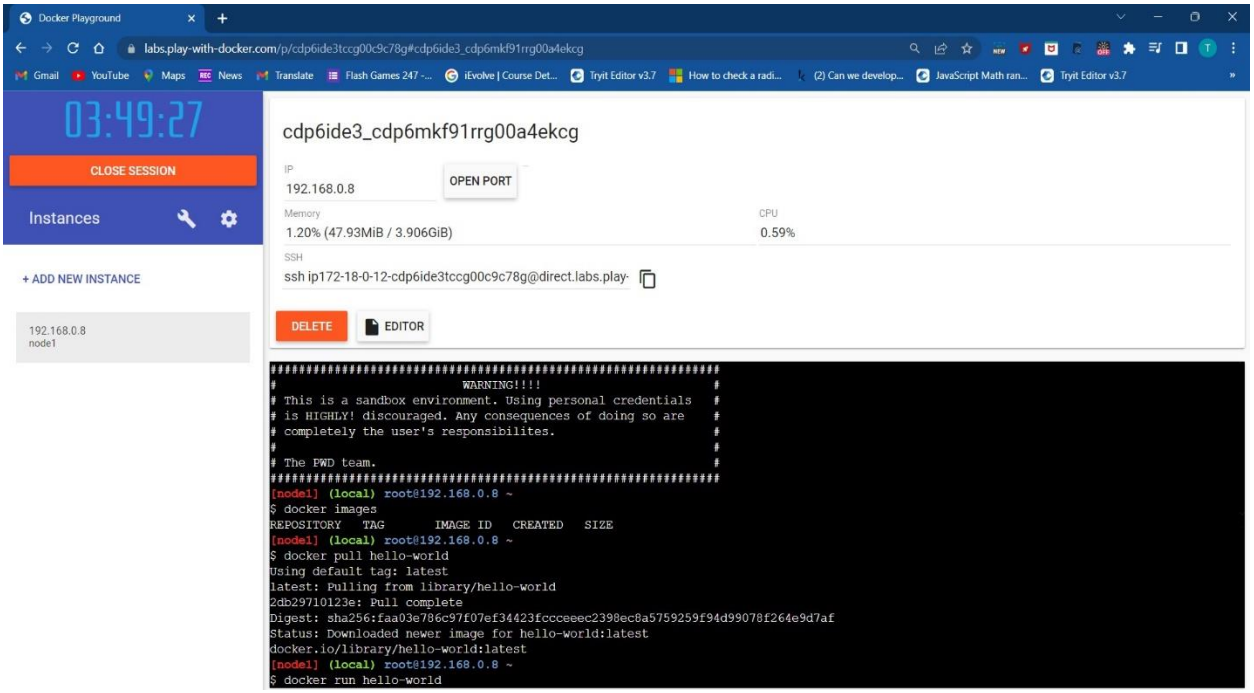
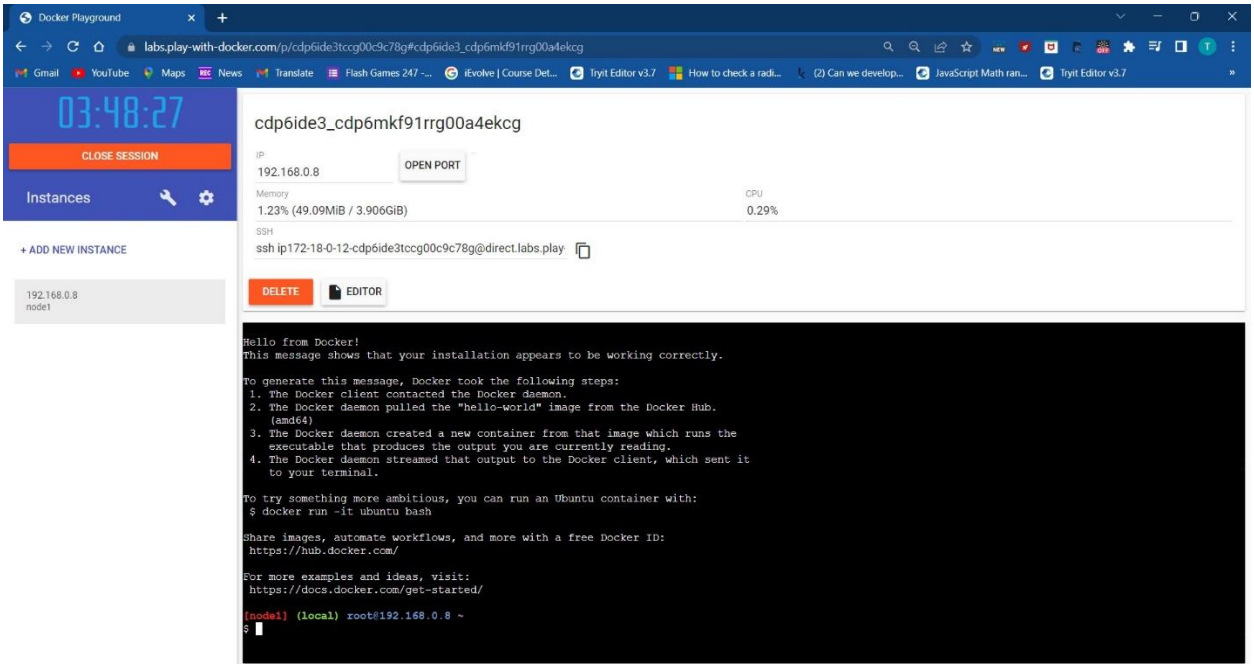
# Assignment – 4

