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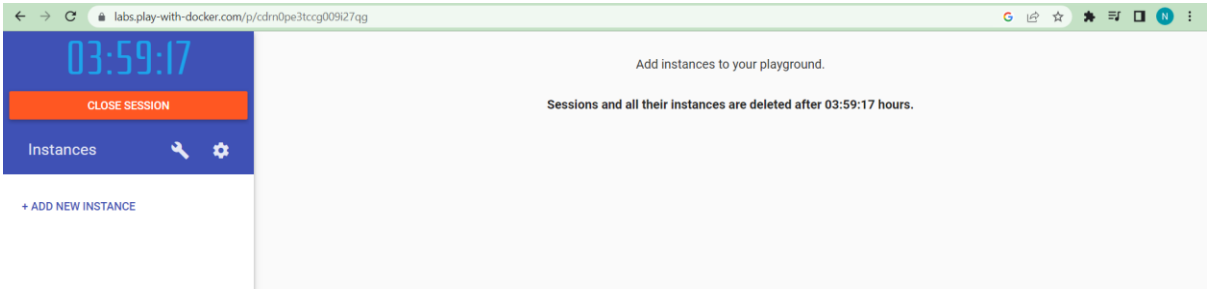
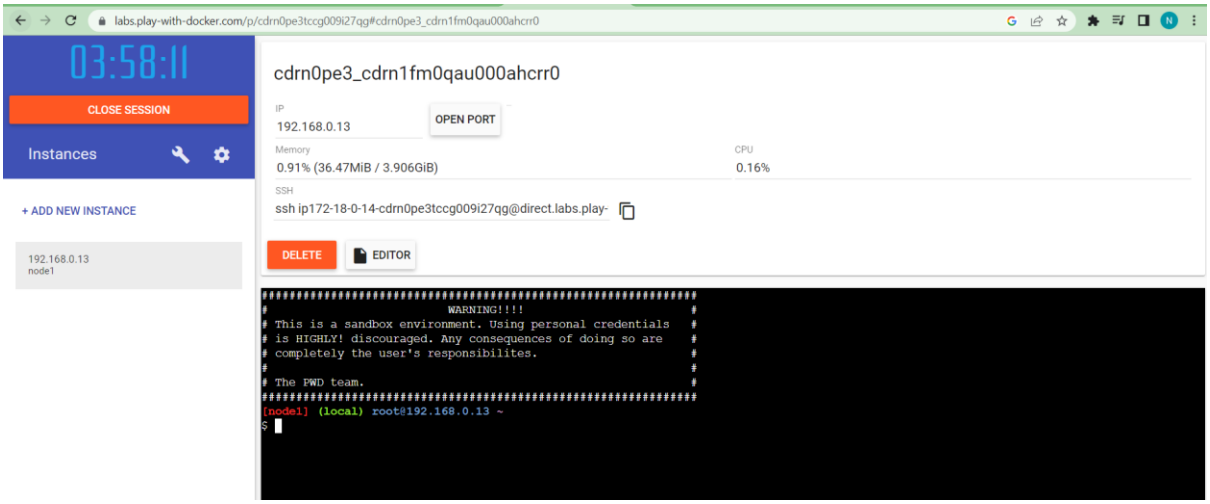
Student Roll Number	917719IT063

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

Open docker playground.

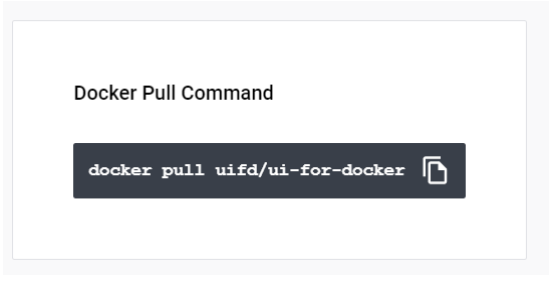


Click add new instance.



Pull an image from docker hub:

uifd/ui-for-docker



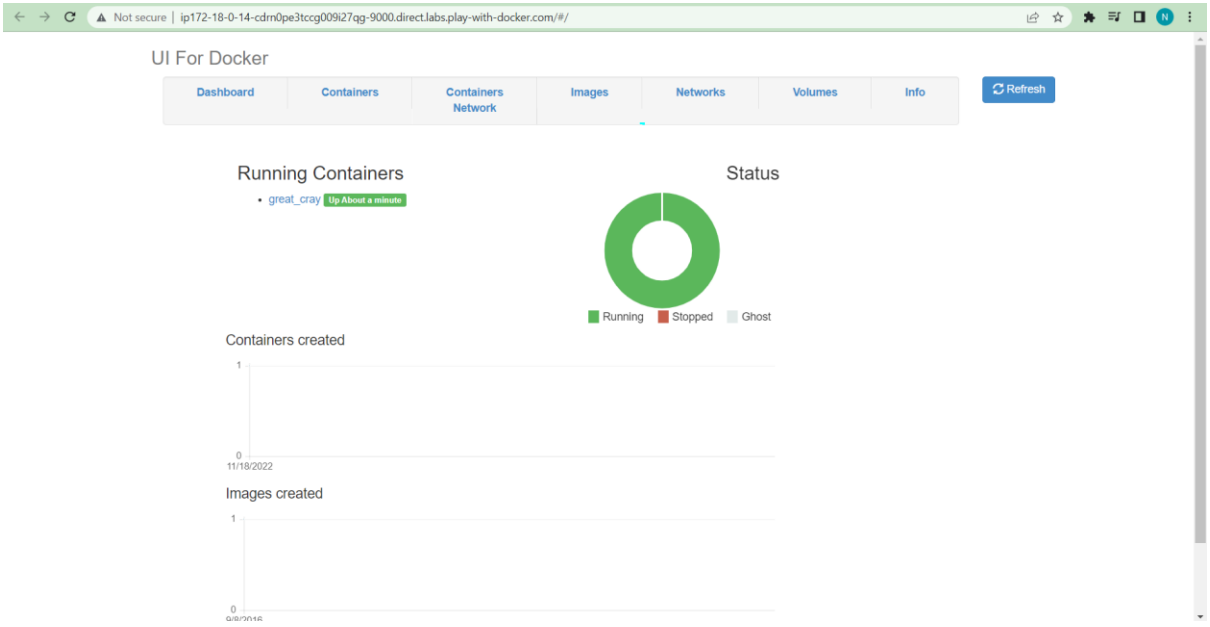
```
[node1] (local) root@192.168.0.13 ~
$ docker pull uifd/ui-for-docker
Using default tag: latest
latest: Pulling from uifd/ui-for-docker
841194d080c8: Pull complete
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834cbadf244870572150b1cb749
Status: Downloaded newer image for uifd/ui-for-docker:latest
docker.io/uifd/ui-for-docker:latest
[node1] (local) root@192.168.0.13 ~
$
```

