

## Assignment 4

Assignment date	4th november 2022
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Maximum Marks	2 Marks

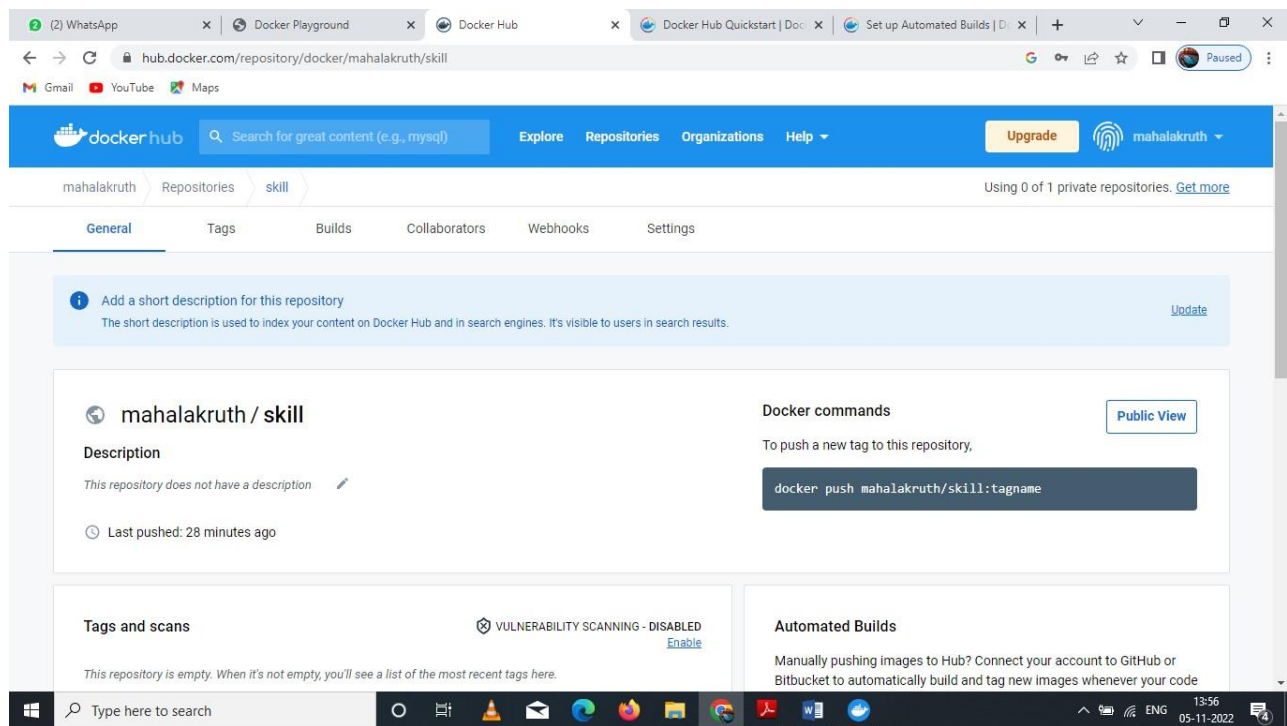
### Question 1:

Pull an image from docker hub and run it on docker playground.

### Solution 1:

`docker pull uifd/ui-for-docker`

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



vv

Docker playground:

The screenshot shows a web browser window with multiple tabs. The active tab is 'labs.play-with-docker.com/p/cdj1c1m0qau000fq8ubg#cdj1c1m0\_cdj1cam0qau000fq8ud0'. The interface displays a digital clock at 03:26:45 and a 'CLOSE SESSION' button. Below this, there's a section for 'Instances' with a '+ ADD NEW INSTANCE' button. A list of instances shows '192.168.0.18 node1'. To the right, a detailed view of the instance 'cdj1c1m0\_cdj1cam0qau000fq8ud0' is shown, including its IP (192.168.0.18), memory usage (1.47% / 58.86MiB / 3.90GiB), CPU usage (0.57%), and an SSH command: 'ssh ip172-18-0-25-cdj1c1m0qau000fq8ubg@direct.labs.play-with-docker.com'. Below this, there's a terminal window showing the following commands and output:

```
$ docker pull jenkins
Using default tag: latest
Error response from daemon: manifest for jenkins:latest not found: manifest unknown: manifest unknown
[node1] (local) root@192.168.0.18 ~
$ docker jenkins
docker: 'jenkins' is not a docker command.
See 'docker --help'
[node1] (local) root@192.168.0.18 ~
$ 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@192.168.0.18 ~
$
```

## Docker UI:

The screenshot shows a web browser window with the 'UI For Docker' interface. The browser address bar shows 'ip172-18-0-40-cdj1c1m0qau000fq8ubg@direct.labs.play-with-docker.com/#/'. The interface has a navigation bar with tabs: 'Dashboard', 'Containers', 'Containers Network', 'Images', 'Networks', 'Volumes', and 'Info'. A 'Refresh' button is also present. The main content area is divided into two sections: 'Running Containers' and 'Status'. The 'Running Containers' section shows a list of containers, including 'serene\_keller' which is 'Up 17 seconds'. The 'Status' section features a donut chart showing the status of containers: 'Running' (green), 'Stopped' (red), and 'Ghost' (grey). Below the donut chart, there are two line graphs: 'Containers created' and 'Images created', both showing a count of 1 over time.

