

Assignment -4

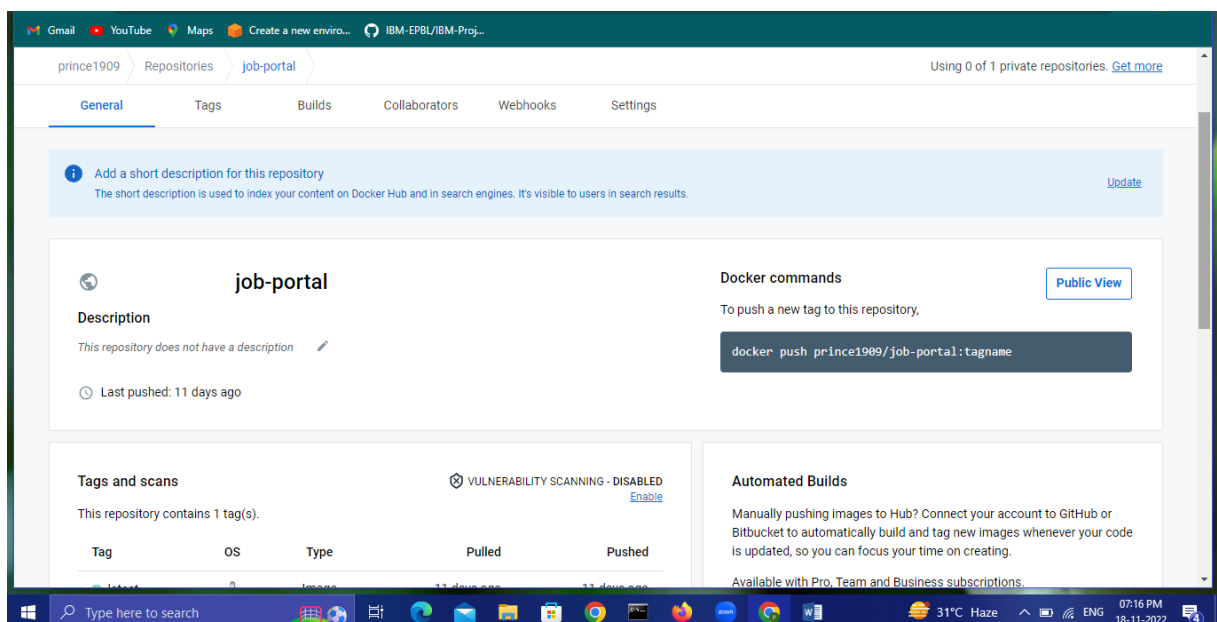
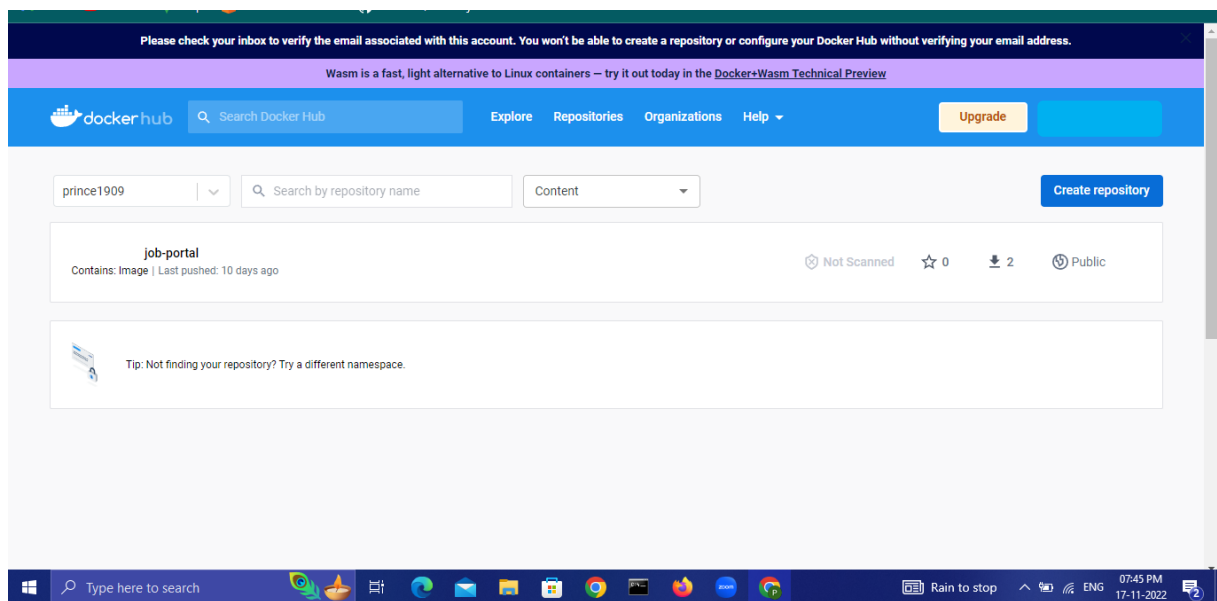
Kubernetes / Docker