Run the image in docker playground:

docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker

```
[node1] (local) root@192.168.0.13 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
b13f6d7773c5f650c21b335678ead393dd52582469022ddadd86a1ef5edcd6cd
[node1] (local) root@192.168.0.13 ~
$
```

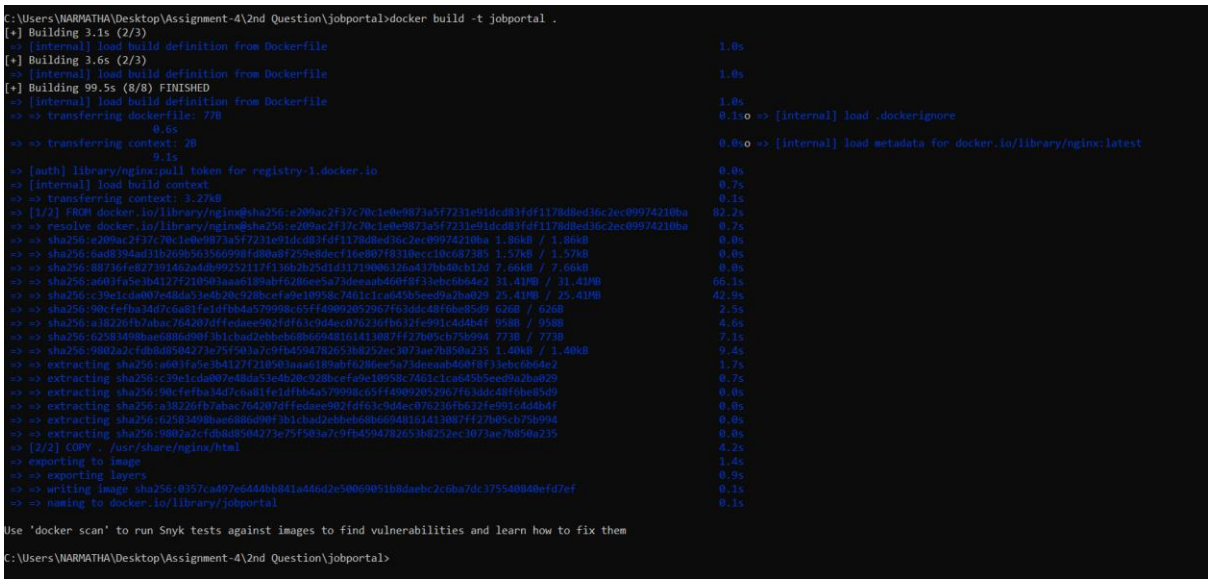
http://ip172-18-0-14-cdrn0pe3tccg009i27qg-9000.direct.labs.play-with-docker.com/#/



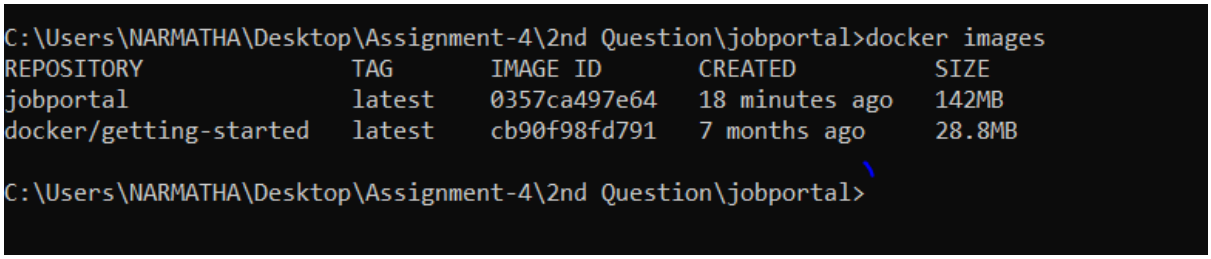

```
$ docker ps
CONTAINER ID   IMAGE                COMMAND             CREATED         STATUS         PORTS                    NAMES
b13f6d7773c5   uifd/ui-for-docker   "/ui-for-docker"    8 minutes ago   Up 8 minutes   0.0.0.0:9000->9000/tcp   great_cray
[node1] (local) root@192.168.0.13 ~
$
```

