Assignment-4

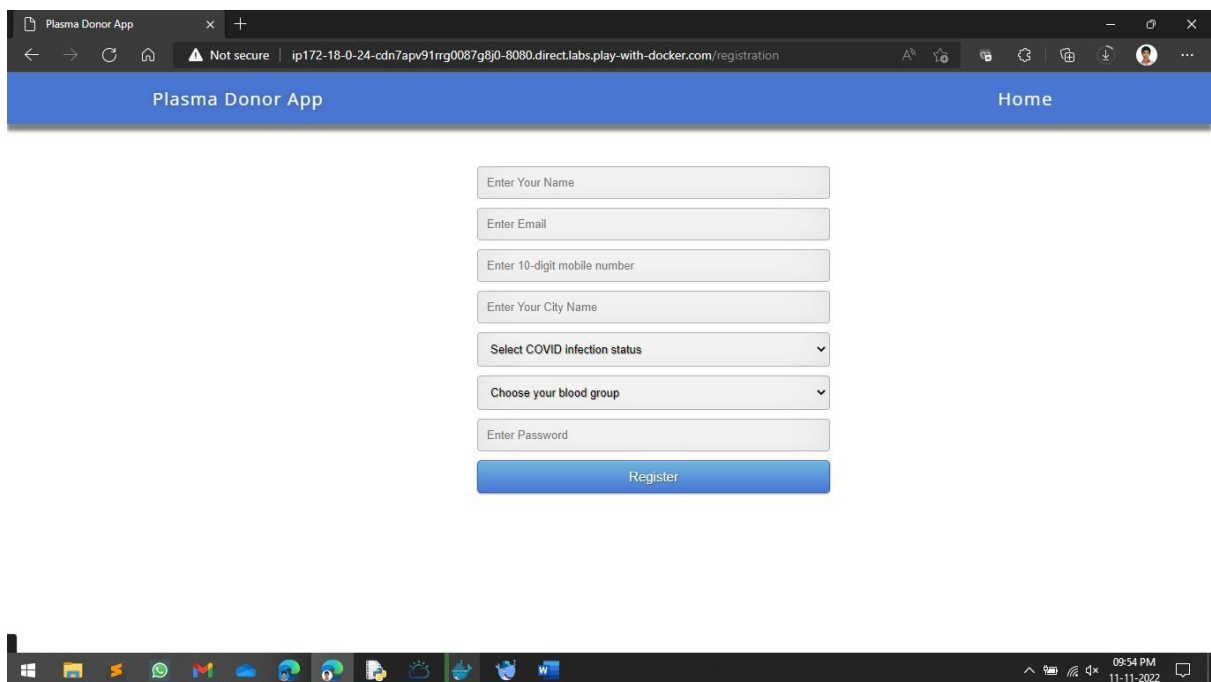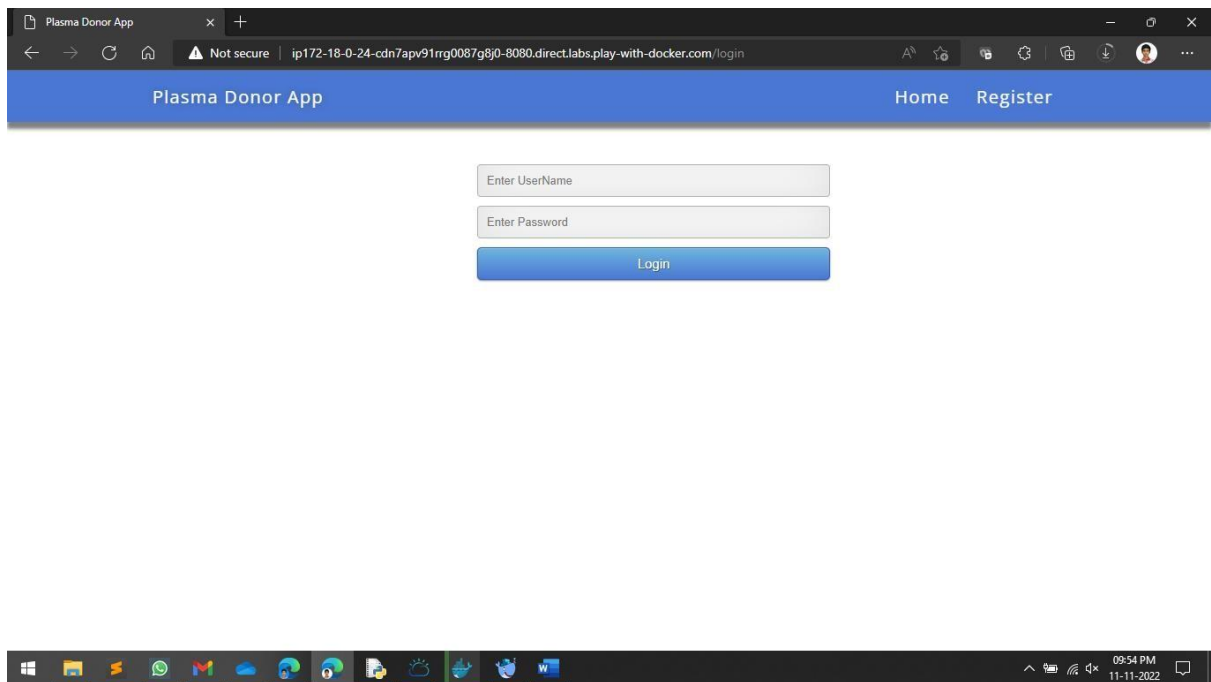|	
Project Domain	Cloud Application Development
Project Title	News Tracker Application
Team ID	PNT2022TMID36872
Name	SURIYA.E
Roll No	211219104011
Date	31st Oct 2022

