Name	Avudaiappan.A.B
Roll No	821119104008
Date	12 November 2022
Team ID	PNT2022TMID46680
Project Name	Project - Personal Expense Tracker

Assignment - 4
Kubernetes and Docker

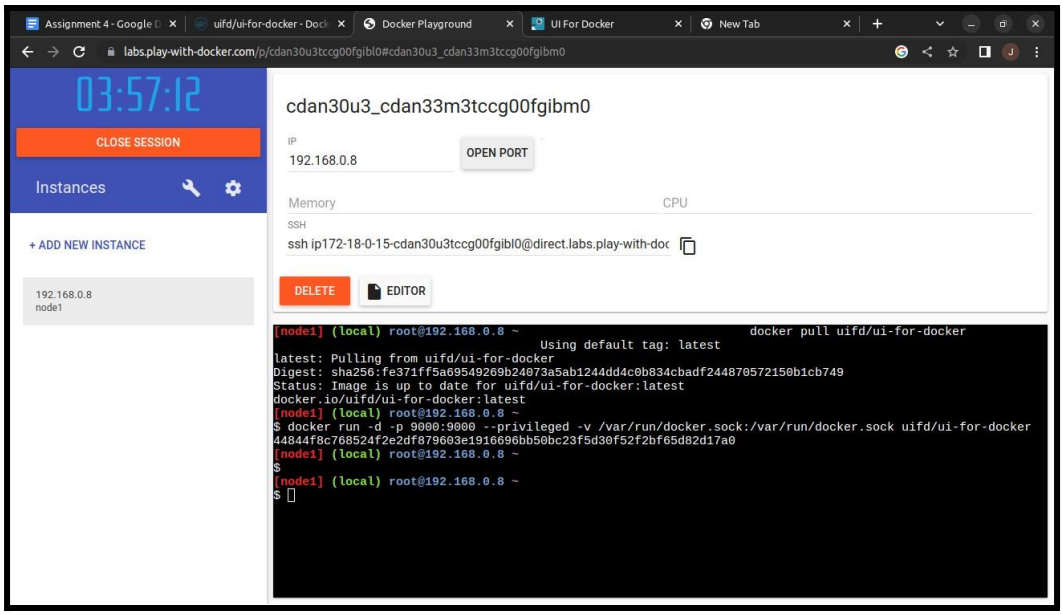
Question

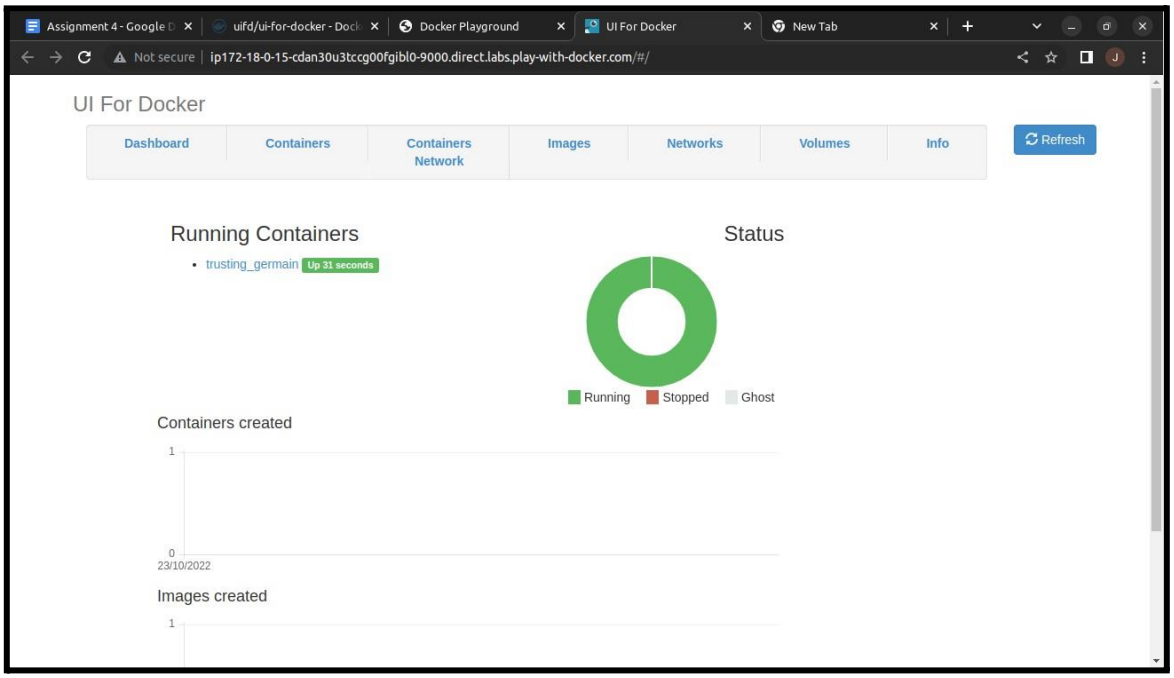
1. Pull an Image from docker hub and run it in Docker Playground
2. Create a docker file for the jobportal application and deploy it in Docker desktop application
3. Create a IBM container registry and deploy helloworld app or jobportal app
4. Create a Kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image and also expose the same app to run in nodeport