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

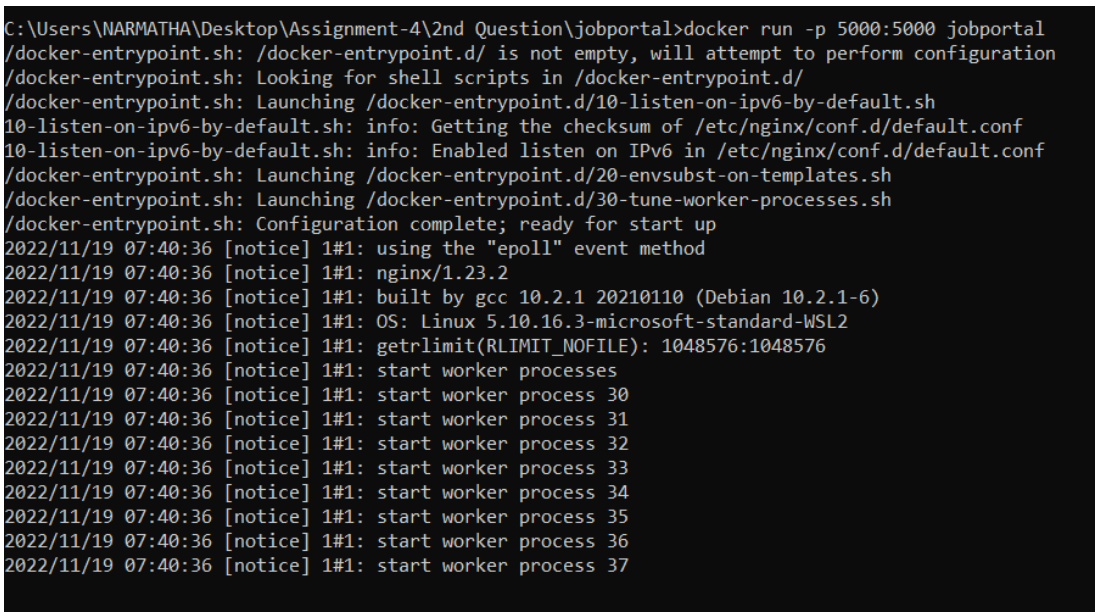
docker build -t jobportal .



