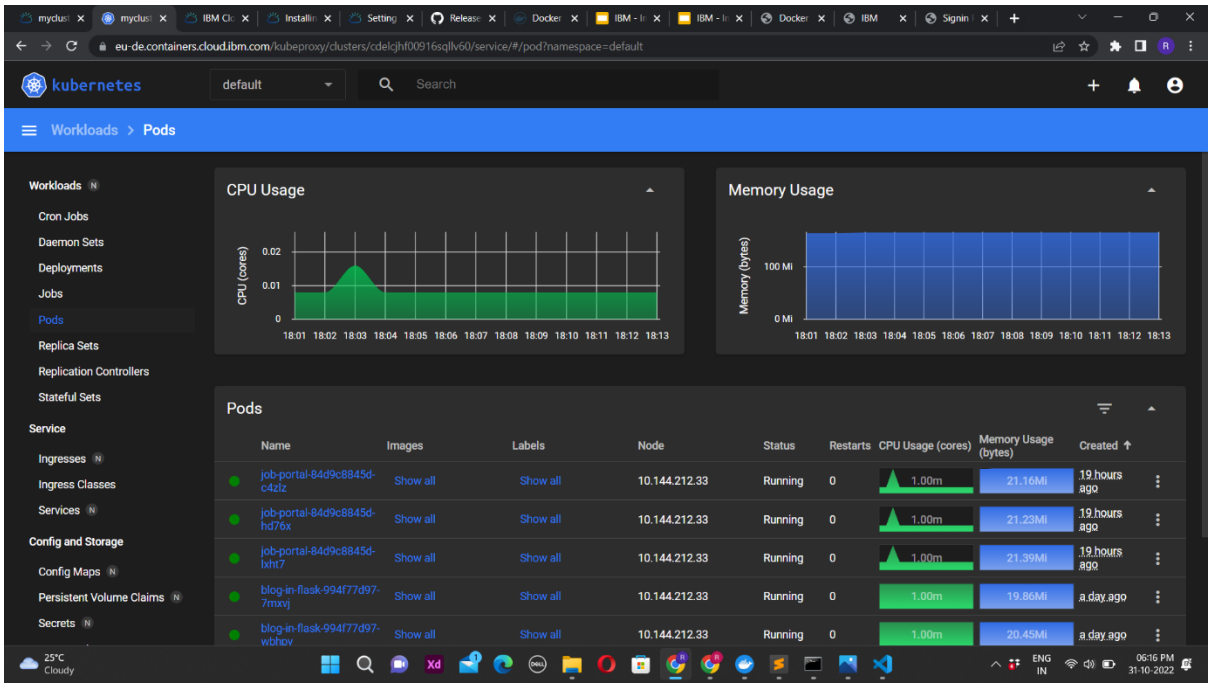

cloud.ibm.com/kubernetes/clusters/cdelcjhf00916sqllv60/overview
IBM Cloud
Search resources and products...
Catalog
Manage
RAMESH 9537191040...
Clusters /
mycluster-free
Normal
Expires in 28 days
Add tags
Help
Kubernetes dashboard
Actions...
Overview
Worker nodes
Worker pools
DevOps
New
Node status
1 of 1
Normal
Details
Cluster ID
Created
10/29/2022,
Node health
Worker node details
1 total nodes
C:\Windows\System32\cmd.exe
Usage: docker tag SOURCE_IMAGE[:TAG] TARGET_IMAGE[:TAG]
Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
D:\IBM\ASSIGNMENT 4\job-portal>docker tag job-portal rameshkumar44/job-portal:latest
D:\IBM\ASSIGNMENT 4\job-portal>ibmcloud login
API endpoint: https://cloud.ibm.com
Region: jp-tok
Email> 953719104044@smartinternz.com
Password>
Authenticating...
OK
Targeted account RAMESH 953719104044@smartinternz.com's Account (a23b914be20346fa83a3da7951decc98)
API endpoint: https://cloud.ibm.com
Region: jp-tok
User: 953719104044@smartinternz.com
Account: RAMESH 953719104044@smartinternz.com's Account (a23b914be20346fa83a3da7951decc98)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:
D:\IBM\ASSIGNMENT 4\job-portal>ibmcloud cr login
25°C
Cloudy
ENG
IN
06:15 PM
31-10-2022

