

ASSIGNMENT-3

Kubernetes / Docker

ASSIGNMENT DATE	25 OCTOBER 2022
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MAXIMUM MARKS	2 Marks

Question1 Pull an Image from docker hub and run it in docker playground.

The screenshot displays the Docker Playground web interface. On the left, a sidebar shows a timer at 03:58:05, a 'CLOSE SESSION' button, and a list of instances with one instance named '192.168.0.28 node1'. The main panel shows details for the instance 'cdqvg5e0_cdqvgbe0qau0009edhf0', including its IP address (192.168.0.28), memory usage (30.90%), CPU usage (0.31%), and an SSH command. Below this, a terminal window is open, showing the command to pull the 'lackhimpriya/imsr_projectdeploy' image from Docker Hub. The terminal output shows the image being pulled successfully, with various layer hashes and 'Pull complete' messages.

```
[node1] (local) root@192.168.0.28 ~
$ docker pull lackhimpriya/imsr_projectdeploy
Using default tag: latest
latest: Pulling from lackhimpriya/imsr_projectdeploy
001c52e26ad5: Pull complete
d9d4b9b6e964: Pull complete
2068746827ec: Pull complete
9daef329d350: Pull complete
8a335986117b: Pull complete
588423e31bcf: Pull complete
ecb6a3f01c0d: Pull complete
00d40f20f0cf: Pull complete
5d588b4f3b55: Pull complete
ca54d9b5155c: Pull complete
9fe661488514: Pull complete
```

cdqvg5e0_cdqvgbe0qau0009edhf0

IP

192.168.0.28

OPEN PORT

Memory

30.89% (1.207GiB / 3.906GiB)

CPU

0.18%

SSH

ssh ip172-18-0-95-cdqvg5e0qau0009edheg@direct.labs.pla

DELETE

EDITOR

```
5d588b4f3b55: Pull complete
ca54d9b5155c: Pull complete
9fe661488514: Pull complete
f6fc4f9725f4: Pull complete
c8d3c8a0060c: Pull complete
7dc8e0a43ce2: Pull complete
Digest: sha256:23bb0601d8893c42dd4c0c7084d9e4e77e6c5c9016007f67211e38f04625be3c
Status: Downloaded newer image for lackhmipriya/imsr_projectdeploy:latest
docker.io/lackhmipriya/imsr_projectdeploy:latest
[node1] (local) root@192.168.0.28 ~
$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
lackhmipriya/imsr_projectdeploy  latest             6d667290ffeb       About an hour ago  1.1GB
[node1] (local) root@192.168.0.28 ~
$
```