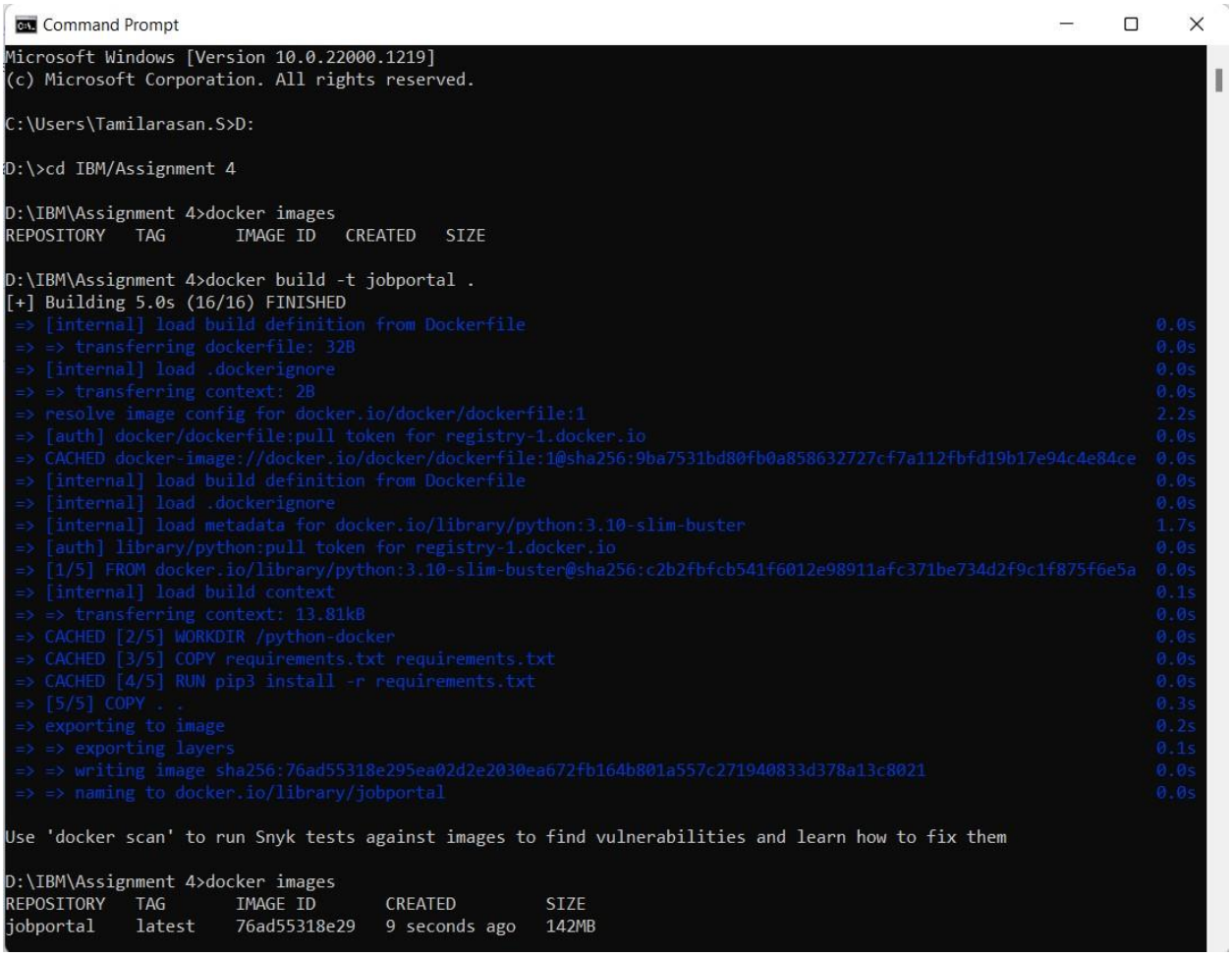
| Assignment Date | 02.11.2022 |
|---|---|
| Student Name | Tamilarasan S |
| Student Roll no | 2116191001104 |
| Maximum Marks | 2 Marks |

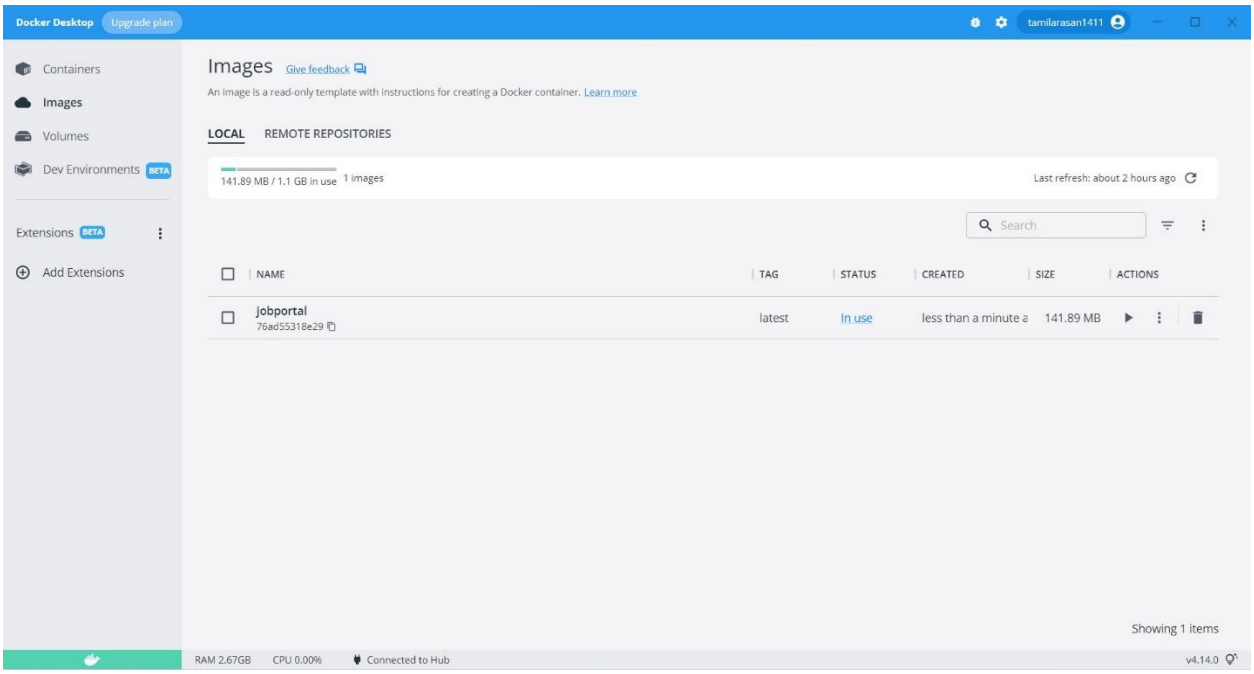
1. Pull an Image from docker hub and run it in docker playground.

