

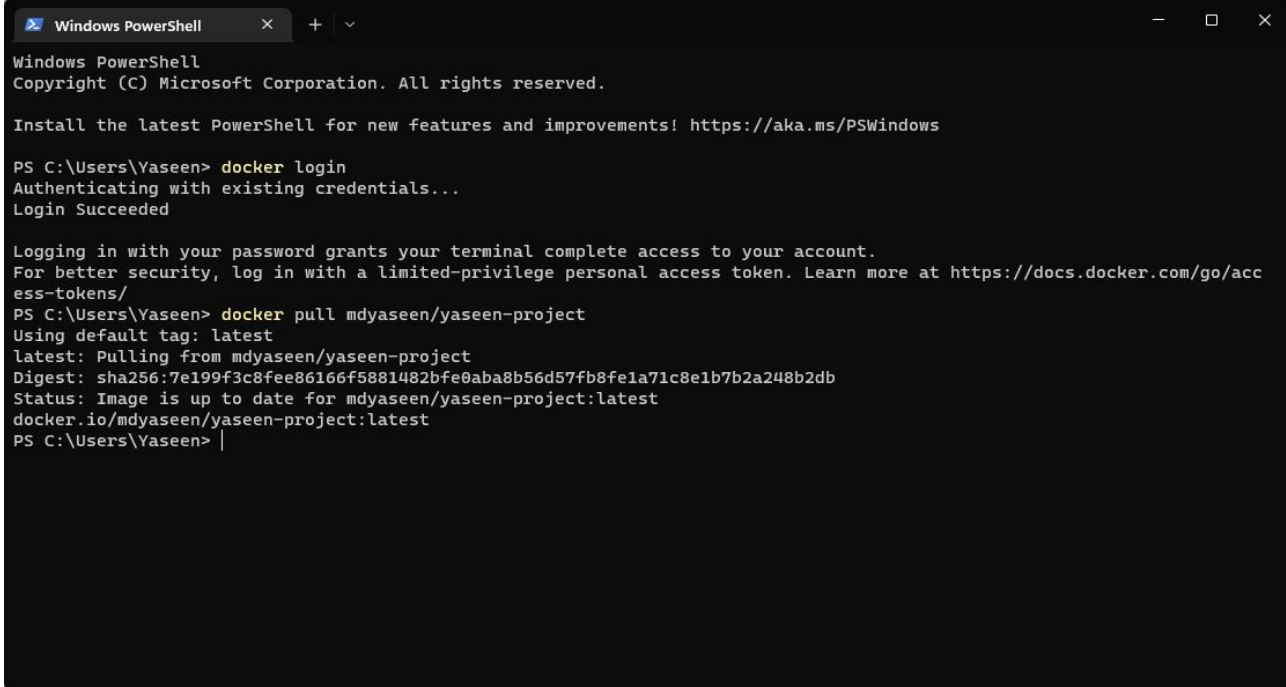
Assignment -4
Docker and Kubernetes

Assignment Date	10 October 2022
Team ID	PNT2022TMID24036
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

A screenshot of a Windows PowerShell terminal window. The window title is "Windows PowerShell". The text inside shows the following commands and output:

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Yaseen> docker login
Authenticating with existing credentials...
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/
PS C:\Users\Yaseen> docker pull mdyaseen/yaseen-project
Using default tag: latest
latest: Pulling from mdyaseen/yaseen-project
Digest: sha256:7e199f3c8fee86166f5881482bfe0aba8b56d57fb8fe1a71c8e1b7b2a248b2db
Status: Image is up to date for mdyaseen/yaseen-project:latest
docker.io/mdyaseen/yaseen-project:latest
PS C:\Users\Yaseen> |
```

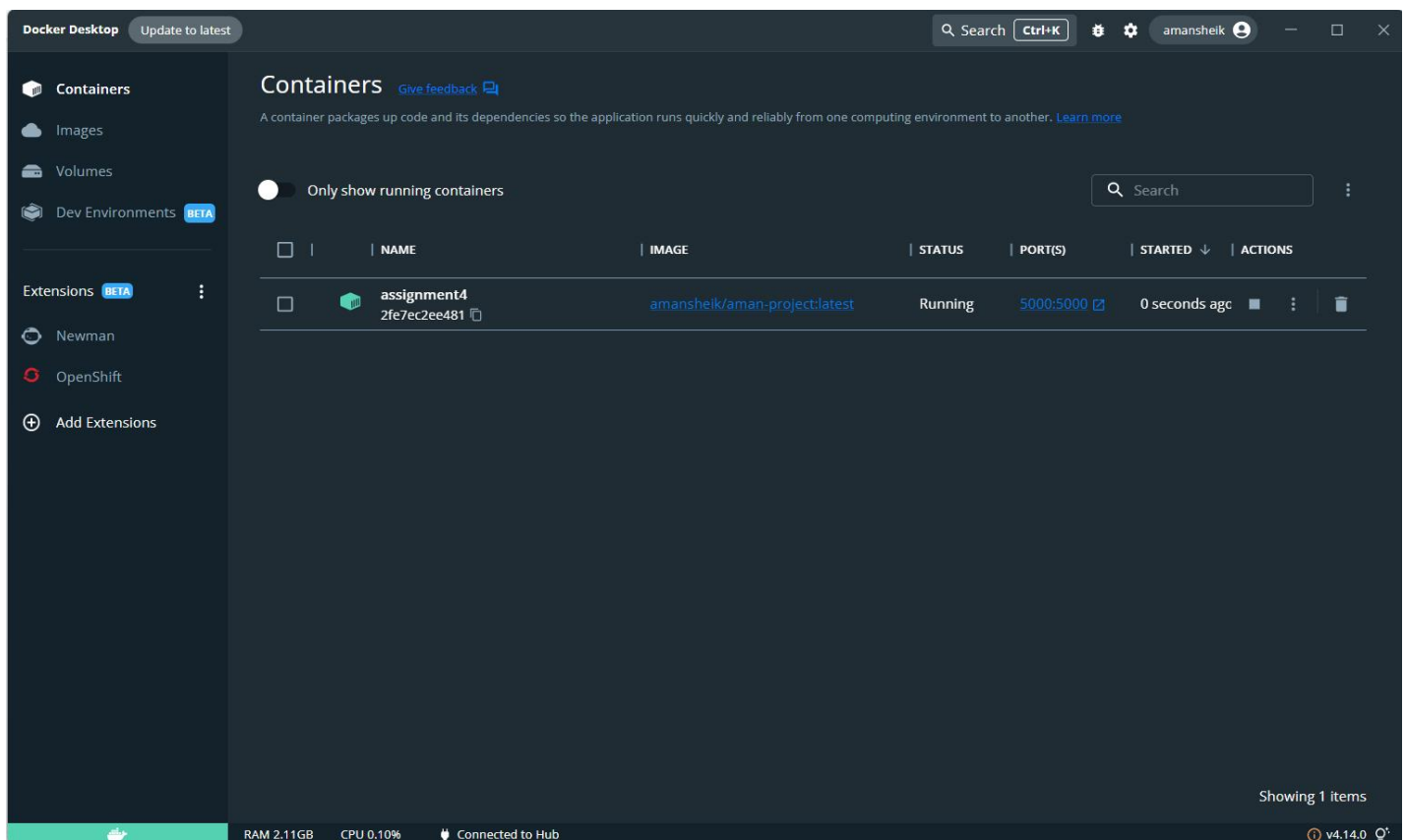
2) Running docker locally

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Aman\Aman IBM> docker login
Authenticating with existing credentials...
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/
PS C:\Users\Aman\Aman IBM> docker pull amansheik/aman-project
Using default tag: latest
latest: Pulling from amansheik/aman-project
Digest: sha256:43ab238b6e6887c7cd52a669ac1d881cb57ac24d2f2a8a76b0d415a8dae68fd1
Status: Image is up to date for amansheik/aman-project:latest
docker.io/amansheik/aman-project:latest
PS C:\Users\Aman\Aman IBM> docker run --name assignment4 -d -p 5000:5000 amansheik/aman-project
2fe7ec2ee4816b85cbc386b72c87daa782966daa03bee76e85d8451c7ec0b605
PS C:\Users\Aman\Aman IBM> |
```



IBM-EPBL/IBM-Project-50861-16609: Main

localhost:5000

sign in

Sakinvo

Inventory management software designed for Retailers

Manage orders.Track inventory.Handle GST billing.
One inventory management software to run all your inventory operations.