Assignment Date	30 October 2022
Student Name	Mr. Siva Subramanian S
Student Roll Number	61771921045
Maximum Marks	2 Marks

Question-1:

1. Pull an Image from docker hub and run it in docker playground.
2. Create a docker file for the job portal / flask application and deploy it in Docker desktop application.
3. Create a IBM container registry and push docker image of flask application or job portal app.
4. Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in nodeport.

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



03:59:37

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.13
node1

cdr461m0_cdr464m0qau

IP
192.168.0.13

OPEN PORT

Memory

CPU

SSH
2-18-0-33-cdr461m0qau0009ee2k0@direct.labs.pla

DELETE EDITOR

```
#####  
# WARNING!!!!  
# This is a sandbox environment. Using personal credentials  
# is HIGHLY! discouraged. Any consequences of doing so are  
# completely the user's responsibilities.  
#  
# The PWD team.  
#####  
[node1] (local) root@192.168.0.13 ~  
$
```

Type here to search

Rain to stop

07:50 PM
17-11-2022

08:16:59

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

cdfalm60_cdfalnm0qau

IP
192.168.0.18

OPEN PORT
5000

Memory
3.71% (148.5MiB / 3.906GiB)

CPU
0.29%

SSH
-18-0-39-cdfalm60qau000c2rsv0@direct.labs.play

