

Assignment -4 Docker and kubernetes

Assignment Date	16 November2022
Student Name	Jagatheesan B
Student Roll Number	412519104049
Maximum Marks	2 Marks

1. Pull an image from docker hub:

```
Terminal
- took 25s
➜ docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:faa03e786c97f07ef34423fccceec2398ec8a5759259f94d99078f264e9d7af
Status: Downloaded newer image for hello-world:latest
docker.io/library/hello-world:latest

- took 17s
➜ docker run hello-world

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

➜
```

Run in docker playground

01:29:09

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.8
node1

cdnpru63_cdnpt9m0qau000ccn75g

IP: 192.168.0.8
Memory: 1.36% (54.55MiB / 3.906GiB)
CPU: 0.19%
SSH: ssh ip172-18-0-18-cdnpru63tccg00b2odig@direct.labs.play-with-do

DELETE EDITOR

```
##### WARNING!!!! #####
# This is a sandbox environment. Using personal credentials #
# is strictly discouraged. Any consequences of doing so are #
# completely the user's responsibilities. #
# The FWD team. #
#####

(node1) (local) root@192.168.0.8 ~
$ docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:faa03e786c97f07ef34423fccceec2398ec8a5759259f94d99078f264e9d7af
Status: Downloaded newer image for hello-world:latest
(node1) (local) root@192.168.0.8 ~
$ docker run hello-world

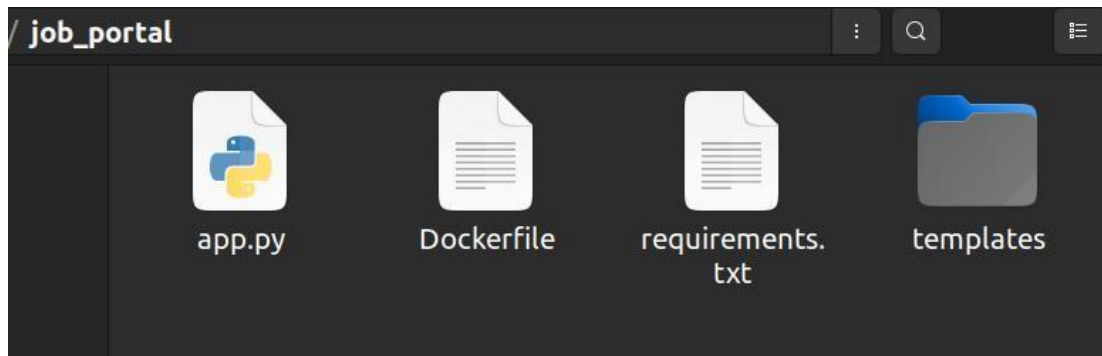
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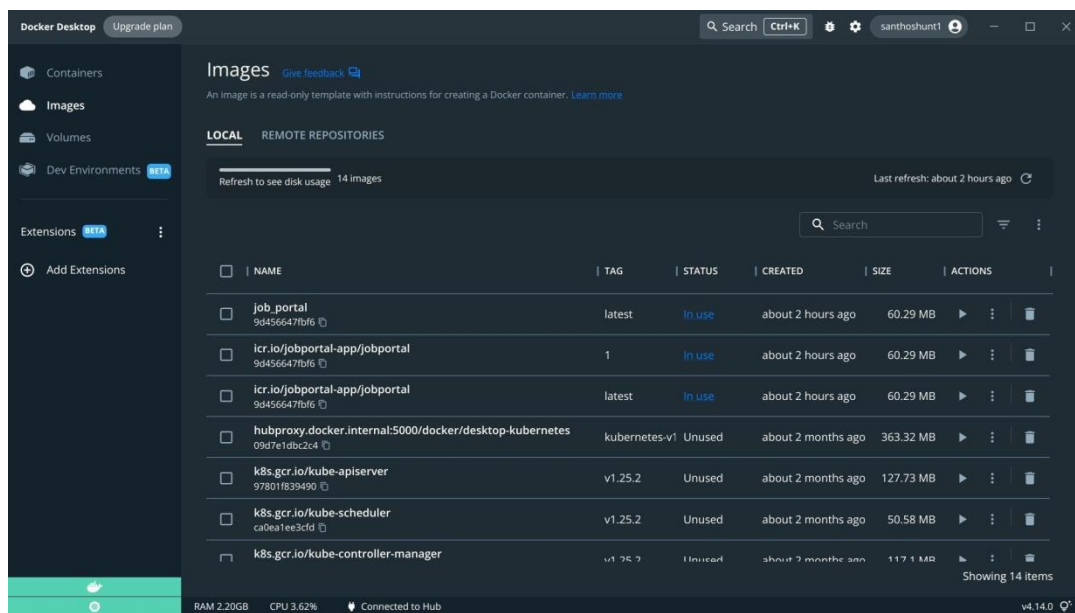
To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

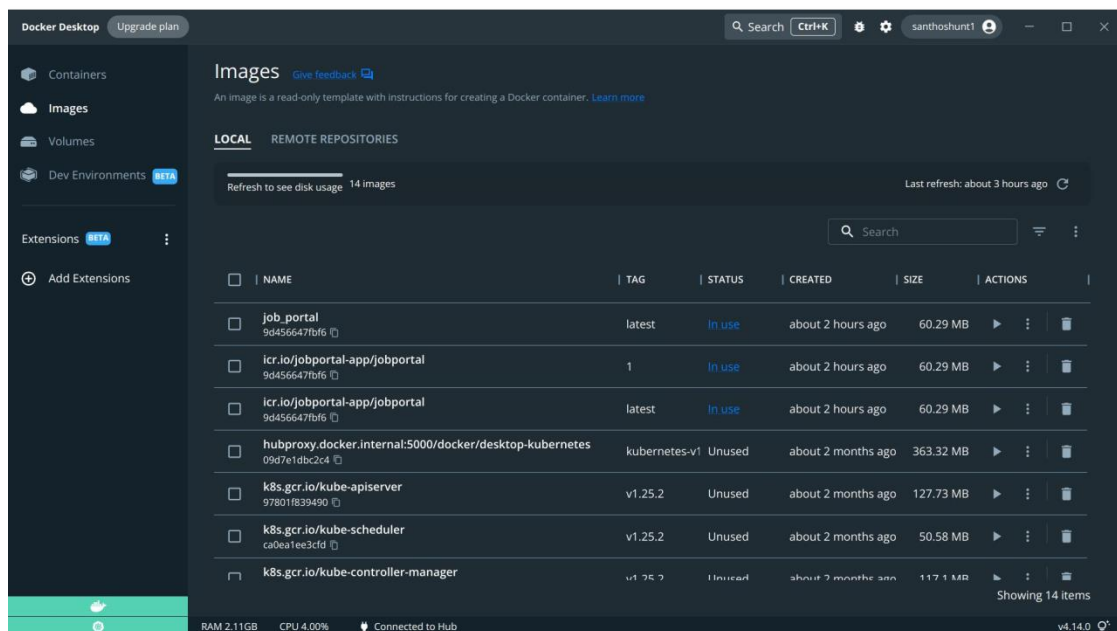
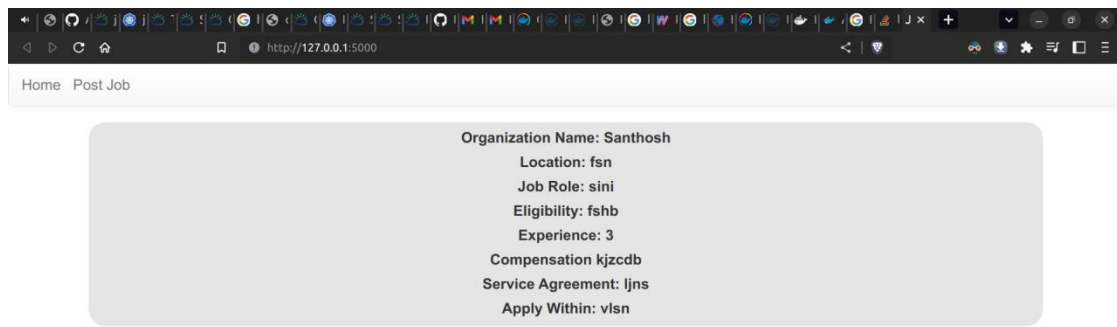
Share images, automate workflows, and more with a free Docker ID:
```