Get started

3) Running on Docker Playground.

03:57:40

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.8
node1

ce146ee3_ce146fm3tccg0095qmsg

IP
192.168.0.8

OPEN PORT

Memory
32.78% (1.28GiB / 3.906GiB)

CPU
0.74%

SSH
ssh ip172-18-0-100-ce146ee3tccg0095qms0@direct.labs.pla

DELETE

EDITOR

```
# The FWD team.
#####
[node1] (local) root@192.168.0.8 ~
$ docker pull amansheik/aman-project
Using default tag: latest
latest: Pulling from amansheik/aman-project
1671565cc8df: Pull complete
3e94d13e55e7: Pull complete
f9e7528e685: Pull complete
53ad072f9cd1: Pull complete
d62983117533: Pull complete
d8092456ded5: Pull complete
c71afc637d59: Pull complete
864a10b3c704: Pull complete
4334b2fe8293: Pull complete
04e0640432b7: Pull complete
e8d1d93559e9: Pull complete
a3ed95cae02: Pull complete
20a9b17b2bc6: Pull complete
dcbcb67fb940: Pull complete
Digest: sha256:43ab238b6e6887c7cd52a669ac1d881cb57ac24d2f2a8a76b0d415a8dae68f41
Status: Downloaded newer image for amansheik/aman-project:latest
docker.io/amansheik/aman-project:latest
[node1] (local) root@192.168.0.8 ~
$ docker run -d -p 5000:5000 amansheik/aman-project
c49251d8b1be32ba4fbf811c0fb5004848ff44828aa8648ee250231617a15b6
[node1] (local) root@192.168.0.8 ~
$
```

IBM-EPBL/IBM-Project-50861-16609 Docker Playground Main

http://ip172-18-0-100-ce146ee3tccg0095qms0-5000.directlabs.play-with-docker.com/

SakInvo

signin

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One inventory management software to
run all your inventory operations.

Get started

Close

Hi! I'm a virtual assistant. How can I help you today?

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

File Edit Selection View Go Run Terminal Help Dockerfile - Aman IBM - Visual Studio Code

EXPLORER

- OPEN EDITORS
 - Dockerfile Final Deliverables\ama...
- AMAN IBM
 - Assignments
 - Final Deliverables
 - aman project final code
 - __pycache__
 - env
 - kubernetes
 - node_modules
 - static
 - templates
 - 1deployment.yaml
 - app.py
 - ClusterRoleBinding.yaml
 - dashboard-adminuser.yaml
 - deployment.yaml
 - DigiCertGlobalRootCA.crt
 - Dockerfile**
 - dummy
 - package-lock.json
 - package.json
 - requirements.txt
 - service.yaml
 - test_deployment.yaml
 - IBM report.docx
 - Project Report.pdf
 - Project Design and Planning
 - Project Development Phase
 - Team ID.txt
 - UAT Report.pdf
- OUTLINE
- TIMELINE
- MYSQL

Dockerfile

```
1 FROM python:3.10.6
2 LABEL maintainer="Sheik Amanullah, sheikaman63@gmail.com"
3 RUN apt-get update
4 RUN mkdir /app
5 WORKDIR /app
6 COPY . /app
7 RUN pip install -r requirements.txt
8 EXPOSE 5000
9 ENTRYPOINT [ "python" ]
10 CMD [ "app.py", "--host=0.0.0.0" ]
```

