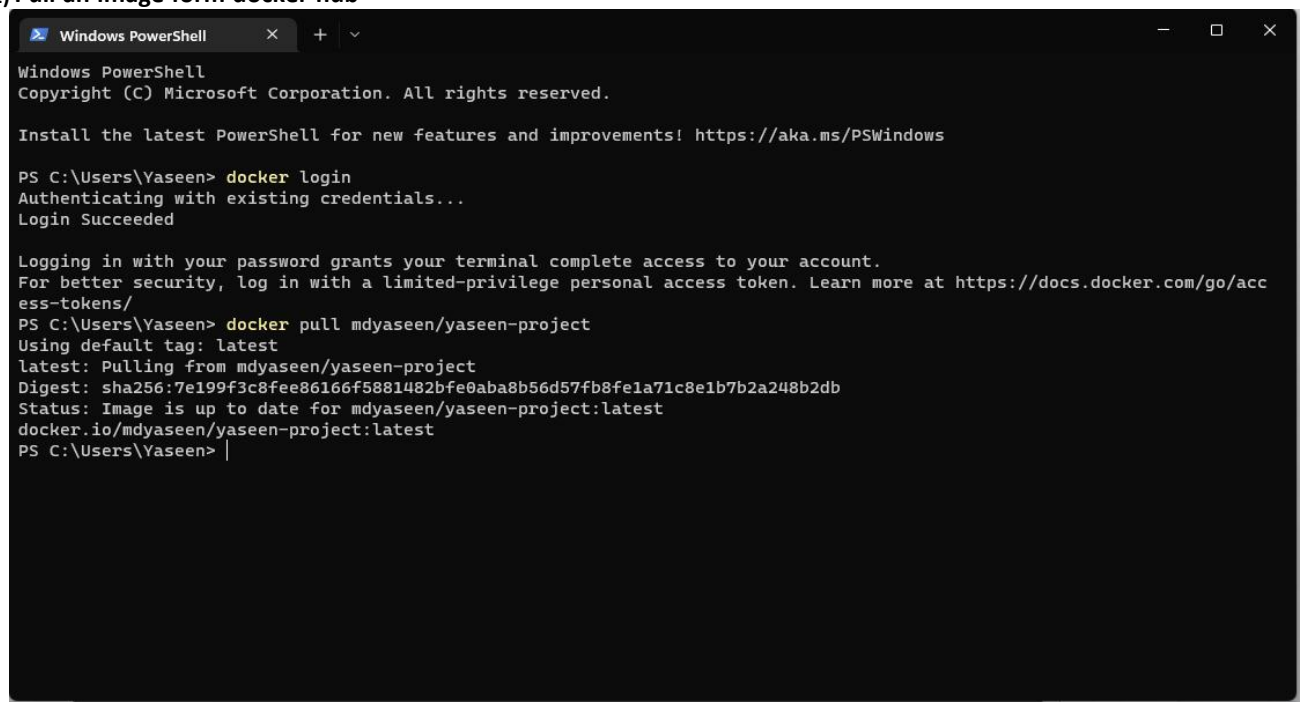
Assignment -4
Docker and Kubernetes

Assignment Date	10 October 2022
Team ID	PNT2022TMID24001
Maximum Marks	2 Marks

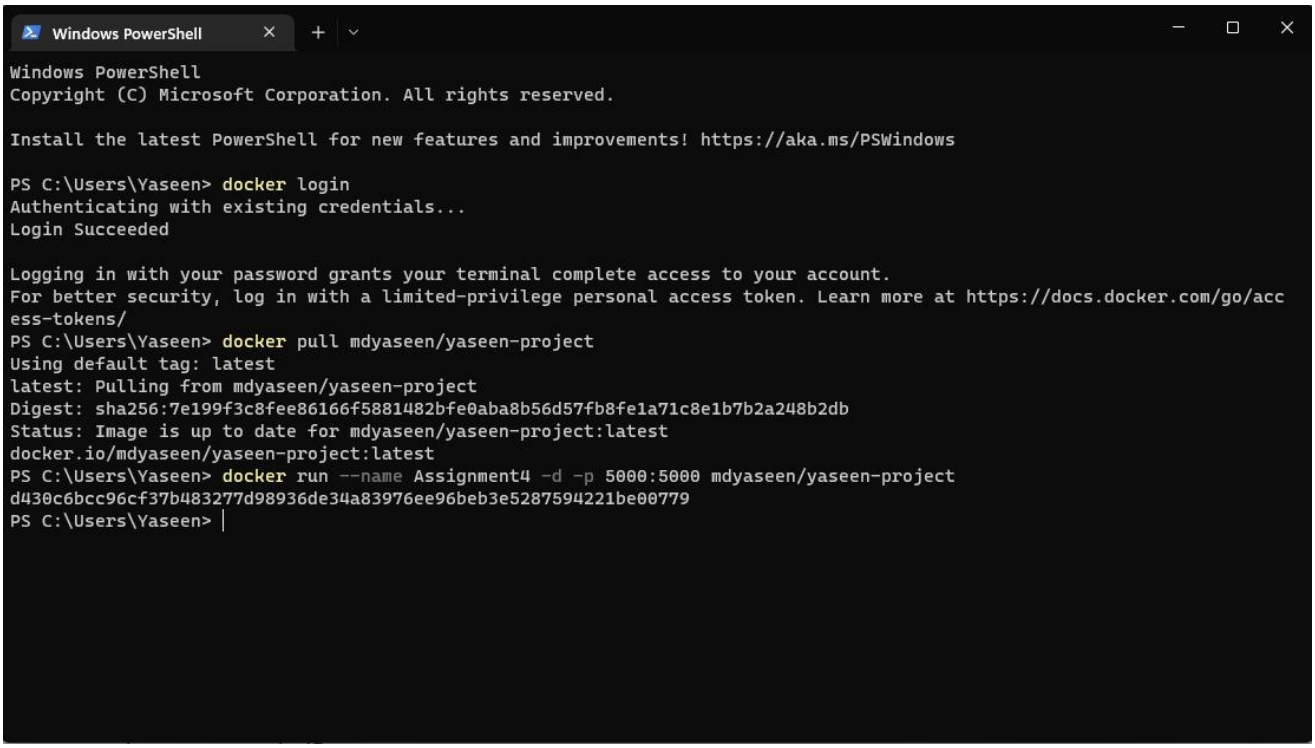
Question-1:

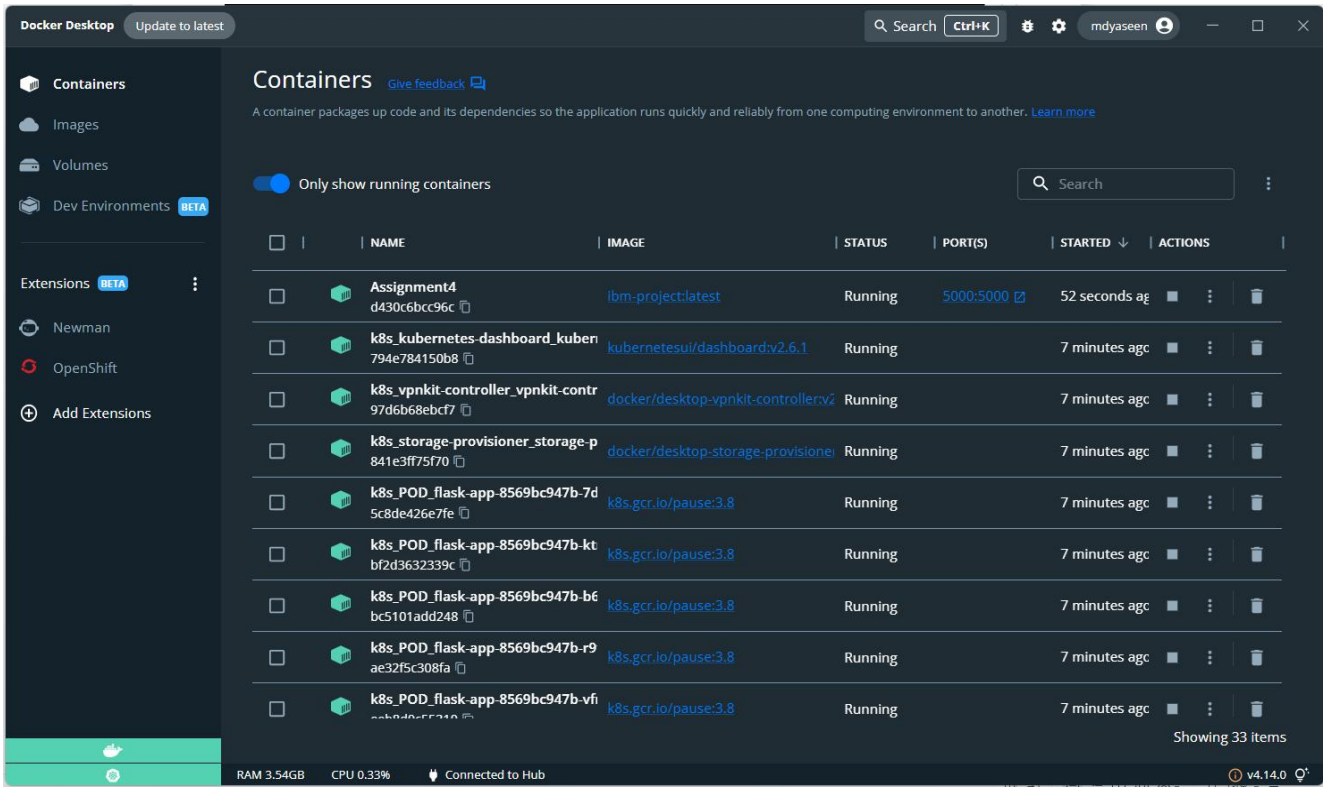
1. **Pull an Image from docker hub and run it in docker playground.**

