Assignment 4

Assignment date	11/11/2022
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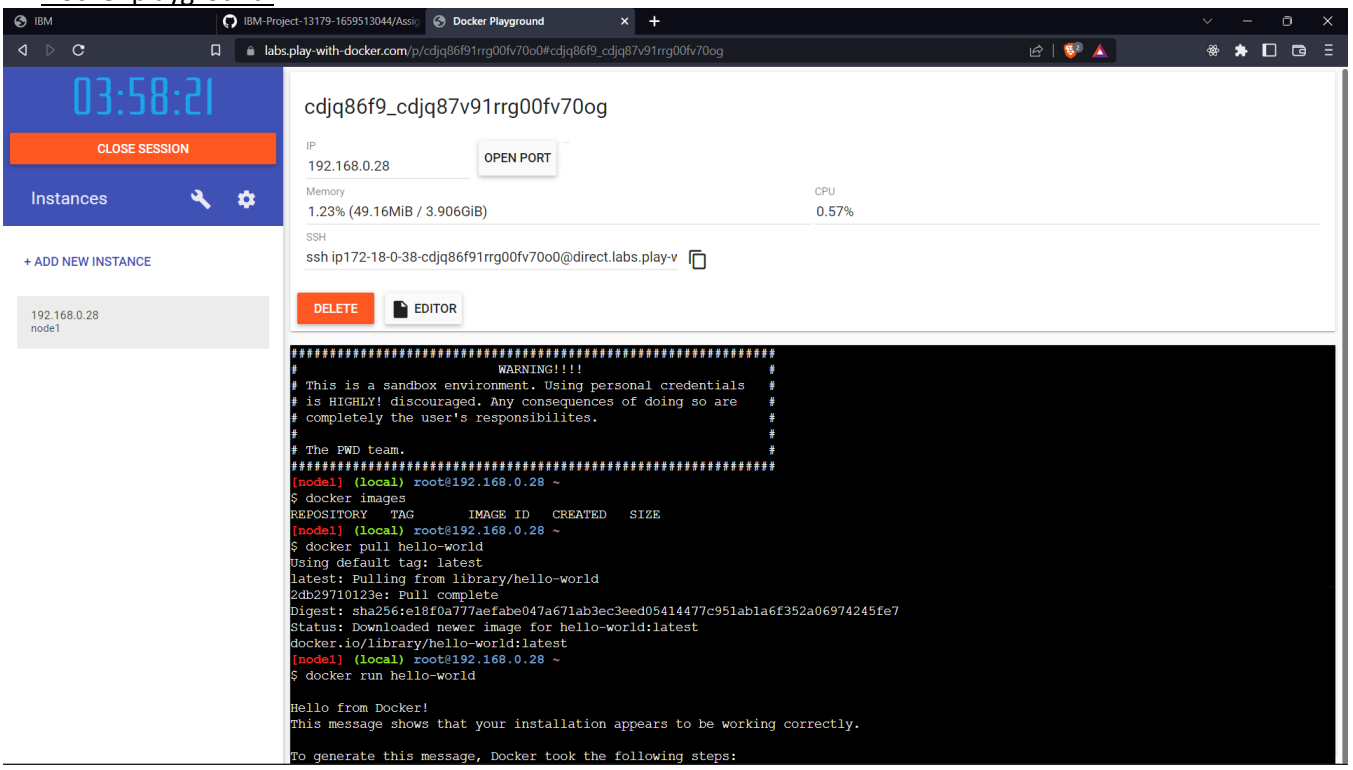
Question 1:

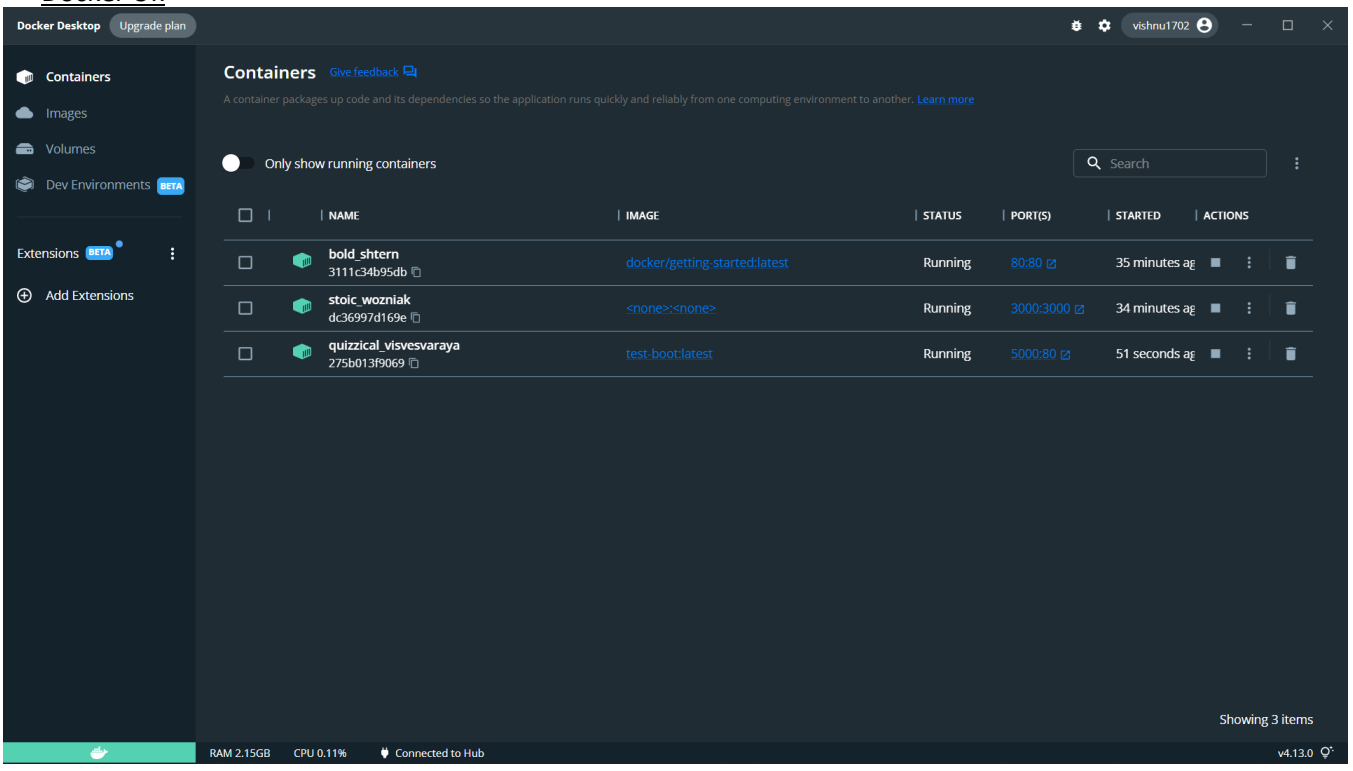
Pull an image from docker hub and run it on docker playground.

Solution 1:

Docker playground:



Docker UI:



Question 2:

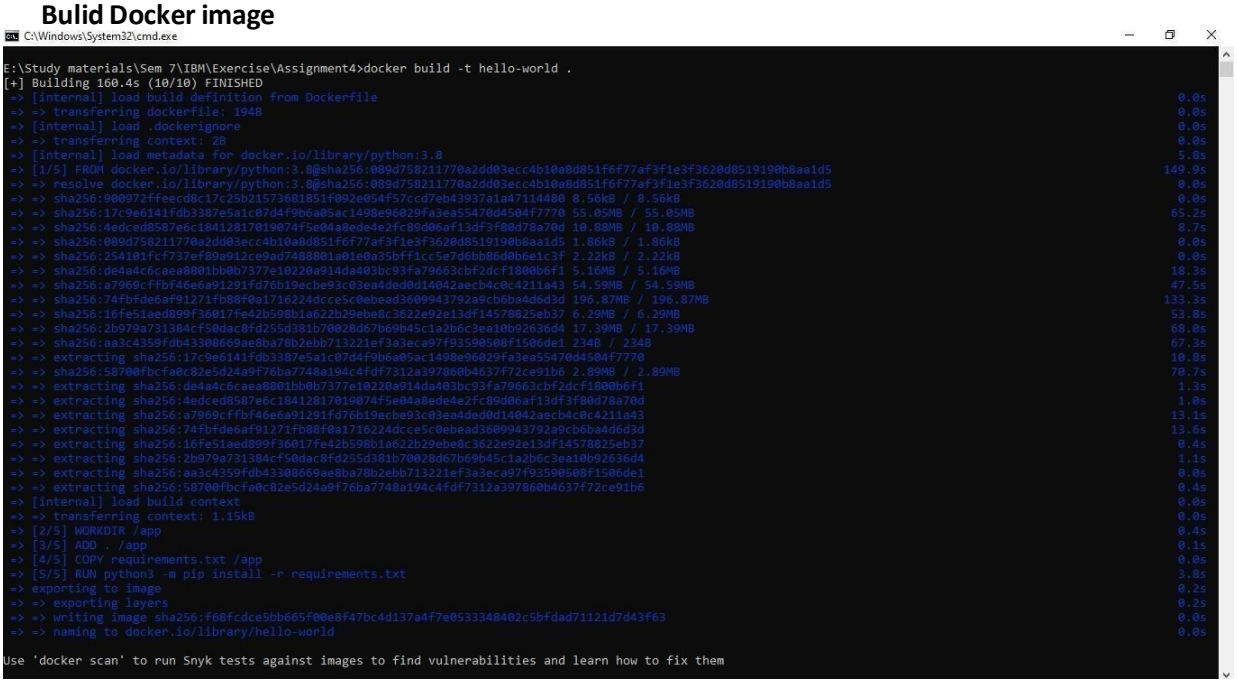
Create a docker file for the job portal app or hello world app and deploy it in docker desktop app.