Questions:

1.Pull an Image from docker hub and run it in docker playground.
2.Create a docker file for the job portal application and deploy it in Docker desktop application.
3.Create an IBM container registry and deploy hello world app or job portal app.
4.Create a Kubernetes cluster in IBM cloud and deploy hello world image or job portal image and expose the same app to run in node port.

Answers:

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

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

Commands used:

- docker build -t dockerone .

- docker images
- docker login
- docker tag dockerone sriramrmx/dockerone
- docker push sriramrmx/dockerone
- docker pull sriramrmx/dockerone
- docker run -p 88:88 sriramrmx/dockerone
- docker run -d -p 88:88 dockerone

```
Microsoft Windows [Version 10.0.19045.2251]
(c) Microsoft Corporation. All rights reserved.

C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>docker build -t dockerone .
[+] Building 242.3s (12/12) FINISHED
 => [internal] load build definition from Dockerfile                          1.7s
 => => transferring dockerfile: 32B                                           0.6s
 => [internal] load .dockerignore                                            1.2s
 => => transferring context: 2B                                              0.5s
 => [internal] load metadata for docker.io/library/python:3.6                13.1s
 => [auth] library/python:pull token for registry-1.docker.io                0.0s
 => [internal] load build context                                            0.4s
 => => transferring context: 2.69kB                                          0.0s
 => [1/6] FROM docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa  0.0s
 => CACHED [2/6] WORKDIR /app                                                 0.0s
 => [3/6] ADD . /app                                                          1.0s
 => [4/6] COPY requirements.txt /app                                          1.4s
 => [5/6] RUN python3 -m pip install -r requirements.txt                    215.1s
 => [6/6] RUN python3 -m pip install ibm_db                                   4.2s
 => exporting to image                                                        5.1s
 => => exporting layers                                                       4.3s
 => => writing image sha256:302e1fab8ee760d2b32d8577771585acee413cc1bcf875b3e669223ba340b  0.1s
 => => naming to docker.io/library/dockerone                                  0.1s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix
them

C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>
```

```
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\SRIRAM K>docker tag dockerone sriramrmx/dockerone

C:\Users\SRIRAM K>docker push sriramrmx/dockerone
Using default tag: latest
The push refers to repository [docker.io/sriramrmx/dockerone]
118e512c2c41: Pushed
ad94dc8bc9a3: Pushed
b5aef6309948: Pushed
056ae3aed8d2: Pushed
755ddb69edfe: Layer already exists
aa4c808c19f6: Layer already exists
8ba9f690e8ba: Layer already exists
3e607d59ef9f: Pushed
1e18e7e1fcc2: Mounted from sriramrmx/flask
c3a0d593ed24: Pushed
26a504e63be4: Pushed
8bf42db0de72: Pushed
31892cc314cb: Pushed
11936051f93b: Pushed
latest: digest: sha256:bcc0e7f195b20743bd7c5c20c22854a7060249dd4c29f5b453f72ed7362e0e75 size: 3259

C:\Users\SRIRAM K>
```