Command Prompt - docker run -p 8080:5000 lackhmipriya/imsrprojectdeploy

```
service/kubernetes-dashboard created
secret/kubernetes-dashboard-certs created
secret/kubernetes-dashboard-csf created
secret/kubernetes-dashboard-key-holder created
configmap/kubernetes-dashboard-settings created
role.rbac.authorization.k8s.io/kubernetes-dashboard created
clusterrole.rbac.authorization.k8s.io/kubernetes-dashboard configured
rolebinding.rbac.authorization.k8s.io/kubernetes-dashboard created
clusterrolebinding.rbac.authorization.k8s.io/kubernetes-dashboard configured
deployment.apps/kubernetes-dashboard created
service/dashboard-metrics-scraper created
deployment.apps/dashboard-metrics-scraper created

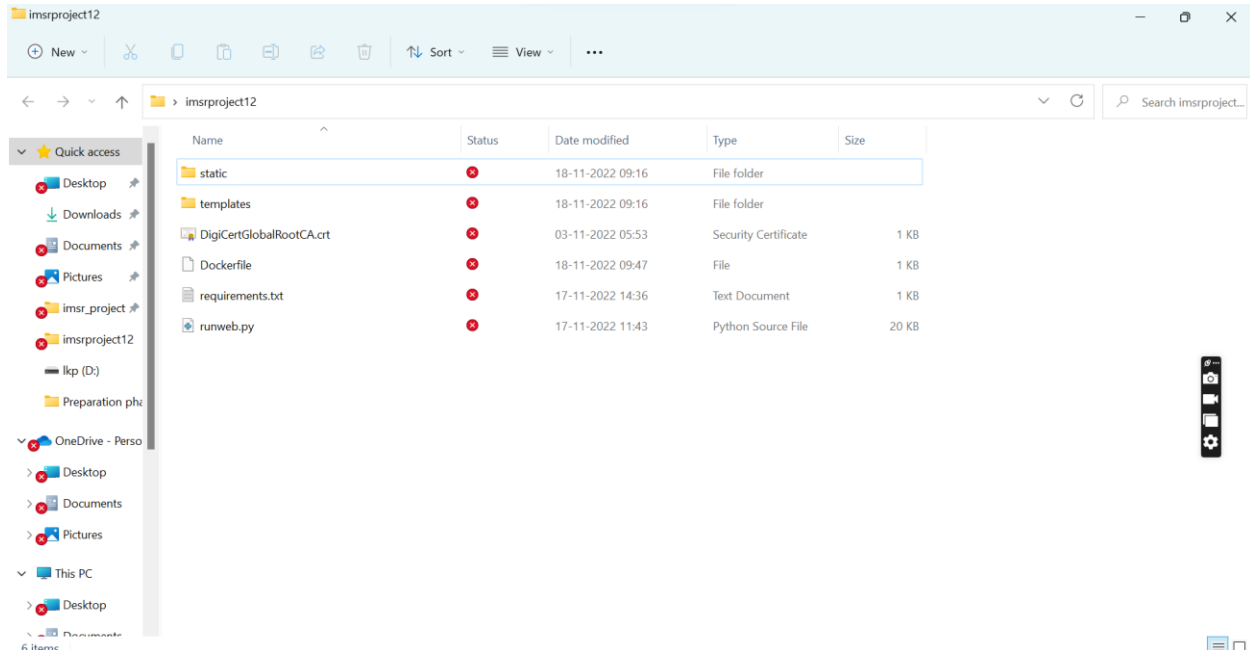
C:\Users\lackh\OneDrive\Desktop\imsr_project>
C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl proxy
Starting to serve on 127.0.0.1:8001
^C
C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl create -f imsrproject18119-deployment.yaml
error: the path "imsrproject18119-deployment.yaml" does not exist

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl create -f imsrproject18119.yaml
error: the path "imsrproject18119.yaml" does not exist

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl get pods
NAME                                READY    STATUS    RESTARTS   AGE
imsrproject-deployment-7df9649b7b-6rcnm    0/1     ImagePullBackOff    0          23m
imsrproject-deployment-7df9649b7b-b7xr5     0/1     ImagePullBackOff    0          9m14s
imsrproject18119-deployment-878fcf5cb-mbkv2  0/1     ImagePullBackOff    0          6m43s
imsrproject18119-deployment-878fcf5cb-prh4t  0/1     ImagePullBackOff    0          6m43s

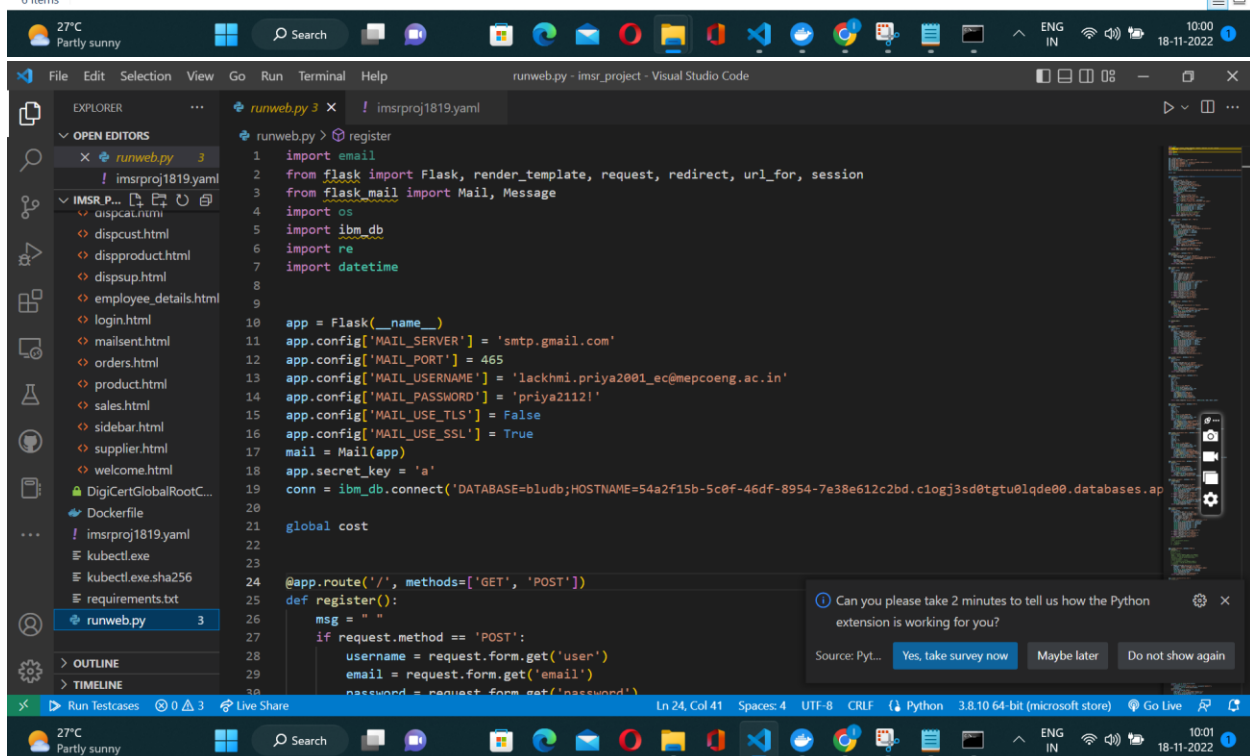
C:\Users\lackh\OneDrive\Desktop\imsr_project>docker run -p 8080:5000 lackhmipriya/imsrprojectdeploy
* Serving Flask app 'runweb'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 288-019-273
```