Solution 2:

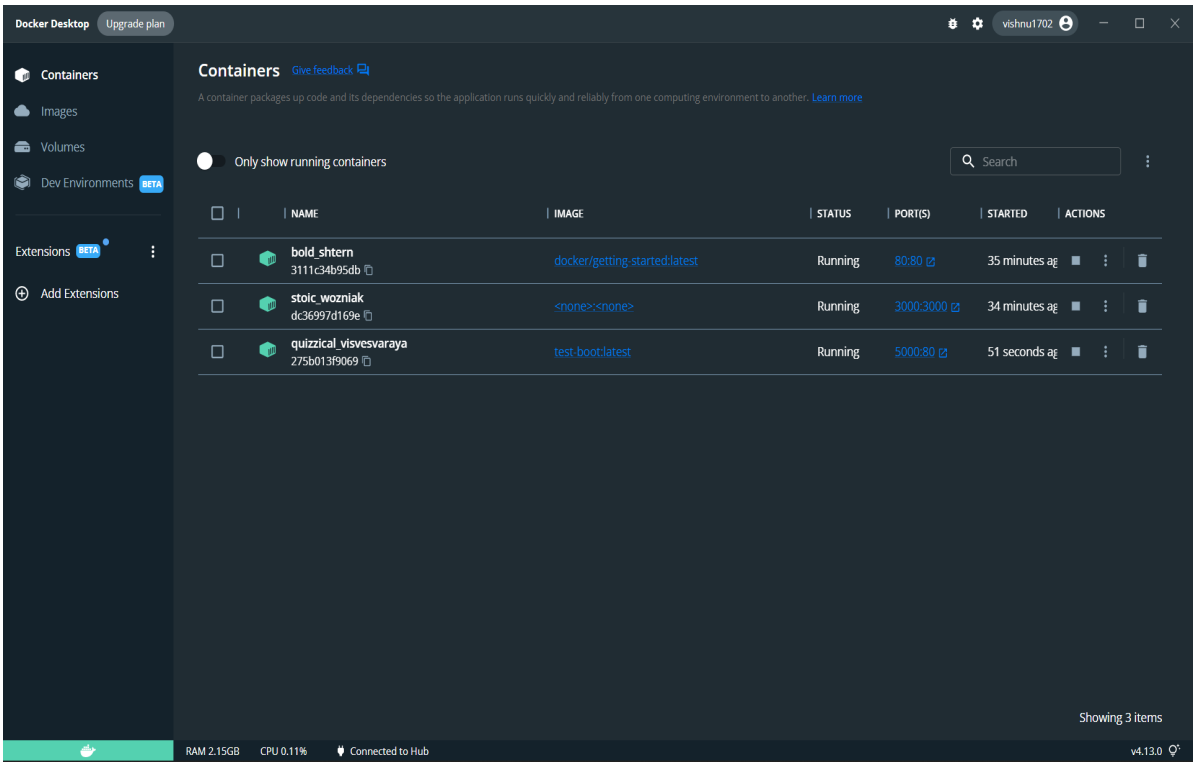
DockerFile

```
FROM node:12-alpine
# Adding build tools to make yarn install work on Apple silicon / arm64 machines
RUN apk add --no-cache python2 g++ make
WORKDIR /app
COPY . .
RUN yarn install --production
CMD ["node", "src/index.js"]
```