DELETE EDITOR

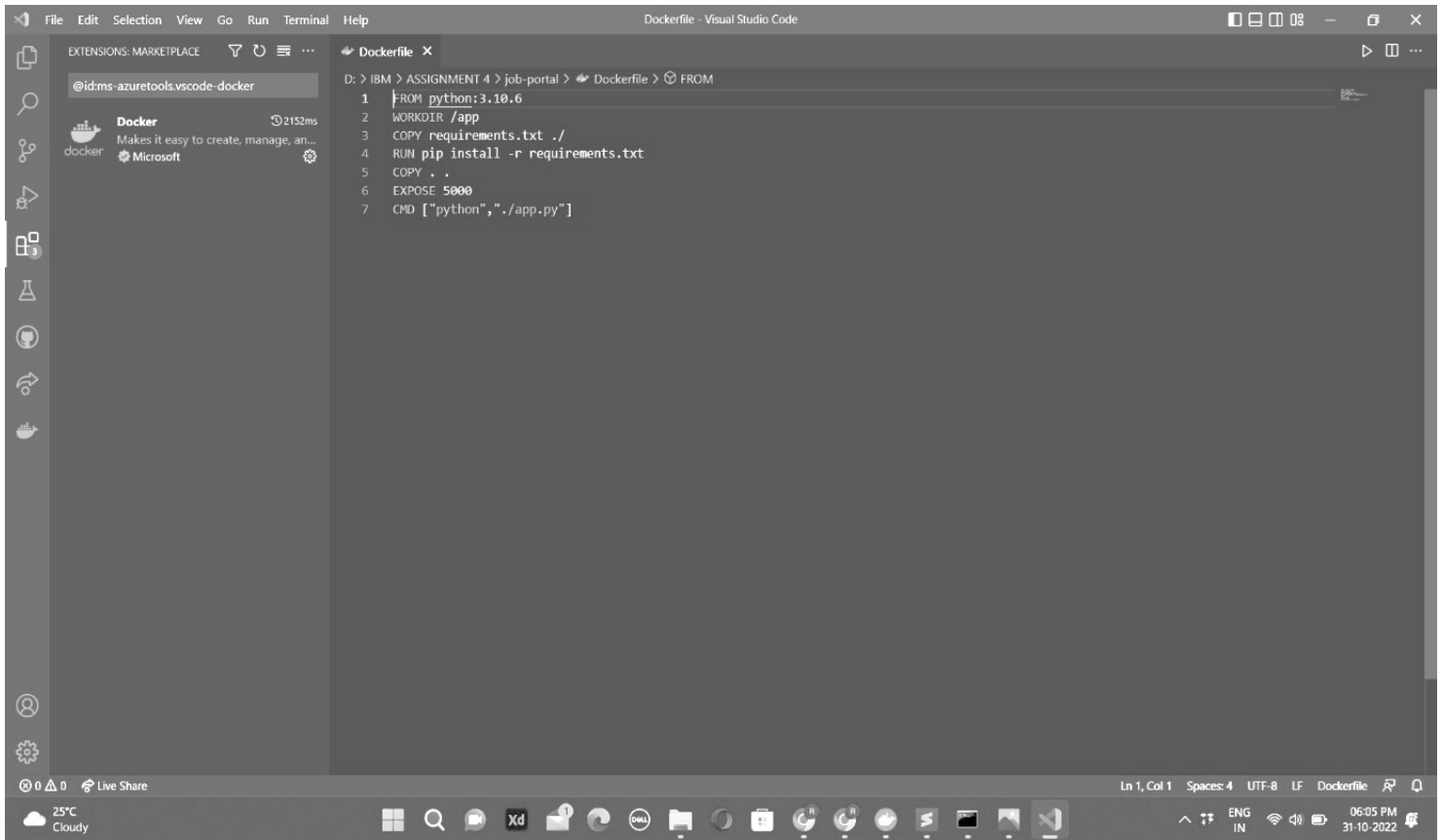
```
4334b2fe8293: Pull complete  
391117b863c3: Pull complete  
61e42aafc64b: Pull complete  
5b2c840dea71: Pull complete  
931d84c4d56f: Pull complete  
Digest: sha256:9bccdb5ab46e790b3a2e3a2f03a5998928c8d4987c5123c7ab47e1138b3b55ee  
Status: Downloaded newer image for rameshkumar44/job-portal:latest  
* 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://172.17.0.2:5000  
Press CTRL+C to quit  
172.18.0.1 - - [30/Oct/2022 16:49:59] "GET / HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:49:59] "GET /static/css/mystyle.css HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:49:59] "GET /static/css/bootstrap.min.css HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:49:59] "GET /static/css/owl.carousel.min.css HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:49:59] "GET /static/css/slicknav.css HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:49:59] "GET /static/css/price_rangs.css HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:49:59] "GET /static/css/animate.min.css HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:50:00] "GET /static/css/magnific-popup.css HTTP/1.1" 200 -  
172.18.0.1 - - [30/Oct/2022 16:50:00] "GET /static/css/fontawesome-all.min.css HTTP/1.1" 200 -
```