Solutions

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

a. Pull an image *uifd/ui-for-docker* from the docker hub
b. This image is used for viewing and managing the docker engine
c. Use **`docker pull image_name`** and **`docker run -it image_name`** commands to run the above image in the Docker Playground


Assignment 4 - Google
uifd/ui-for-docker - Doc
Docker Playground
UI For Docker
New Tab
labs.play-with-docker.com/p/cdan30u3tccg00fgibl0#cdan30u3_cdan33m3tccg00fgibm0
03:57:12
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.8
node1
cdan30u3_cdan33m3tccg00fgibm0
IP
192.168.0.8
OPEN PORT
Memory
CPU
SSH
ssh ip172-18-0-15-cdan30u3tccg00fgibl0@direct.labs.play-with-doc
DELETE
EDITOR
[node1] (local) root@192.168.0.8 ~
docker pull uifd/ui-for-docker
Using default tag: latest
latest: Pulling from uifd/ui-for-docker
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834cbadf24487057215 0b1cb749
Status: Image is up to date for uifd/ui-for-docker:latest
docker.io/uifd/ui-for-docker:latest
[node1] (local) root@192.168.0.8 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
44844f8c768524f2e2df879603e1916696bb50bc23f5d30f52f2bf65d82d17a0
[node1] (local) root@192.168.0.8 ~
$
[node1] (local) root@192.168.0.8 ~
$



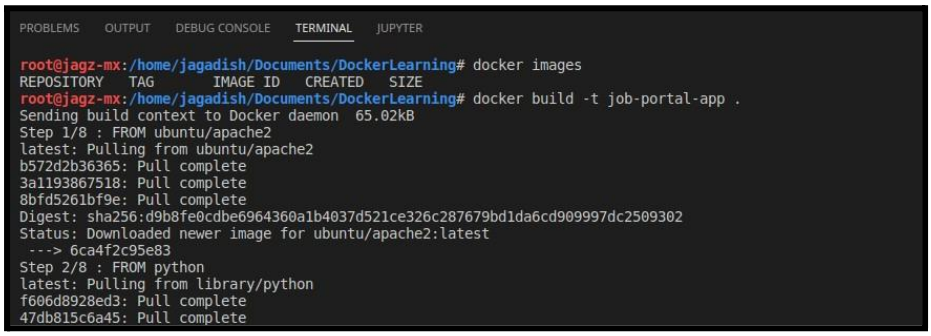
2. Create a docker file for the jobportal application and deploy it in Docker desktop application