Bulid Docker image

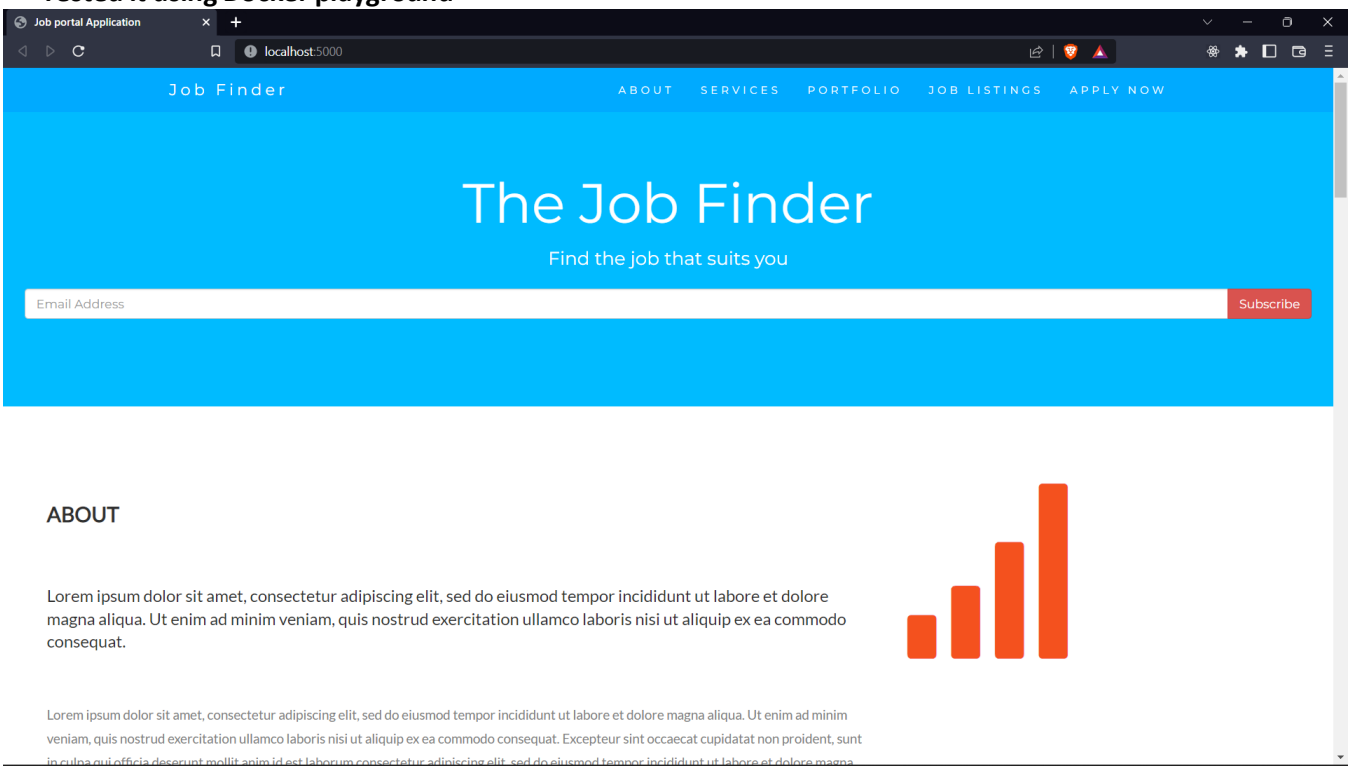


Deploy it on Docker hub




```
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker images
REPOSITORY    TAG       IMAGE ID       CREATED          SIZE
hello-world   latest    f68fcdce5bb6   5 minutes ago   919MB

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>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/

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world itsmona14/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push itsmona14/hello-world
Using default tag: latest
The push refers to repository [docker.io/itsmona14/hello-world]
373eb5cf4ceb: Pushed
1e505dc1de5e: Pushed
090c85cb75c5: Pushed
ded8299b8f1a: Pushed
1fe0699af9f7: Mounted from library/python
156568a71809: Mounted from library/python
5fca8a94d542: Mounted from library/python
6b183c62e3d7: Mounted from library/python
882fd36bfd35: Mounted from library/python
d1dec9917839: Mounted from library/python
d38adf39e1dd: Mounted from library/python
4ed121b04368: Mounted from library/python
d9d07d703dd5: Mounted from library/python
latest: digest: sha256:46ff91edc98aaa5d7fff51ba708b6498af3c4f64612d9a990bf437497555fd82 size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>
```