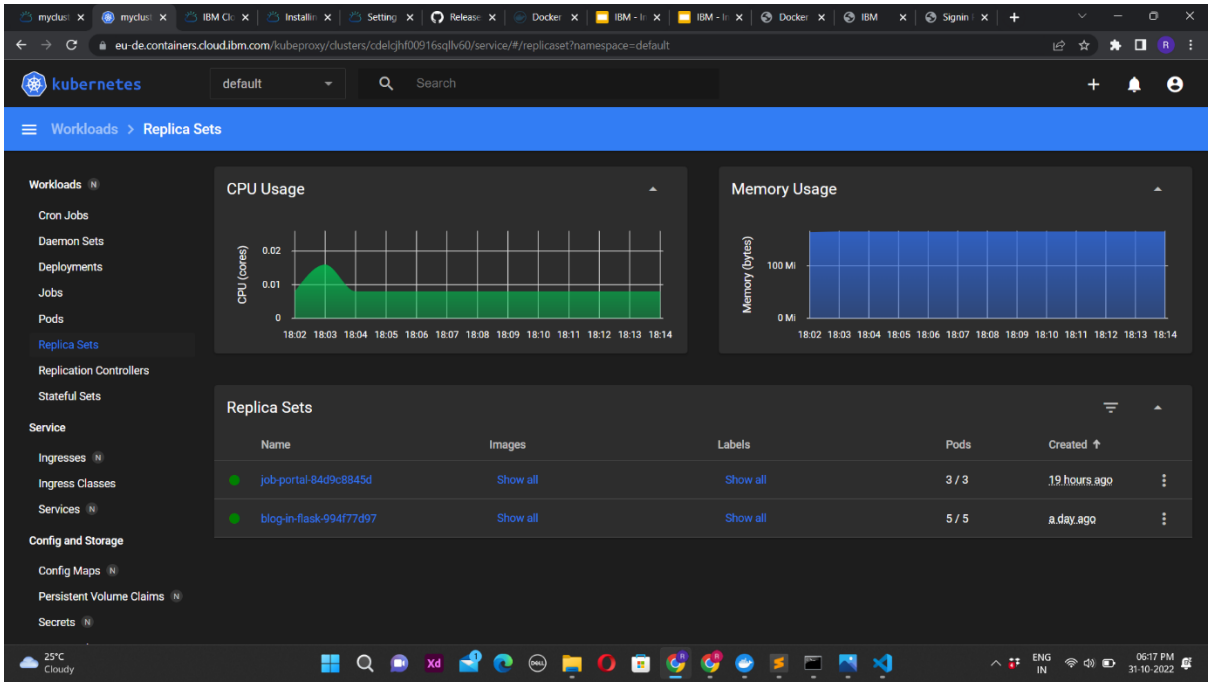

cloud.ibm.com/kubernetes/clusters/cdelcjhf00916sqllv60/overview
IBM Cloud
Search resources and products...
Catalog
Manage
RAMESH 9537191040...
Clusters /
mycluster-free
Normal
Expires in 28 days
Add tags
Help
Kubernetes dashboard
Actions...
Overview
Worker nodes
Worker pools
DevOps
New
Node status
1 of 1
Normal
Details
Cluster ID
Created
10/29/2022,
Node health
Worker node details
1 total nodes
C:\Windows\System32\cmd.exe
Space:
D:\IBM\ASSIGNMENT 4\job-portal>ibmcloud cr login
Logging 'docker' in to 'jp.icr.io'...
Logged in to 'jp.icr.io'.
OK
D:\IBM\ASSIGNMENT 4\job-portal>kubectl config current-contex
error: unknown command "current-contex"
See 'kubectl config -h' for help and examples
D:\IBM\ASSIGNMENT 4\job-portal>kubectl config current-context
mycluster-free/cdelcjhf00916sqllv60
D:\IBM\ASSIGNMENT 4\job-portal>docker tag job-portal jp.icr.io/rameshkumar/job-portal
D:\IBM\ASSIGNMENT 4\job-portal>docker push jp.icr.io/rameshkumar/job-portal:latest
The push refers to repository [jp.icr.io/rameshkumar/job-portal]
162dd568abf0: Pushed
128d1aeb3825: Layer already exists
2b0c35883d47: Layer already exists
8eebc9a09350: Layer already exists
bfc1deb8136e: Layer already exists
1f123186824c: Layer already exists
3d6eb1152931: Layer already exists
100796cdf3b1: Layer already exists
54acb5a6fa0b: Layer already exists
8d51c618126f: Layer already exists
9ff6e4d46744: Layer already exists
25°C
Cloudy
ENG
IN
06:15 PM
31-10-2022