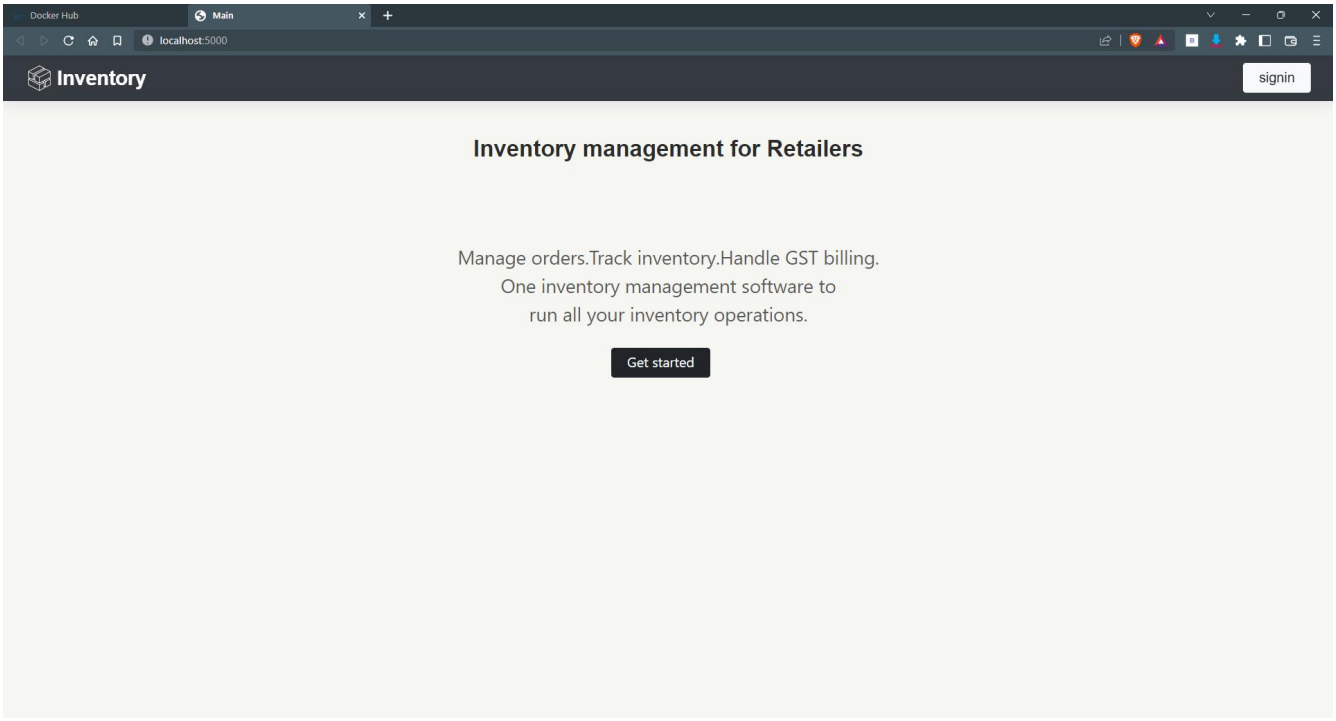
1) Pull an image form docker hub



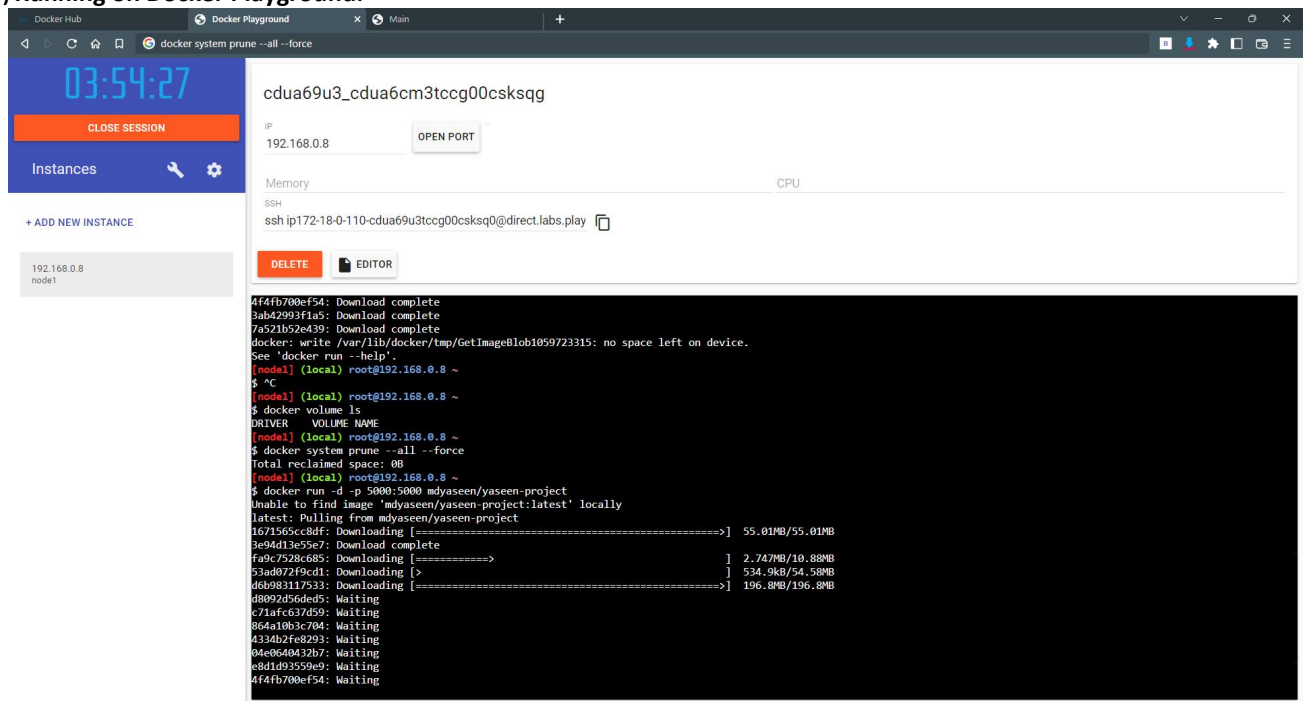
2) Running docker locally

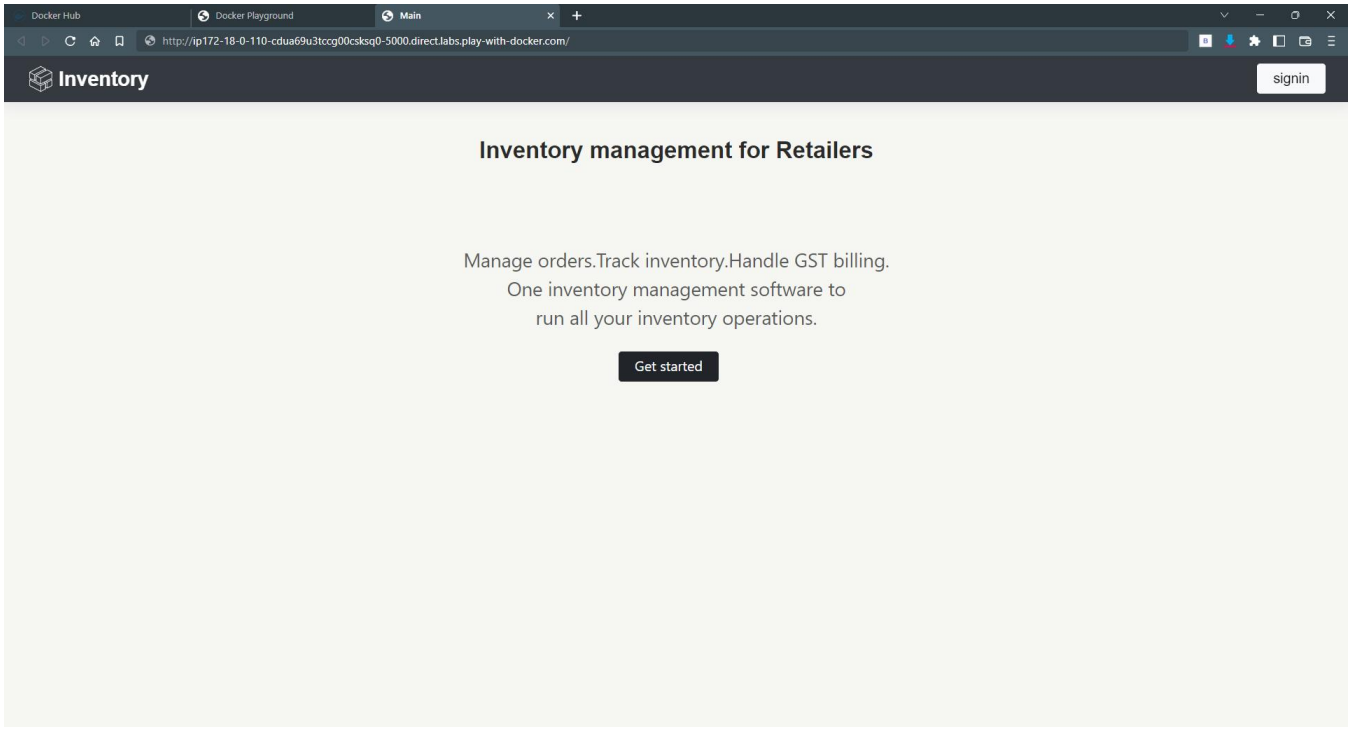






3) Running on Docker Playground.