Tested it using Docker playground

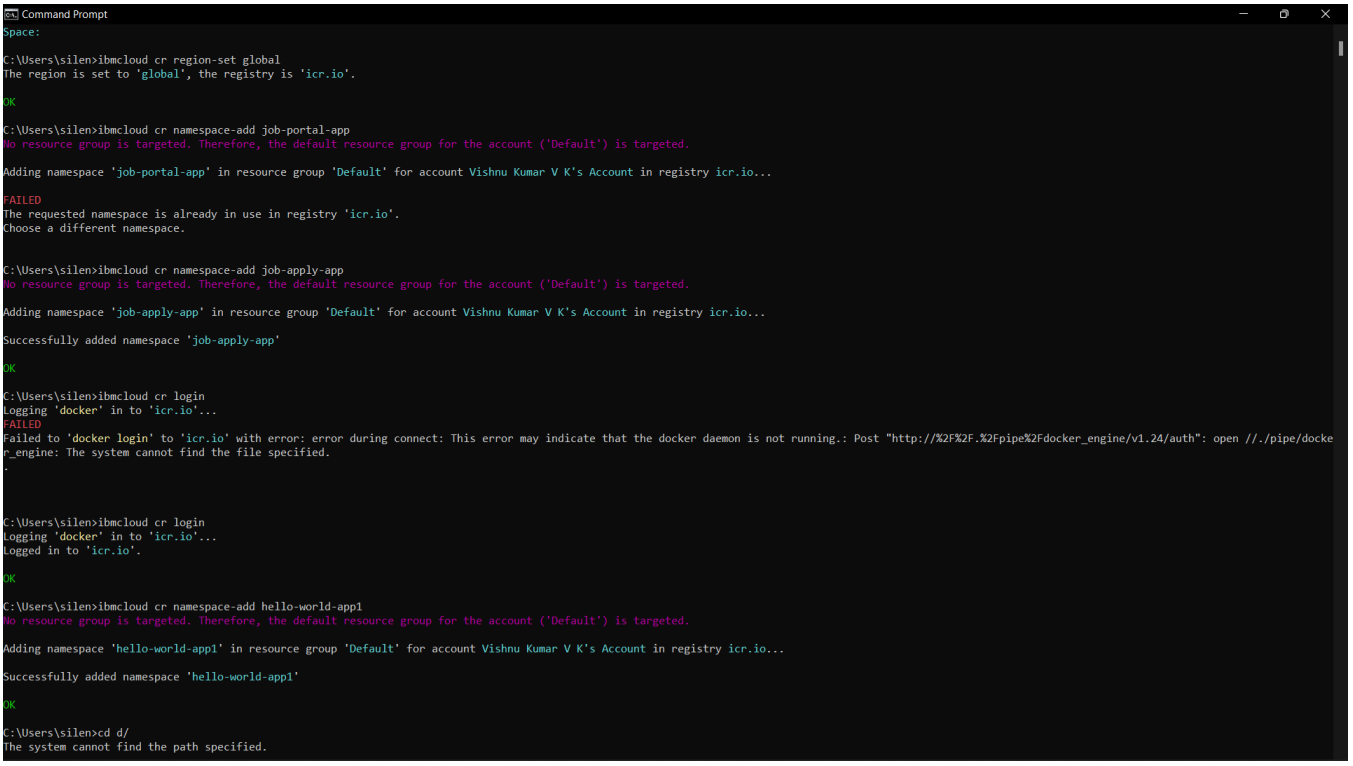


Question 3:

Create an IBM container registry and deploy helloworld app or job portal app.

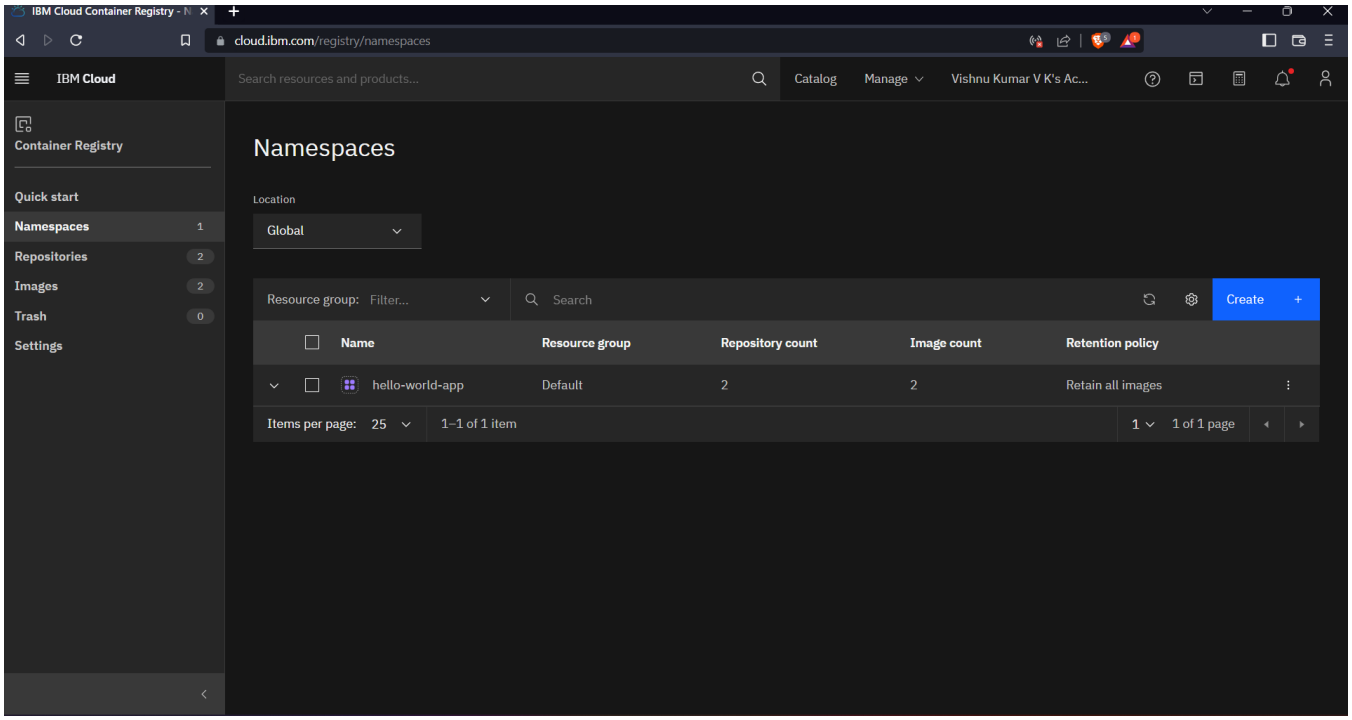
Solution 3:

My image link: au.icr.io/hello-world-app/hello-world



```
Command Prompt
(c) Microsoft Corporation. All rights reserved.

C:\Users\silen>ibmcloud login
API endpoint: https://cloud.ibm.com
Region: us-east

Email> vishnukumar.vk.2019.it@rajalakshmi.edu.in

Password>
Authenticating...
Credentials were rejected.
Code: BXNIM0602E, message: The credentials you entered for the user 'vishnukumar.vk.2019.it@rajalakshmi.edu.in' are incorrect.

Password>
Authenticating...
OK

Targeted account Vishnu Kumar V K's Account (f21b26afeec34e3aa0466ee382b43503)


API endpoint:      https://cloud.ibm.com
Region:            us-east
User:              vishnukumar.vk.2019.it@rajalakshmi.edu.in
Account:           Vishnu Kumar V K's Account (f21b26afeec34e3aa0466ee382b43503)
Resource group:    No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

C:\Users\silen>ibmcloud cr region-set global
The region is set to 'global', the registry is 'icr.io'.

OK

C:\Users\silen>ibmcloud cr namespace-add job-portal-app
No resource group is targeted. Therefore, the default resource group for the account ('Default') is targeted.

Adding namespace 'job-portal-app' in resource group 'Default' for account Vishnu Kumar V K's Account in registry icr.io...

FAILED
The requested namespace is already in use in registry 'icr.io'.
Choose a different namespace.


C:\Users\silen>ibmcloud cr namespace-add job-apply-app
No resource group is targeted. Therefore, the default resource group for the account ('Default') is targeted.

Adding namespace 'job-apply-app' in resource group 'Default' for account Vishnu Kumar V K's Account in registry icr.io...

Successfully added namespace 'job-apply-app'

OK
```

```
Command Prompt
Digest: sha256:faa03e786c97f07ef34423fcccceeec2398ec8a5759259f94d99078f264e9d7af
Status: Image is up to date for hello-world:latest
docker.io/library/hello-world:latest

F:\Nalaiya Thiran\DOCKER>dir
 Volume in drive F is Disk 2
 Volume Serial Number is B85A-C57E

 Directory of F:\Nalaiya Thiran\DOCKER

11-11-2022  20:32    <DIR>          .
06-11-2022  08:07    <DIR>          ..
11-11-2022  20:36    <DIR>          app
06-11-2022  08:07         1,760,114 app.zip
               1 File(s)      1,760,114 bytes
               3 Dir(s)  58,446,766,080 bytes free

F:\Nalaiya Thiran\DOCKER>docker tag hello-world icr.io/hello-world-app/hello-world:hello-world

F:\Nalaiya Thiran\DOCKER>docker push icr.io/hello-world-app/hello-world:hello-world
The push refers to repository [icr.io/hello-world-app/hello-world]
e07ee1baac5f: Preparing
denied: insufficient scope

F:\Nalaiya Thiran\DOCKER>ibcloud cr image-list
'ibcloud' is not recognized as an internal or external command,
operable program or batch file.

F:\Nalaiya Thiran\DOCKER>ibmcloud cr image-list
Listing images...

You have no images in the namespaces for this account, or you are not authorized to view any namespaces for this account.
Push an image, or ensure that the IAM access policy for this account grants you Reader or Manager access to at least one namespace.
To see IBM-provided images, run 'ibmcloud cr image-list --include-ibm'.


F:\Nalaiya Thiran\DOCKER>docker tag hello-world icr.io/hello-world-app/hello-world:hello-world

F:\Nalaiya Thiran\DOCKER>docker push icr.io/hello-world-app/hello-world:hello-world
The push refers to repository [icr.io/hello-world-app/hello-world]
e07ee1baac5f: Pushed
hello-world: digest: sha256:f54a58bc1aac5ea1a25d796ae155dc228b3f0e11d046ae276b39c4bf2f13d8c4 size: 525

F:\Nalaiya Thiran\DOCKER>ibcloud cr image-list
'ibcloud' is not recognized as an internal or external command,
operable program or batch file.

F:\Nalaiya Thiran\DOCKER>ibmcloud cr image-list
Listing images...

Repository                          Tag           Digest         Namespace         Created      Size     Security status
icr.io/hello-world-app/hello-world  hello-world   f54a58bc1aac   hello-world-app   1 year ago   2.5 kB   -
```