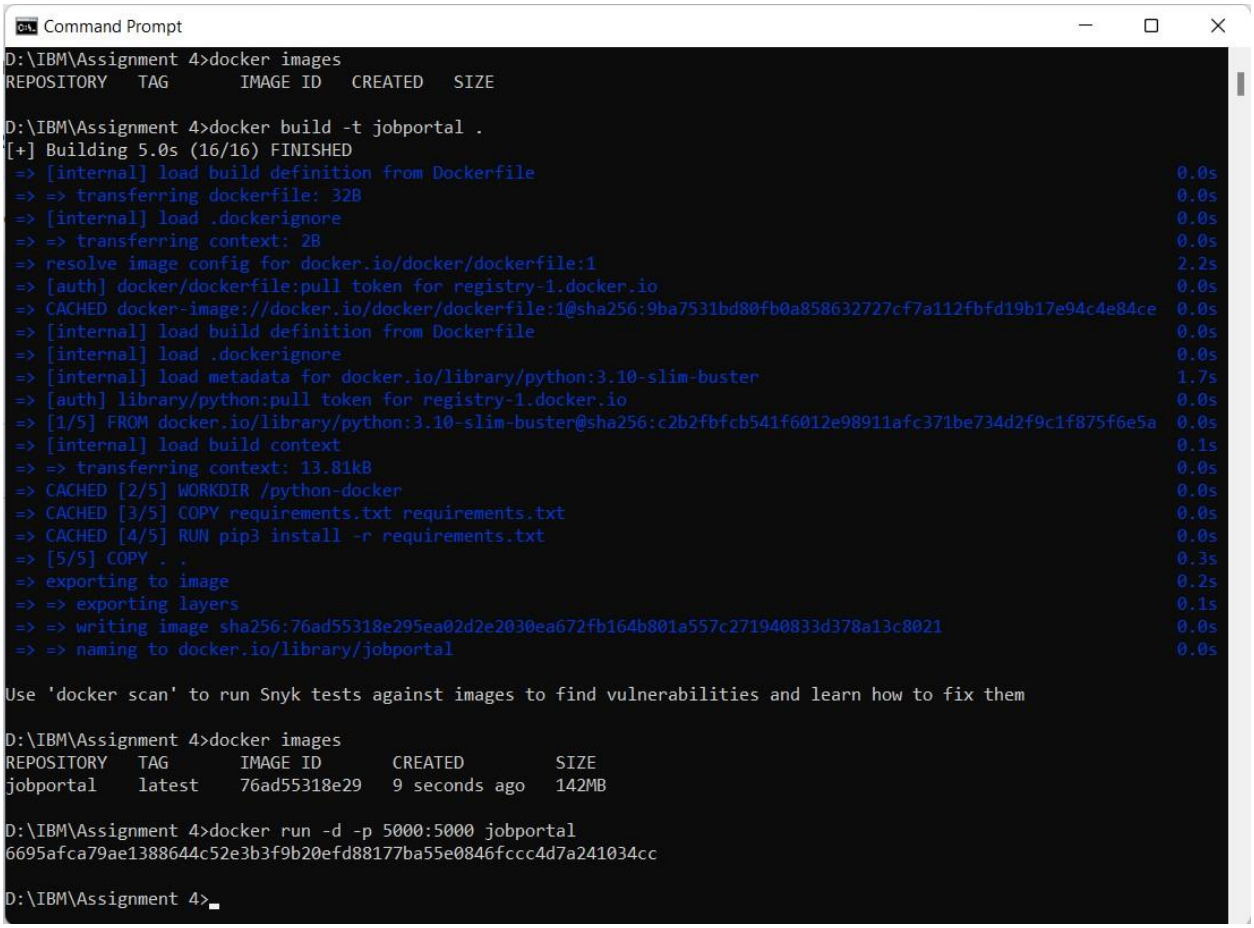


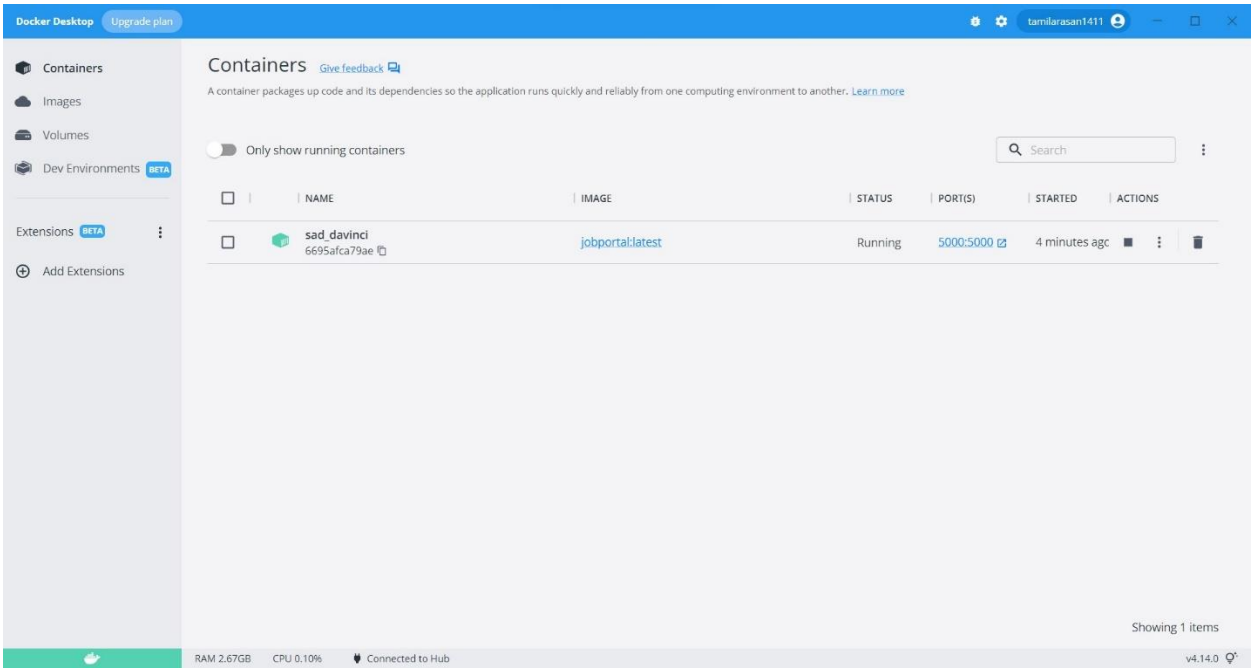



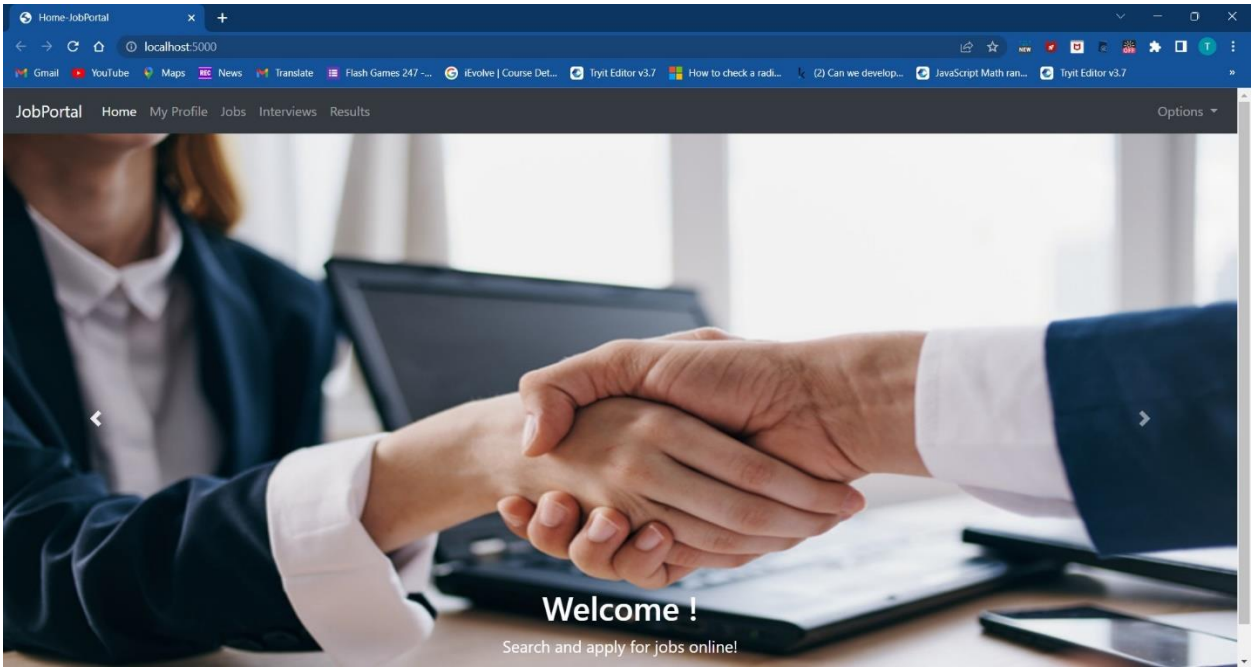
2. Create a docker file for the jobportal application and deploy it in Docker desktop application.