## Question 2:

Create a docker file for the job portal app or hello world app and deploy it in docker desktop app.

## Solution 2:

### DockerFile

Dockerfile - Notepad

File Edit Format View Help

```
FROM python:3.8
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

### Bulid Docker image

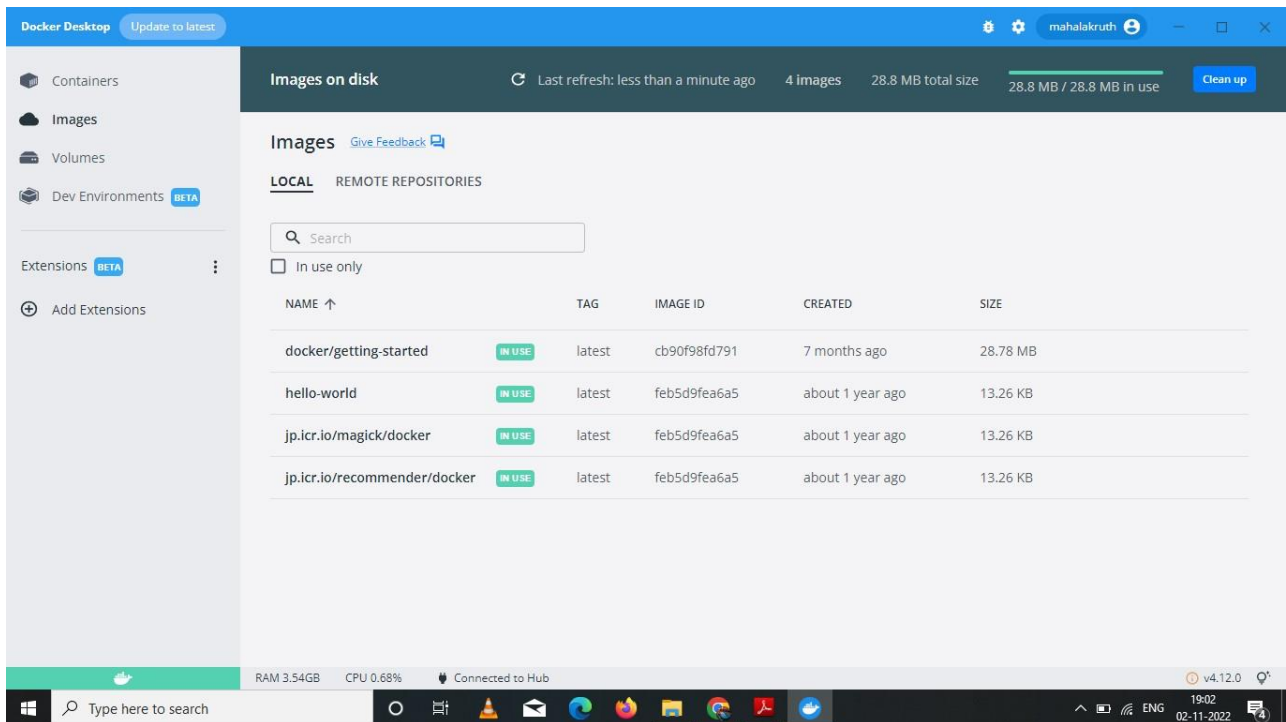
```
Windows PowerShell
PS C:\Users\SYSTEMS> ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com
Email: 951319104029@smartinternz.com
Password:
Authenticating...
OK
Targeted account Mahalakshmi M's Account (744e7cbee123467a86464f1564fcfe06)

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: 951319104029@smartinternz.com
Account: Mahalakshmi M's Account (744e7cbee123467a86464f1564fcfe06)
Resource group: No resource group targeted, use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:
PS C:\Users\SYSTEMS> ibmcloud cr namespace-add magick
No resource group is targeted. Therefore, the default resource group for the account ('Default') is targeted.
Adding namespace 'magick' in resource group 'Default' for account Mahalakshmi M's Account in registry jp.icr.io...
Successfully added namespace 'magick'

OK
PS C:\Users\SYSTEMS> docker push jp.icr.io/magick/docker:latest
[2022-10-30T16:06:39.740411700Z][docker-credential-desktop][W] Windows version might not be up-to-date: The system cannot find the file specified.
The push refers to repository [jp.icr.io/magick/docker]
```

### Deploy it on Docker hub



```
Command Prompt
new version 2.12.1 is available.
Change logs: https://github.com/IBM-Cloud/ibm-cloud-cli-release/releases/tag/v2.12.1
TIP: use 'ibmcloud config --check-version=false' to disable update check.