Ln 1, Col 1 Spaces: 4 UTF-8 CRLF Dockerfile Go Live

2) Deploy it in Docker Desktop Application

Windows PowerShell

Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> docker build -t aman-project .
[+] Building 10.8s (10/11)
=> [internal] load build definition from Dockerfile 0.1s
=> => transferring dockerfile: 289B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/python:3.10.6 3.5s
=> [auth] library/python:pull token for registry-1.docker.io 0.0s
=> [1/6] FROM docker.io/library/python:3.10.6@sha256:745efd7b7e4aac9a8422bd8c62d8bc35a693e8979a240d29677cb03e6aa 0.0s
=> [internal] load build context 0.3s
=> => transferring context: 299.97kB 0.3s
=> CACHED [2/6] RUN apt-get update 0.0s
=> CACHED [3/6] RUN mkdir /app 0.0s
=> CACHED [4/6] WORKDIR /app 0.0s
=> CACHED [5/6] COPY . /app 0.0s
=> [6/6] RUN pip install -r requirements.txt 6.8s
=> => # Downloading Flask-2.2.2-py3-none-any.whl (101 kB)
=> => # 101.5/101.5 kB 515.2 kB/s eta 0:00:00
=> => # Collecting ibm_db
=> => # Downloading ibm_db-3.1.4.tar.gz (1.4 MB)
=> => # 1.4/1.4 MB 1.7 MB/s eta 0:00:00
=> => # Installing build dependencies: started

Docker Desktop

Update to latest

Search Ctrl+K

amansheik

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](#)