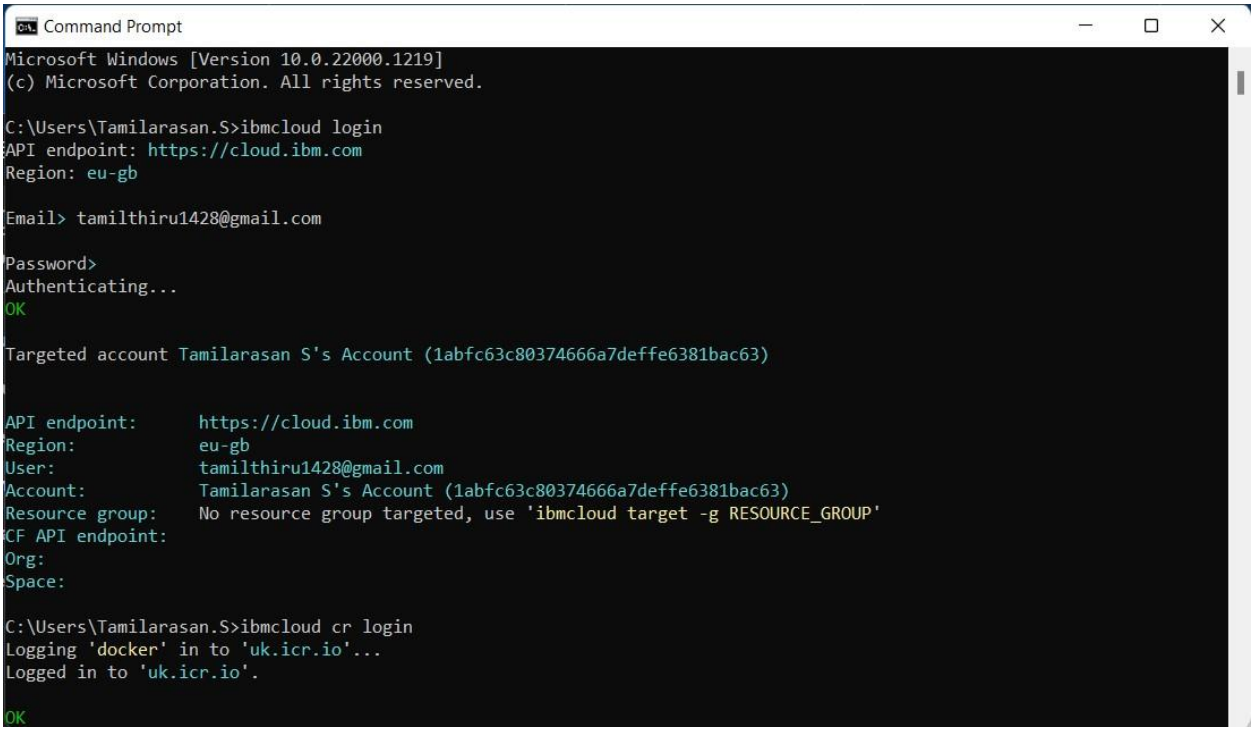



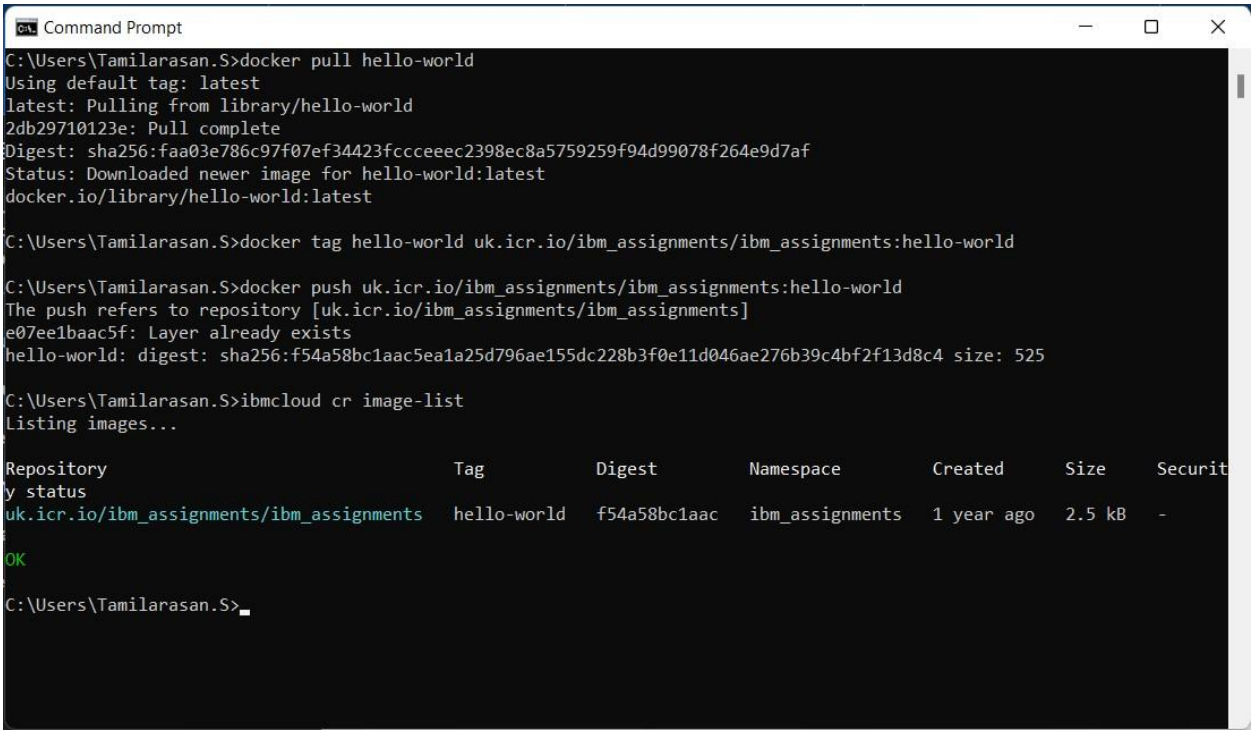

Command Prompt
D:\IBM\Assignment 4>docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
D:\IBM\Assignment 4>docker build -t jobportal .
[+] Building 5.0s (16/16) FINISHED
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 32B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> resolve image config for docker.io/docker/dockerfile:1 2.2s
=> [auth] docker/dockerfile:pull token for registry-1.docker.io 0.0s
=> CACHED docker-image://docker.io/docker/dockerfile:1@sha256:9ba7531bd80fb0a858632727cf7a112fbfd19b17e94c4e84ce 0.0s
=> [internal] load build definition from Dockerfile 0.0s
=> [internal] load .dockerignore 0.0s
=> [internal] load metadata for docker.io/library/python:3.10-slim-buster 1.7s
=> [auth] library/python:pull token for registry-1.docker.io 0.0s
=> [1/5] FROM docker.io/library/python:3.10-slim-buster@sha256:c2b2fbfcb541f6012e98911afc371be734d2f9c1f875f6e5a 0.0s
=> [internal] load build context 0.1s
=> => transferring context: 13.81kB 0.0s
=> CACHED [2/5] WORKDIR /python-docker 0.0s
=> CACHED [3/5] COPY requirements.txt requirements.txt 0.0s