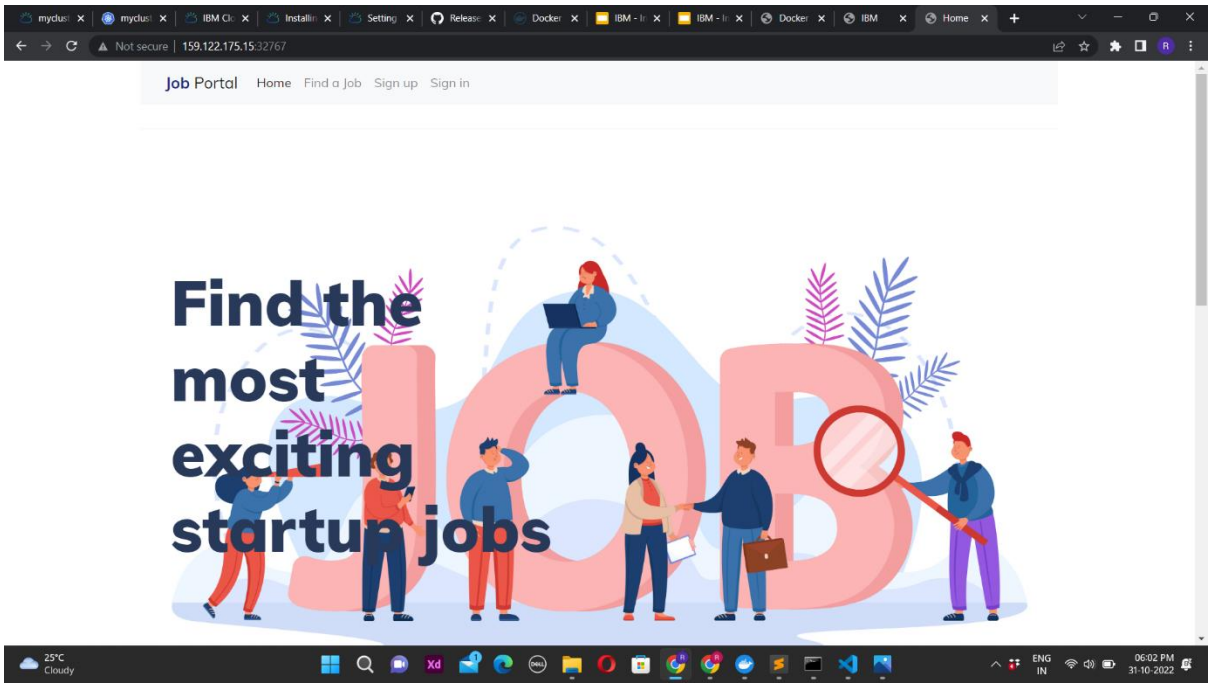

cloud.ibm.com/kubernetes/clusters/cdelcjhf00916sqllv60/overview
IBM Cloud
Search resources and products...
Catalog
Manage
RAMESH 9537191040...
Clusters /
mycluster-free
Normal
Expires in 28 days
Add tags
Help
Kubernetes dashboard
Actions...
Overview
Worker nodes
Worker pools
DevOps New
Node status
1 of 1
Normal
Details
Cluster ID
Created
10/29/2022,
Node health
1 total nodes
Worker node details
C:\Windows\System32\cmd.exe
:838 UTC","elapsedTime":"3","locale":"en_US","clusterName":"iam-id-prod-eu-gb-lon04"}}
D:\IBM\ASSIGNMENT 4\job-portal>ibmcloud ks cluster config --cluster cdelcjhf00916sqllv60
OK
The configuration for cdelcjhf00916sqllv60 was downloaded successfully.
Added context for cdelcjhf00916sqllv60 to the current kubeconfig file.
You can now execute 'kubectl' commands against your cluster. For example, run 'kubectl get nodes'.
If you are accessing the cluster for the first time, 'kubectl' commands might fail for a few seconds while RBAC synchron
izes.
D:\IBM\ASSIGNMENT 4\job-portal>kubectl config current-context
mycluster-free/cdelcjhf00916sqllv60
D:\IBM\ASSIGNMENT 4\job-portal>kubectl apply -f kubernetes/ibm_deployment.yaml
deployment.apps/job-portal created
D:\IBM\ASSIGNMENT 4\job-portal>kubectl apply -f kubernetes/flask_service.yaml
service/flask-app-service configured
D:\IBM\ASSIGNMENT 4\job-portal>kubectl apply -f kubernetes/flask_ingress.yaml
ingress.networking.k8s.io/flask-app-ingress unchanged
D:\IBM\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
25°C
Cloudy
ENG
IN
06:15 PM
31-10-2022