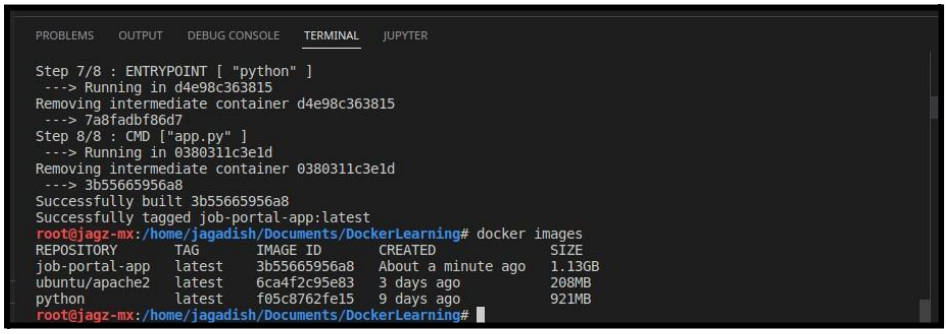
a. Create a docker file for build and deploy flask app.
b. Use **`docker build -t image_name .`** in the current directory to start building the docker image and deploy in our local docker
c. Use **`docker run -p 5000:5000 image_name`** to run in local system

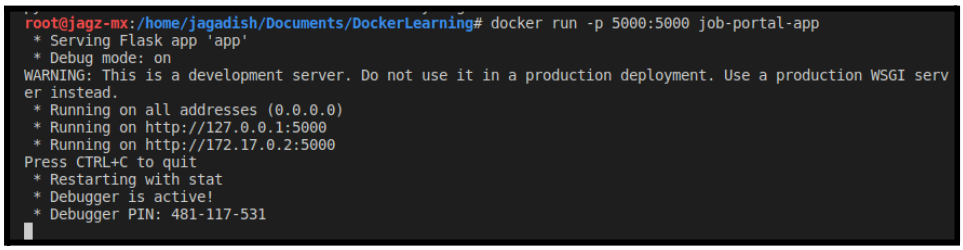
Dockerfile

```
FROM ubuntu/apache2
FROM python
COPY ./requirements.txt /flaskApp/requirements.txt
WORKDIR /flaskApp
RUN pip install -r requirements.txt
COPY . /flaskApp
ENTRYPOINT [ "python" ]
CMD ["app.py" ]
```

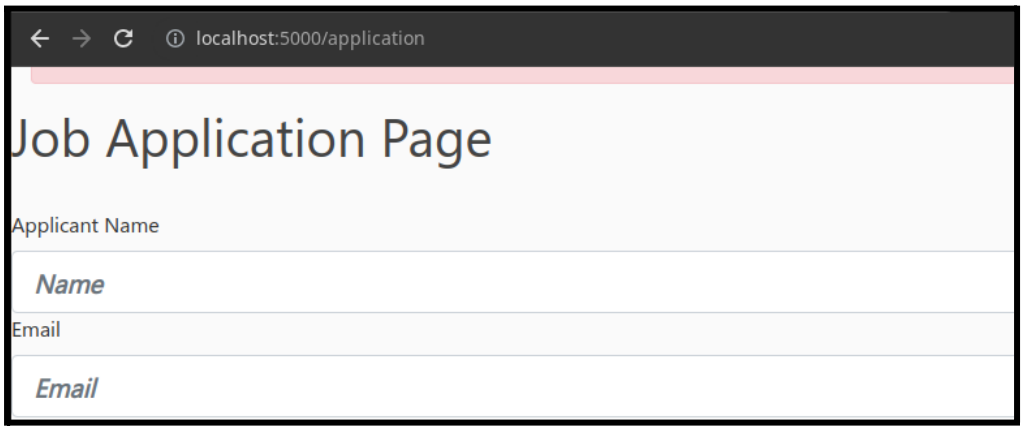
Steps Involved







Run locally using docker



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

a. Log into IBM cloud
b. Create a **container registry**
c. Using IBM Cloud CLI, install the **container registry plugin** in our system
d. Push our docker image into the created container registry using **docker push**
e. So, our job portal app is deployed in the IBM container registry