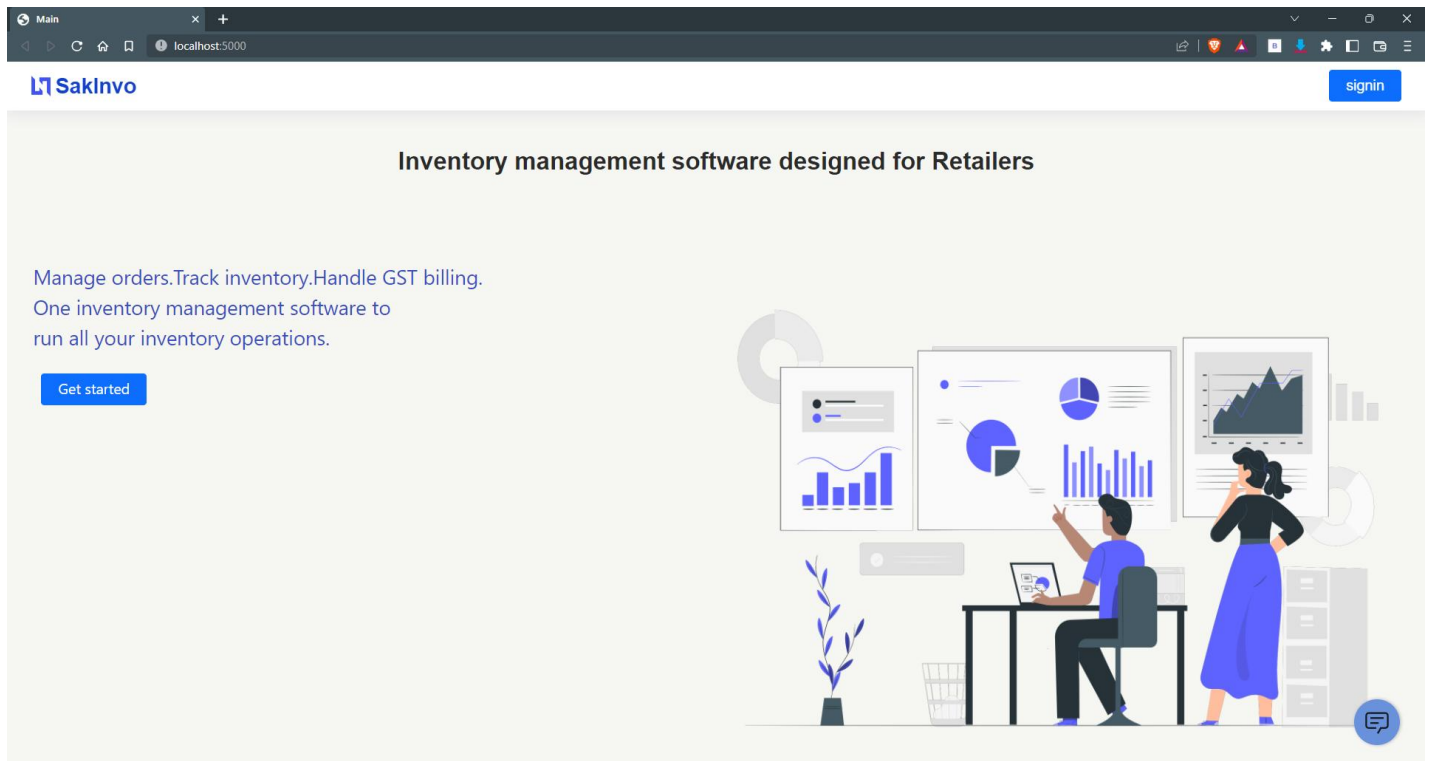
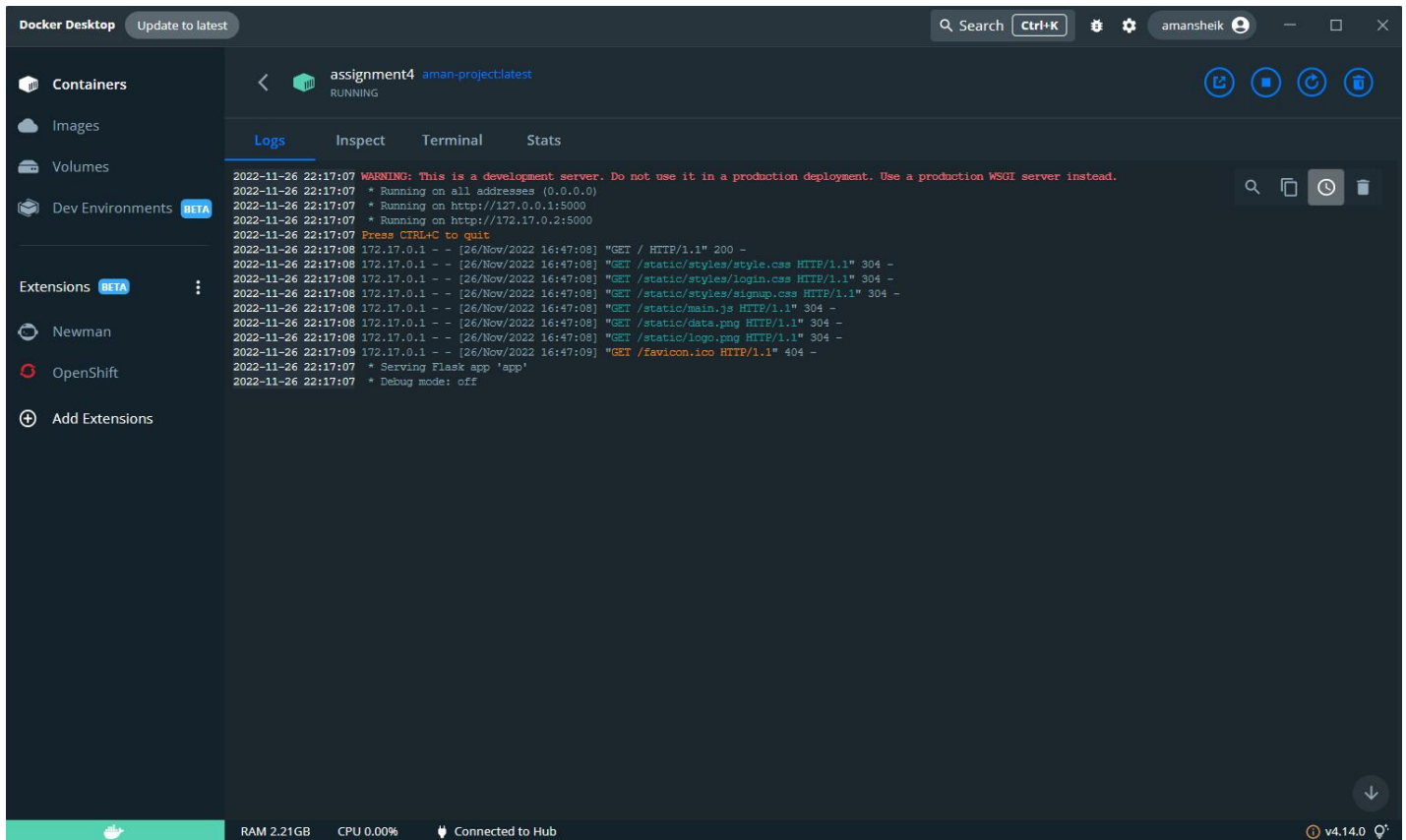
☐ Only show running containers