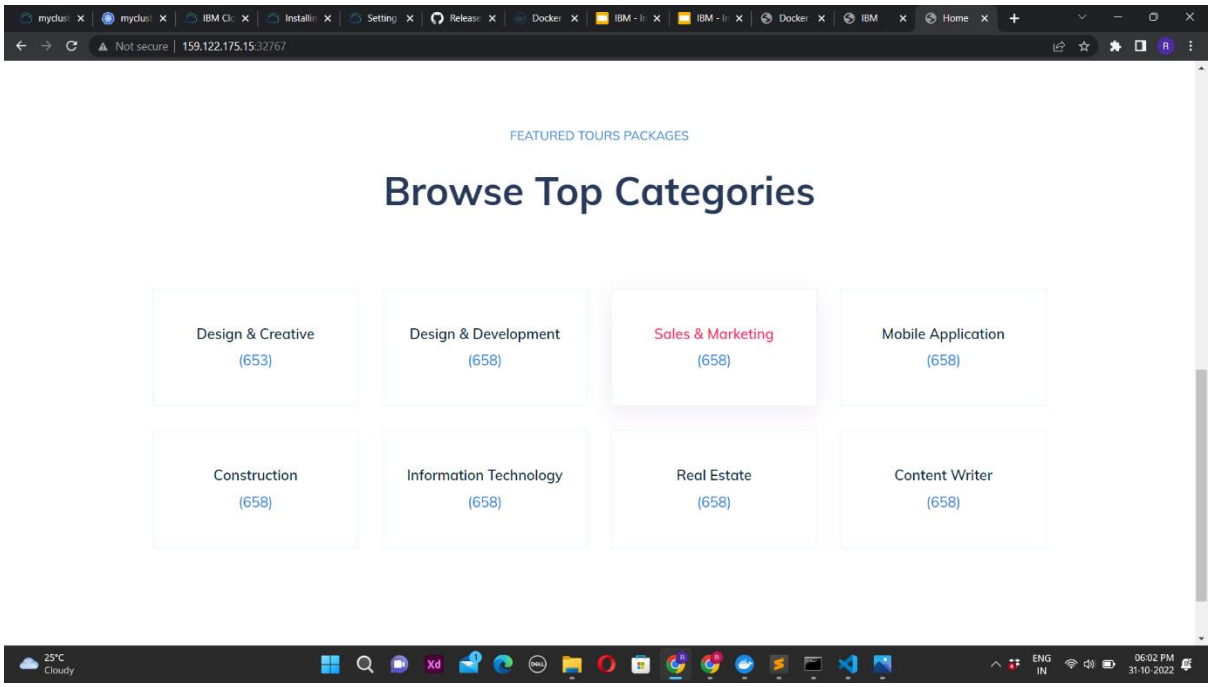

cloud.ibm.com/kubernetes/clusters/cdelcjhf00916sqllv60/overview
IBM Cloud
Search resources and products...
Catalog
Manage
RAMESH 9537191040...
Clusters /
mycluster-free
Normal
Expires in 28 days
Add tags
Help
Kubernetes dashboard
Actions...
Overview
Worker nodes
Worker pools
DevOps New
Node status
1 of 1
Normal
Details
Cluster ID
Created
10/29/2022,
Node health
1 total nodes
Worker node details
C:\Windows\System32\cmd.exe
service/flask-app-service configured
D:\IBM\ASSIGNMENT 4\job-portal>kubectl apply -f kubernetes/flask_ingress.yaml
ingress.networking.k8s.io/flask-app-ingress unchanged
D:\IBM\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: 172.21.14.27
IPs: 172.21.14.27
Port: <unset> 5000/TCP
TargetPort: 5000/TCP