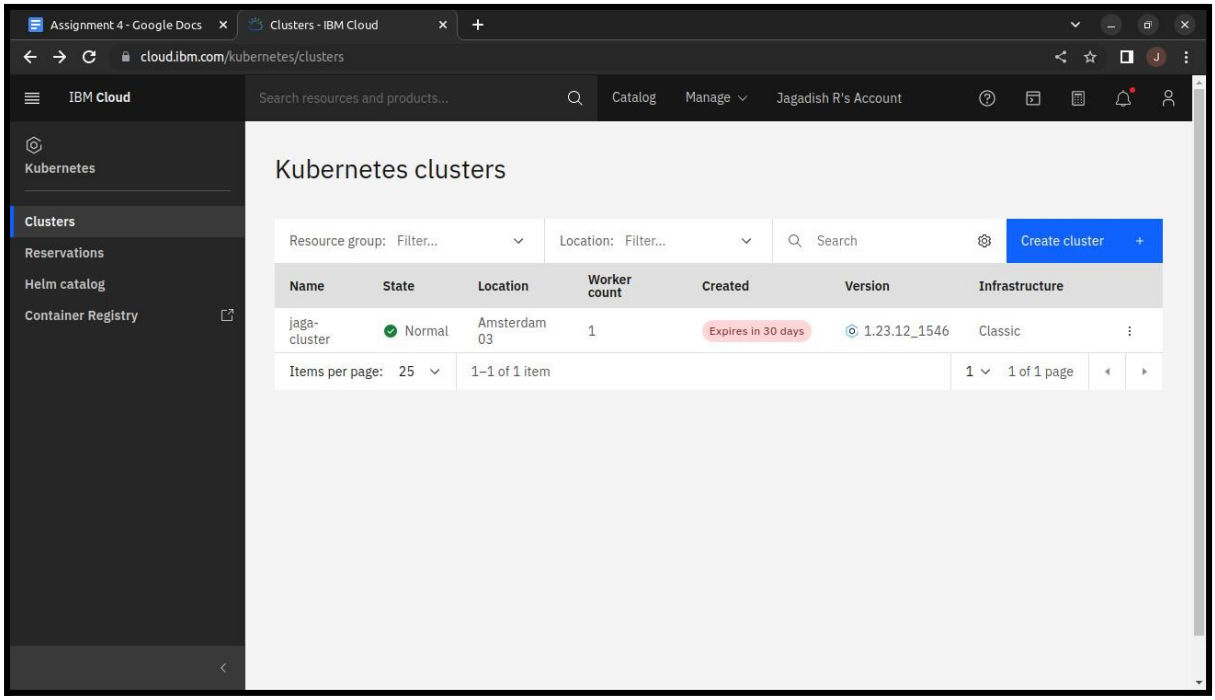
4. Create a Kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image and also expose the same app to run in nodeport

a. Log into IBM cloud
b. Create a **kubernete**
c. Using IBM Cloud CLI, install the **ks plugin** in our system
d. Create **a cluster** in the kubernetes
e. Now, go to the **kubernetes dashboard** where we need to create a service based on a yml file (given below)
f. In that file, we have to mention *which image we are going to use* and the *app name*
g. Take the **public IP address** and **Nodeport** since we exposed the *flask app in nodeport*
h. Finally, we got the **url address** where our flask app is hosted