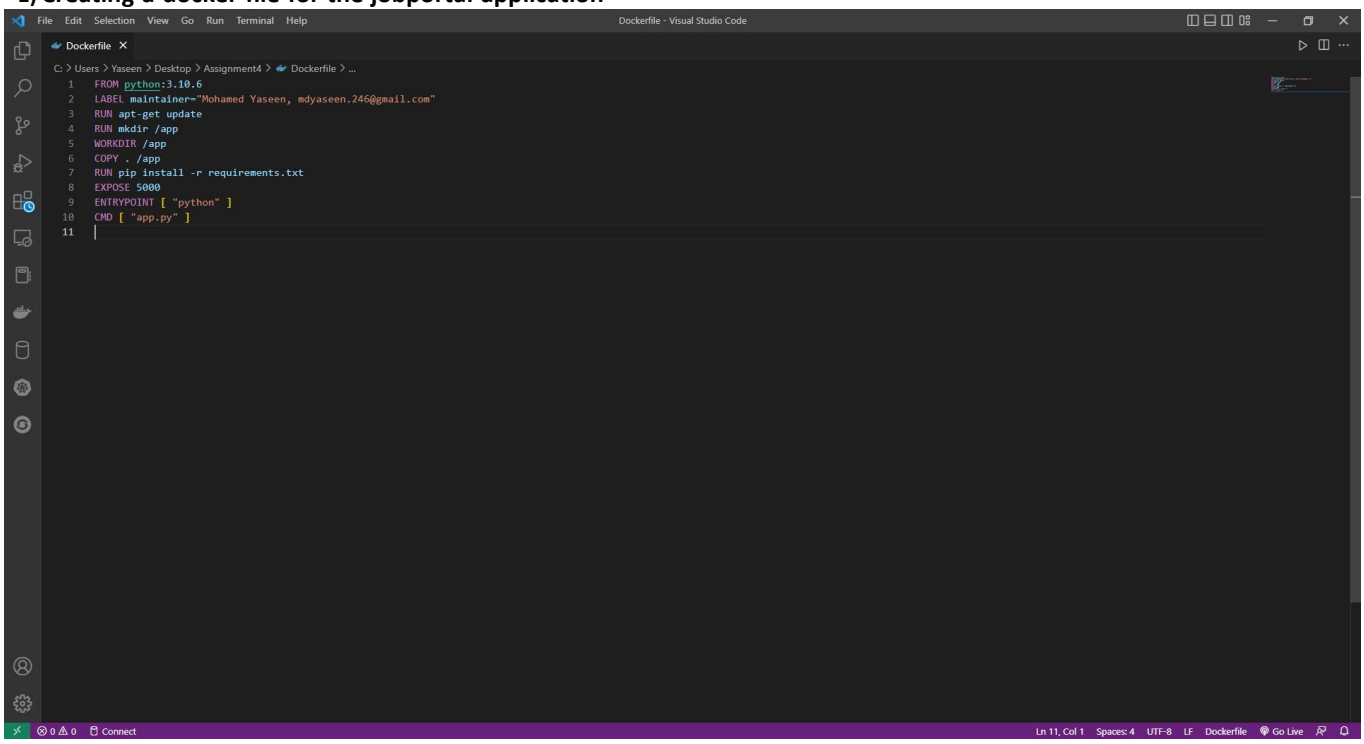



Docker Hub
Docker Playground
Main
http://ip172-18-0-110-cdua69u3tccg00csksq0-5000.direct.labs.play-with-docker.com/
Inventory
signin
Inventory management for Retailers
Manage orders.Track inventory.Handle GST billing.
One inventory management software to
run all your inventory operations.
Get started

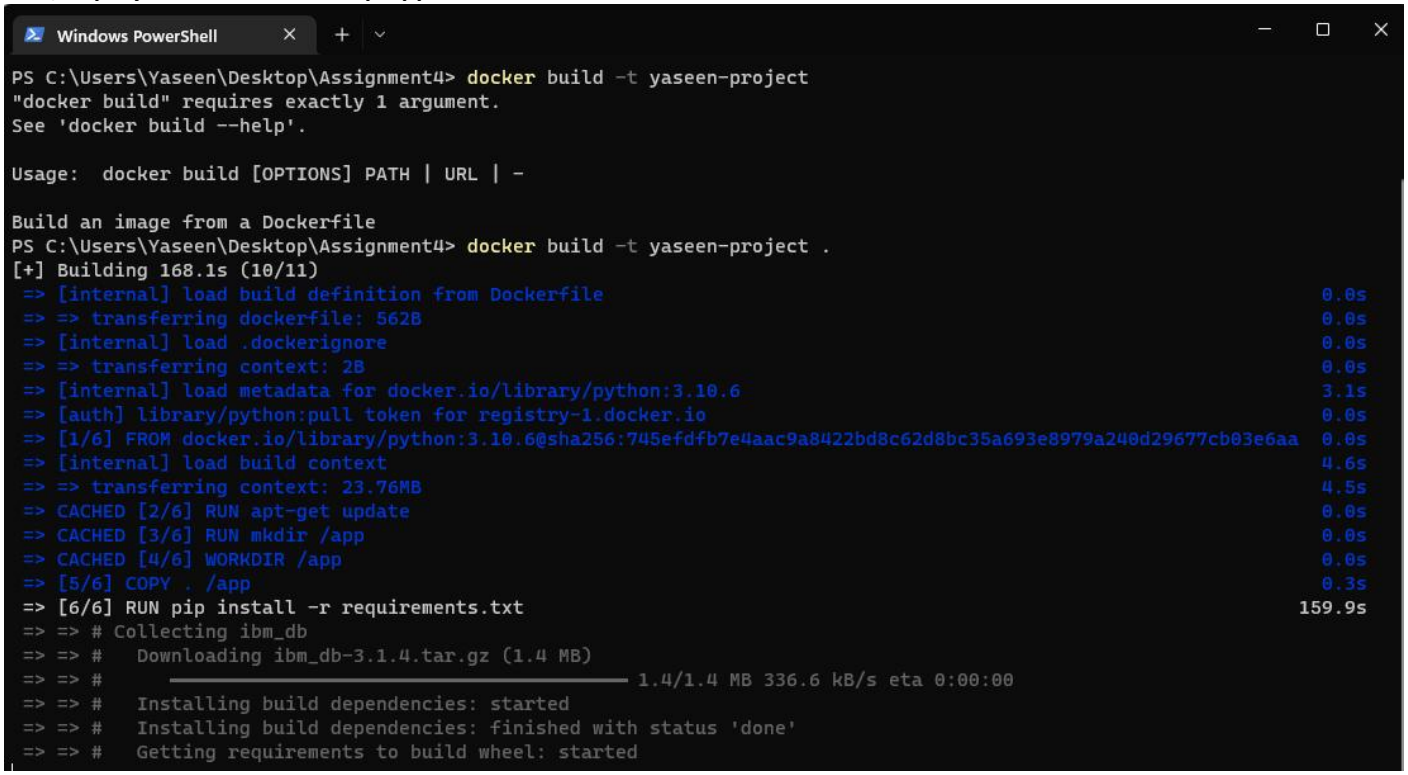
Question-2:

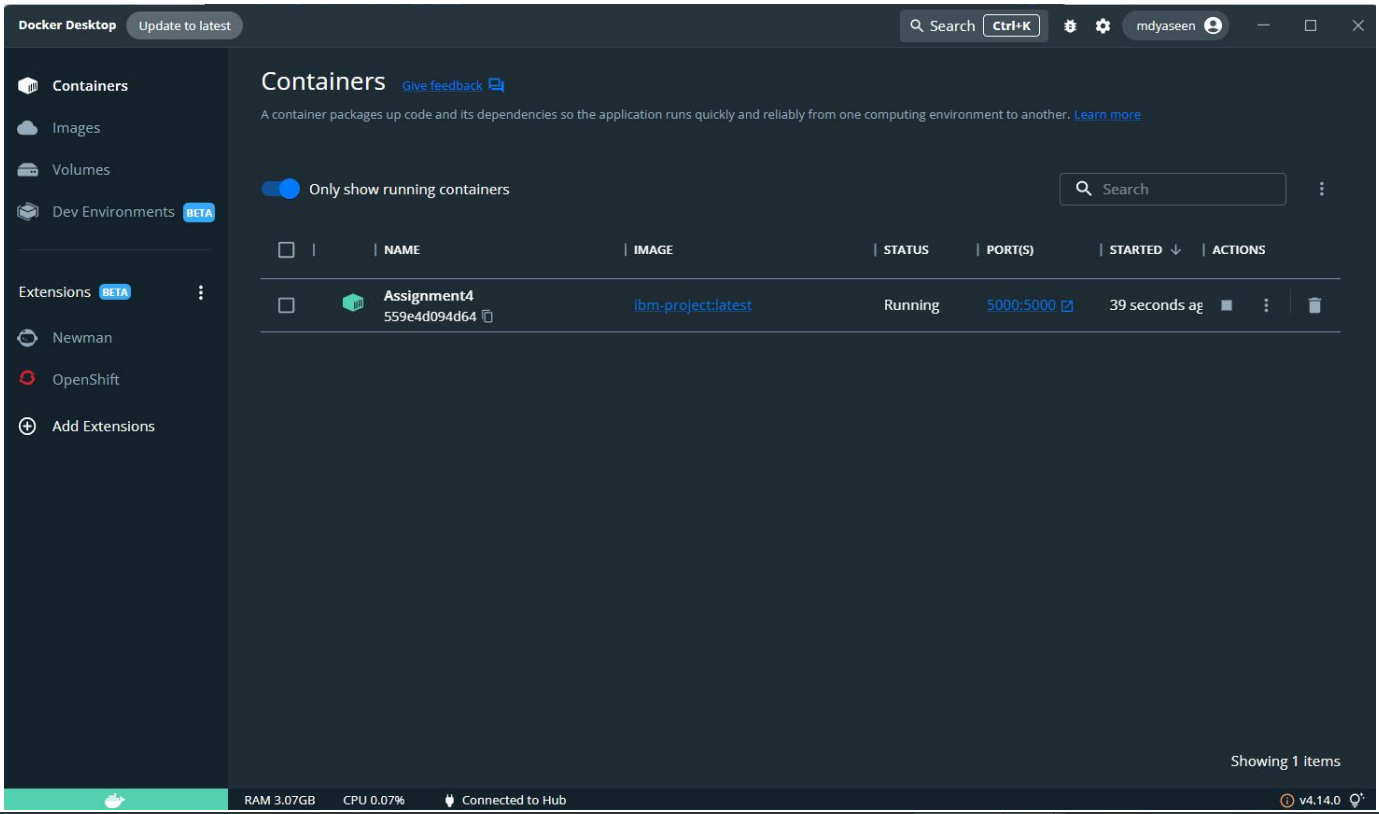
Create a docker file for the jobportal application or any other application and deploy it in docker application.