NodePort: <unset> 32767/TCP
Endpoints: 172.30.249.208:5000,172.30.249.209:5000,172.30.249.210:5000
Session Affinity: None
External Traffic Policy: Cluster
Events: <none>
D:\IBM\ASSIGNMENT 4\job-portal>
25°C
Cloudy
ENG
IN
06:15 PM
31-10-2022

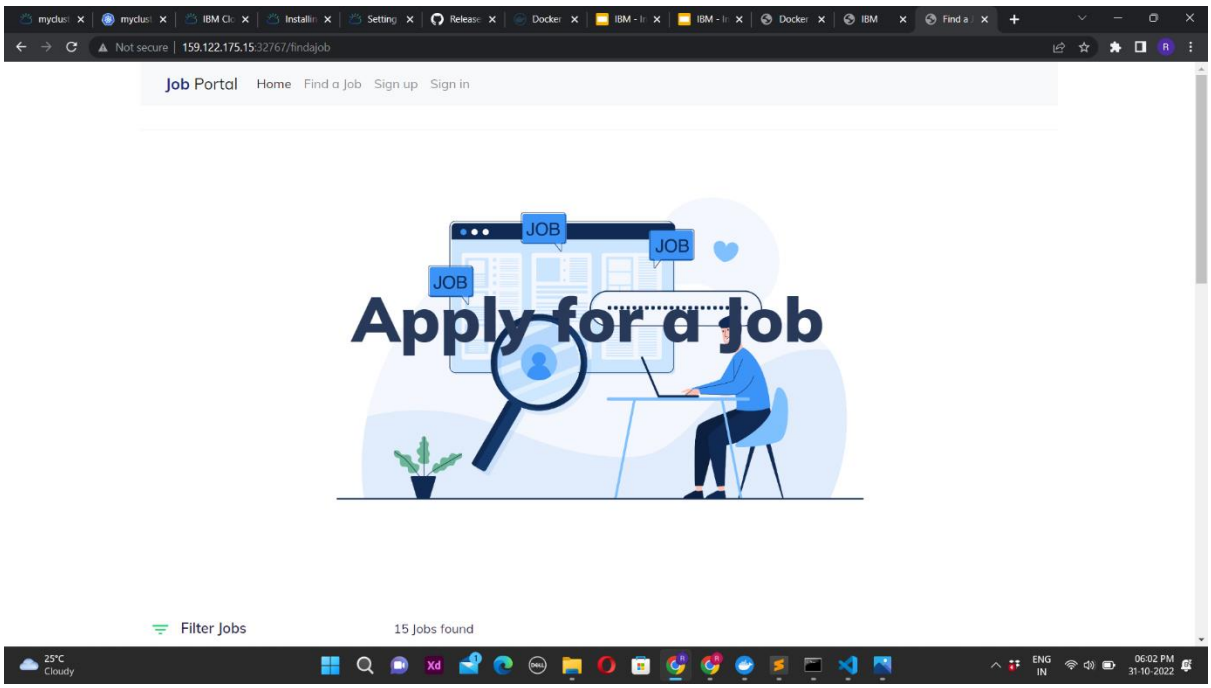

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdelcjhf00916sqllv60/service/#/workloads?namespace=default
kubernetes
default
Search
Workloads
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Config Maps
Persistent Volume Claims
Secrets
Workload Status
Running: 2
Deployments
Running: 8
Pods
Running: 2
Replica Sets
Deployments
Name
Images
Labels
Pods
Created
job-portal
Show all
-
3 / 3
19 hours ago
blog-in-flask
Show all
-
5 / 5
a day ago
25°C
Cloudy
ENG
IN
06:16 PM
31-10-2022