2. create job portal application and deploy in desktop application

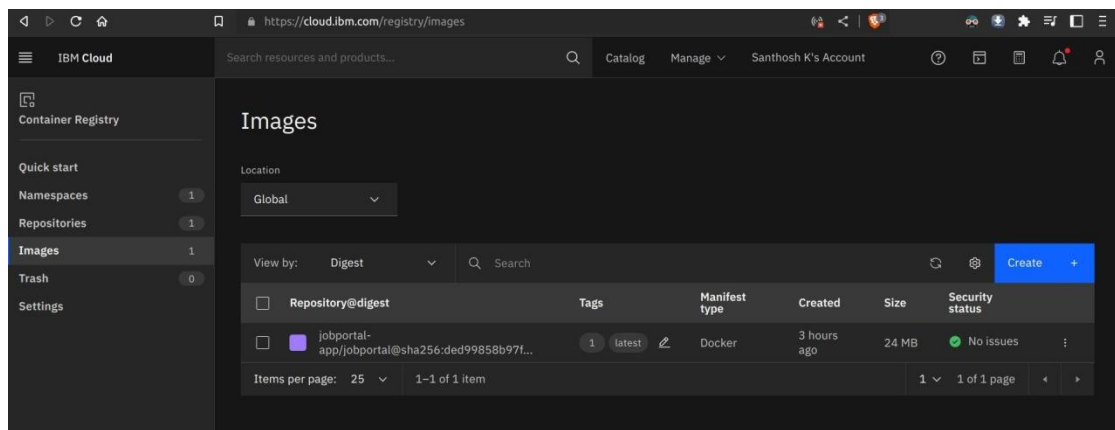
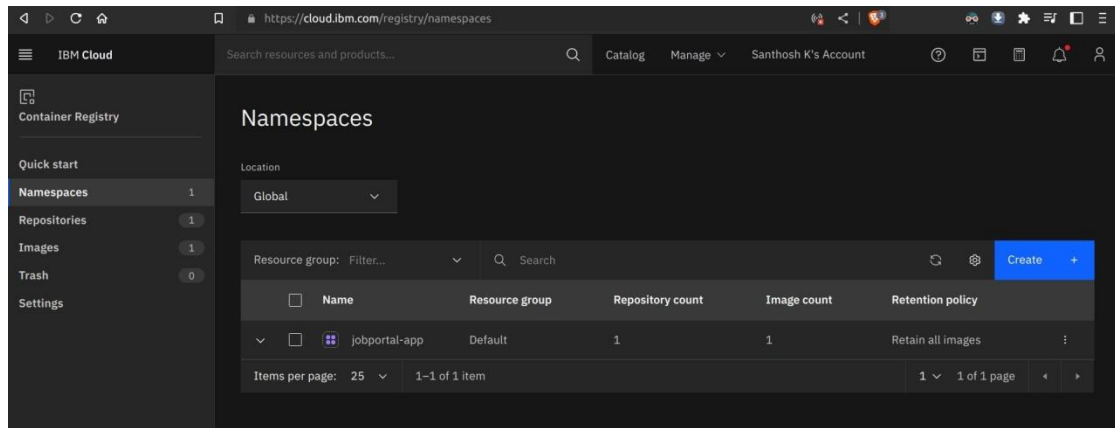


Dockerfile:
FROM python:3.10-alpine
WORKDIR /Job_Portal
ADD . /Job_Portal
COPY requirements.txt .
RUN pip install -r requirements.txt
CMD ["python", "app.py"]