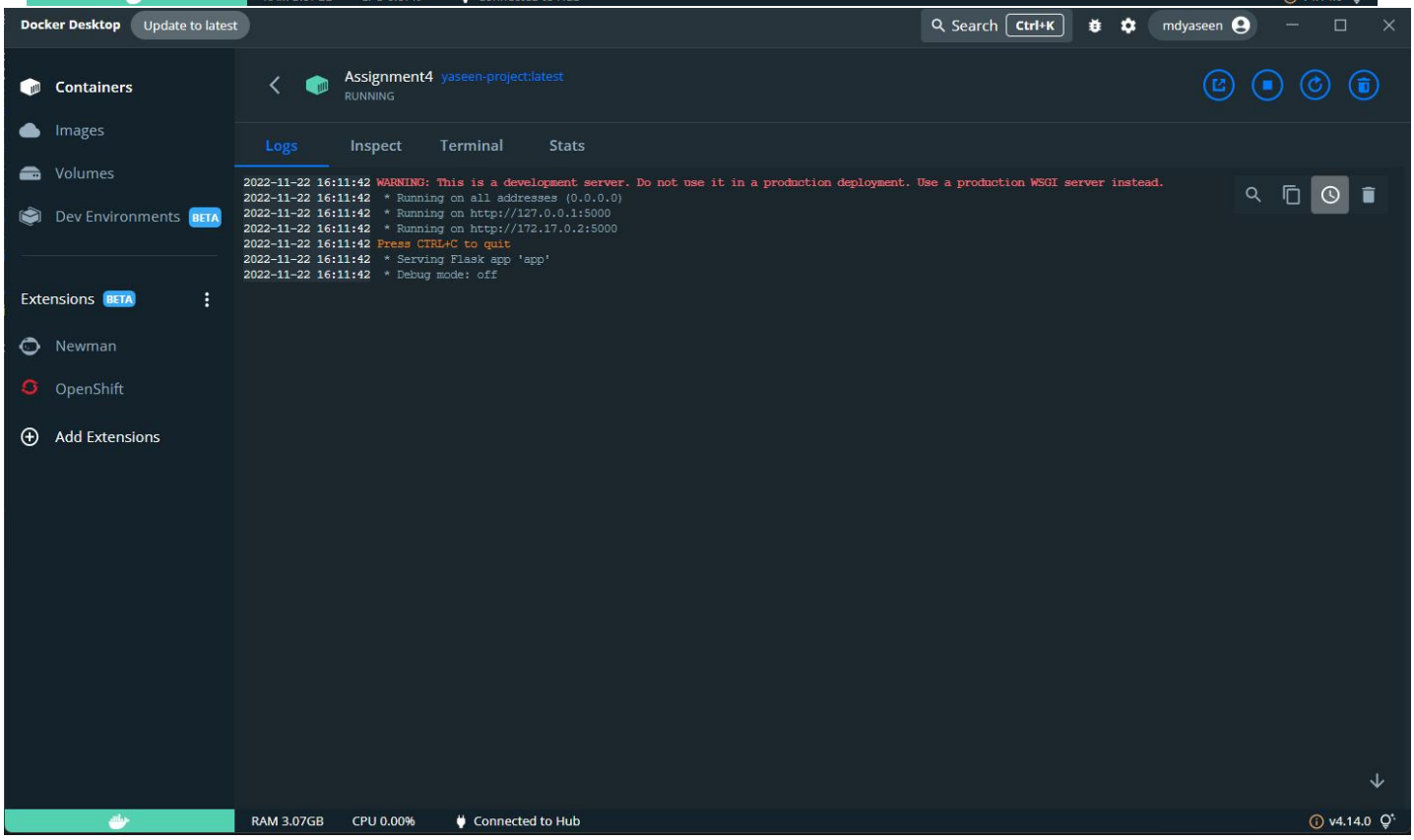
1) Creating a docker file for the jobportal application

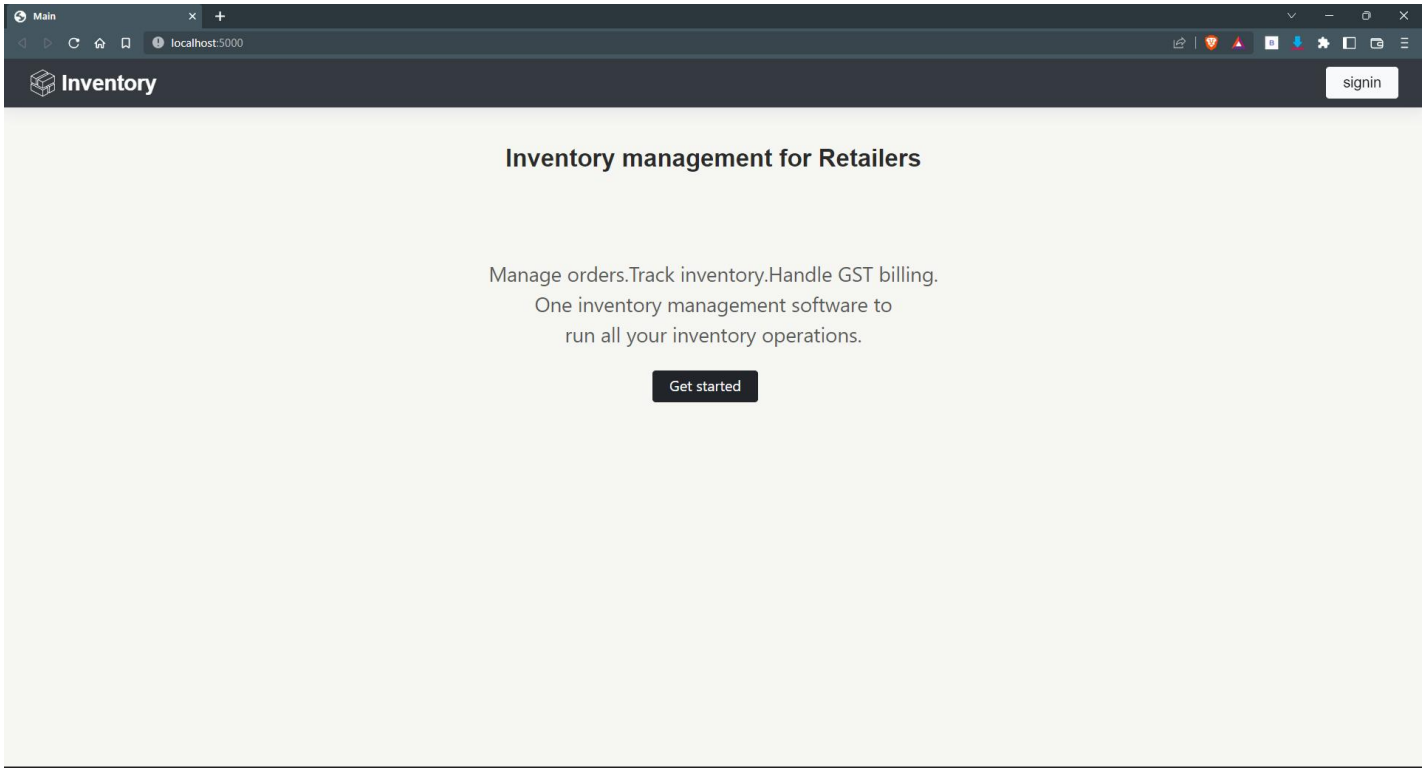


2) Deploy it in Docker Desktop Application




Docker Desktop
Update to latest
Search Ctrl+K
mdyaseen
Containers
Images
Volumes
Dev Environments BETA
Extensions BETA
Newman
OpenShift
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
Assignment4
559e4d094d64
ibm-project:latest
Running
5000:5000
39 seconds ag
Showing 1 items
RAM 3.07GB
CPU 0.07%
Connected to Hub
v4.14.0

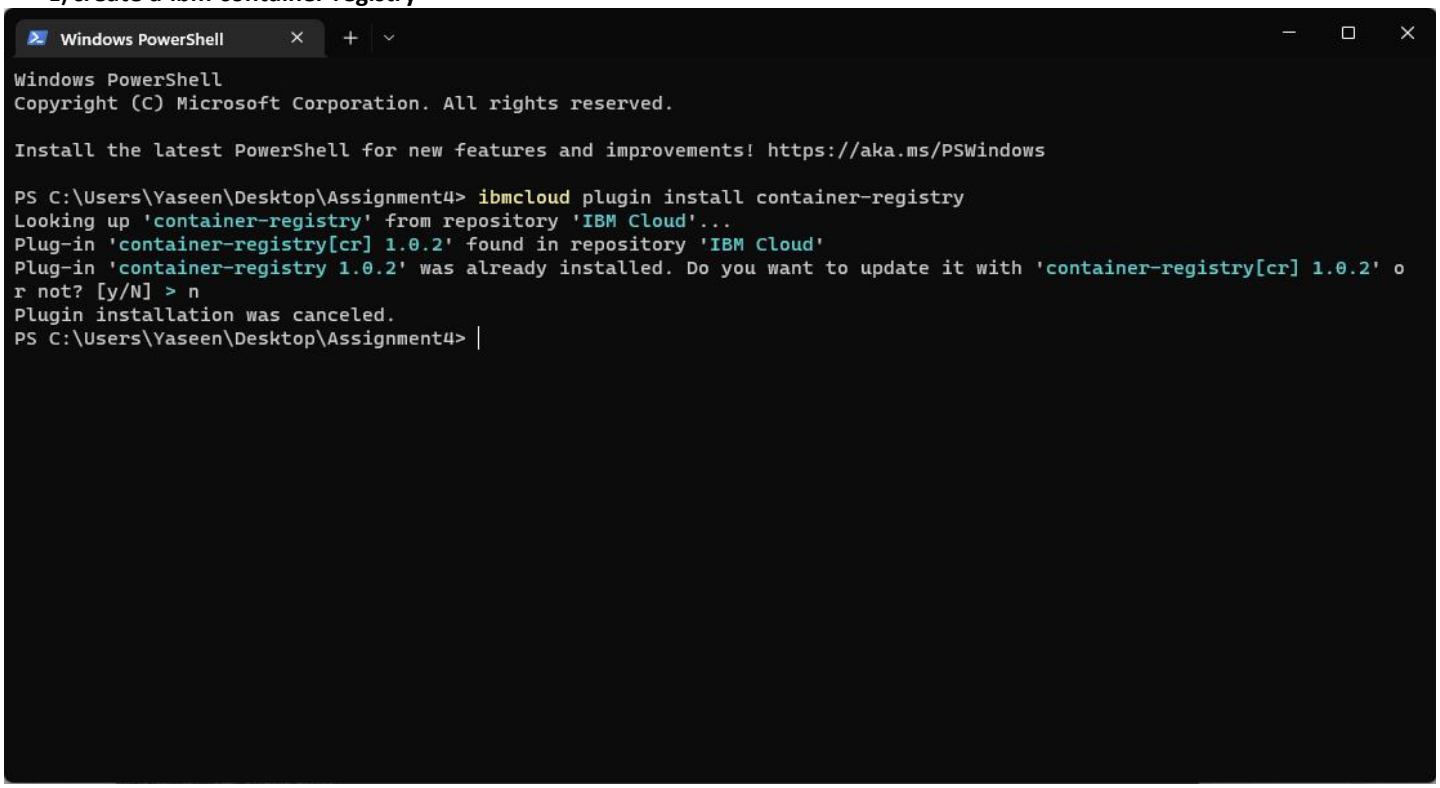

Docker Desktop
Update to latest
Search Ctrl+K
mdyaseen
Containers
Images
Volumes
Dev Environments BETA
Extensions BETA
Newman
OpenShift
Add Extensions
Assignment4
yaseen-project:latest
RUNNING
Logs
Inspect
Terminal
Stats
2022-11-22 16:11:42 WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
2022-11-22 16:11:42 * Running on all addresses (0.0.0.0)
2022-11-22 16:11:42 * Running on http://127.0.0.1:5000
2022-11-22 16:11:42 * Running on http://172.17.0.2:5000
2022-11-22 16:11:42 Press CTRL+C to quit
2022-11-22 16:11:42 * Serving Flask app 'app'
2022-11-22 16:11:42 * Debug mode: off
RAM 3.07GB
CPU 0.00%
Connected to Hub
v4.14.0