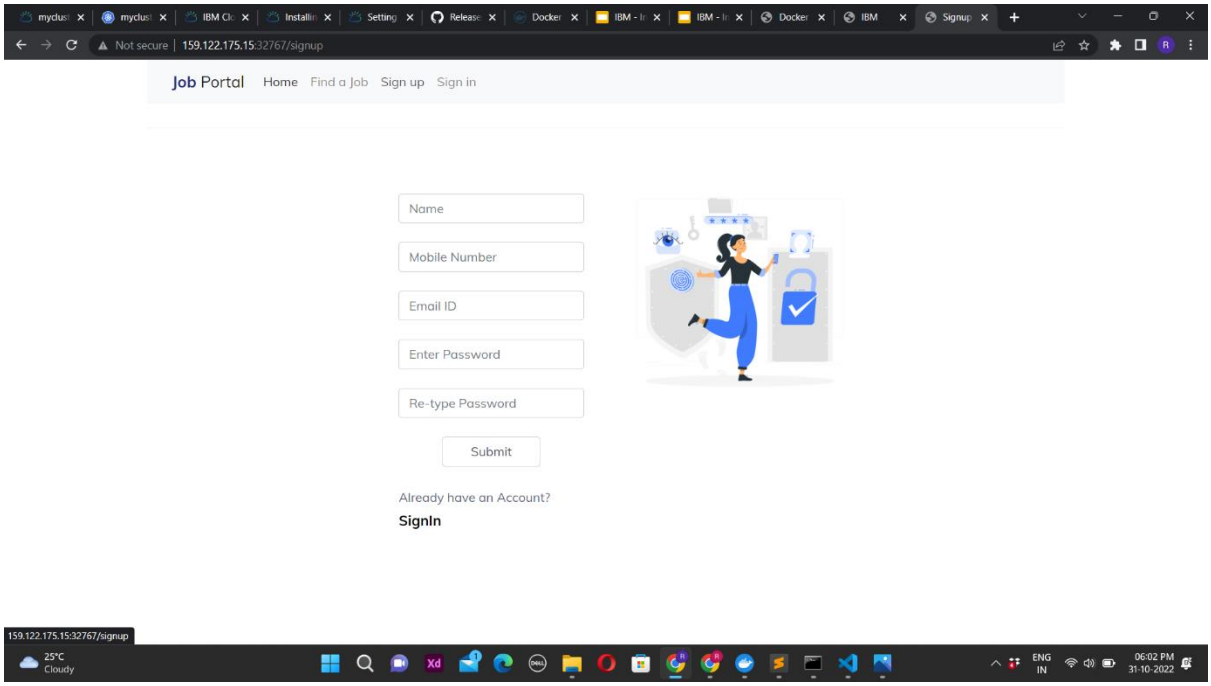

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdelcjhf00916sqllv60/service/#/pod?namespace=default
kubernetes
default
Search
Workloads > Pods
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Config Maps
Persistent Volume Claims
Secrets
CPU Usage
CPU (cores)
0.02
0.01
0
18:01 18:02 18:03 18:04 18:05 18:06 18:07 18:08 18:09 18:10 18:11 18:12 18:13
Memory Usage
Memory (bytes)
100 Mi
0 Mi
18:01 18:02 18:03 18:04 18:05 18:06 18:07 18:08 18:09 18:10 18:11 18:12 18:13
Pods
Name
Images
Labels
Node
Status
Restarts
CPU Usage (cores)
Memory Usage (bytes)
Created
job-portal-84d9c8845d-c4zlz
Show all
Show all
10.144.212.33
Running
0
1.00m
21.16Mi
19 hours ago
job-portal-84d9c8845d-hd76x
Show all
Show all
10.144.212.33
Running
0
1.00m
21.23Mi
19 hours ago
job-portal-84d9c8845d-lxht7
Show all
Show all
10.144.212.33
Running
0
1.00m
21.39Mi
19 hours ago
blog-in-flask-994f77d97-7mxvj
Show all
Show all
10.144.212.33
Running
0
1.00m
19.86Mi
a day ago
blog-in-flask-994f77d97-wbhbv
Show all
Show all
10.144.212.33
Running
0
1.00m
20.45Mi
a day ago
25°C
Cloudy
ENG
IN
06:16 PM
31-10-2022