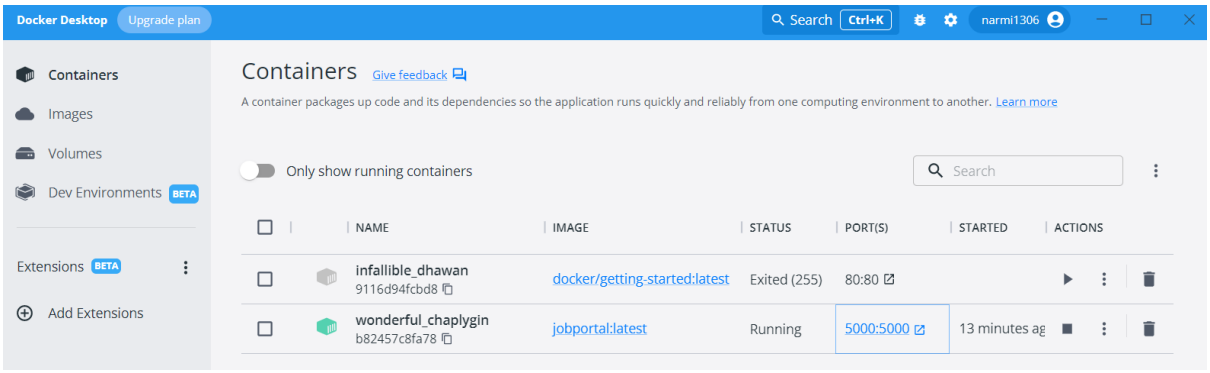
docker images



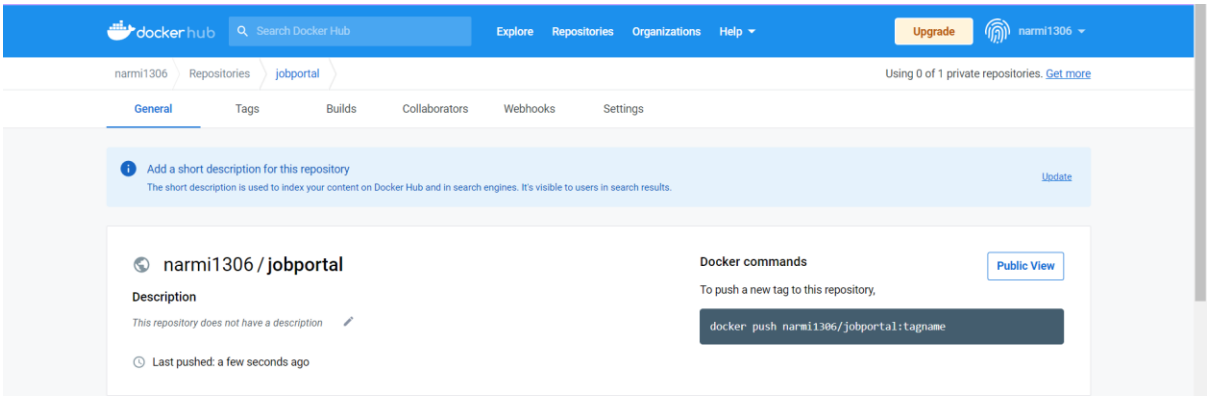
docker run -p 5000:5000 jobportal



Docker desktop



Creating repository in docker hub



docker login

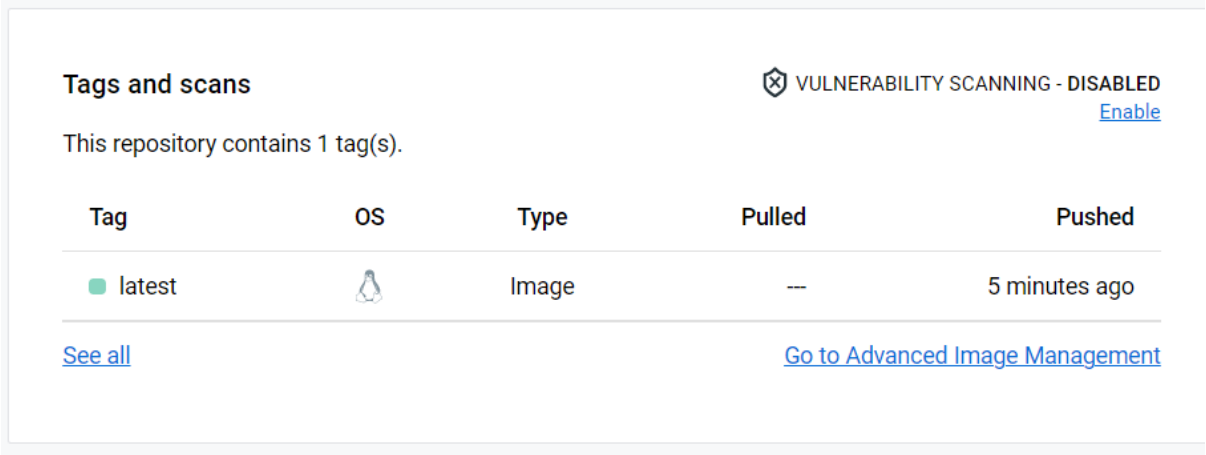
```
C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>docker login
[2022-11-19T08:03:19.229337300Z][docker-credential-desktop][W] Windows version might not be up-to-date: The system cannot find the file specified.
Authenticating with existing credentials...
[2022-11-19T08:03:25.418366100Z][docker-credential-desktop][W] Windows version might not be up-to-date: The system cannot find the file specified.
Login Succeeded
[2022-11-19T08:03:25.550309500Z][docker-credential-desktop][W] Windows version might not be up-to-date: The system cannot find the file specified.

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/

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>
```

docker tag jobportal narmi1306/jobportal

```
C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>docker tag jobportal narmi1306/jobportal

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>
```

docker push narmi1306/jobportal

```
C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>docker push narmi1306/jobportal
Using default tag: latest
[2022-11-19T09:38:35.826551600Z][docker-credential-desktop][W] Windows version might not be up-to-date:
The system cannot find the file specified.
The push refers to repository [docker.io/narmi1306/jobportal]
7bab39b645a4: Pushed
6cffb086835a: Mounted from library/nginx
e2d75d87993c: Mounted from library/nginx
5a5bafd53f76: Mounted from library/nginx
f86e88a471f4: Mounted from library/nginx
f7ed3797e296: Mounted from library/nginx
ec4a38999118: Mounted from library/nginx
latest: digest: sha256:37aeb2ba52ddb4ee0f114d6c2662b91d549ec62165137b94ae8e447c39d9f2d8 size: 1780

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>
```



docker pull narmi1306/jobportal

```
$ docker pull narmi1306/jobportal
Using default tag: latest
latest: Pulling from narmi1306/jobportal
a603fa5e3b41: Pull complete
c39e1cda007e: Pull complete
90cfefba34d7: Pull complete
a38226fb7aba: Pull complete
62583498bae6: Pull complete
9802a2cfdb8d: Pull complete
64b059d95f05: Pull complete
Digest: sha256:37aeb2ba52ddb4ee0f114d6c2662b91d549ec62165137b94ae8e447c39d9f2d8
Status: Downloaded newer image for narmi1306/jobportal:latest
docker.io/narmi1306/jobportal:latest
```

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

ibmcloud plugin install container-registry

```
C:\Users\NARMATHA>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'
Attempting to download the binary file...
 11.90 MiB / 11.90 MiB [=============================================================================] 100.00% 22s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\NARMATHA\.bluemix\plugins\container-registry
. Use 'ibmcloud plugin show container-registry' to show its details.

C:\Users\NARMATHA>
```