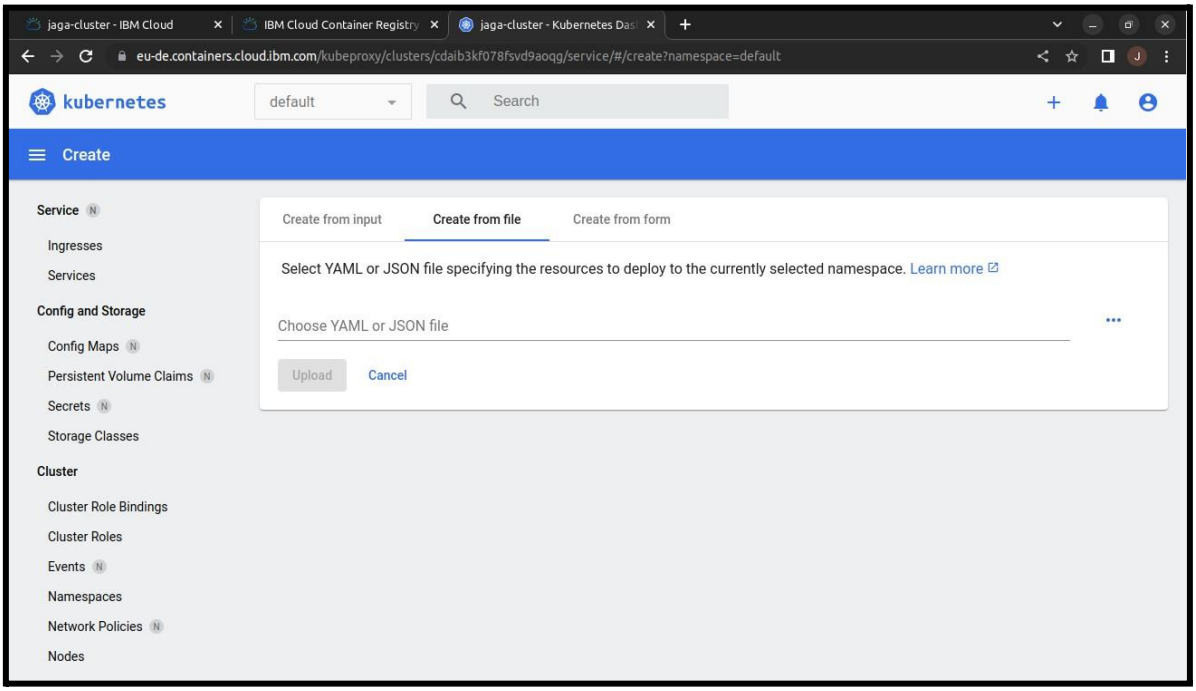
job-portal-app.yml

```
apiVersion: v1
kind: Service
metadata:
  name: job-portal-app
spec:
  selector:
    app: job-portal-app
  ports:
  - port: 5000
  type: NodePort
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: job-portal-app
  labels:
    app: job-portal-app
spec:
  selector:
    matchLabels:
      app: job-portal-app
  replicas: 1
  template:
    metadata:
      labels:
        app: job-portal-app
    spec:
      containers:
      - name: job-portal-app
        image: image_name
        ports:
        - containerPort: 5000
        env:
        - name: DISABLE_WEB_APP
          value: "false"
```