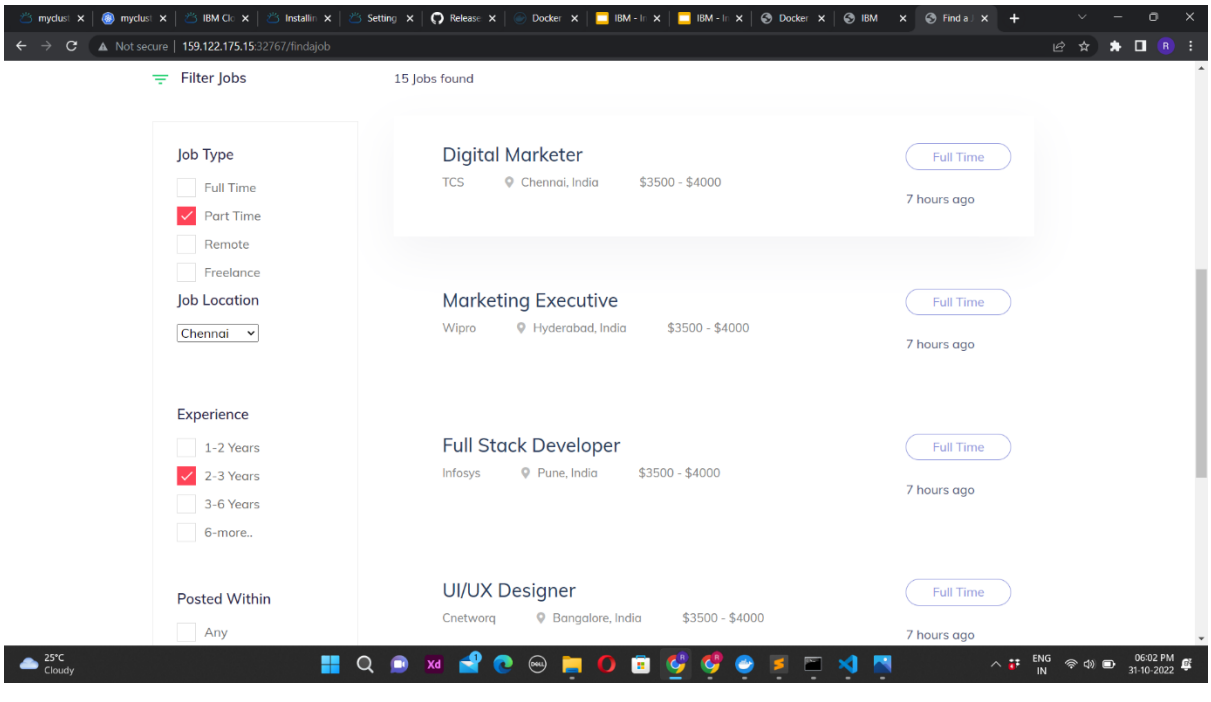

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdeljhf00916sqllv60/service/#/replicaset?namespace=default
kubernetes
default
Search
Workloads > Replica Sets
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Config Maps
Persistent Volume Claims
Secrets
CPU Usage
CPU (cores)
0.02
0.01
0
18:02 18:03 18:04 18:05 18:06 18:07 18:08 18:09 18:10 18:11 18:12 18:13 18:14
Memory Usage
Memory (bytes)
100 Mi
0 Mi
18:02 18:03 18:04 18:05 18:06 18:07 18:08 18:09 18:10 18:11 18:12 18:13 18:14
Replica Sets
Name
Images
Labels
Pods
Created
job-portal-84d9c8845d
Show all
Show all
3 / 3
19 hours ago
blog-in-flask-994f77d97
Show all
Show all
5 / 5
a day ago
25°C
Cloudy
ENG
IN
06:17 PM
31-10-2022