Search

	NAME	IMAGE	STATUS	PORT(S)	STARTED	ACTIONS
<input type="checkbox"/>	<div>assignment4</div> <div>50fb0aeba574</div>	aman-project:latest	Running	5000:5000	6 minutes ago	<div></div> <div></div> <div></div>

Showing 1 items

RAM 2.21GB CPU 0.04% Connected to Hub v4.14.0



Question-3:

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

1) create a ibm container registry

```
Windows PowerShell
PS C:\Users\Aman\Aman IBM\Assignment 4> ibmcloud login
API endpoint: https://cloud.ibm.com
Region: eu-de

Email> sheikaman63@gmail.com

Password>
Authenticating...
OK

Targeted account Sheik Amanullah's Account (7fc6415feba6437dacf1be78d3f82695)

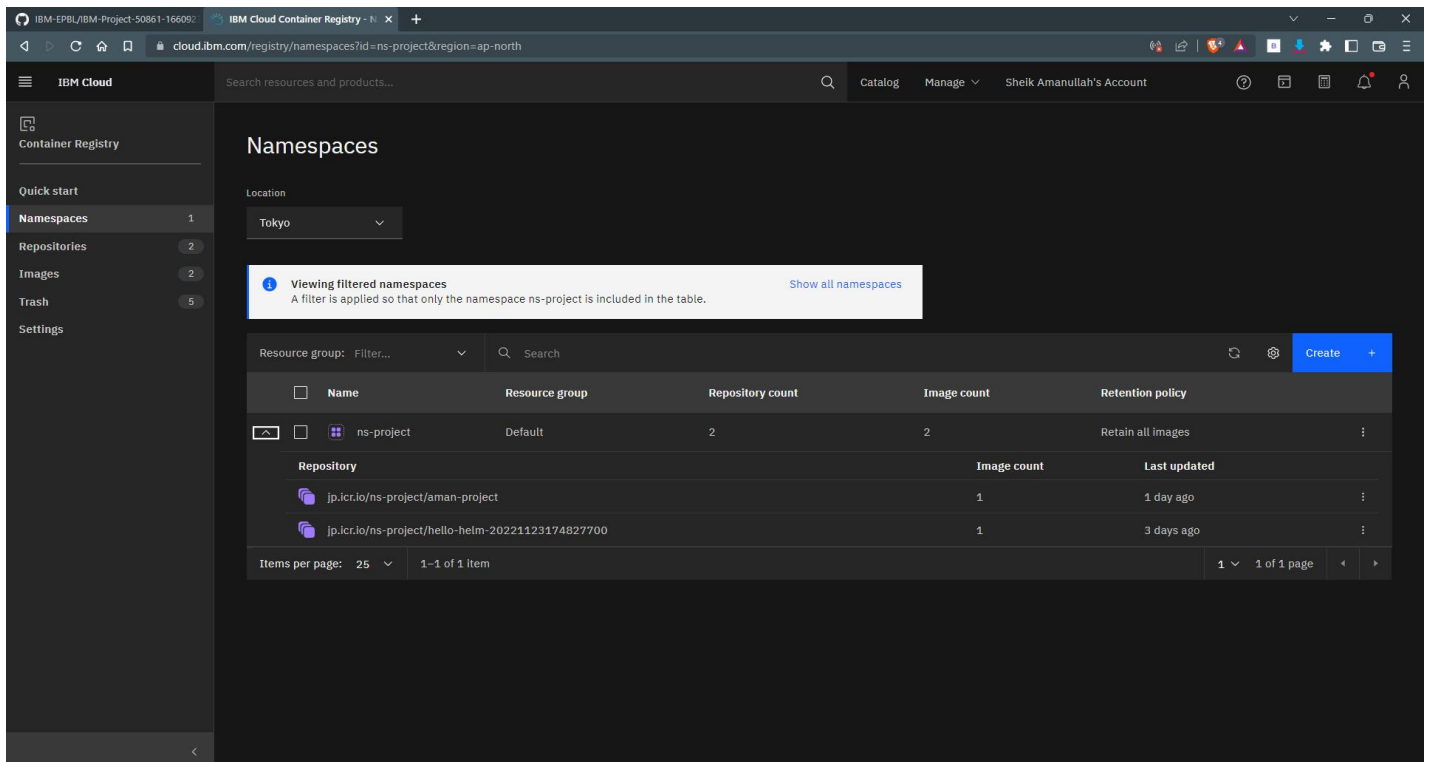
API endpoint: https://cloud.ibm.com
Region: eu-de
User: sheikaman63@gmail.com
Account: Sheik Amanullah's Account (7fc6415feba6437dacf1be78d3f82695)
Resource group: No resource group targeted, use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe target -g RESOURCE_GROUP'

CF API endpoint:
Org:
Space:
PS C:\Users\Aman\Aman IBM\Assignment 4> ibmcloud plugin install container-registry
Looking up 'container-registry' from repository 'IBM Cloud'...
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Plug-in 'container-registry 1.0.2' was already installed. Do you want to update it with 'container-registry[cr] 1.0.2' or not? [y/N] > n
Plugin installation was canceled.
PS C:\Users\Aman\Aman IBM\Assignment 4> |
```