Main
localhost:5000
Inventory
signin
Inventory management for Retailers
Manage orders.Track inventory.Handle GST billing.
One inventory management software to
run all your inventory operations.
Get started

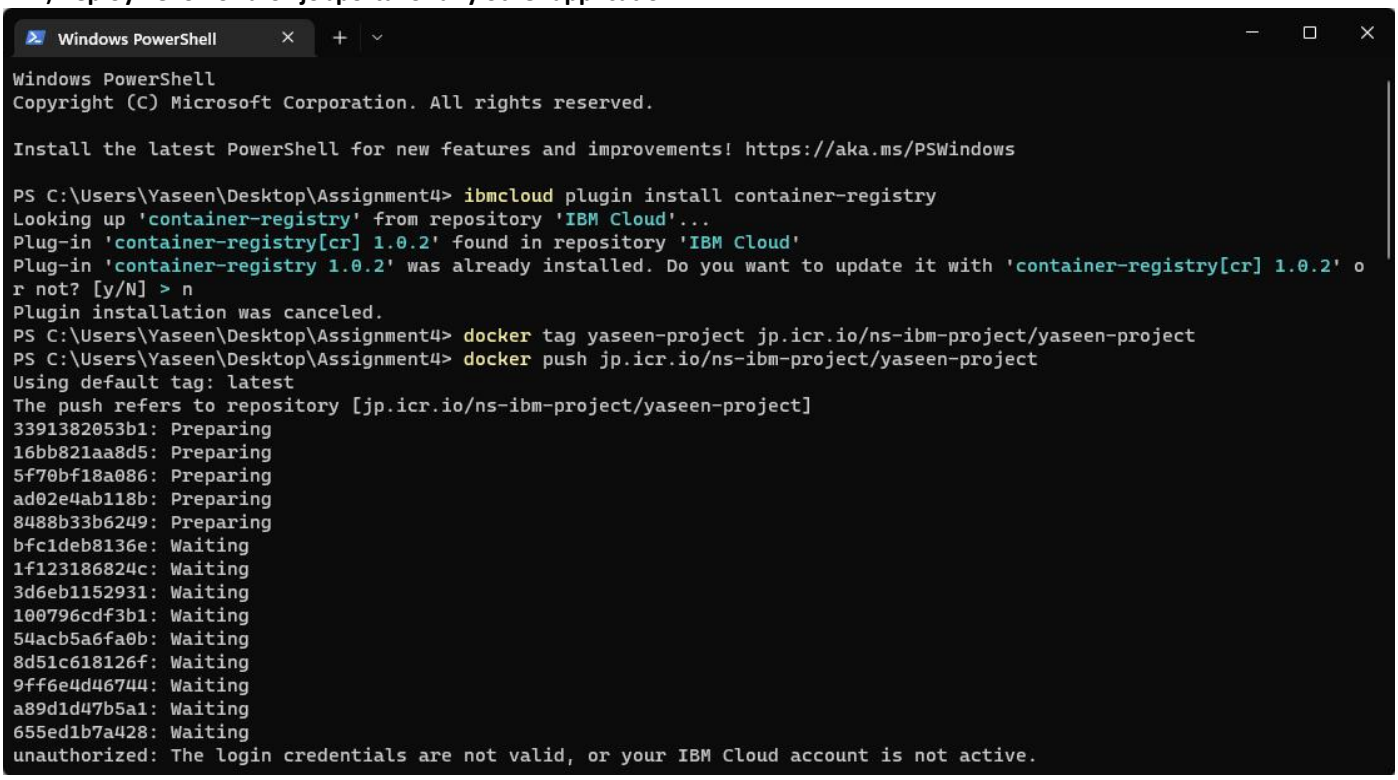
Question-3:

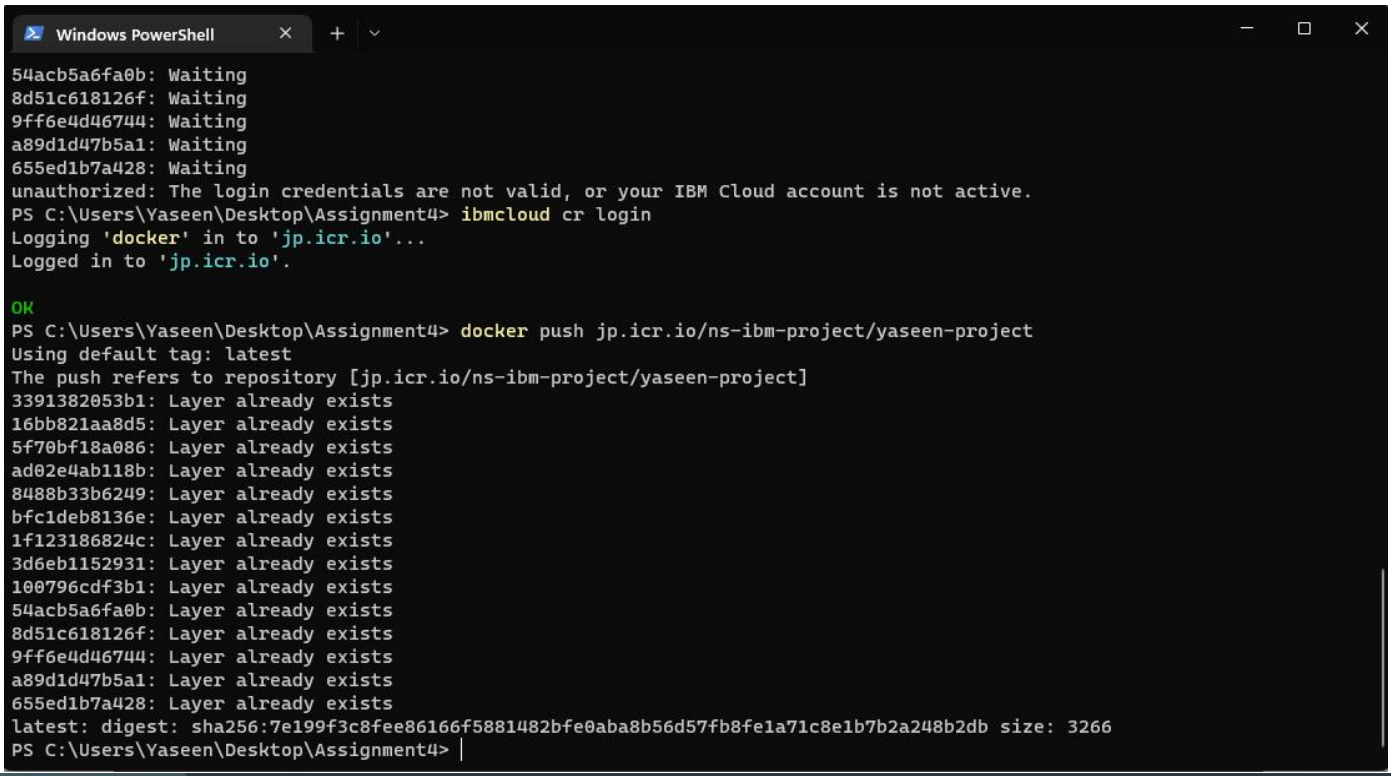
Create an IBM container registry and deploy helloworld app or jobportalapp or any other app.