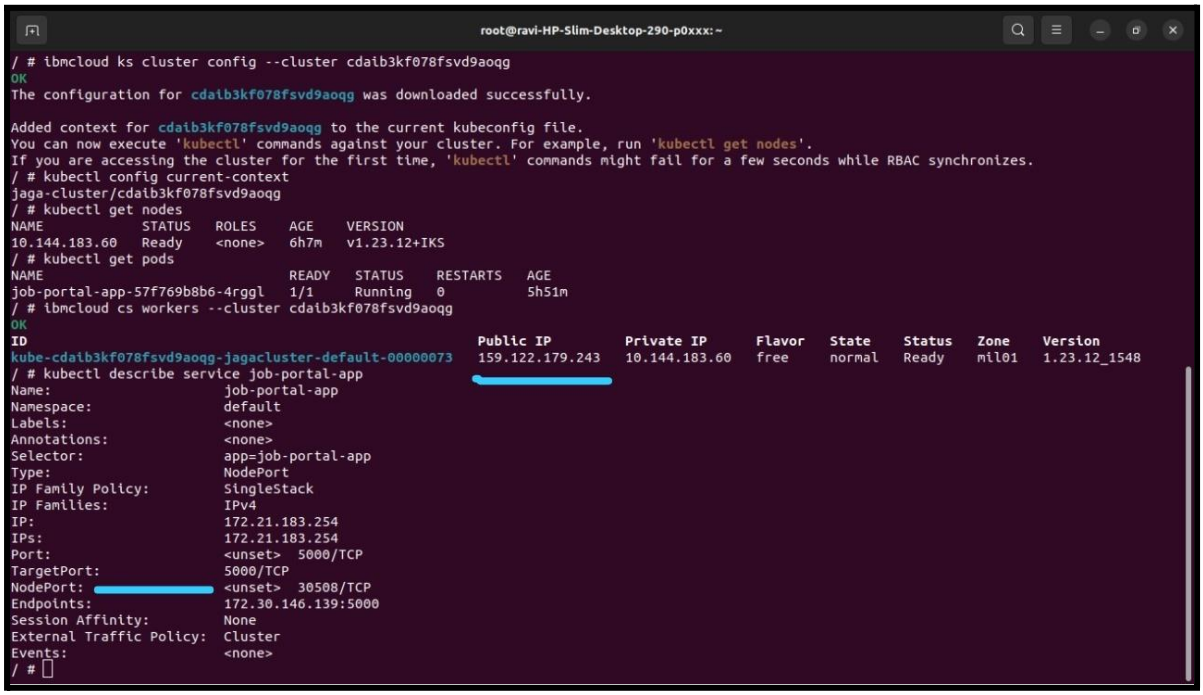
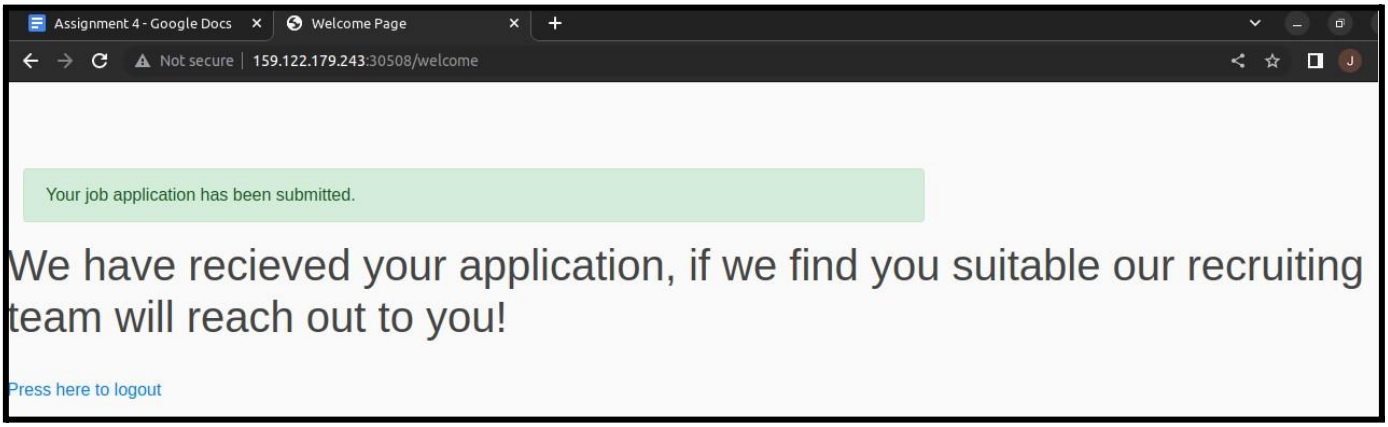
Cluster creation



Creating a service based on the yml file



Procedure to find the exposed url



Run our flask app in the IBM kubernetes