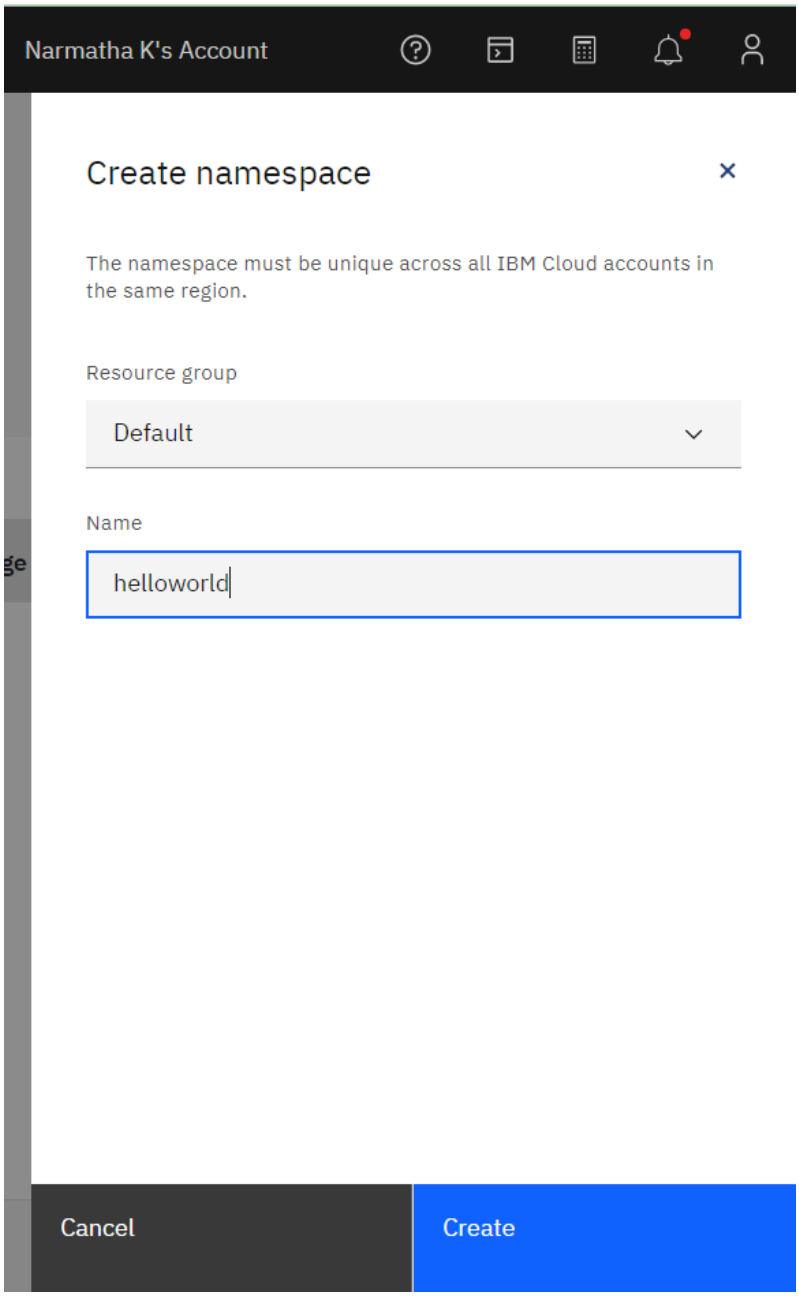
ibmcloud login

```
C:\Users\NARMATHA>ibmcloud login
API endpoint: https://cloud.ibm.com

Email> narmathak@student.tce.edu

Password>
Authenticating...
OK

Targeted account Narmatha K's Account (03aecf3e865a45168f91dd4ef6d26c5f)


Select a region (or press enter to skip):
1. au-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-seo
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 9
Targeted region us-south


API endpoint:      https://cloud.ibm.com
Region:            us-south
User:              narmathak@student.tce.edu
Account:           Narmatha K's Account (03aecf3e865a45168f91dd4ef6d26c5f)
Resource group:    No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

C:\Users\NARMATHA>
```

ibmcloud cr region-set global

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

OK

C:\Users\NARMATHA>
```

Create namespace



ibmcloud cr region-set ap-south

```
C:\Users\NARMATHA>ibmcloud cr region-set ap-south
The region is set to 'ap-south', the registry is 'au.icr.io'.

OK

C:\Users\NARMATHA>
```

ibmcloud cr namespace-add hello__world

```
C:\Users\NARMATHA>ibmcloud cr namespace-add hello__world
No resource group is targeted. Therefore, the default resource group for the account ('Default') is targeted.

Adding namespace 'hello__world' in resource group 'Default' for account Narmatha K's Account in registry au.icr.io...

Successfully added namespace 'hello__world'

OK

C:\Users\NARMATHA>
```

ibmcloud cr login

```
C:\Users\NARMATHA>ibmcloud cr login
Logging 'docker' in to 'au.icr.io'...
Logged in to 'au.icr.io'.

