

## Assignment 4

|                 |                  |
|-----------------|------------------|
| Assignment date | 3 September 2022 |
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| Student roll no | 951319104042     |
| Maximum Marks   | 2 Marks          |

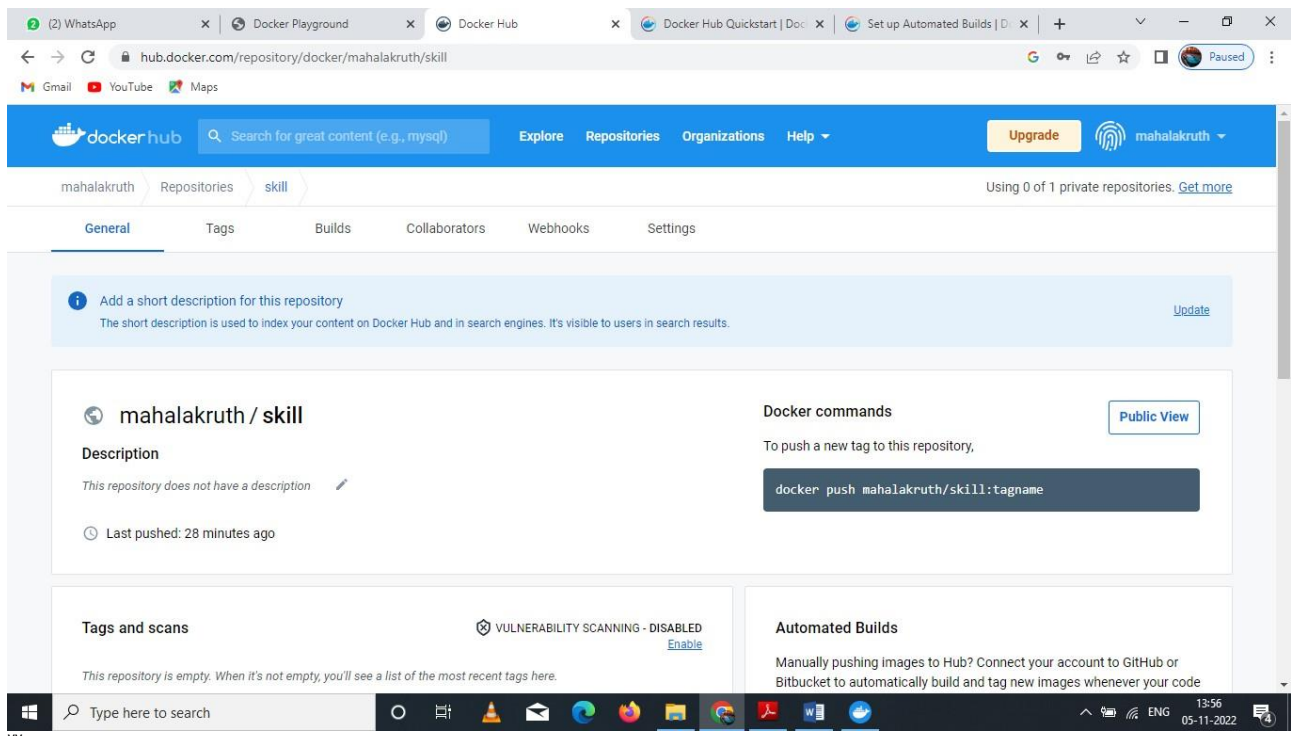
### Question 1:

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
```



## Docker playground:

The screenshot shows the Docker Playground interface in a web browser. The top navigation bar includes links for (2) WhatsApp, Docker Playground, Docker Hub, Docker Hub Quickstart, and Set up Automated Builds. The main content area displays the session ID 'cdj1c1m0\_cdj1cam0qau000fq8ud0'. Below this, the IP address is 192.168.0.18, and there is an 'OPEN PORT' button. The resource usage is shown as Memory: 1.47% (58.86MiB / 3.906GiB) and CPU: 0.57%. The SSH command is 'ssh ip172-18-0-25-cdj1c1m0qau000fq8ubg@direct.labs.pla'. There are 'DELETE' and 'EDITOR' buttons. A terminal window is open at the bottom, 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 the Docker UI interface in a web browser. The top navigation bar includes links for Docker Hub, Docker Playground, and UI For Docker. The main content area displays the 'UI For Docker' dashboard. The dashboard has a top navigation bar with tabs for Dashboard, Containers, Containers Network, Images, Networks, Volumes, and Info. A 'Refresh' button is located on the right. 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). The 'Containers created' and 'Images created' sections show a line graph with a single data point at 1 on the y-axis and 04/11/2022 on the x-axis.

## 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

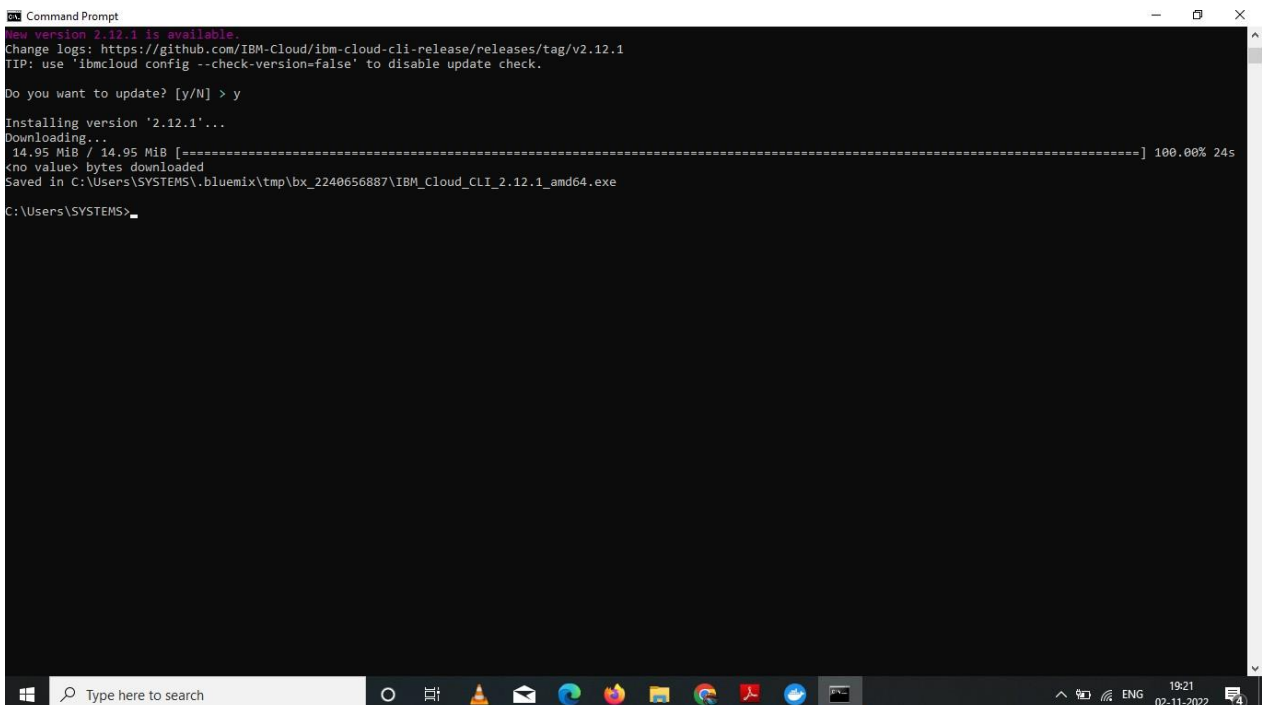
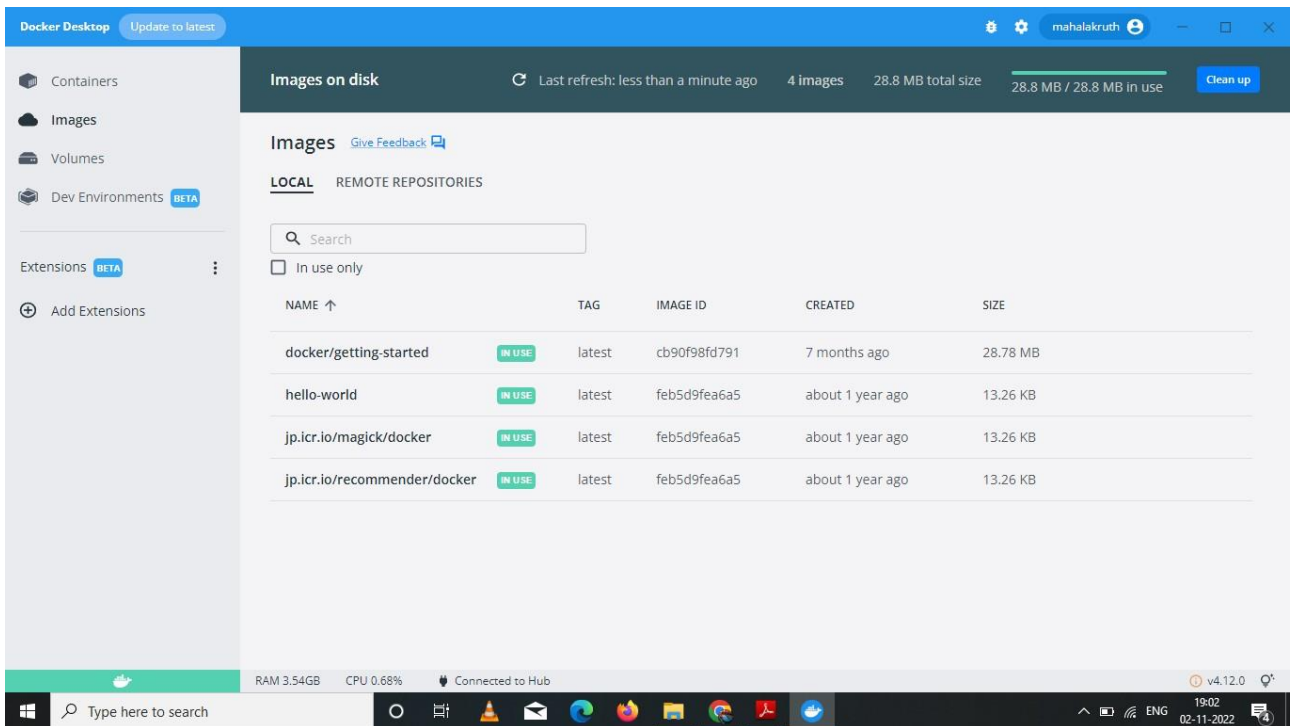
```
Windows PowerShell
PS C:\Users\SYSTEMS> ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com
Email> 951319104029@smartinternz.com
Password>
Authenticating...
OK
Targeted account Mahalakshmi M's Account (744e7cbee123467a86464f1564fce06)