25°C
Cloudy

ENG
IN

06:01 PM
31-10-2022

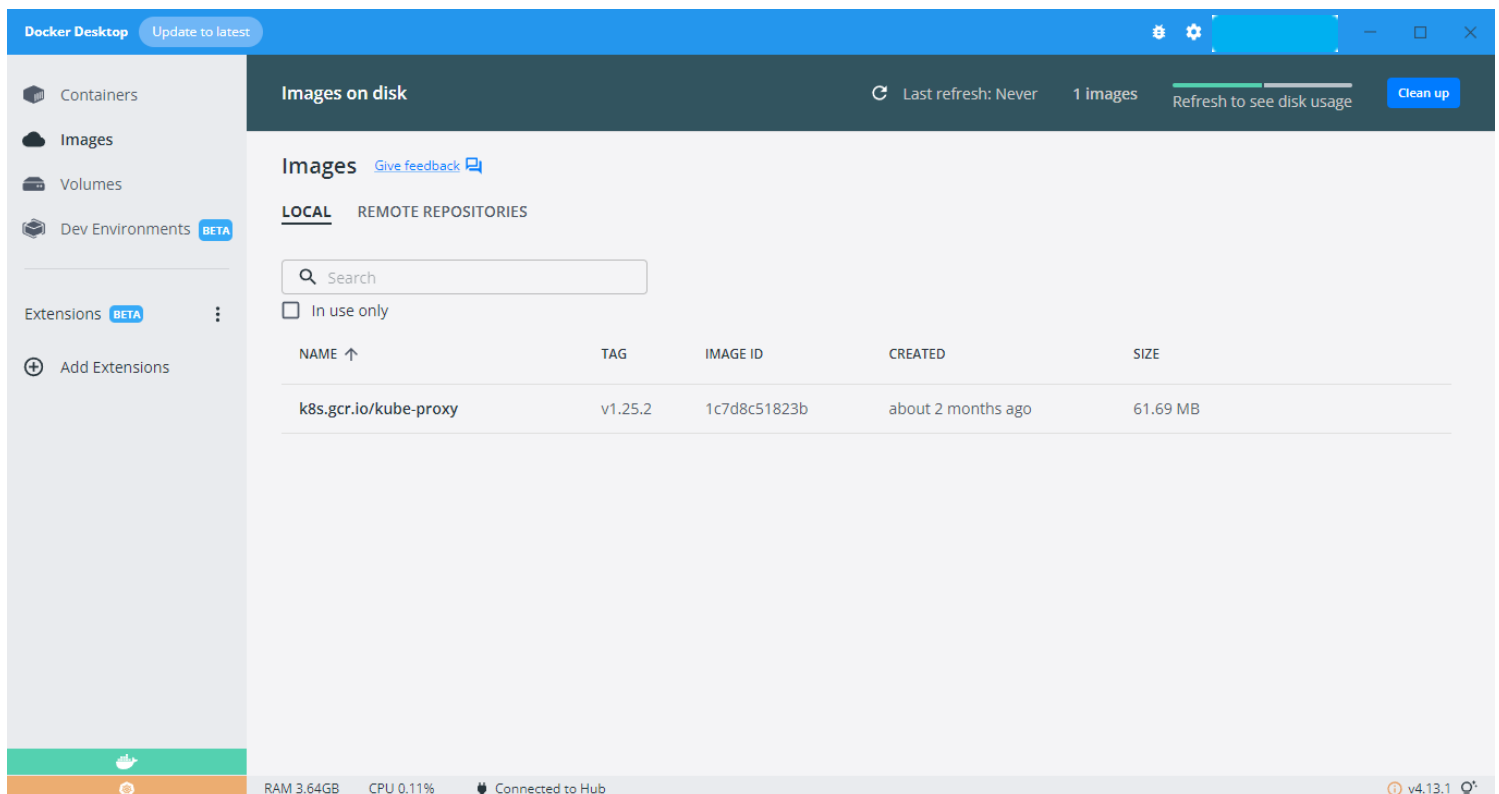
Step 2: Create a dockerfile for the job portal / flask application and deploy it in Docker desktop application.



The screenshot shows the Visual Studio Code interface with a Dockerfile open in the editor. The Dockerfile contains the following content:

```
D: > IBM > ASSIGNMENT 4 > job-portal > Dockerfile > FROM
1 FROM python:3.10.6
2 WORKDIR /app
3 COPY requirements.txt ./
4 RUN pip install -r requirements.txt
5 COPY . .
6 EXPOSE 5000
7 CMD ["python", "./app.py"]
```

The left sidebar shows the 'EXTENSIONS: MARKETPLACE' view with the 'Docker' extension by Microsoft installed. The status bar at the bottom indicates the current file is 'Dockerfile' and the system is at 25°C Cloudy.



The screenshot shows the labs.play-with-docker.com interface. On the left, there's a sidebar with a clock showing 07:25:59, a 'CLOSE SESSION' button, and a list of instances. The main area displays details for a Docker instance named 'cdfalm60_cdfalnm0qau'. It shows the IP address 192.168.0.18, an 'OPEN PORT' button for port 5000, and resource usage: Memory at 3.71% (148.5MiB / 3.906GiB) and CPU at 0.29%. An SSH command is provided: `ssh -i 18-0-39-cdfalm60qau000c2rsv0@direct.labs.play`. Below this are 'DELETE' and 'EDITOR' buttons. The terminal window shows a log of HTTP requests from 172.18.0.1 to the instance, including requests for jQuery, contact.js, and various CSS files, all returning 200 status codes.