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



The screenshot shows a Windows File Explorer window titled 'imsrproject12'. The left sidebar shows the 'Quick access' pane with 'Desktop' selected. The main pane displays a list of files and folders:

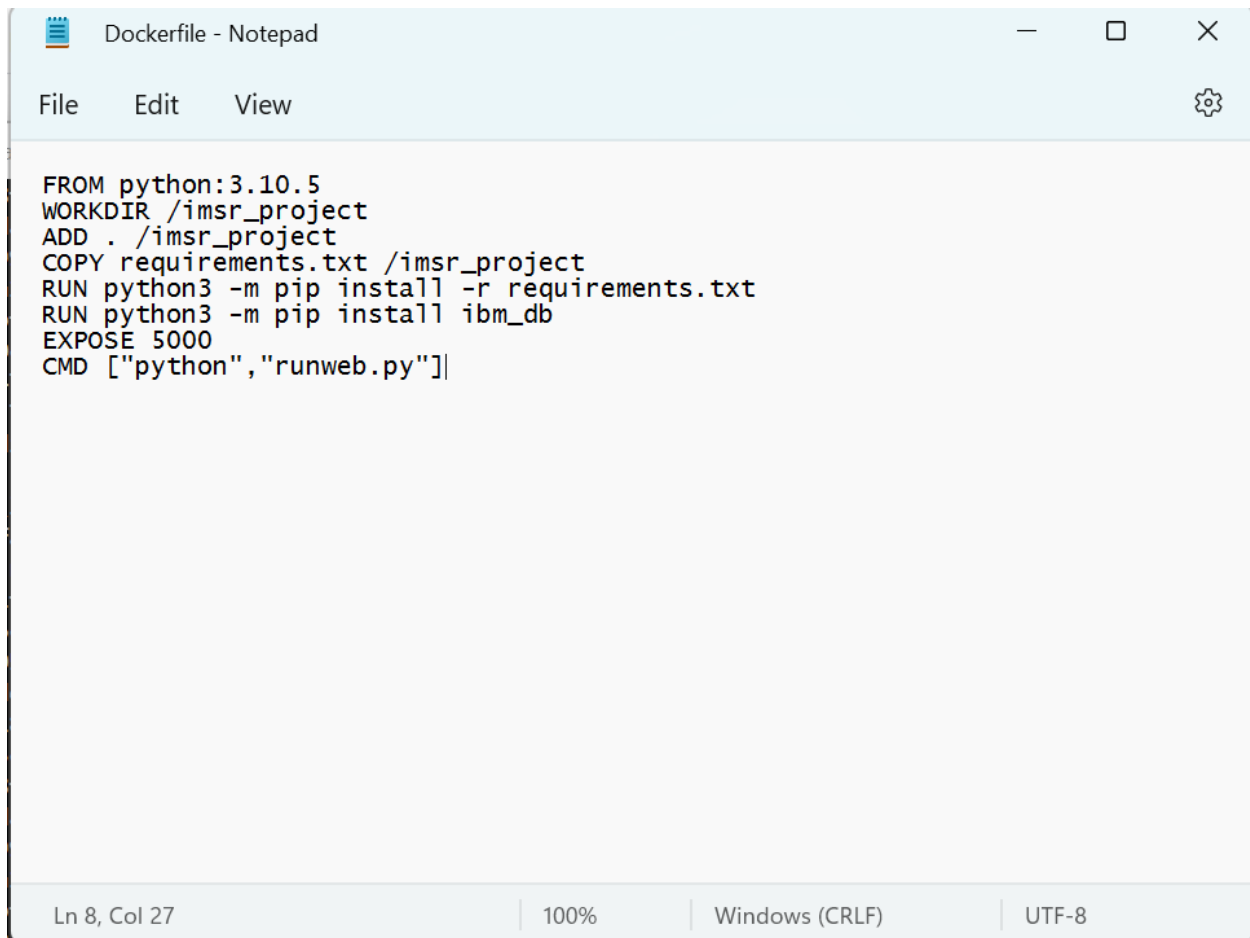
Name	Status	Date modified	Type	Size
static		18-11-2022 09:16	File folder	
templates		18-11-2022 09:16	File folder	
DigiCertGlobalRootCA.crt		03-11-2022 05:53	Security Certificate	1 KB
Dockerfile		18-11-2022 09:47	File	1 KB
requirements.txt		17-11-2022 14:36	Text Document	1 KB
runweb.py		17-11-2022 11:43	Python Source File	20 KB