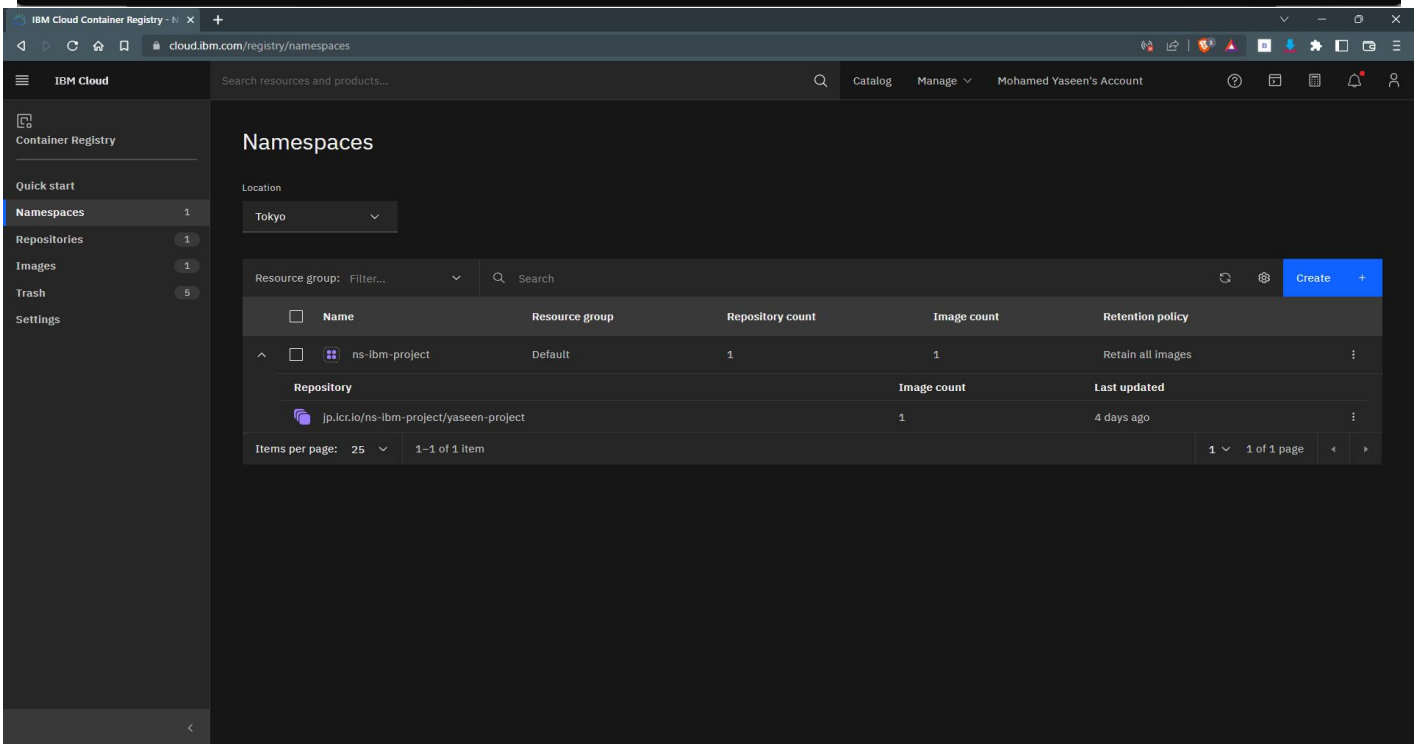
1) create a ibm container registry

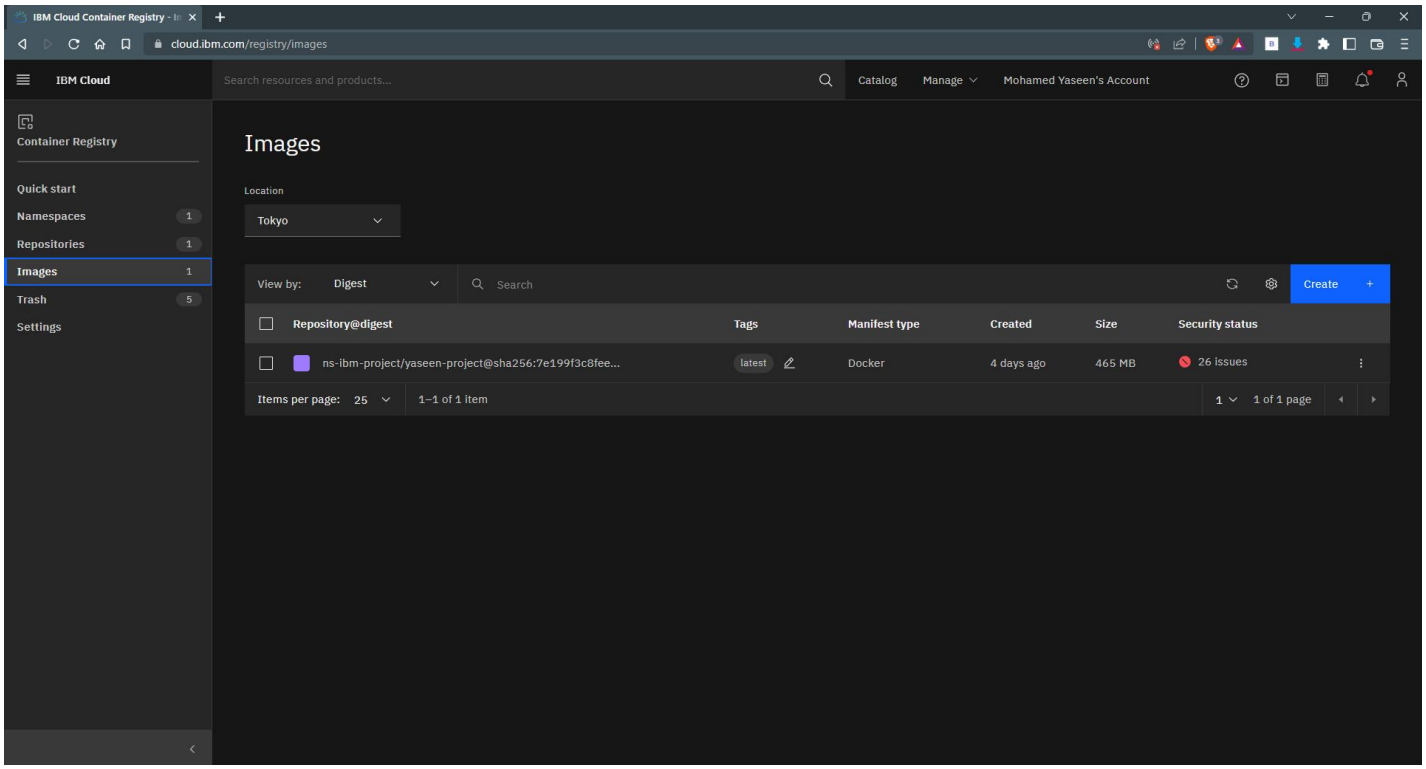


2) Deploy helloworld or jobportal or any other application




Windows PowerShell
54acb5a6fa0b: Waiting
8d51c618126f: Waiting
9ff6e4d46744: Waiting
a89d1d47b5a1: Waiting
655ed1b7a428: Waiting
unauthorized: The login credentials are not valid, or your IBM Cloud account is not active.
PS C:\Users\Yaseen\Desktop\Assignment4> ibmcloud cr login
Logging 'docker' in to 'jp.icr.io'...
Logged in to 'jp.icr.io'.
OK
PS C:\Users\Yaseen\Desktop\Assignment4> docker push jp.icr.io/ns-ibm-project/yaseen-project
Using default tag: latest
The push refers to repository [jp.icr.io/ns-ibm-project/yaseen-project]
3391382053b1: Layer already exists
16bb821aa8d5: Layer already exists
5f70bf18a086: Layer already exists
ad02e4ab118b: Layer already exists
8488b33b6249: 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
a89d1d47b5a1: Layer already exists
655ed1b7a428: Layer already exists
latest: digest: sha256:7e199f3c8fee86166f5881482bfe0aba8b56d57fb8fe1a71c8e1b7b2a248b2db size: 3266
PS C:\Users\Yaseen\Desktop\Assignment4>

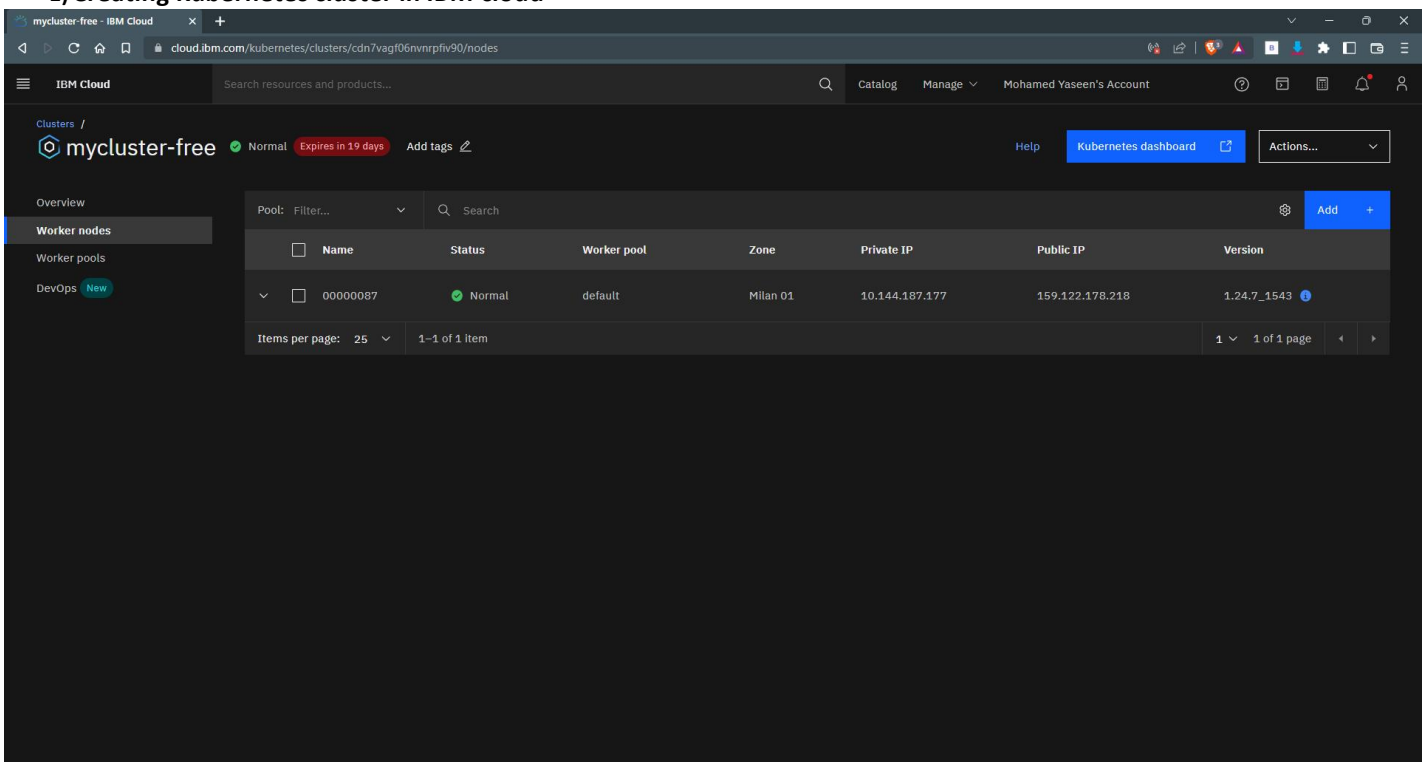

IBM Cloud Container Registry
cloud.ibm.com/registry/namespaces
IBM Cloud
Search resources and products...
Catalog
Manage
Mohamed Yaseen's Account
Container Registry
Quick start
Namespaces 1
Repositories 1
Images 1
Trash 5
Settings
Namespaces
Location
Tokyo
Resource group: Filter...
Search
Create
Name
Resource group
Repository count
Image count
Retention policy
ns-ibm-project
Default
1
1
Retain all images
Repository
Image count
Last updated
jp.icr.io/ns-ibm-project/yaseen-project
1
4 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
Mohamed Yaseen's Account
Container Registry
Quick start
Namespaces 1
Repositories 1
Images 1
Trash 5
Settings
Images
Location
Tokyo
View by: Digest
Search
Create
Repository@digest
Tags
Manifest type
Created
Size
Security status
ns-ibm-project/yaseen-project@sha256:7e199f3c8fee...
latest
Docker
4 days ago
465 MB
26 issues
Items per page: 25
1–1 of 1 item
1 of 1 page