=> CACHED [4/5] RUN pip3 install -r requirements.txt 0.0s
=> [5/5] COPY . . 0.3s
=> exporting to image 0.2s
=> => exporting layers 0.1s
=> => writing image sha256:76ad55318e295ea02d2e2030ea672fb164b801a557c271940833d378a13c8021 0.0s
=> => naming to docker.io/library/jobportal 0.0s
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
D:\IBM\Assignment 4>docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
jobportal latest 76ad55318e29 9 seconds ago 142MB
D:\IBM\Assignment 4>docker run -d -p 5000:5000 jobportal
6695afca79ae1388644c52e3b3f9b20efd88177ba55e0846fccc4d7a241034cc
D:\IBM\Assignment 4>

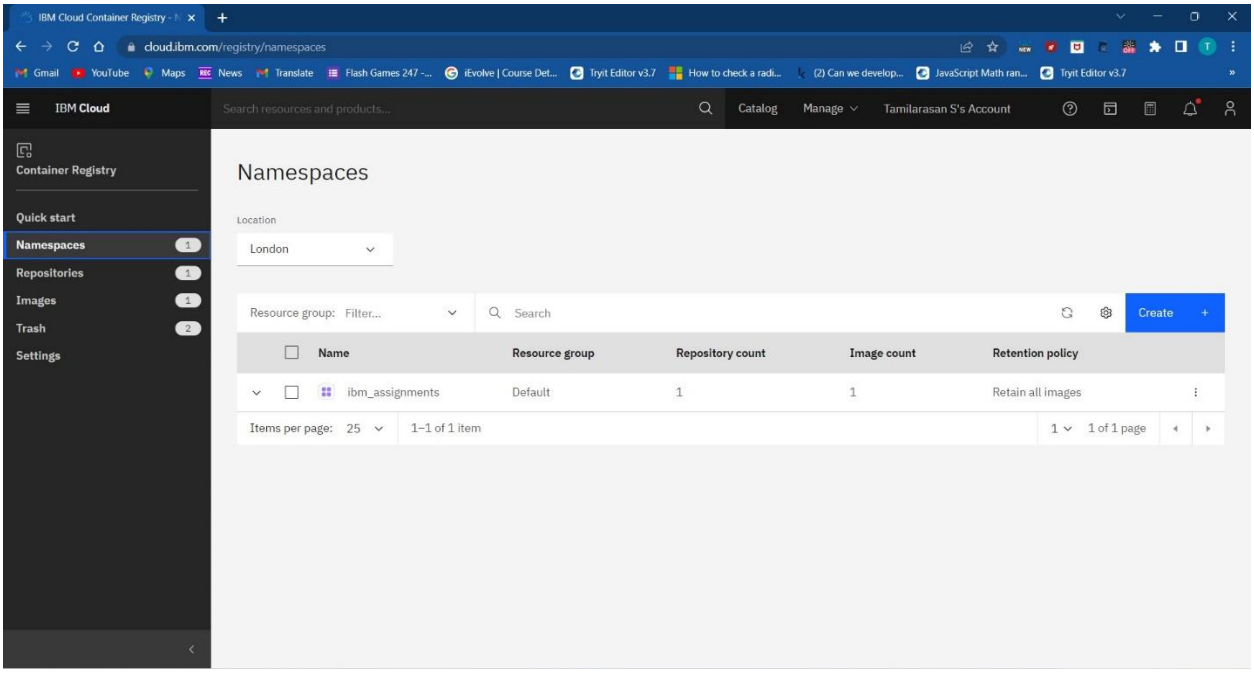

Docker Desktop
Upgrade plan
tamilarasan1411
Containers
Images
Volumes
Dev Environments BETA
Extensions BETA
Add Extensions
Containers
Give feedback
A container packages up code and its dependencies so the application runs quickly and reliably from one computing environment to another. Learn more
Only show running containers
Search
NAME
IMAGE
STATUS
PORT(S)
STARTED
ACTIONS
sad_davinci
6695afca79ae
jobportal:latest
Running
5000:5000
4 minutes ago
Showing 1 items
RAM 2.67GB
CPU 0.10%
Connected to Hub
v4.14.0

