

## Assignment 4

Assignment date	3 September 2022
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Student roll no	951319104029
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
```

The screenshot shows a web browser window with multiple tabs. The active tab is 'Docker Hub Quickstart | Docker', but the address bar shows 'hub.docker.com/repository/docker/mahalakruth/skill'. The page displays the Docker Hub interface for a repository named 'mahalakruth/skill'. The repository is currently empty, with a message stating 'This repository does not have a description' and 'Last pushed: 28 minutes ago'. There are sections for 'Tags and scans' (with a note that vulnerability scanning is disabled) and 'Automated Builds'. A 'Docker commands' section shows the command 'docker push mahalakruth/skill:tagname'. The user 'mahalakruth' is logged in, and the page shows 'Using 0 of 1 private repositories'.

## Docker playground:

The screenshot shows the Docker Playground interface in a web browser. The browser tabs include (2) WhatsApp, Docker Playground, Docker Hub, Docker Hub Quickstart, and Set up Automated Builds. The address bar shows the URL: labs.play-with-docker.com/p/cdj1c1m0qau000fq8ubg#cdj1c1m0\_cdj1cam0qau000fq8ud0. The interface has a blue sidebar on the left with a digital clock showing 03:26:45, a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button. Below the sidebar, there is a list of instances showing '192.168.0.18 node1'. The main area displays the instance details for 'cdj1c1m0\_cdj1cam0qau000fq8ud0', including its IP (192.168.0.18), memory usage (1.47% / 58.86MiB / 3.906GiB), CPU usage (0.57%), and an SSH command: ssh ip172-18-0-25-cdj1c1m0qau000fq8ubg@direct.labs.pla. There are 'DELETE' and 'EDITOR' buttons. Below the details is a terminal window showing a shell session where the user attempts to pull the 'jenkins' image, receives an error, and then successfully pulls the 'uifd/ui-for-docker:latest' image.

```
$ 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 the Docker UI dashboard in a web browser. The browser tabs include Docker Hub, Docker Playground, and UI For Docker. The address bar shows the URL: ip172-18-0-40-cdi0j60qau0008f9u80-9000.direct.labs.play-with-docker.com/#/. The dashboard has a navigation bar with tabs: Dashboard, Containers, Containers Network, Images, Networks, Volumes, and Info. There is a 'Refresh' button. The main content area is divided into two sections: 'Running Containers' and 'Status'. The 'Running Containers' section shows a list of containers with 'serene\_keller' listed as 'Up 17 seconds'. The 'Status' section features a donut chart showing the status of containers: Running (green), Stopped (red), and Ghost (grey). Below the chart, there are two line graphs: 'Containers created' and 'Images created', both showing a count of 1. The bottom of the screen shows a Windows taskbar with various application icons and a system clock showing 12:08 AM on 04-11-2022.