Screenshot 1

03:55:21

CLOSE SESSION

Instances 🔧 ⚙

+ ADD NEW INSTANCE

192.168.0.8
node1

cdnp3fe3_cdnp54u3tccg00b2och0

IP
192.168.0.8   OPEN PORT

Memory
30.49% (1.191GiB / 3.906GiB)

CPU
0.19%

SSH
ssh ip172-18-0-38-cdnp3fe3tccg00b2oce0@direct.labs.play 📋

DELETE   📄 EDITOR

```
# The PWD team.                                                      #
####################################################################
[node1] (local) root@192.168.0.8 ~
$ docker pull sriramrmx/dockerone
Using default tag: latest
latest: Pulling from sriramrmx/dockerone
0e29546d541c: Pull complete
9b829c73b52b: Pull complete
cb5b7ae36172: Pull complete
6494e4811622: Pull complete
6f9f74896dfa: Pull complete
5e3b1213efc5: Pull complete
9fddfdc56334: Pull complete
404f02044bac: Pull complete
c4f42be2be53: Pull complete
ad7f3e9b4c54: Pull complete
19f70b0768ef: Pull complete
9b5ea8a54d03: Pull complete
600cdf3a89df: Pull complete
e77075745dc6: Pull complete
Digest: sha256:bcc0e7f195b20743bd7c5c20c22854a7060249dd4c29f5b453f72ed7362e0e75
Status: Downloaded newer image for sriramrmx/dockerone:latest
docker.io/sriramrmx/dockerone:latest
[node1] (local) root@192.168.0.8 ~
$
```

Screenshot 2

03:54:17

CLOSE SESSION

Instances 🔧 ⚙

+ ADD NEW INSTANCE

192.168.0.8
node1

cdnp3fe3_cdnp54u3tccg00b2och0

IP
192.168.0.8   OPEN PORT   88

Memory
32.35% (1.264GiB / 3.906GiB)

CPU
0.92%

SSH
ssh ip172-18-0-38-cdnp3fe3tccg00b2oce0@direct.labs.play 📋

DELETE   📄 EDITOR

```
9fddfdc56334: Pull complete
404f02044bac: Pull complete
c4f42be2be53: Pull complete
ad7f3e9b4c54: Pull complete
19f70b0768ef: Pull complete
9b5ea8a54d03: Pull complete
600cdf3a89df: Pull complete
e77075745dc6: Pull complete
Digest: sha256:bcc0e7f195b20743bd7c5c20c22854a7060249dd4c29f5b453f72ed7362e0e75
Status: Downloaded newer image for sriramrmx/dockerone:latest
docker.io/sriramrmx/dockerone:latest
[node1] (local) root@192.168.0.8 ~
$ docker run -p 88:88 sriramrmx/dockerone
 * Serving Flask app 'app' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: on
 * Running on all addresses.
   WARNING: This is a development server. Do not use it in a production deployment.
 * Running on http://172.17.0.2:88/ (Press CTRL+C to quit)
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 875-840-812
```
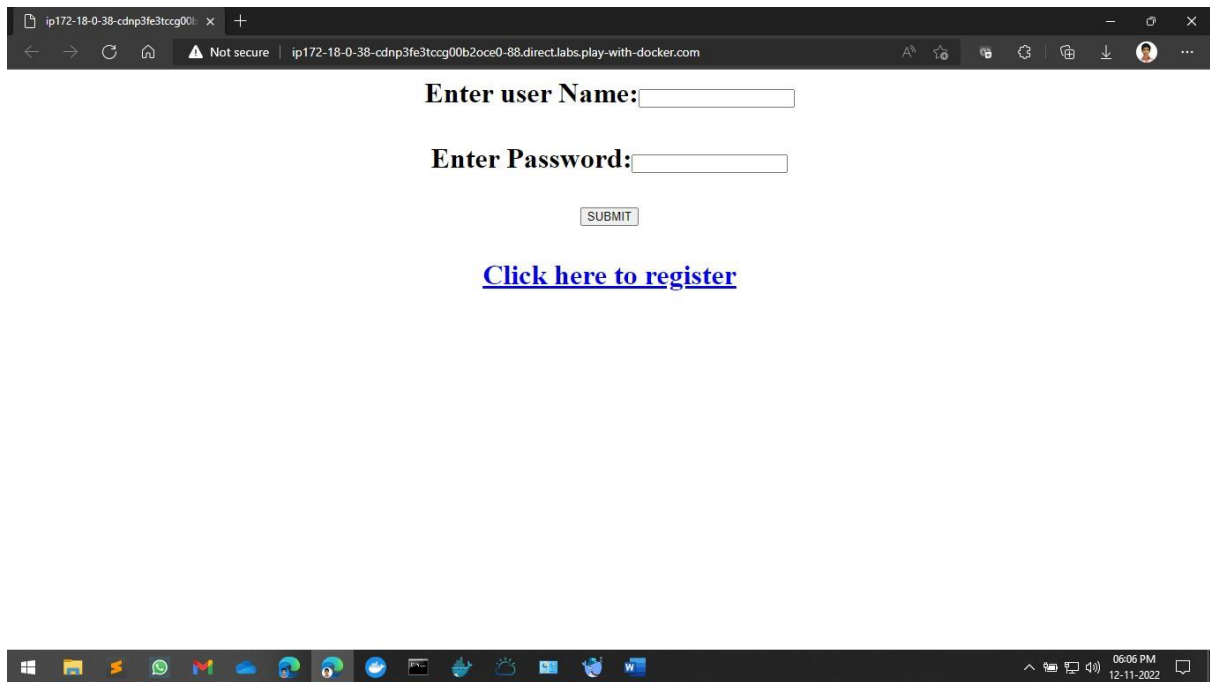
3.Create an IBM container registry and deploy hello world app or job portal app.