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



```

~/github/ibm project
└─ ls
job_portal requirements.zip

~/github/ibm project
└─ cd job_portal/

~/github/ibm project/job_portal via desktop-linux via v3.9.12
└─ ibmcloud cr login
Logging 'docker' in to 'icr.io'...
Logged in to 'icr.io'.

~/github/ibm project/job_portal via desktop-linux via v3.9.12 took 23s
└─ ibmcloud cr login^C

~/github/ibm project/job_portal via desktop-linux via v3.9.12
└─ docker tag job_portal icr.io/jobportal-app/jobportal:latest

~/github/ibm project/job_portal via desktop-linux via v3.9.12
└─ docker push icr.io/jobportal-app/jobportal:latest
The push refers to repository [icr.io/jobportal-app/jobportal]
1a3e7b46e301: Pushed
f6b6181ee799: Pushed
809f5f624f33: Pushed
9657cbc79e8b: Pushed
5d9bd8a6b714: Pushed
333f96496727: Pushed
2edf98458dc1: Pushed
f80ab90a8af0: Pushed
e5e13b0c77cb: Pushed
latest: digest: sha256:ded99858b97f12e09f217d58eeca1403d81d362d5cb152d6d577fbcf78fc4bb size: 2200

~/github/ibm project/job_portal via desktop-linux via v3.9.12 took 36s
└─ ibmcloud login -a cloud.ibm.com -r eu-de -g Default
API endpoint: https://cloud.ibm.com

Email> sec19cs130@sairamtap.edu.in

```

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.

Kubernetes dashboard overview showing Workload Status, Deployments, Pods, and Replica Sets.

Workload Status

Running 1

Deployments Pods Replica Sets

Deployments

Name	Images	Labels	Pods	Created
jobportal	Show all	Show all	1 / 1	an hour ago

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created
jobportal-60cb4996fc-stmtds	Show all	Show all	10.144.188.47	Running	0	3.00m	35.59Mi	an hour ago

Replica Sets

Name	Images	Labels	Pods	Created
------	--------	--------	------	---------

Kubernetes dashboard details for Deployment: jobportal.

Metadata

Name	Namespace	Created	Age	UID
jobportal	default	Nov 12, 2022	an hour ago	c2035f91-30ce-4458-9855-706a762501a8

Labels: k8s-app: jobportal

Annotations: deployment.kubernetes.io/revision: 1

Resource information

Strategy	Min. ready seconds	Revision history limit
RollingUpdate	0	10

Selector: k8s-app: jobportal

Rolling update strategy

Max surge	Max unavailable
25%	25%

Pods status

Updated	Total	Available
1	1	1

kubernetes

default

Search

Workloads > Deployments > jobportal

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

Events

Namespaces

Network Policies

Updated: 1, Total: 1, Available: 1

Conditions

Type	Status	Last probe time	Last transition time	Reason	Message
Available	True	an hour ago	an hour ago	MinimumReplicasAvailable	Deployment has minimum availability.
Progressing	True	an hour ago	an hour ago	NewReplicaSetAvailable	ReplicaSet "jobportal-6ccb499b9c" has successfully progressed.

New Replica Set

Name: jobportal-6ccb499b9c, Namespace: default, Age: an hour ago, Pods: 1 / 1

Labels: k8s-app: jobportal, pod-template-hash: 6ccb499b9c

Images: icr.io/jobportal-app/jobportal:1

Old Replica Sets

There is nothing to display here

No resources found.

Horizontal Pod Autoscalers

Items: 0

Events

Items: 0

kubernetes

default

Search

Workloads > Pods

Workloads

Cron Jobs

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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