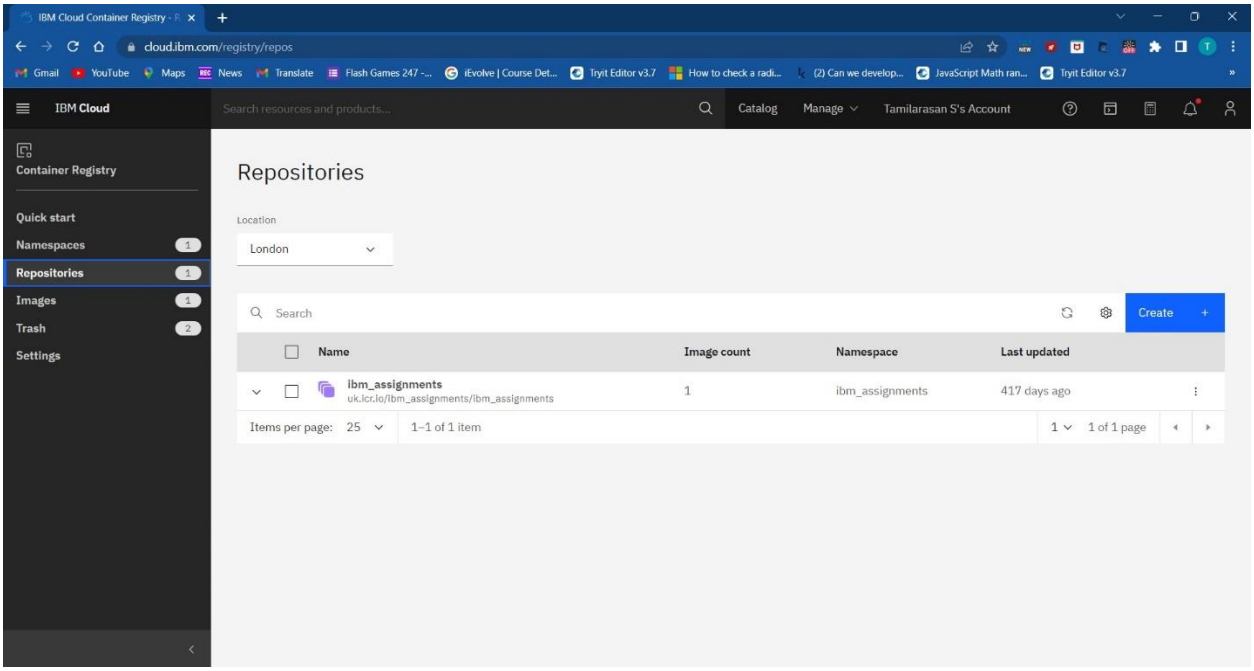


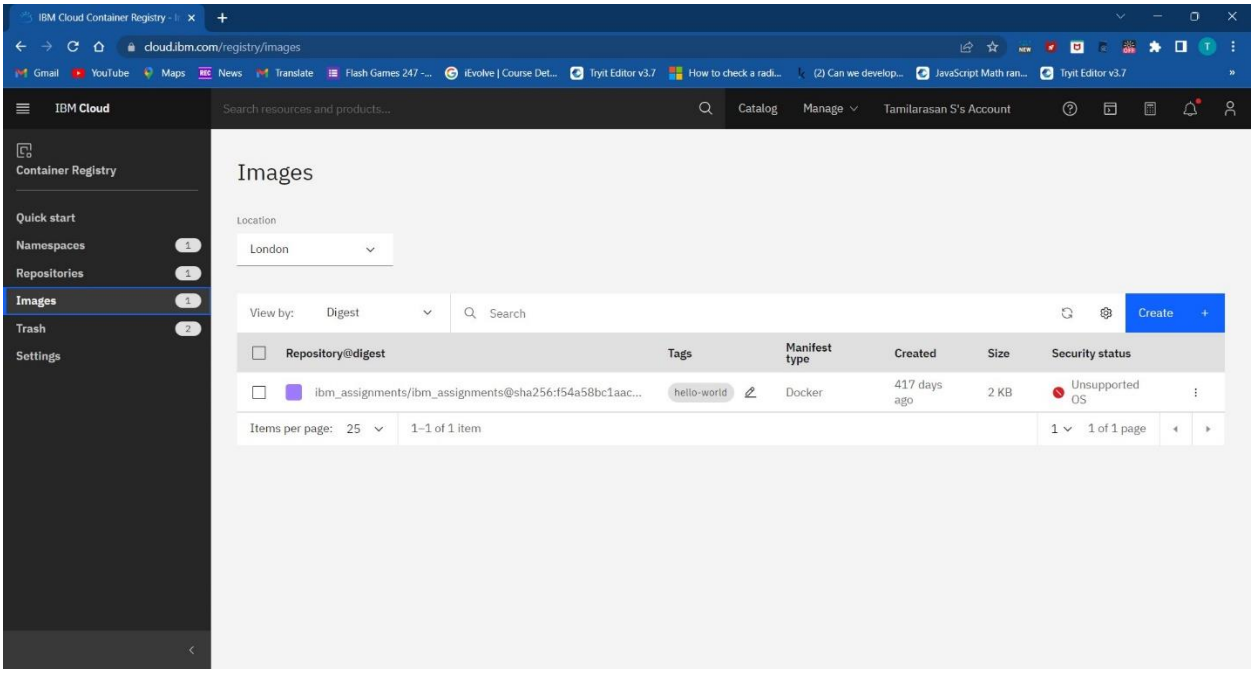

3. Create a IBM container registry and deploy helloworld app or jobportalapp.



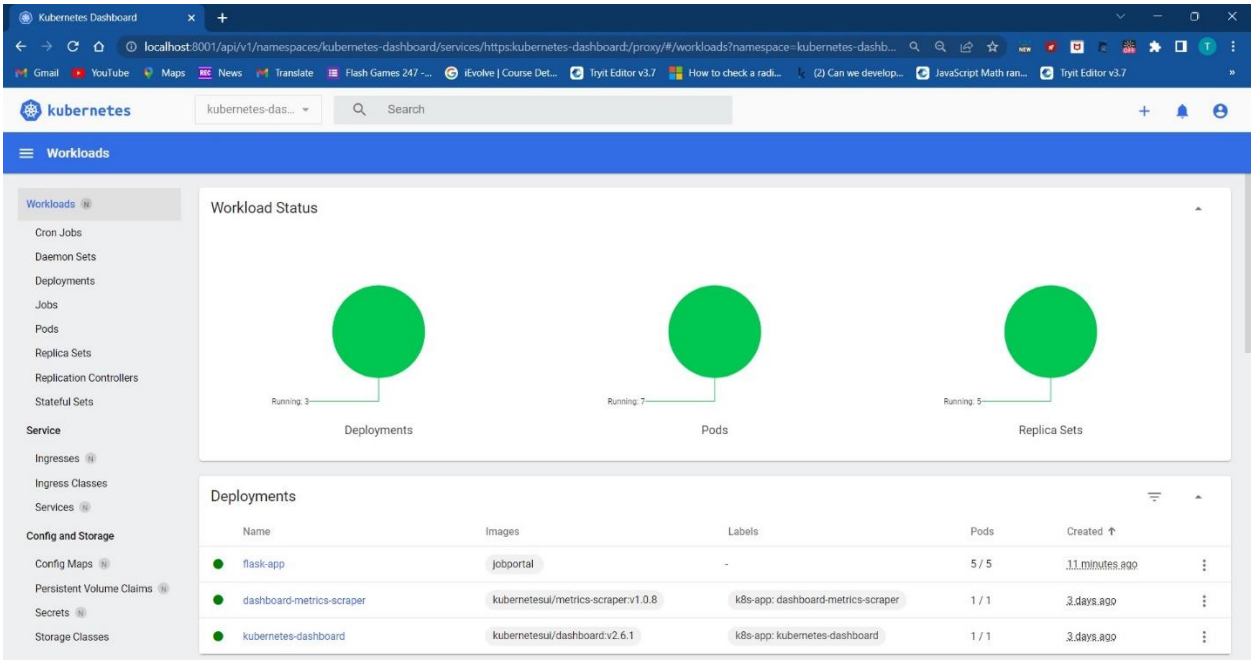

Command Prompt
C:\Users\Tamilarasan.S>docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:faa03e786c97f07ef34423fcccceeec2398ec8a5759259f94d99078f264e9d7af
Status: Downloaded newer image for hello-world:latest
docker.io/library/hello-world:latest
C:\Users\Tamilarasan.S>docker tag hello-world uk.icr.io/ibm_assignments/ibm_assignments:hello-world
C:\Users\Tamilarasan.S>docker push uk.icr.io/ibm_assignments/ibm_assignments:hello-world
The push refers to repository [uk.icr.io/ibm_assignments/ibm_assignments]
e07ee1baac5f: Layer already exists
hello-world: digest: sha256:f54a58bc1aac5ea1a25d796ae155dc228b3f0e11d046ae276b39c4bf2f13d8c4 size: 525
C:\Users\Tamilarasan.S>ibmcloud cr image-list
Listing images...
Repository Tag Digest Namespace Created Size Securit
y status
uk.icr.io/ibm_assignments/ibm_assignments hello-world f54a58bc1aac ibm_assignments 1 year ago 2.5 kB -
OK
C:\Users\Tamilarasan.S>