The screenshot shows the Visual Studio Code editor with the 'runweb.py' file open. The code is a Flask application with a 'register' route. The code includes imports for email, Flask, render_template, request, redirect, url_for, session, flask_mail, Mail, Message, os, ibm_db, re, and datetime. It configures the Flask app with a mail server and connects to an IBM DB. The 'register' route is defined with a POST method.

```
1 import email
2 from flask import Flask, render_template, request, redirect, url_for, session
3 from flask_mail import Mail, Message
4 import os
5 import ibm_db
6 import re
7 import datetime
8
9
10 app = Flask(__name__)
11 app.config['MAIL_SERVER'] = 'smtp.gmail.com'
12 app.config['MAIL_PORT'] = 465
13 app.config['MAIL_USERNAME'] = 'lackhmi.priya2001_ec@mepcoeng.ac.in'
14 app.config['MAIL_PASSWORD'] = 'priya2112!'
15 app.config['MAIL_USE_TLS'] = False
16 app.config['MAIL_USE_SSL'] = True
17 mail = Mail(app)
18 app.secret_key = 'a'
19 conn = ibm_db.connect('DATABASE=bludb;HOSTNAME=54a2f15b-5c0f-46df-8954-7e38e612c2bd.c1ogj3sd0tgtu0lqde00.databases.ap
20
21 global cost
22
23
24 @app.route('/', methods=['GET', 'POST'])
25 def register():
26     msg = " "
27     if request.method == 'POST':
28         username = request.form.get('user')
29         email = request.form.get('email')
30         password = request.form.get('password')
```