Step 3: Create a IBM container registry and push docker image of flask application or job portal app.

The screenshot shows the IBM Cloud Container Registry console. The left sidebar has 'Container Registry' selected, with a 'Quick start' menu showing 'Namespaces' (1), 'Repositories' (0), 'Images' (0), 'Trash' (0), and 'Settings'. The main area is titled 'Namespaces' and shows a dropdown for 'Location' set to 'Tokyo'. Below this is a search bar and a 'Create' button. A table lists the namespaces:

Name	Resource group	Repository count	Image count	Retention policy
princevasantharaj	Default	0	0	Retain all images

At the bottom, there are pagination controls showing 'Items per page: 25' and '1-1 of 1 item'.

Step 4: Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in Nodeport.

The screenshot shows the IBM Cloud console interface for a 'mycluster-free' Kubernetes cluster. The cluster is in a 'Normal' state and expires in 19 days. The overview section displays the following status:

- Node status:** 1 of 1, Normal
- Add-on status:** 0 of 0, Normal
- Master status:** Normal
- Ingress status:** Healthy

The details section provides the following information:

- Cluster ID:** cdkg63mf9dhnvav50fc0
- Version:** 1.24.7_1542
- Infrastructure:** Classic
- Zones:** Milan 01
- Created:** 11/7/2022 6:37 PM
- Resource group:** Default
- Image security enforcement:** (Not specified)

The screenshot shows the 'Worker pools' section of the IBM Cloud console for the 'mycluster-free' Kubernetes cluster. The 'default' worker pool is listed with the following details:

Name	Zones	Status	Workers per zone	Actual / Declared workers	Flavor
default	Milan 01	Active	1	1 / 1	Free - 2 vCPUs 4GB RAM

The interface also includes a search bar, an 'Add' button, and pagination controls showing 1 of 1 item.

```
C:\Windows\System32\cmd.exe

Targeted account Prince Vasantharaj's Account (59d82df90eb6488aa0ef9b89c4ebda15)

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> 4
Targeted region jp-tok

API endpoint: https://cloud.ibm.com
Region: jp-tok
User: 19urcs043@aaacet.ac.in
Account: Prince Vasantharaj's Account (59d82df90eb6488aa0ef9b89c4ebda15)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

C:\Users\Prince Vasantharaj\Desktop\job-portal>
```

kubernetes

default

Search

Workloads

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

Workload Status

Running: 2 Deployments

Running: 8 Pods

Running: 2 Replica Sets

Deployments

Name	Images	Labels	Pods	Created
job-portal	Show all	-	3 / 3	19 hours ago
blog-in-flask	Show all	-	5 / 5	a day ago

eu-de.containers.cloud.ibm.com/kubeproxyl/clusters/cdk63mfdhnnu50f-0/service/#/node?namespace=all

kubernetes

All namespaces

Search

Cluster > Nodes

Cluster Role Bindings

Cluster Roles

Events

Namespaces

Network Policies

Nodes

Persistent Volumes

Role Bindings

Roles

Service Accounts

Custom Resource Definitions

Settings

About

CPU Usage

CPU (cores)

Memory Usage

Memory (bytes)

Nodes

Name	Labels	CPU Ready requests (cores)	CPU limits (cores)	CPU capacity (cores)	Memory requests (bytes)	Memory limits (bytes)	Memory capacity (bytes)	Pods	Created	
10.144.182.18	Show all	True	959.00m (49.95%)	498.00m (25.94%)	1.92	724.52Mi (26.81%)	5.43Gi (205.90%)	2.64Gi	16 (14.55%)	10 days ago

Workloads > Replica Sets

Replica Sets

Name	Images	Labels	Pods	Created ↑
job-portal-6745b7688d	jp.icr.io/princevasantharaj/job-portal Show less	app: job-portal pod-template-hash: 6745b7688d Show less	0 / 3	10 days ago

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Construction (658)	Information Technology (658)	Real Estate (658)	Content Writer (658)