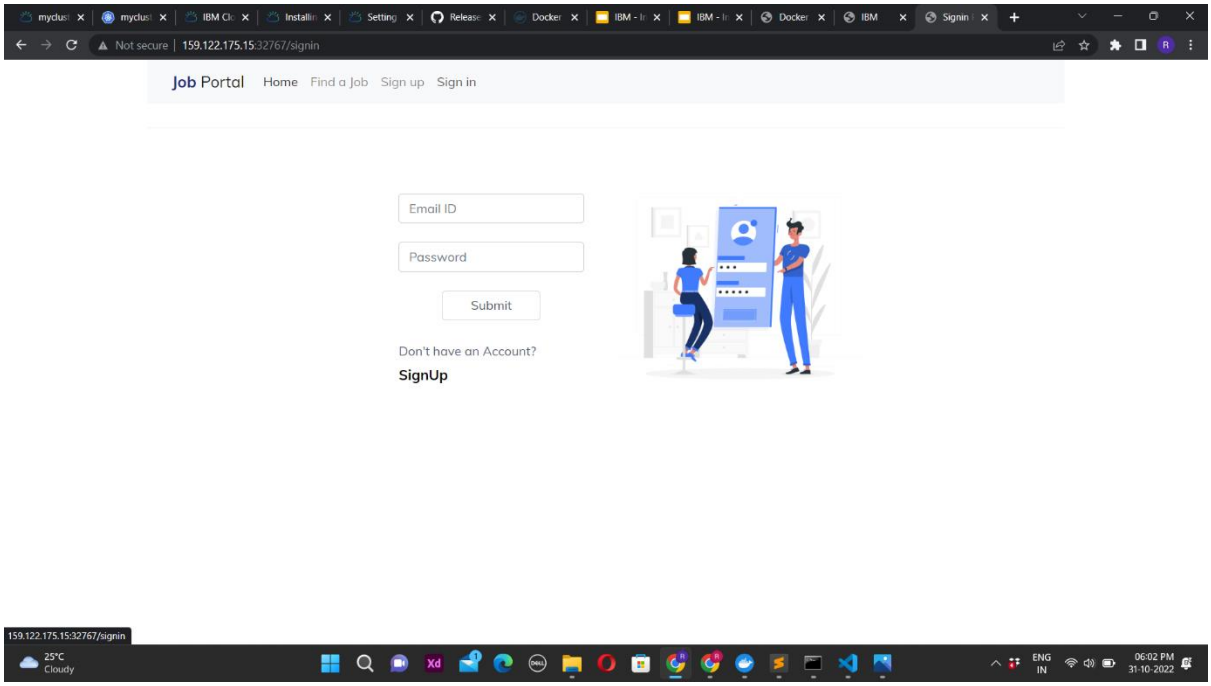

Not secure
159.122.175.15:32767
Job Portal
Home
Find a Job
Sign up
Sign in
Find the most exciting startup jobs
25°C
Cloudy
ENG
IN
06:02 PM
31-10-2022


Not secure 159.122.175.15:32767
FEATURED TOURS PACKAGES
Browse Top Categories
Design & Creative
(653)
Design & Development
(658)
Sales & Marketing
(658)
Mobile Application
(658)
Construction
(658)
Information Technology
(658)
Real Estate
(658)
Content Writer
(658)


Not secure 159.122.175.15:32767/findajob
Job Portal
Home
Find a Job
Sign up
Sign in
JOB
JOB
JOB
Apply for a job
Filter Jobs
15 Jobs found


Not secure | 159.122.175.15:32767/signup
Job Portal
Home
Find a Job
Sign up
Sign in
Name
Mobile Number
Email ID
Enter Password
Re-type Password
Submit
Already have an Account?
SignIn
159.122.175.15:32767/signup


Not secure | 159.122.175.15:32767/findajob
Filter Jobs
15 Jobs found
Job Type
Full Time
Part Time
Remote
Freelance
Job Location
Chennai
Experience
1-2 Years
2-3 Years
3-6 Years
6-more..
Posted Within
Any
Digital Marketer
TCS
Chennai, India
$3500 - $4000
Full Time
7 hours ago
Marketing Executive
Wipro
Hyderabad, India
$3500 - $4000
Full Time
7 hours ago
Full Stack Developer
Infosys
Pune, India
$3500 - $4000
Full Time
7 hours ago
UI/UX Designer
Cnetworq
Bangalore, India
$3500 - $4000
Full Time
7 hours ago



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

http://159.122.175.15:32767/