Do you want to update? [y/N] > y

Installing version '2.12.1'...
Downloading...
14.95 MiB / 14.95 MiB [=====] 100.00% 24s
[no value] bytes downloaded
Saved in C:\Users\SYSTEMS\bluemix\tmp\bx_2240656887\IBM_Cloud_CLI_2.12.1_amd64.exe

C:\Users\SYSTEMS>
```

Tested it using Docker playground

cdj1c1m0\_cdj1cam0qau000fq8ud0

IP: 192.168.0.18

Memory: 1.23% (49.01MiB / 3.906GiB)

CPU: 0.46%

SSH: ssh ip172-18-0-25-cdj1c1m0qau000fq8ubg@direct.labs.pla

DELETE EDITOR

```
# is HIGHLY! discouraged. Any consequences of doing so are
# completely the user's responsibilities.
#
# The FWD team.
#####
[node1] (local) root@192.168.0.18 ~
$ docker pull mahalakruth/skill
Using default tag: latest
Error response from daemon: manifest for mahalakruth/skill:latest not found: manifest unknown: manifest unknown
[node1] (local) root@192.168.0.18 ~
$ docker --version
Docker version 20.10.17, build 100c701
[node1] (local) root@192.168.0.18 ~
$ docker -v
Docker version 20.10.17, build 100c701
[node1] (local) root@192.168.0.18 ~
$ dock
```

### Question 3:

Create an IBM container registry and deploy helloworld app or job portal app.

### Solution 3:

My image link: [au.icr.io/hello-world-app/hello-world](https://au.icr.io/hello-world-app/hello-world)

```
C:\Users\Monashree>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% 5s
12476416 bytes downloaded
Installing binary...
OK
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\Monashree\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry'
to show its details.

C:\Users\Monashree>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com

Email> 2019115055@smartinternz.com

Password>
Authenticating...
OK
Targeted account Monashree K's Account (302198646cc145ea8bc880cfb0a0d15d)

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
882fd36bfd35: Pushing [=====] 110.5MB/529MB
d1dec9917839: Pushing [=====] 79.9MB/152MB

API endpoint: https://cloud.ibm.com
d9d07d703dd5: Pushing [=====] 67.45MB/124.1MB
d1dec9917839: Pushing [=====] 69.67MB/152MB
```

```
C:\Windows\System32\cmd.exe - docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world

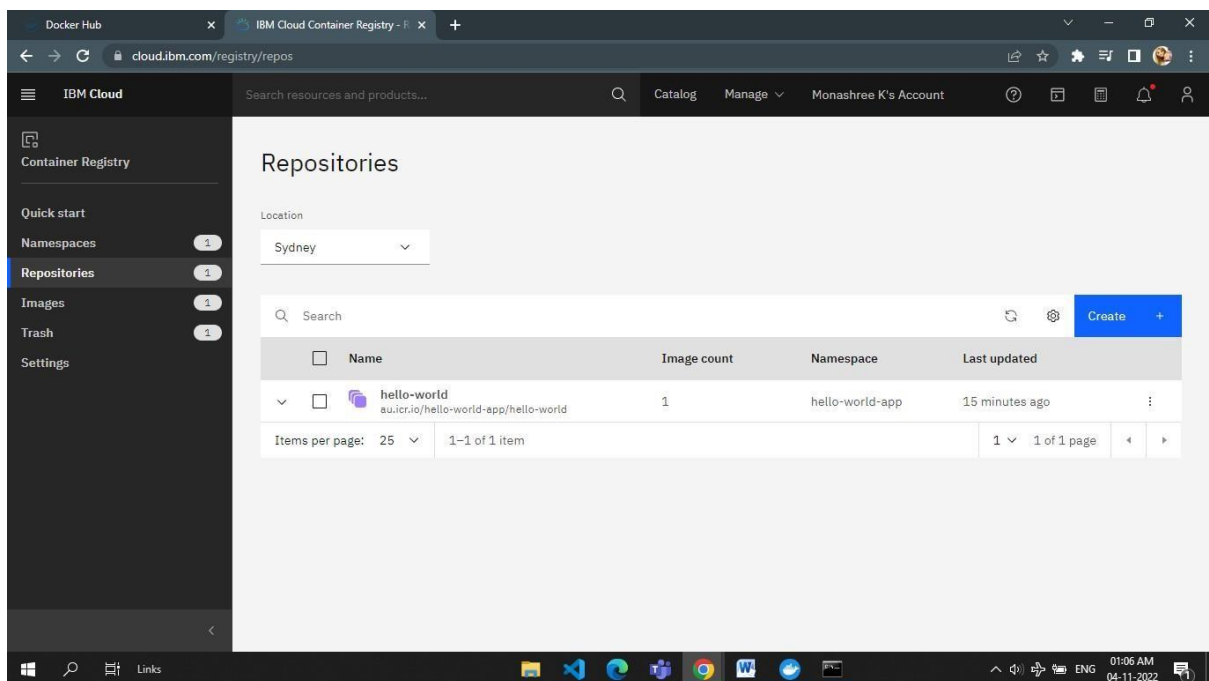
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd5cc069: Pushed
000e0938fc5e: Pushed
4bb20ee8724f: Pushed
403dea3c8533: Pushed
f5d161bba139: Pushed
1569e0d95ce6: Pushed
d9e08da15d0c: Pushed
6b183c62e3d7: Mounted from hello-world-app/hello-world-app
882fd36bfd35: Mounted from hello-world-app/hello-world-app
d1dec9917839: Mounted from hello-world-app/hello-world-app
d38adf39e1dd: Mounted from hello-world-app/hello-world-app
4ed121b04368: Mounted from hello-world-app/hello-world-app
d9d07d783dd5: Mounted from hello-world-app/hello-world-app
latest: digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>ibmcloud cr image-list
Listing images...