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Namespaces

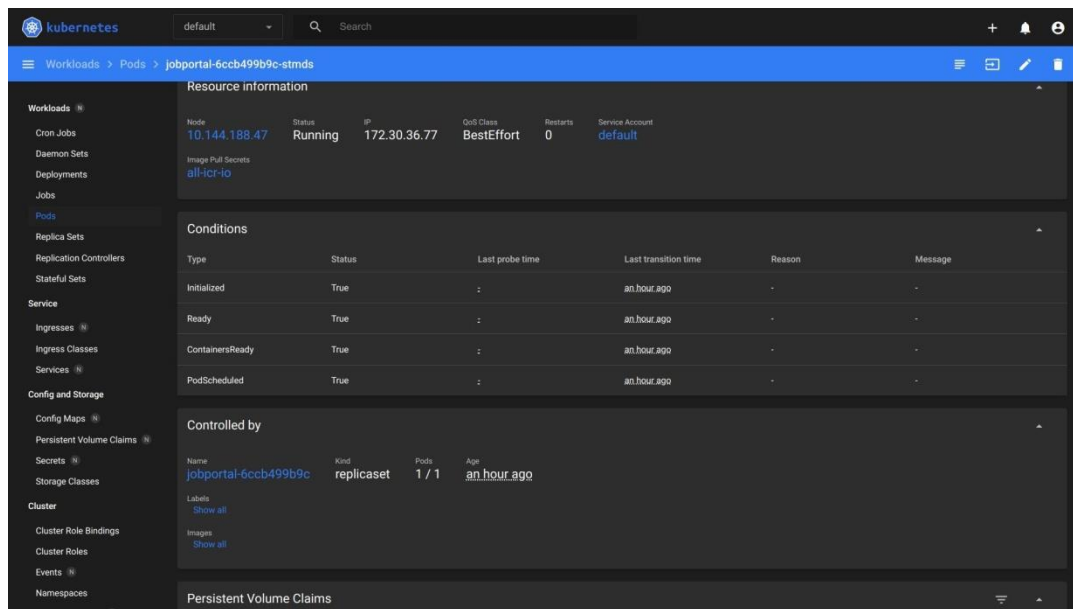
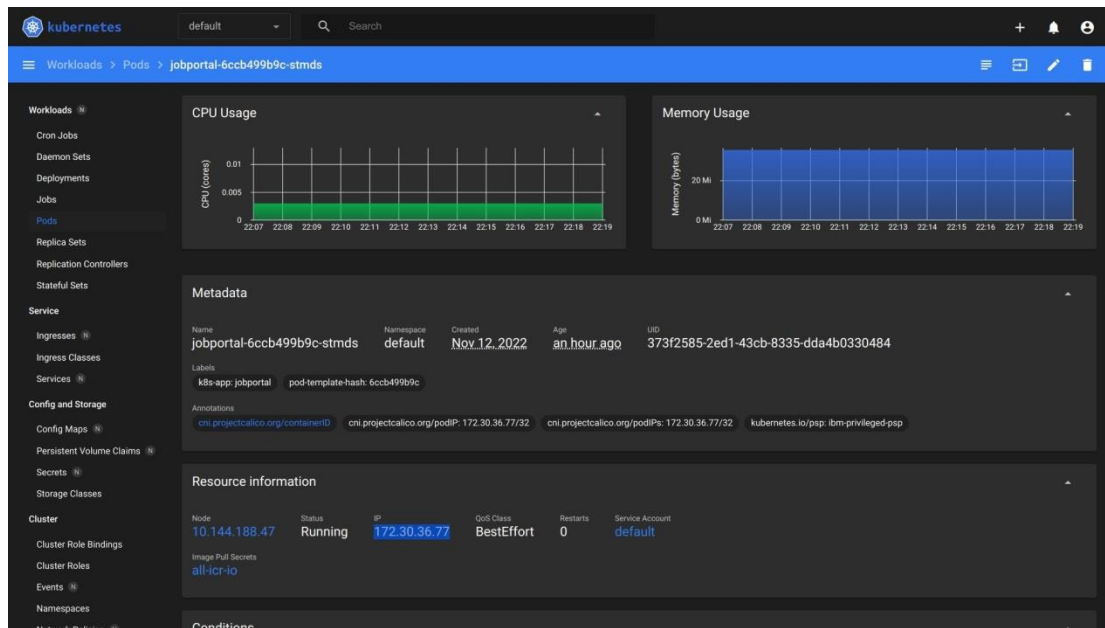
Network Policies

CPU Usage

Memory Usage

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created
jobportal-6ccb499b9c-stmbs	Show all	Show all	10.144.188.47	Running	0	3.09m	35.99Mi	an hour ago



kubernetes

default

Search

Workloads

Pods

jobportal-6ccb499b9c-stmde

Workloads

Cron Jobs

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Persistent Volume Claims

There is nothing to display here

No resources found.

Events

Items: 0

Containers

jobportal

Image

lcr.io/jobportal-app/jobportal:1

Status

Ready

Started

Started At

true

true

2022-11-12T15:45:07Z

Mounts

Name	Read Only	Mount Path	Sub Path	Source Type	Source Name
kube-api-access-h8lvz	true	/var/run/secrets/kubernetes.io/serviceaccount		Projected	

Security Context

Privileged

false