Commands used:

- docker login
- ibmcloud login
- ibmcloud cr login
- ibmcloud cr namespace-add dockerone
- docker tag dockerone us.icr.io/dockerone/rmx
- docker push us.icr.io/dockerone/rmx

```
Administrator: Command Prompt

Microsoft Windows [Version 10.0.19045.2251]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>ibmcloud login
API endpoint: https://cloud.ibm.com
Region: us-south

Email> 731119205043@smartinternz.com

Password>
Authenticating...
OK

Targeted account SRIRAM K's Account (62c6c90806884b3a8a39867c980ba1a1)


API endpoint:        https://cloud.ibm.com
Region:              us-south
User:                731119205043@smartinternz.com
Account:             SRIRAM K's Account (62c6c90806884b3a8a39867c980ba1a1)
Resource group:      No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:
```

```
C:\Windows\system32>ibmcloud cr login
Logging 'docker' in to 'us.icr.io'...
Logged in to 'us.icr.io'.

OK

C:\Windows\system32>docker tag dockerone us.icr.io/dockerone/rmx

C:\Windows\system32>docker push us.icr.io/dockerone/rmx
Using default tag: latest
The push refers to repository [us.icr.io/dockerone/rmx]
118e512c2c41: Pushed
ad94dc8bc9a3: Pushing  10.53MB/176.2MB
b5aef6309948: Pushed
056ae3aed8d2: Pushed
755ddb69edfe: Pushed
aa4c808c19f6: Pushed
8ba9f690e8ba: Pushed
3e607d59ef9f: Pushing  23.36MB/41.36MB
1e18e7e1fcc2: Pushing  19.04MB
c3a0d593ed24: Pushing  65.42MB/528.4MB
26a504e63be4: Pushing  26.35MB/151.9MB
8bf42db0de72: Waiting
31892cc314cb: Waiting
11936051f93b: Waiting
```

Namespaces

Location

Dallas ▾

Resource group: Filter... ▾   🔍 Search   ↻   ⚙   **Create +**

	Name	Resource group	Repository count	Image count	Retention policy	
⌄ ☐ ⊞	dockerone	Default	1	1	Retain all images	⋮

	Repository		Image count	Last updated	
	🗂 us.icr.io/dockerone/rmx		1	2 days ago	⋮

| ☐ ⊞ | newstracker | Default | 0 | 0 | Retain all images | ⋮ |

Items per page: 25 ▾   1–2 of 2 items   1 ▾ 1 of 1 page ◀ ▶

Repositories

Location

Dallas ▾

🔍 Search   ↻   ⚙   **Create +**

	Name	Image count	Namespace	Last updated	
⌃ ☐ 🗂	rmx us.icr.io/dockerone/rmx	1	dockerone	2 days ago	⋮