OK

C:\Users\NARMATHA>
```

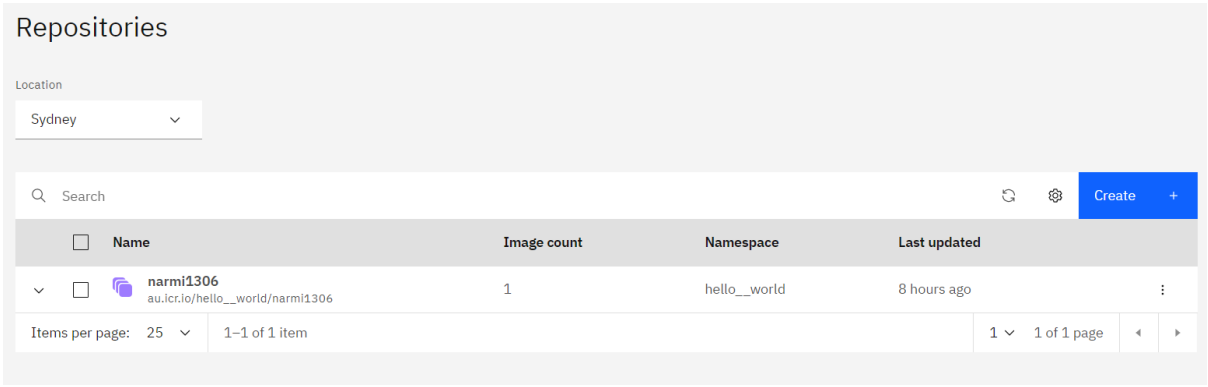
docker tag jobportal icr.io/hello__world/narmi1306

docker push au.icr.io/hello__world/narmi1306

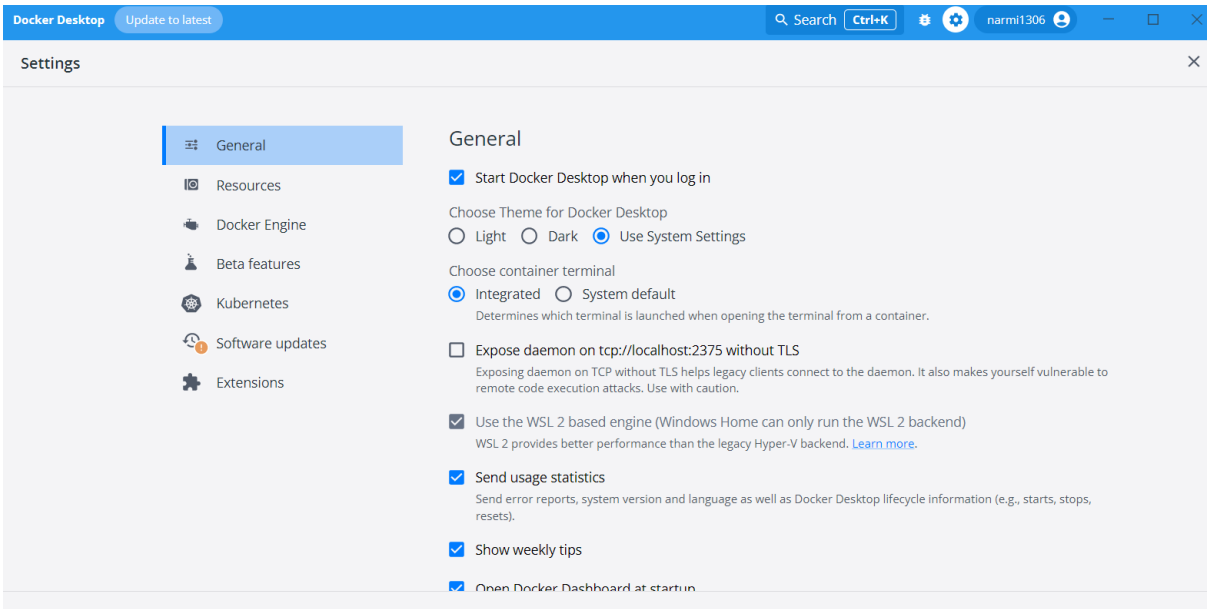
NAME	IMAGE	STATUS	PORT(S)	STARTED	ACTIONS
wonderful_chaplygin b82457c8fa78	au.icr.io/hello__world/narmi13	Exited (255)	5000:5000		

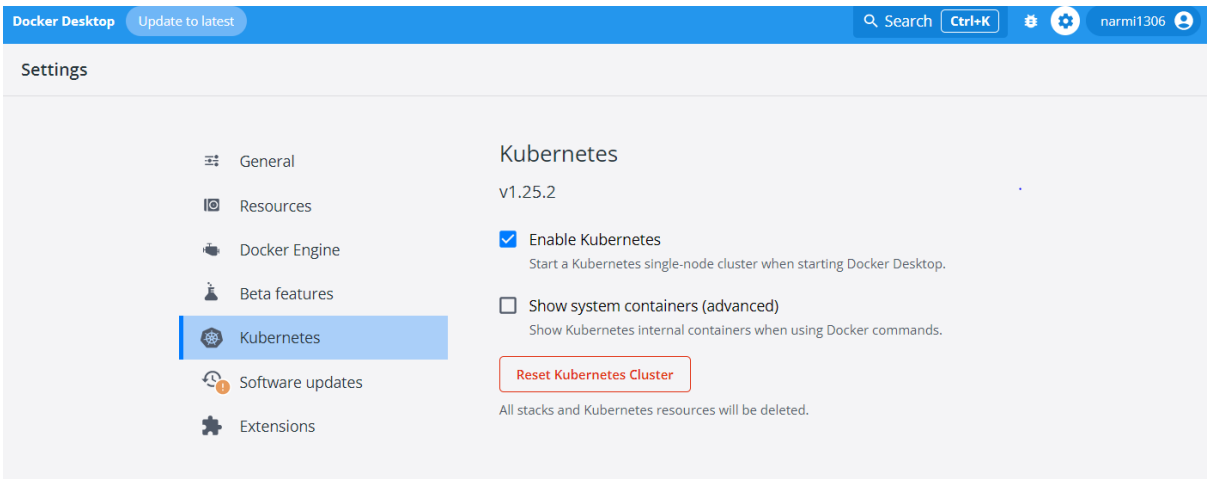
```
C:\Users\NARMATHA>docker push au.icr.io/hello__world/narmi1306:jobportal
[2022-11-19T16:01:24.443538400Z][docker-credential-desktop][W] Windows version might not be up-to-date: The system cannot find the file specified.
The push refers to repository [au.icr.io/hello__world/narmi1306]
7bab39b645a4: Pushed
6cffb086835a: Pushed
e2d75d87993c: Pushed
5a5bafd53f76: Pushed
f86e88a471f4: Pushed
f7ed3797e296: Pushed
ec4a38999118: Pushed
jobportal: digest: sha256:37aeb2ba52ddb4ee0f114d6c2662b91d549ec62165137b94ae8e447c39d9f2d8 size: 1780