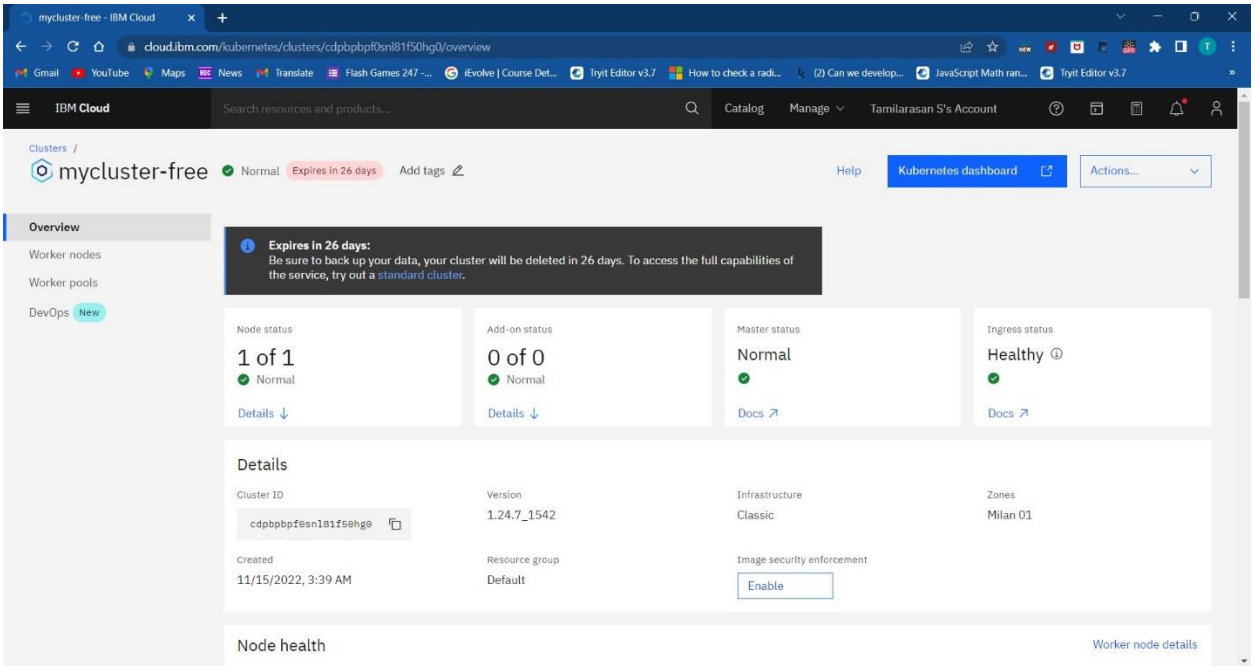

IBM Cloud Container Registry
cloud.ibm.com/registry/namespaces
IBM Cloud
Search resources and products...
Catalog
Manage
Tamilarasan S's Account
Container Registry
Quick start
Namespaces
Repositories
Images
Trash
Settings
Namespaces
Location
London
Resource group: Filter...
Search
Create
Name
Resource group
Repository count
Image count
Retention policy
ibm_assignments
Default
1
1
Retain all images
Items per page: 25
1–1 of 1 item
1 of 1 page

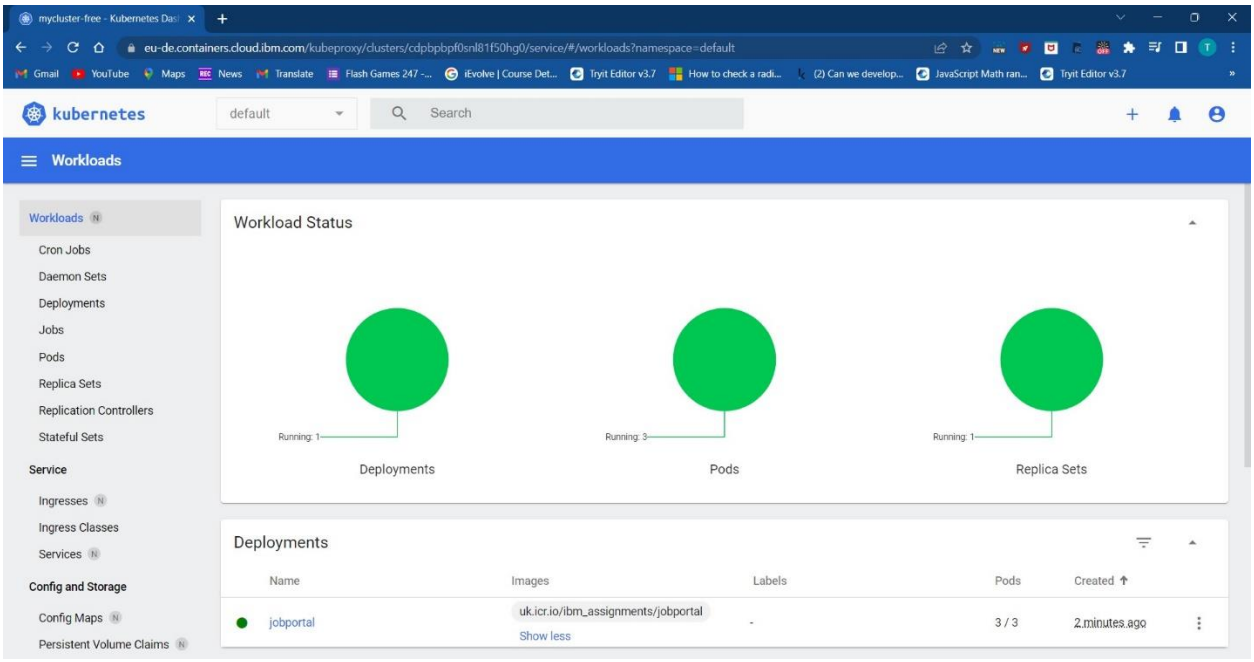

IBM Cloud Container Registry
cloud.ibm.com/registry/repos
IBM Cloud
Search resources and products...
Catalog
Manage
Tamilarasan S's Account
Container Registry
Quick start
Namespaces 1
Repositories 1
Images 1
Trash 2
Settings
Repositories
Location
London
Search
Create
Name
Image count
Namespace
Last updated
ibm_assignments
uk.icr.io/ibm_assignments/ibm_assignments
1
ibm_assignments
417 days ago
Items per page: 25
1–1 of 1 item
1 of 1 page