	Digest	Manifest type	Tags	Created	Size	Security status	
	🟪 bcc0e7f195b2	Docker	latest	2 days ago	435 MB	🚫 102 issues	⋮

Items per page: 25 ▾   1–1 of 1 item   1 ▾ 1 of 1 page ◀ ▶
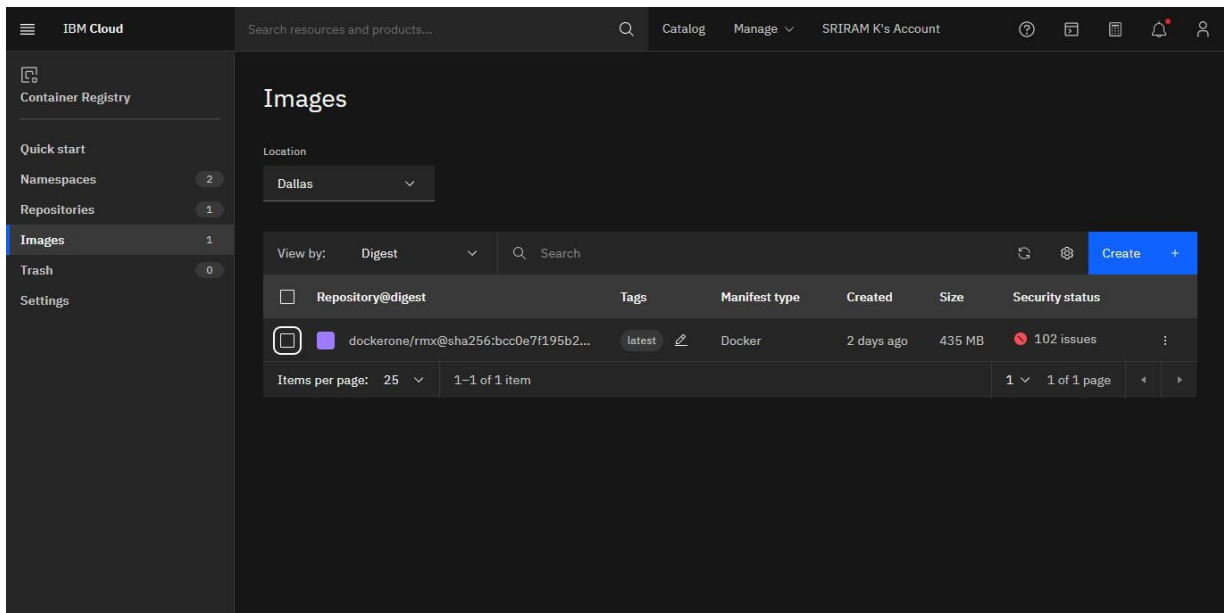
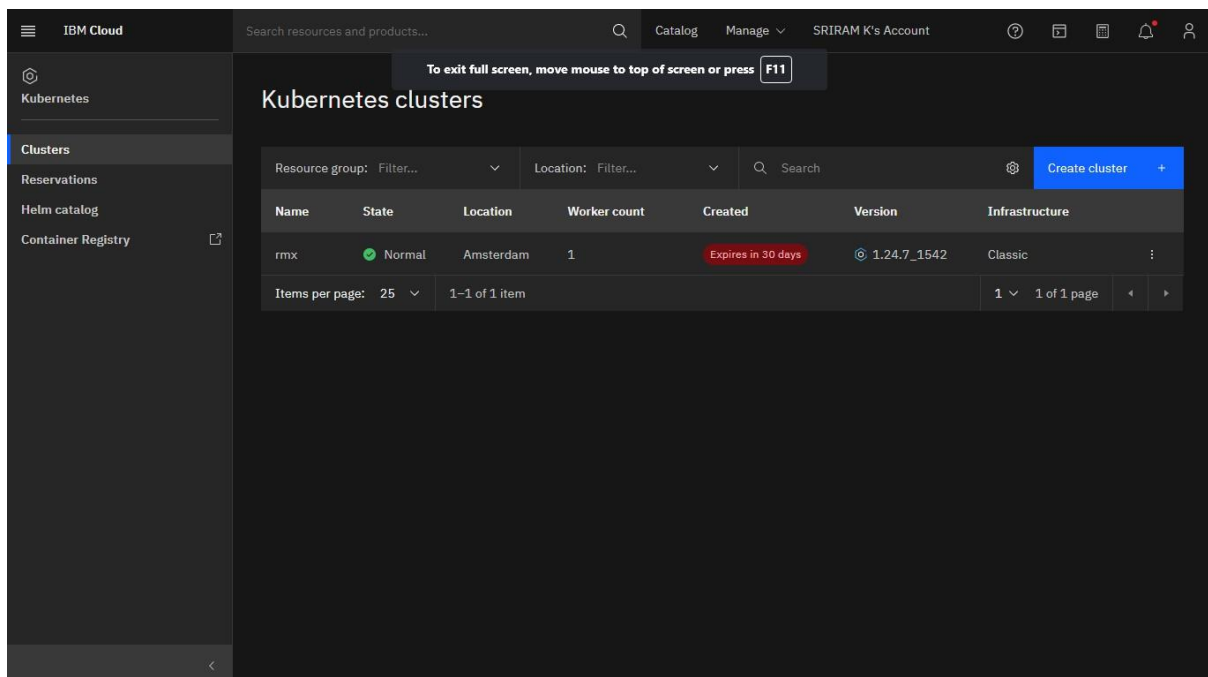--