## 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

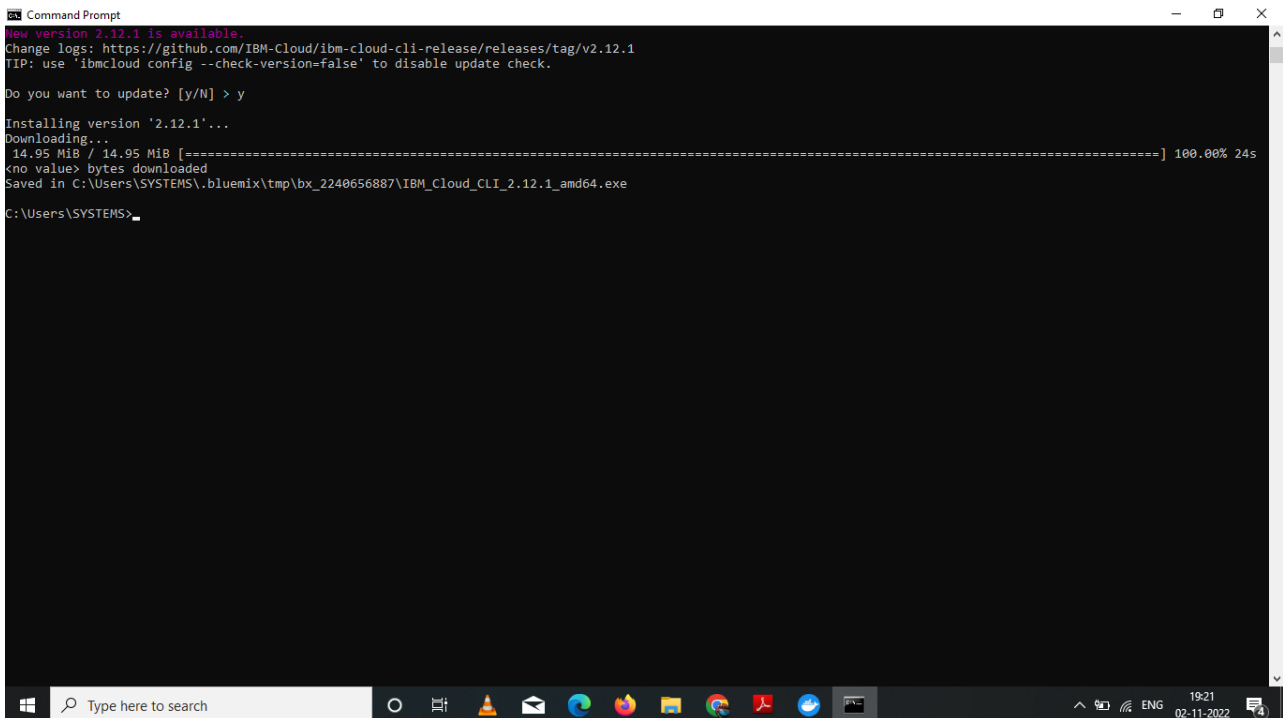
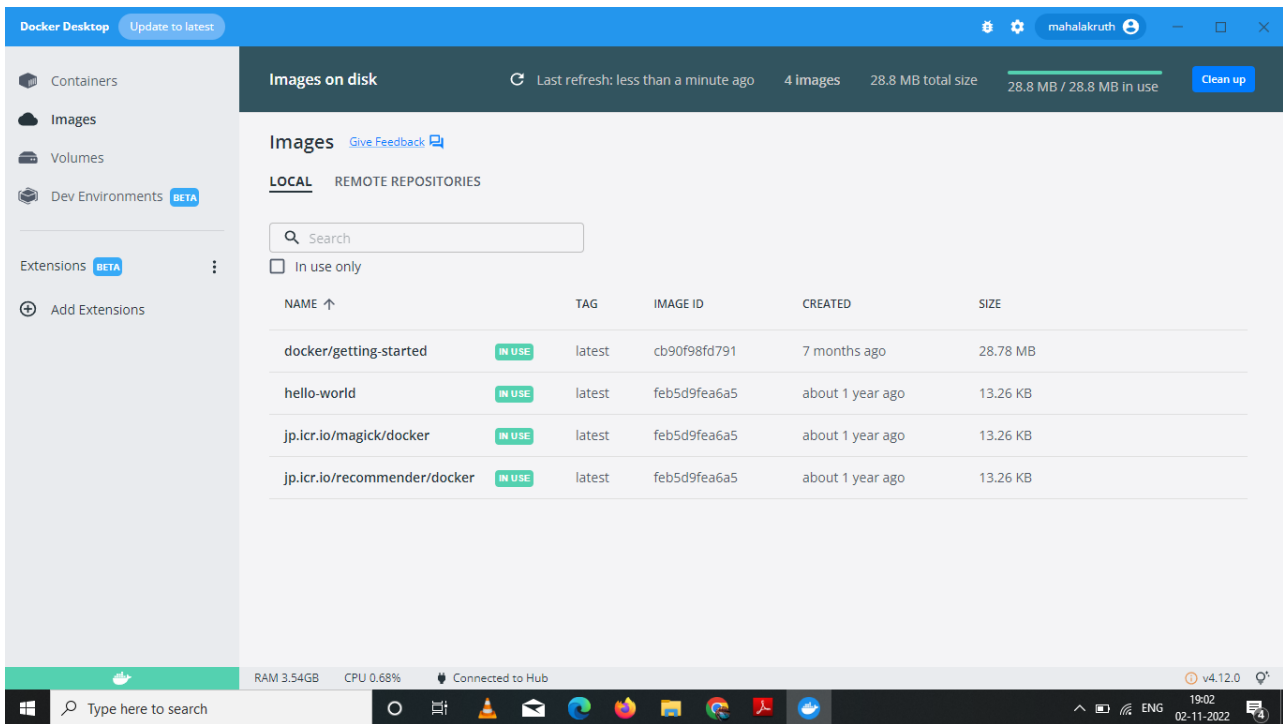
```
Windows PowerShell
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\SYSTEMS\bluemix\plugins\container-registry. Use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe plugin show container-registry' to show its details.
PS C:\Users\SYSTEMS> ibmcloud login -a https://cloud.ibm.com
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
[2022-10-30T16:06:39.748411700Z][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



## Tested it using Docker playground

The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a clock showing 03:37:01, a 'CLOSE SESSION' button, and a list of instances. The main area displays details for a container named 'cdj1c1m0\_cdj1cam0qau000fq8ud0'. It shows the IP address 192.168.0.18, memory usage (1.23% / 49.01MiB / 3.906GiB), and CPU usage (0.46%). There's an 'OPEN PORT' button and an SSH command: 'ssh ip172-18-0-25-cdj1c1m0qau000fq8ubg@direct.labs.pla'. Below this is a terminal window showing the following commands and output:

```
# is HIGHLY! discouraged. Any consequences of doing so are
# completely the user's responsibilities.
#
# The PWD 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)

The screenshot shows a Windows Command Prompt window with the following commands and output:

```
Command Prompt - docker push au.icr.io/hello-world-app/helloworldapp

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
49d07d703dd5: 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

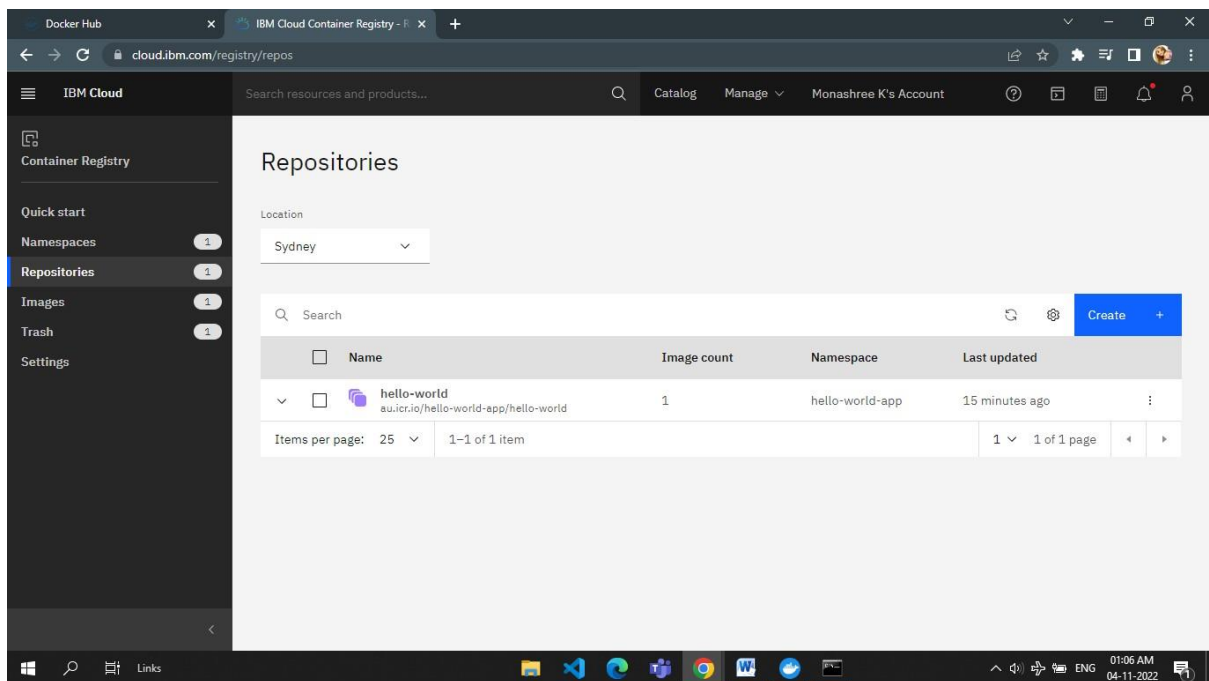
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd5cc060: Pushed
006e0938fc5e: Pushed
4bb20ce8724f: Pushed
402dea3c8533: Pushed
f5d161bba139: Pushed
1569e0d95ce6: Pushed
09e08d150dc: Pushed
0b183c62d3d7: Mounted from hello-world-app/hello-world-app
082fd36b6fd35: 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
d9d07d703dd5: 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 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
172.17.0.1 - - [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/cdi1j33f0a6mchav5kig/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...

Overview

Worker nodes

Worker pools

DevOps New

**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  
1 of 1  
Normal  
[Details ↓](#)

Add-on status  
0 of 0  
Normal  
[Details ↓](#)

Master status  
Normal  
[Docs ↗](#)

Ingress status  
Unknown  
[Docs ↗](#)

Details

Cluster ID  
cdi1j33f0a6mchav5kig

Version  
1.24.7\_1542

Infrastructure  
Classic

Zones  
Milan 01

Created  
04/11/2022, 01:12

Resource group  
Default

Image security enforcement  
[Enable](#)

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	<a href="#">Show all</a>	-	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=...

kubernetes default Search

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

Workloads <sup>N</sup>

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

Service

- Ingresses <sup>N</sup>
- Ingress Classes
- Services <sup>N</sup>

Config and Storage

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 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/ser...

Windows taskbar: 03:49 PM 04-11-2022