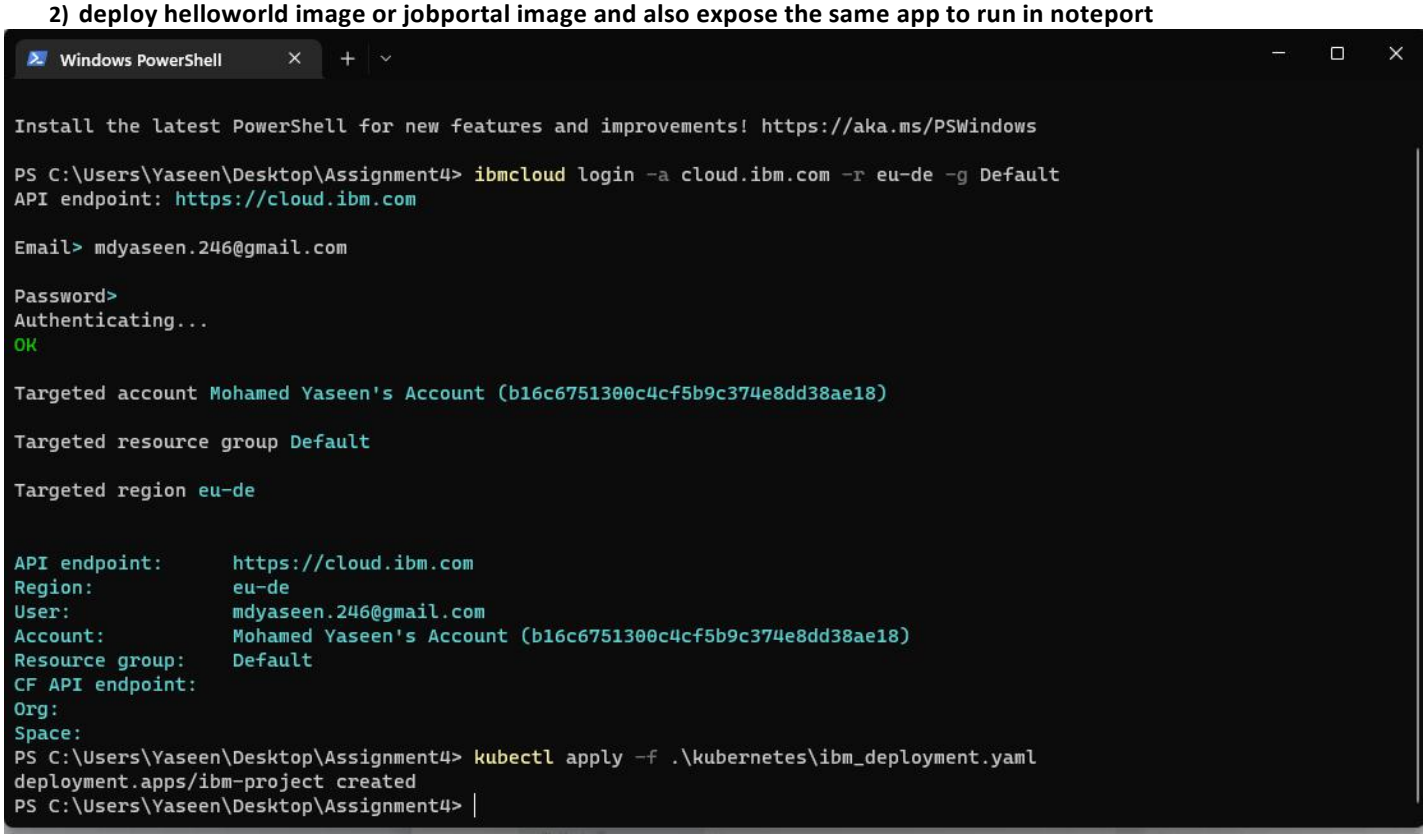
Question-4:

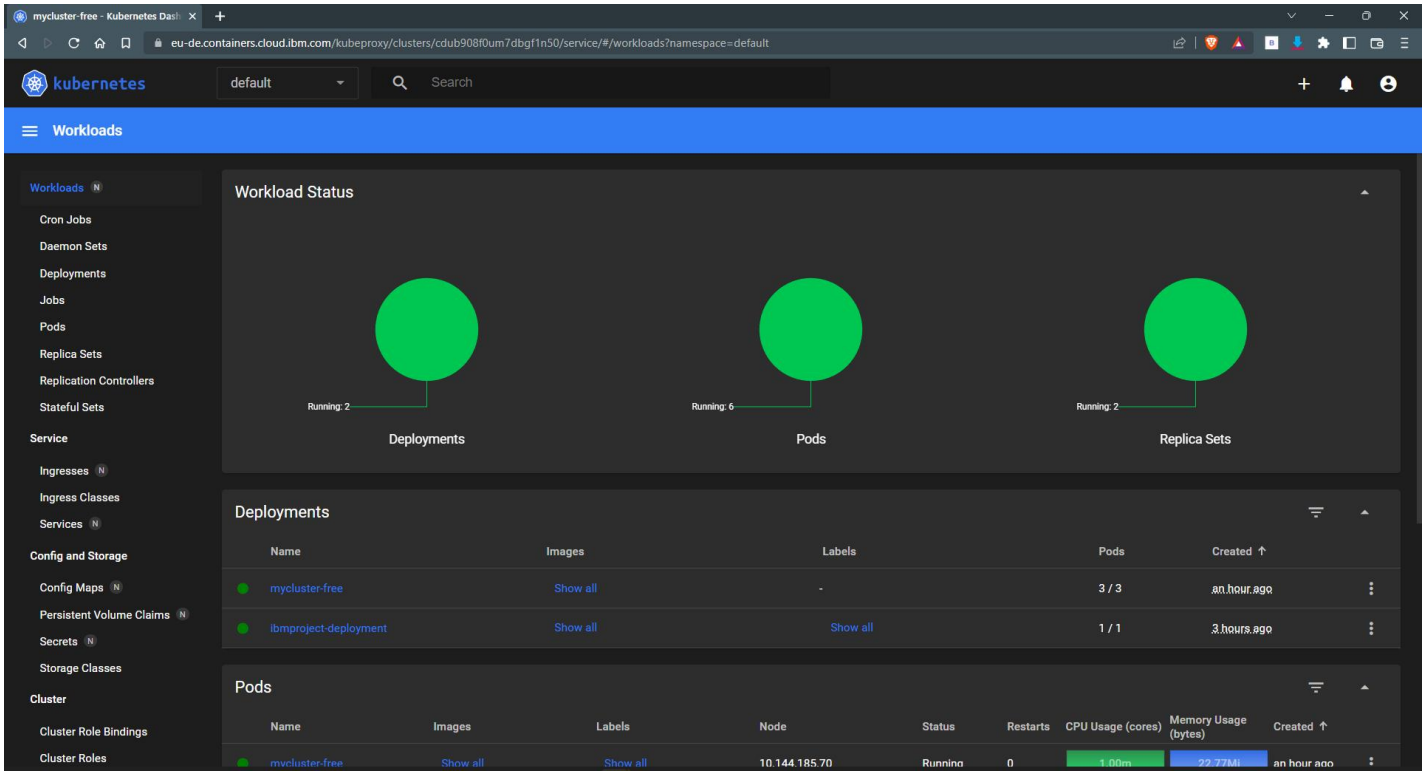
Create a Kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image or any other image and also expose the same app to run in nodeport.

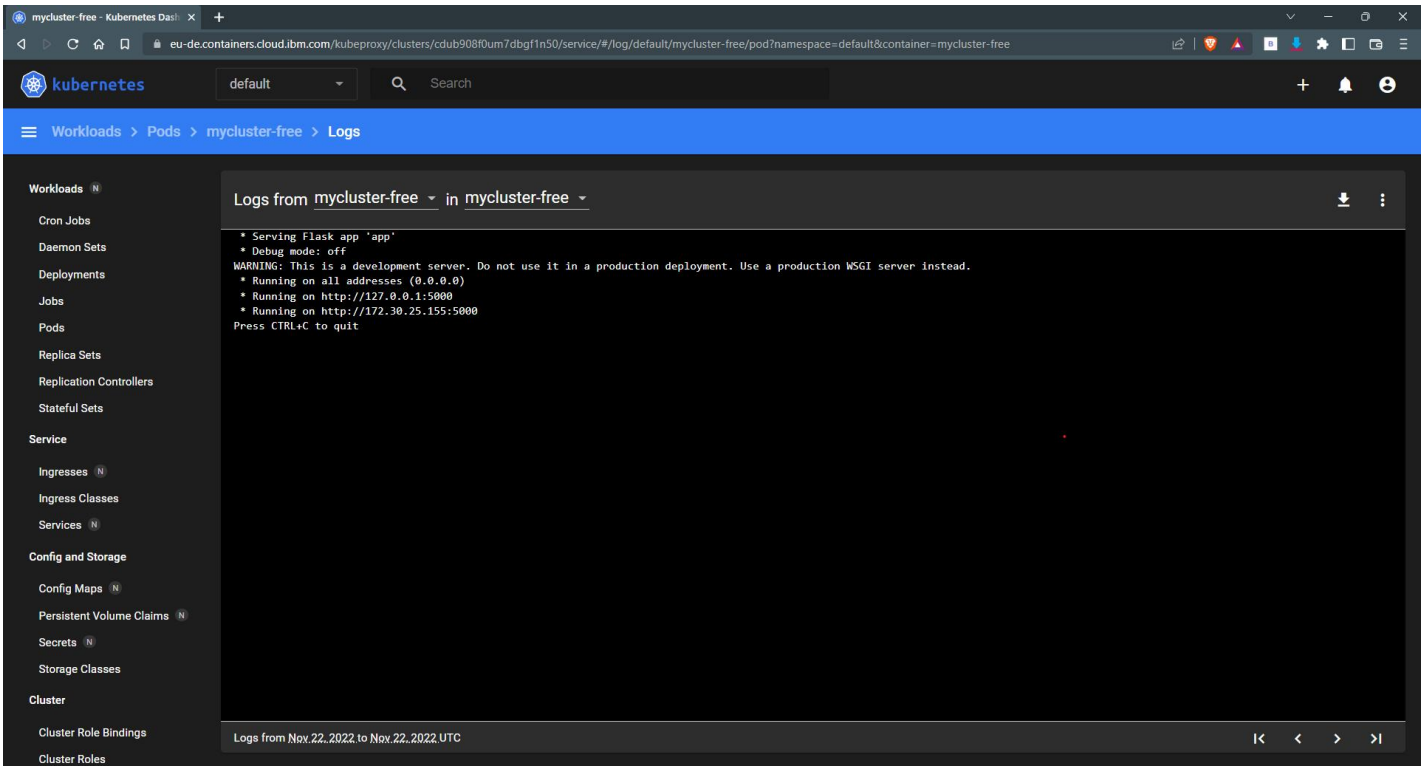
1) Creating Kubernetes cluster in IBM cloud