C:\Users\NARMATHA>
```

Repository created:



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.





kubectl create -f jobportal.yaml

```
C:\Users\NARMATHA>cd C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>kubectl create -f jobportal.yaml
deployment.apps/rss-site created

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>
```

kubectl get pods

```
C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>kubectl get pods
NAME                        READY   STATUS    RESTARTS      AGE
rss-site-786f664784-k84z5   1/2     Error     4 (55s ago)   2m57s
rss-site-786f664784-q6662   2/2     Running   4 (63s ago)   2m57s

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>
```

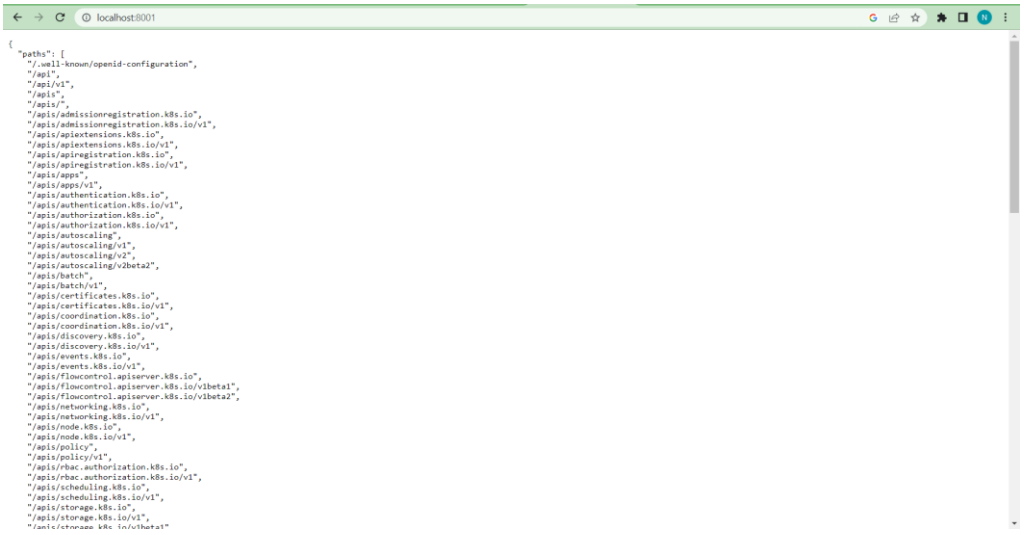
kubectl get namespace

```
C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>kubectl get namespace
NAME              STATUS   AGE
default           Active   34m
kube-node-lease   Active   34m
kube-public       Active   34m
kube-system       Active   34m