2) Deploy helloworld or jobportal or any other application

```
Windows PowerShell
9ff6e4d46744: Waiting
a89d1d47b5a1: Waiting
655ed1b7a428: Waiting
unauthorized: The login credentials are not valid, or your IBM Cloud account is not active.
PS C:\Users\Aman\Aman IBM\Assignment 4> ibmcloud cr login
Logging 'docker' in to 'jp.icr.io'...
Logged in to 'jp.icr.io'.

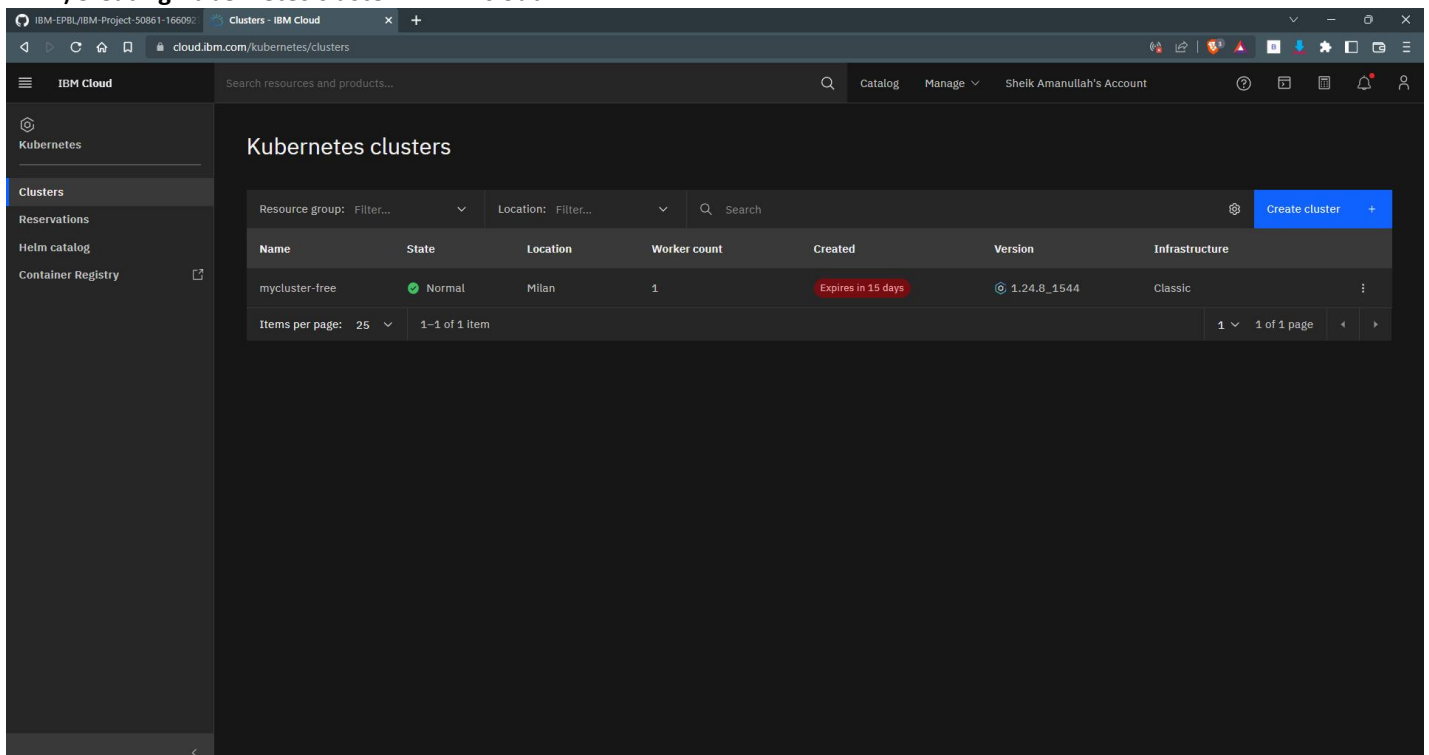
OK
PS C:\Users\Aman\Aman IBM\Assignment 4> docker tag aman-project jp.icr.io/ns-project/aman-project
PS C:\Users\Aman\Aman IBM\Assignment 4> docker push jp.icr.io/ns-project/aman-project
Using default tag: latest
The push refers to repository [jp.icr.io/ns-project/aman-project]
2515d6344c34: Layer already exists
72517d960819: 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
denied: You have exceeded your storage quota. Delete one or more images, or review your storage quota and pricing plan.
For more information, see https://ibm.biz/BdPdFA.
PS C:\Users\Aman\Aman IBM\Assignment 4> |
```