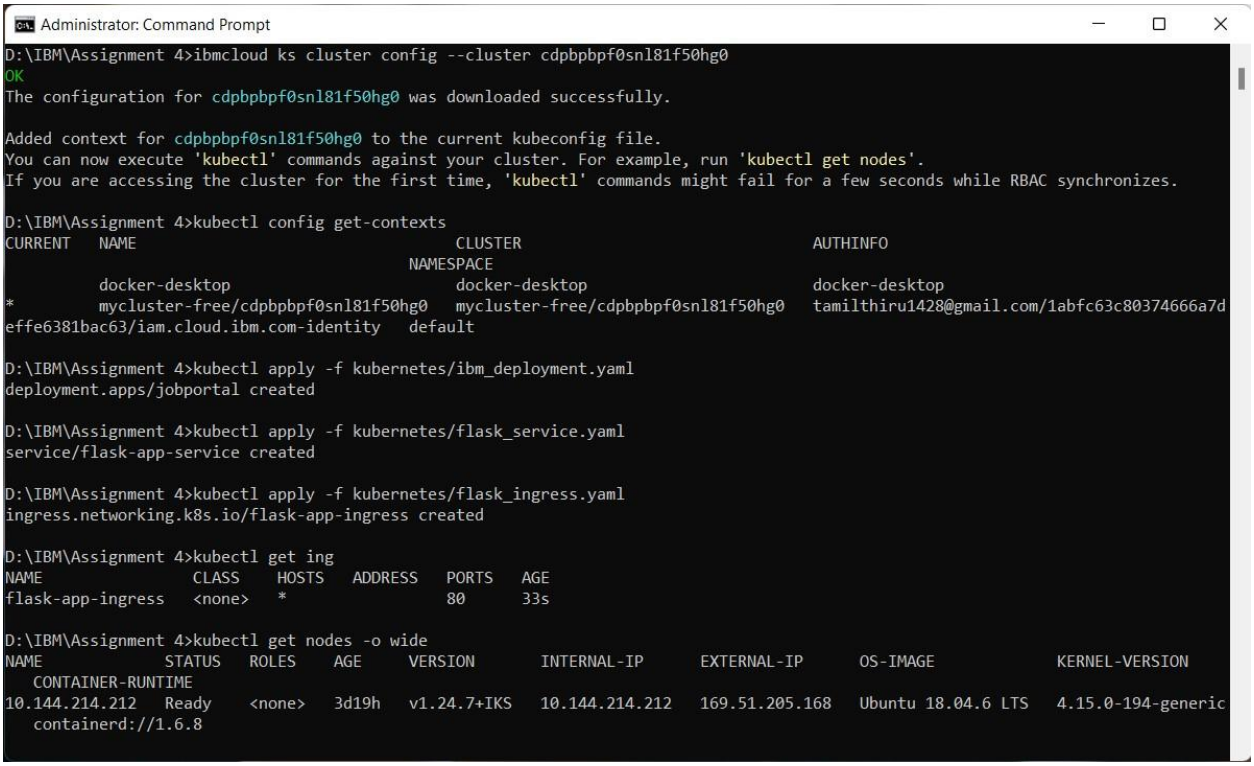

IBM Cloud Container Registry
cloud.ibm.com/registry/images
IBM Cloud
Search resources and products...
Catalog
Manage
Tamilarasan S's Account
Container Registry
Quick start
Namespaces 1
Repositories 1
Images 1
Trash 2
Settings
Images
Location
London
View by:
Digest
Search
Create
Repository@digest
Tags
Manifest type
Created
Size
Security status
ibm_assignments/ibm_assignments@sha256:f54a58bc1aac...
hello-world
Docker
417 days ago
2 KB
Unsupported OS
Items per page: 25
1–1 of 1 item
1 of 1 page

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.




mycluster-free - Kubernetes Dash
eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdpbpbpf0snl81f50hg0/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
Workload Status
Running: 1
Deployments
Running: 3
Pods
Running: 1
Replica Sets
Deployments
Name
Images
Labels
Pods
Created
jobportal
uk.icr.io/ibm_assignments/jobportal
Show less
3 / 3
2 minutes ago


Administrator: Command Prompt
D:\IBM\Assignment 4>ibmcloud ks cluster config --cluster cdpbpbpf0snl81f50hg0
OK
The configuration for cdpbpbpf0snl81f50hg0 was downloaded successfully.
Added context for cdpbpbpf0snl81f50hg0 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 synchronizes.
D:\IBM\Assignment 4>kubectl config get-contexts
CURRENT NAME CLUSTER AUTHINFO
NAMESPACE
docker-desktop docker-desktop docker-desktop
* mycluster-free/cdpbpbpf0snl81f50hg0 mycluster-free/cdpbpbpf0snl81f50hg0 tamilthiru1428@gmail.com/1abfc63c80374666a7d
effe6381bac63/iam.cloud.ibm.com-identity default
D:\IBM\Assignment 4>kubectl apply -f kubernetes/ibm_deployment.yaml
deployment.apps/jobportal created
D:\IBM\Assignment 4>kubectl apply -f kubernetes/flask_service.yaml
service/flask-app-service created
D:\IBM\Assignment 4>kubectl apply -f kubernetes/flask_ingress.yaml
ingress.networking.k8s.io/flask-app-ingress created
D:\IBM\Assignment 4>kubectl get ing
NAME CLASS HOSTS ADDRESS PORTS AGE
flask-app-ingress <none> * 80 33s
D:\IBM\Assignment 4>kubectl get nodes -o wide
NAME STATUS ROLES AGE VERSION INTERNAL-IP EXTERNAL-IP OS-IMAGE KERNEL-VERSION
CONTAINER-RUNTIME
10.144.214.212 Ready <none> 3d19h v1.24.7+IKS 10.144.214.212 169.51.205.168 Ubuntu 18.04.6 LTS 4.15.0-194-generic
containerd://1.6.8

```
Administrator: Command Prompt

D:\IBM\Assignment 4>kubectl get svc
NAME                TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
flask-app-service   ClusterIP   172.21.101.89   <none>        5000/TCP   6m1s
kubernetes          ClusterIP   172.21.0.1      <none>        443/TCP    3d19h

D:\IBM\Assignment 4>kubectl expose deployment jobportal --type=NodePort --name=jobportal
service/jobportal exposed

D:\IBM\Assignment 4>kubectl get svc
NAME                TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)          AGE
flask-app-service   ClusterIP   172.21.101.89   <none>        5000/TCP         22m
jobportal           NodePort    172.21.103.31   <none>        5000:31248/TCP   8m10s
kubernetes          ClusterIP   172.21.0.1      <none>        443/TCP          3d19h

D:\IBM\Assignment 4>kubectl describe svc jobportal
Name:                     jobportal
Namespace:                default
Labels:                   <none>
Annotations:              <none>
Selector:                 app=jobportal
Type:                     NodePort
IP Family Policy:         SingleStack
IP Families:              IPv4
IP:                       172.21.103.31
IPs:                      172.21.103.31
Port:                     <unset>  5000/TCP
TargetPort:               5000/TCP
NodePort:                 <unset>  31248/TCP
Endpoints:                172.30.140.139:5000,172.30.140.140:5000,172.30.140.141:5000
Session Affinity:         None
External Traffic Policy:  Cluster
Events:                   <none>

D:\IBM\Assignment 4>
```