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>
```

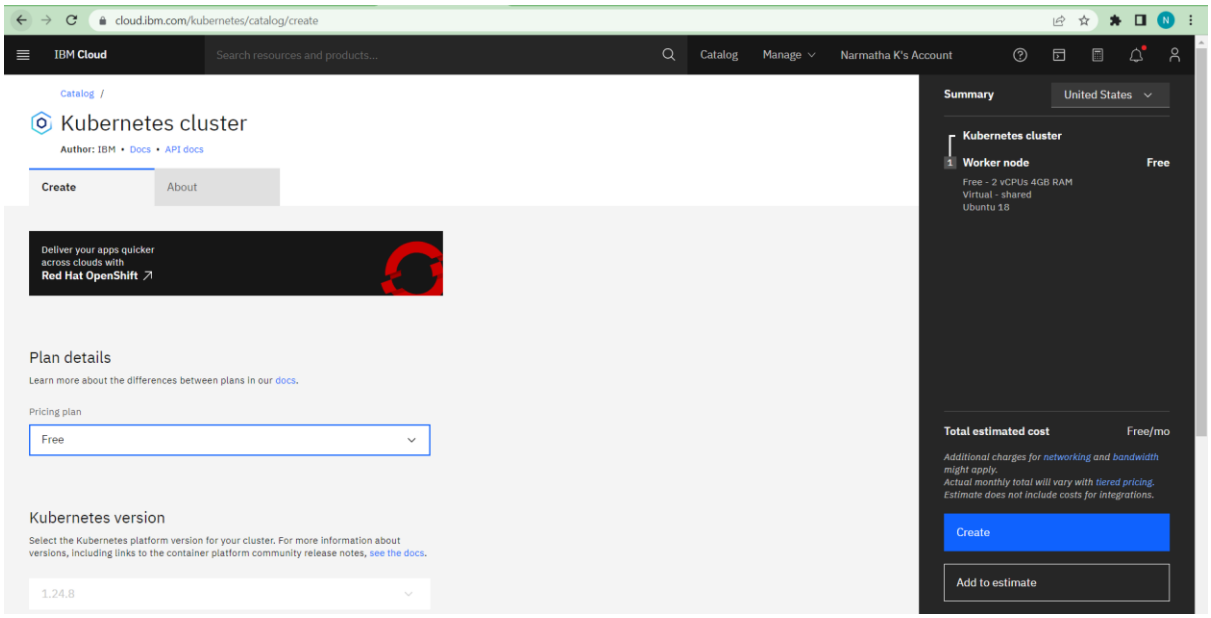
kubectl proxy

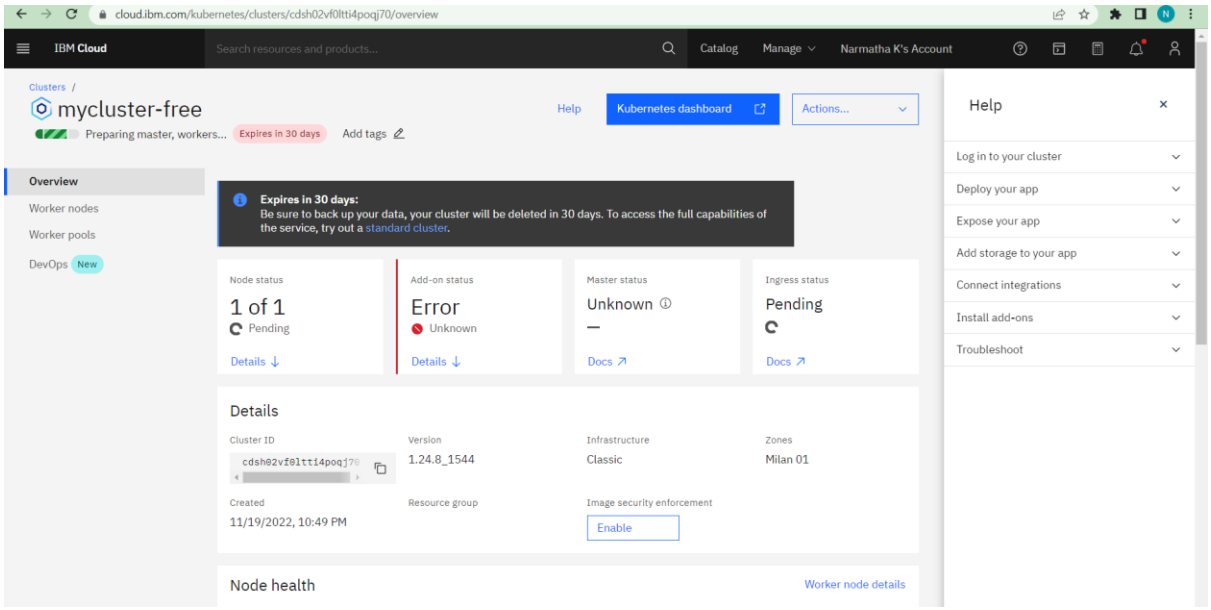
```
C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>kubectl proxy
Starting to serve on 127.0.0.1:8001
```

localhost:8001



Kubernetes cluster:





ibmcloud plugin install container-service

ibmcloud ks flavors --zone dal13 --provider classic

```
C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>ibmcloud ks flavors --zone dal13 --provider classic
OK
For more information about these flavors, see 'https://ibm.biz/flavors'
Name                      Cores   Memory   Network Speed   OS            Server Type   Storage   Secondary Storage   Flavor Class   Provider
b3c.16x64                 16      64GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
b3c.16x64.300gb           16      64GB     1000Mbps        UBUNTU_18_64  virtual       25GB      300GB               -              classic
b3c.32x128                32      128GB    1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
b3c.4x16                  4       16GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
b3c.56x242                56      242GB    1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
b3c.8x32                  8       32GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
c3c.16x16                 16      16GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
c3c.16x32                 16      32GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
c3c.32x32                 32      32GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
c3c.32x64                 32      64GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
m3c.16x128                16      128GB    1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
m3c.30x240                30      240GB    1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
m3c.48x384                48      384GB    1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
m3c.4x32                  4       32GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
m3c.56x448                56      448GB    1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
m3c.64x512                64      512GB    1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
m3c.8x64                  8       64GB     1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic
mb4c.20x192               20      192GB    10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
mb4c.20x384               20      384GB    10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
mb4c.20x64                20      64GB     10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
mb4c.20x64.2x1.9tb.ssd    20      64GB     10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
mb4c.32x384.3.8tb.ssd     32      384GB    10000Mbps       UBUNTU_18_64  physical      2TB       1.92TB              -              classic
mb4c.32x384.6x3.8tb.ssd   32      384GB    10000Mbps       UBUNTU_18_64  physical      2TB       1.92TB              -              classic
mb4c.32x768.3.8tb.ssd     32      768GB    10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
mb4c.48x1536              48      1536GB   10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
me4c.4x32                 4       32GB     10000Mbps       UBUNTU_18_64  physical      2TB       2TB                 -              classic
me4c.4x32.1.9tb.ssd       4       32GB     10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
mg4c.32x384.2xp100        32      384GB    10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
mg4c.48x384.2xv100        48      384GB    10000Mbps       UBUNTU_18_64  physical      2TB       960GB               -              classic
u3c.2x4†                  2       4GB      1000Mbps        UBUNTU_18_64  virtual       25GB      100GB               -              classic

† Supported for only Kubernetes clusters. Not supported for OpenShift clusters.

C:\Users\NARMATHA\Desktop\Assignment-4\2nd Question\jobportal>
```