4.Create a Kubernetes cluster in IBM cloud and deploy hello world image or job portal image and expose the same app to run in node port.

Commands used:

- Kubeclt create -f deployment.yaml
- Kubectl apply -f service.yaml
- kubectl expose deployment/flask-node-deployment --type=NodePort --port=88 -name=dockerone --target-port=88

```
Labels:                 <none>
Annotations:            <none>
Selector:               app=flasknode
Type:                   NodePort
IP Family Policy:       SingleStack
IP Families:            IPv4
IP:                     172.21.99.236
IPs:                    172.21.99.236
Port:                   <unset>  88/TCP
TargetPort:             88/TCP
NodePort:               <unset>  32509/TCP
Endpoints:              172.30.159.214:88
Session Affinity:       None
External Traffic Policy: Cluster
Events:                 <none>

C:\Windows\system32>kubectl get pods
NAME                              READY   STATUS            RESTARTS   AGE
deploy                            1/1     Running           0          9h
deploydockerone-6976f965b7-88hr5  0/1     ImagePullBackOff  0          9h
flask-node-deployment             1/1     Running           0          7h37m
flask-node-deployment-9cdc4bf8-k5w85  1/1   Running         0          7h59m

C:\Windows\system32>kubectl get nodes
NAME             STATUS   ROLES    AGE   VERSION
10.144.185.227   Ready    <none>   23h   v1.24.7+IKS
```

← → C ⌂   ▲ Not secure | 159.122.187.10:32509
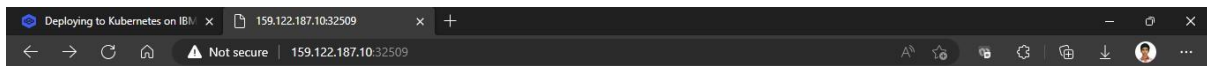
Enter user Name: [   ]

Enter Password: [   ]

[SUBMIT]

Click here to register

10:32 PM
15-11-2022

```
C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>kubectl get nodes
NAME             STATUS    ROLES     AGE      VERSION
10.144.185.227   Ready     <none>    24h      v1.24.7+IKS

C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>kubectl get pods
NAME                                   READY    STATUS    RESTARTS    AGE
flask-node-deployment-9cdc4bf8-5v4tm   1/1      Running   0           6m22s

C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>kubectl get deployments
NAME                    READY    UP-TO-DATE   AVAILABLE    AGE
flask-node-deployment   1/1      1            1            6m36s

C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>kubectl get services
NAME                    TYPE        CLUSTER-IP       EXTERNAL-IP    PORT(S)       AGE
dockerone               NodePort    172.21.131.50    <none>         88:31364/TCP  5m21s
flask-node-deployment   ClusterIP   172.21.227.148   <none>         88/TCP        6m9s
kubernetes              ClusterIP   172.21.0.1       <none>         443/TCP       24h

C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>ibmcloud cs workers --cluster cdp6vkgf0lenugunjcf0
OK
ID                                                Public IP        Private IP       Flavor   State    St
atus   Zone    Version
kube-cdp6vkgf0lenugunjcf0-rmx-default-00000053    159.122.187.10   10.144.185.227   free     normal   Re
ady    mil01   1.24.7_1543

C:\Users\SRIRAM K\Documents\IBM CAD\dockerone>
```