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-go
8. carlon
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
Users: 951319104029@smartinternz.com
Account: Mahalakshmi M's Account (744e7cbee123467a86464f1564fce06)
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



## Tested it using Docker playground

The screenshot shows the Docker Playground web interface. On the left, there's a sidebar with a digital clock showing 03:37:01, a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button and a list of instances including '192.168.0.18 node1'. The main area displays details for the selected instance 'cdj1c1m0\_cdj1cam0qau000fq8ud0', including its IP (192.168.0.18), memory usage (1.23% / 49.01MiB / 3.906GiB), CPU usage (0.46%), and an SSH command. Below this is a terminal window showing a shell session where the user attempts to pull a Docker image, resulting in an error: 'Error response from daemon: manifest for mahalakruth/skill:latest not found: manifest unknown: manifest unknown'. The terminal also shows the Docker version (20.10.17, build 100c701).

### 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 titled 'Command Prompt - docker push au.icr.io/hello-world-app/helloworldapp'. The user runs the command 'ibmcloud plugin install container-registry', which successfully installs the plugin. Then, the user runs 'ibmcloud login -a https://cloud.ibm.com', which prompts for an email and password. After logging in, the user is prompted to select a region. The user selects '9' (eu-gb). The command prompt then shows the progress of pushing the Docker image to the IBM Cloud Container Registry, with progress bars for the image layers.

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

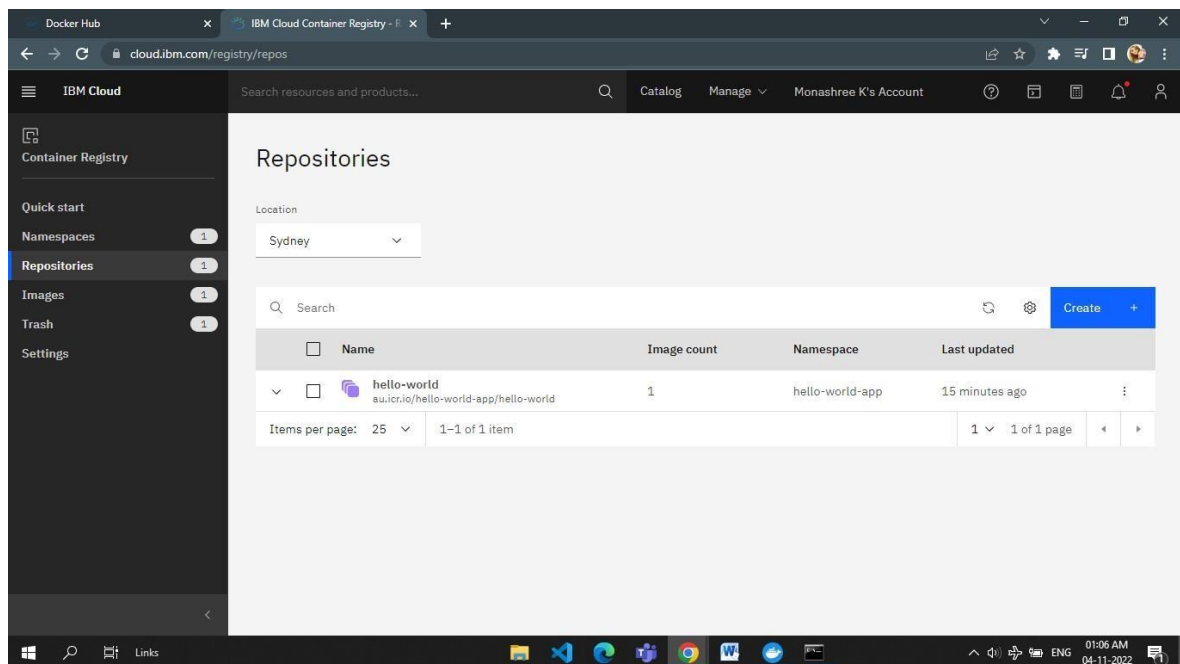
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd5cc069: Pushed
006e0938fc5e: Pushed
4bb20ce8724f: Pushed
402dea3c8533: Pushed
f5d161bba139: Pushed
1569e0e95cac: Pushed
90e08da1508c: 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
99d07d703dd5: 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 | 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=...

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