Repository          Tag    Digest          Namespace      Created      Size    Security status
au.icr.io/hello-world-app/hello-world  latest  0036fe145662    hello-world-app  12 minutes ago  356 MB  -

OK

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world
* 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 http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [03/Nov/2022 19:35:58] "GET / HTTP/1.1" 200 -
```



#### Question 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.

#### Solution 4:

<https://raw.githubusercontent.com/itsmona14/IBM-Assignment-cloud/main/deployment.yaml>

```

apiVersion: v1 kind: Service
metadata: name: hello-world-
deployment
spec: ports:
  - port: 5000
    targetPort: 5000
  selector:
    app: hello-world
--- apiVersion: apps/v1 kind:
Deployment metadata: name:
hello-world-deployment
spec:
  replicas: 1 selector:
    matchLabels:
      app: hello-world
  template:
    metadata:
      labels: app:
        hello-world
    spec: containers:
      - name: hello-world image:
        au.icr.io/hello-world-app/hello-
        world imagePullPolicy: Always
        ports:
          - containerPort: 5000

```

mycluster-free - IBM Cloud

cloud.ibm.com/kubernetes/clusters/cd11j33f0a6mchav5kig/overview

IBM Cloud Search resources and products... Catalog Manage Monashree K's Account

Clusters / mycluster-free Normal Expires in 29 days Add tags Help Kubernetes dashboard Actions...

**Expires in 29 days:**  
Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a standard cluster.

Node status	Add-on status	Master status	Ingress status
1 of 1 Normal	0 of 0 Normal	Normal	Unknown
<a href="#">Details ↓</a>	<a href="#">Details ↓</a>	<a href="#">Docs ↗</a>	<a href="#">Docs ↗</a>

**Details**

Cluster ID cd11j33f0a6mchav5kig	Version 1.24.7_1542	Infrastructure Classic	Zones Milan 01
Created 04/11/2022, 01:12	Resource group Default	Image security enforcement <a href="#">Enable</a>	

Windows taskbar: 01:37 PM 04-11-2022



mycluster-free - Kubernetes Dashboard

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdi1j33f0a6mchav5kig/service/#/deployment?namespace=default

### kubernetes

default

Search

Workloads > Deployments

Workloads

- Cron Jobs
- Daemon Sets
- Deployments
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses
- Ingress Classes
- Services

Config and Storage

- Config Maps

#### CPU Usage

#### Memory Usage

#### Deployments

Name	Images	Labels	Pods	Created
hello-world-deployment	Show all	-	1 / 1	34 minutes ago

mycluster-free - Kubernetes Dashboard

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdi1j33f0a6mchav5kig/service/#/log/default/hello-world-deployment-6c75b9c898-p4ntv/pod?namespace=default

### kubernetes

default

Search

Workloads > Pods > hello-world-deployment-6c75b9c898-p4ntv > Logs

Workloads

- Cron Jobs
- Daemon Sets
- Deployments
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses
- Ingress Classes
- Services

Config and Storage

- Config Maps

#### Logs from hello-world in hello-world-dep...

```
* 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://172.30.82.142:5000
Press CTRL+C to quit
```

Logs from Nov 4, 2022 to Nov 4, 2022 UTC

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdi1j33f0a6mchav5kig/...