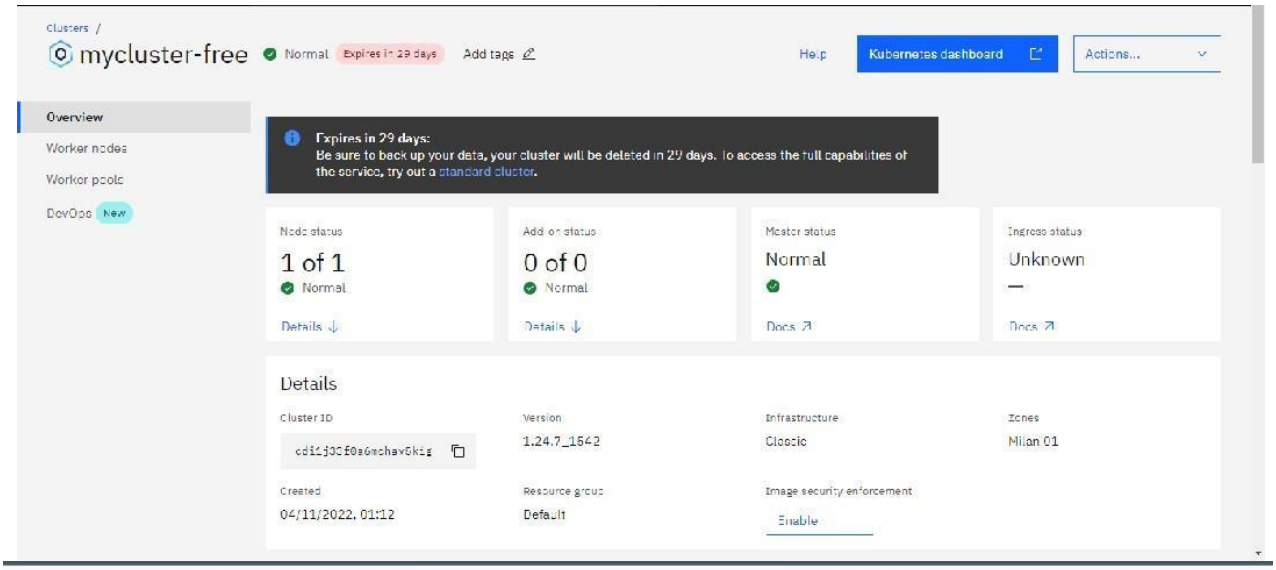


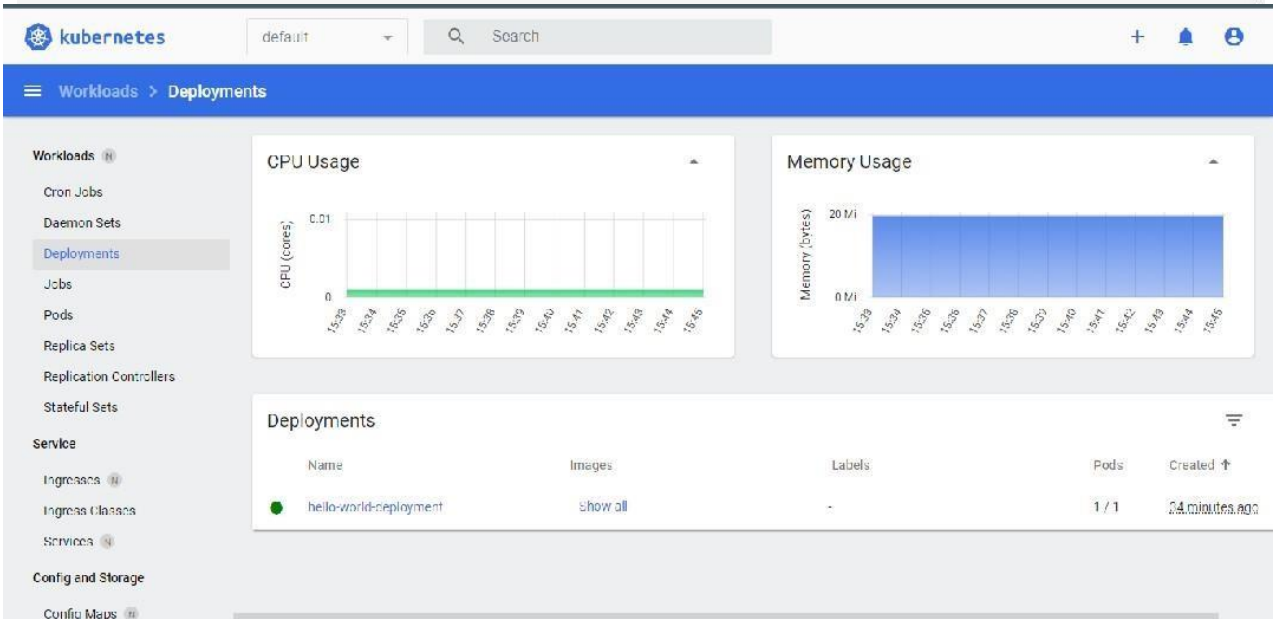
Question 4:

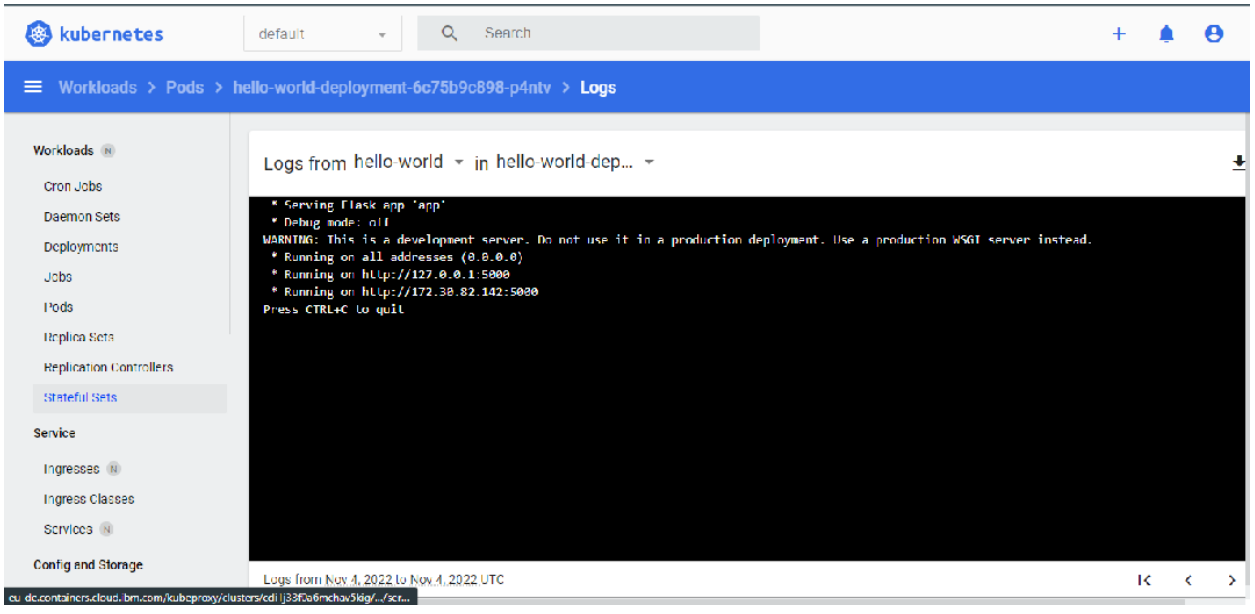
Create a kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image and also expose the same app to run in nodeport.

Solution 4:

```
apiVersion: v1
kind: Service
metadata:
   name: hello-world-deployment
spec:
   ports:
   - port: 5000
     targetPort: 5000
   selector:
     app: hello-world
---
apiVersion: apps/v1
kind: Deployment
metadata:
   name: hello-world-deployment
spec:
   replicas: 1
   selector:
     matchLabels:
       app: hello-world
   template:
     metadata:
       labels:
         app: hello-world
     spec:
       containers:
       - name: hello-world
         image: au.icr.io/hello-world-app/hello-world
         imagePullPolicy: Always
         ports:
         - containerPort: 5000
```


Clusters /
mycluster-free
Normal
Expires in 29 days
Add tags
Help
Kubernetes dashboard
Actions...
Overview
Worker nodes
Worker pools
DevOps
New
Expires in 29 days:
Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a standard cluster.
Node status
1 of 1
Normal
Details
Add-on status
0 of 0
Normal
Details
Master status
Normal
Docs
Ingress status
Unknown
Docs
Details
Cluster ID
cdijj3cf0a6mchav5kig
Version
1.24.7_1542
Infrastructure
Classic
Zones
Milan 01
Created
04/11/2022, 01:12
Resource group
Default
Image security enforcement
Enable


kubernetes
default
Search
Workloads > Deployments
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Config Maps
CPU Usage
CPU (cores)
0.01
0
Memory Usage
Memory (bytes)
20 Mi
0 Mi
Deployments
Name
Images
Labels
Pods
Created
hello-world-deployment
Show all
-
1 / 1
24 minutes ago


kubernetes
default
Search
Workloads > Pods > hello-world-deployment-6c75b9c898-p4ntv > Logs
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Logs from hello-world in hello-world-dep...
* 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://172.30.82.142:5000
Press CTRL+C to quit
Logs from Nov 4, 2022 to Nov 4, 2022 UTC