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

```
Windows PowerShell
PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> ibmcloud login -a cloud.ibm.com -r eu-de -g Default
API endpoint: https://cloud.ibm.com

Email> sheikaman63@gmail.com

Password>
Authenticating...
OK

Targeted account Sheik Amanullah's Account (7fc6415feba6437dacf1be78d3f82695)
Targeted resource group Default
Targeted region eu-de

API endpoint: https://cloud.ibm.com
Region: eu-de
User: sheikaman63@gmail.com
Account: Sheik Amanullah's Account (7fc6415feba6437dacf1be78d3f82695)
Resource group: Default
CF API endpoint:
Org:
Space:
PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> ibmcloud ks cluster config --cluster cdn8jusf0eg28bp5jeog
OK
The configuration for cdn8jusf0eg28bp5jeog was downloaded successfully.

Added context for cdn8jusf0eg28bp5jeog 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.
PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> kubectl apply -f .\deployment.yaml
deployment.apps/aman-project unchanged
PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> kubectl apply -f .\service.yaml
service/aman-project-service unchanged
PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> get svc
get: The term 'get' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the
spelling of the name, or if a path was included, verify that the path is correct and try again.
At line:1 char:1
+ get svc
+ ~~~~
+ CategoryInfo          : ObjectNotFound: (get:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> kubectl get svc
NAME                                TYPE        CLUSTER-IP      EXTERNAL-IP  PORT(S)          AGE
aman-project-service               NodePort    172.21.186.32   <none>       5000:30658/TCP   21h
kubernetes                         ClusterIP    172.21.0.1      <none>       443/TCP          14d
PS C:\Users\Aman\Aman IBM\Final Deliverables\aman project final code> |
```

IBM-EPBL/IBM-Project-50861-16605mycluster-free - IBM CloudMain


Not secure | 169.51.194.232:30658

sign in

Inventory management software designed for Retailers

Manage orders.Track inventory.Handle GST billing.
One inventory management software to
run all your inventory operations.

Get started



Hi! I'm a virtual assistant.
How can I help you
today?