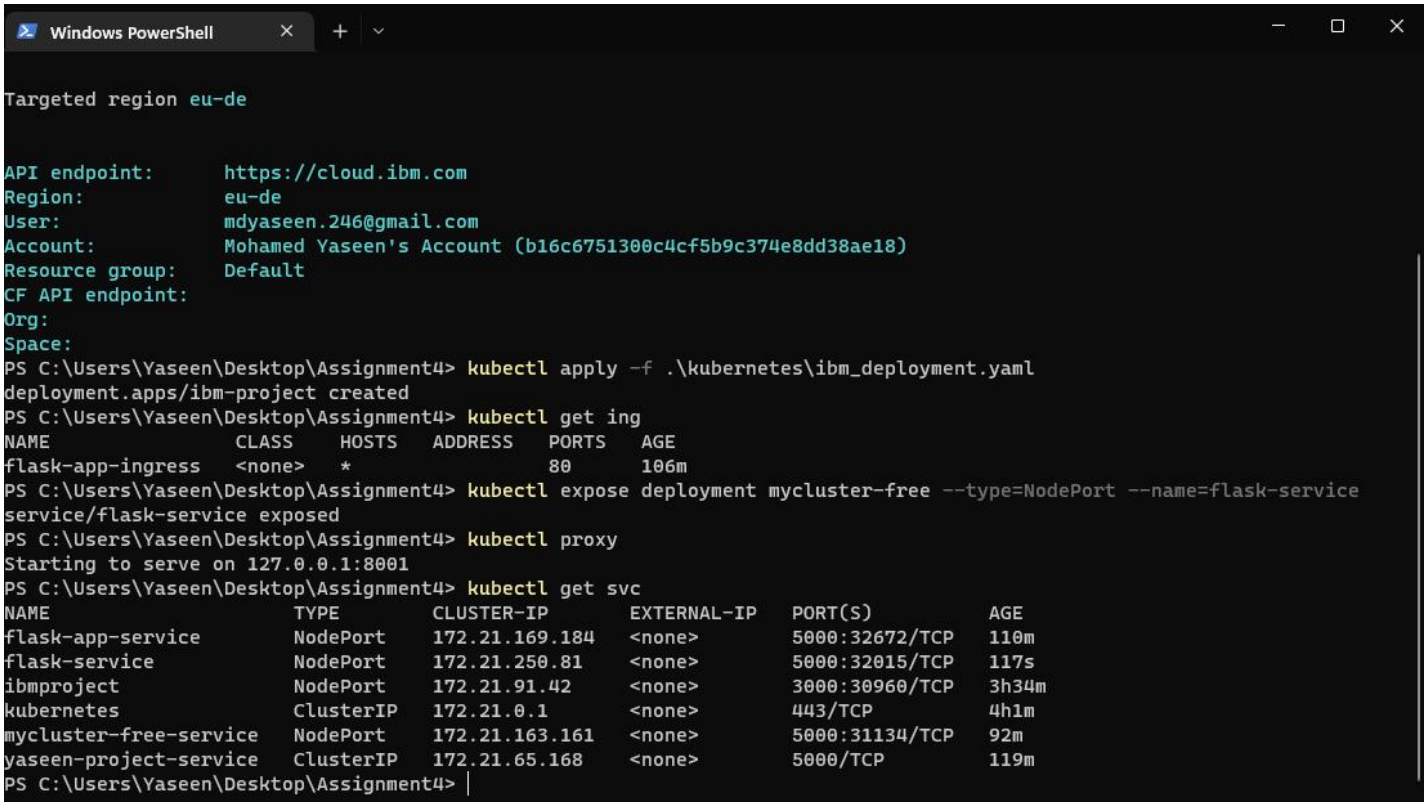


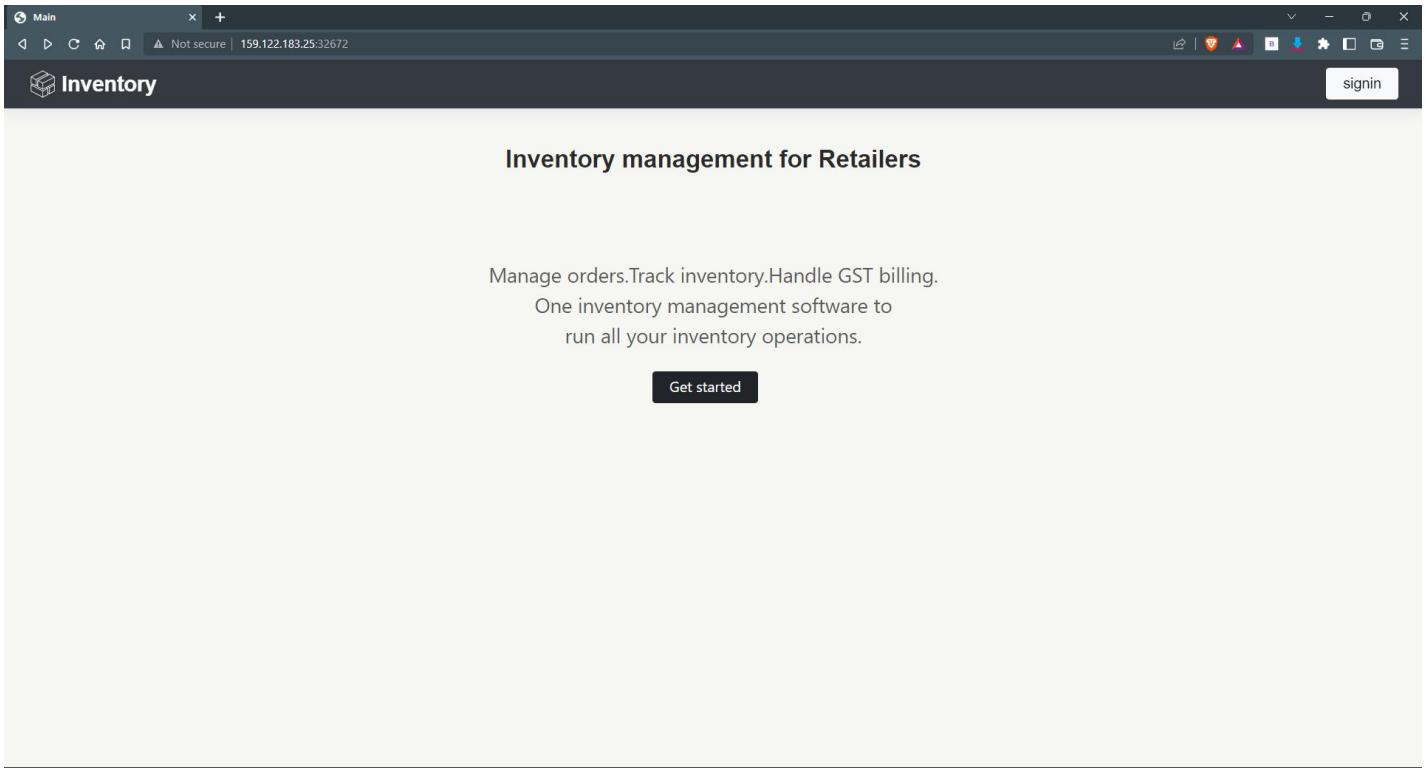
2) deploy helloworld image or jobportal image and also expose the same app to run in noteport




mycluster-free - Kubernetes Dash
eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdub908f0um7dbgf1n50/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
Storage Classes
Cluster
Cluster Role Bindings
Cluster Roles
Workload Status
Running: 2
Deployments
Running: 6
Pods
Running: 2
Replica Sets
Deployments
Name
Images
Labels
Pods
Created
mycluster-free
Show all
-
3 / 3
an hour ago
ibmproject-deployment
Show all
Show all
1 / 1
3 hours ago
Pods
Name
Images
Labels
Node
Status
Restarts
CPU Usage (cores)
Memory Usage (bytes)
Created
mycluster-free
Show all
Show all
10.144.185.70
Running
0
1.00m
22.77Mi
an hour ago


mycluster-free - Kubernetes Dash
eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdub908f0um7dbgf1n50/service/#/log/default/mycluster-free/pod?namespace=default&container=mycluster-free
kubernetes
default
Search
Workloads > Pods > mycluster-free > Logs
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
Storage Classes
Cluster
Cluster Role Bindings
Cluster Roles
Logs from mycluster-free in mycluster-free
* 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://172.30.25.155:5000
Press CTRL+C to quit
Logs from Nov 22, 2022 to Nov 22, 2022 UTC


Windows PowerShell
Targeted region eu-de
API endpoint: https://cloud.ibm.com
Region: eu-de
User: mdyaseen.246@gmail.com
Account: Mohamed Yaseen's Account (b16c6751300c4cf5b9c374e8dd38ae18)
Resource group: Default
CF API endpoint:
Org:
Space:
PS C:\Users\Yaseen\Desktop\Assignment4> kubectl apply -f .\kubernetes\ibm_deployment.yaml
deployment.apps/ibm-project created
PS C:\Users\Yaseen\Desktop\Assignment4> kubectl get ing
NAME CLASS HOSTS ADDRESS PORTS AGE
flask-app-ingress <none> * 80 106m
PS C:\Users\Yaseen\Desktop\Assignment4> kubectl expose deployment mycluster-free --type=NodePort --name=flask-service
service/flask-service exposed
PS C:\Users\Yaseen\Desktop\Assignment4> kubectl proxy
Starting to serve on 127.0.0.1:8001
PS C:\Users\Yaseen\Desktop\Assignment4> kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
flask-app-service NodePort 172.21.169.184 <none> 5000:32672/TCP 110m
flask-service NodePort 172.21.250.81 <none> 5000:32015/TCP 117s
ibmproject NodePort 172.21.91.42 <none> 3000:30960/TCP 3h34m
kubernetes ClusterIP 172.21.0.1 <none> 443/TCP 4h1m
mycluster-free-service NodePort 172.21.163.161 <none> 5000:31134/TCP 92m
yaseen-project-service ClusterIP 172.21.65.168 <none> 5000/TCP 119m
PS C:\Users\Yaseen\Desktop\Assignment4>


Main
Not secure | 159.122.183.25:32672
Inventory
signin
Inventory management for Retailers
Manage orders.Track inventory.Handle GST billing.
One inventory management software to
run all your inventory operations.
Get started