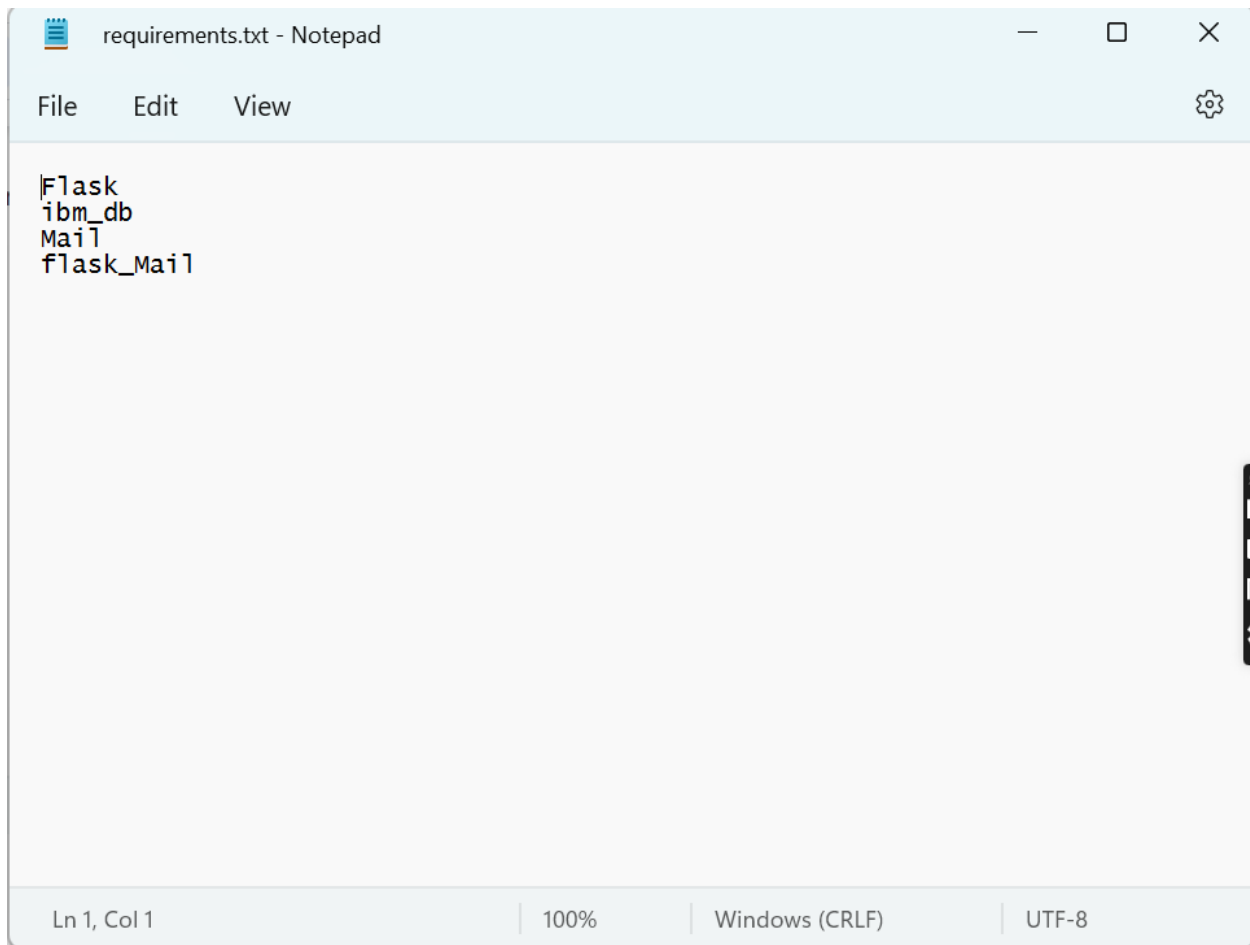
Create a docker file



```
FROM python:3.10.5
WORKDIR /imsr_project
ADD . /imsr_project
COPY requirements.txt /imsr_project
RUN python3 -m pip install -r requirements.txt
RUN python3 -m pip install ibm_db
EXPOSE 5000
CMD ["python", "runweb.py"]
```

Ln 8, Col 27 | 100% | Windows (CRLF) | UTF-8

Create a requirement file



```
requirements.txt - Notepad

File Edit View

Flask
ibm_db
Mail
flask_Mail

Ln 1, Col 1 | 100% | Windows (CRLF) | UTF-8
```

Build the application

-> The commands are highlighted

```
C:\Users\lackh>cd C:\Users\lackh\OneDrive\Desktop\imsrproject12

C:\Users\lackh\OneDrive\Desktop\imsrproject12>docker build -t imsrproject12 .
[+] Building 177.0s (12/12) FINISHED
=> [internal] load build definition from Dockerfile 0.1s
=> => transferring dockerfile: 235B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/python:3.10.5 2.9s
=> [auth] library/python:pull token for registry-1.docker.io 0.0s
=> [1/6] FROM docker.io/library/python:3.10.5@sha256:feebf94b56ce1f20a29427ff697bccbc659952feb99eb8f3ba8296b8e51 0.0s
=> [internal] load build context 0.0s
=> => transferring context: 1.63kB 0.0s
=> CACHED [2/6] WORKDIR /app 0.1s
=> [3/6] ADD . /app 0.1s
=> [4/6] COPY requirements.txt /app 0.1s
=> [5/6] RUN python3 -m pip install -r requirements.txt 169.1s
=> [6/6] RUN python3 -m pip install ibm_db 2.4s
=> exporting to image 2.1s
=> => exporting layers 2.1s
=> => writing image sha256:e57067a7258edc8c857fd5396305a58262016ae1895eac8375aad73f4069b3a8 0.0s
=> => naming to docker.io/library/imsrproject12 0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

C:\Users\lackh\OneDrive\Desktop\imsrproject12>docker tag imsrproject12 lackhmipriya/imsrproject18119final

C:\Users\lackh\OneDrive\Desktop\imsrproject12>docker push lackhmipriya/imsrproject18119final
Using default tag: latest
The push refers to repository [docker.io/lackhmipriya/imsrproject18119final]
aed444cc5133: Layer already exists
a9636a1e73dc: Layer already exists
0d367f38d54c: Layer already exists
d6b23a085084: Layer already exists
05ddb6a6a286d: Layer already exists
c4c2f1c63c2f: Layer already exists
4be7fe848f91: Layer already exists
```

The screenshot shows a Docker Hub repository page for 'lackhmipriya/imsrproject18119final'. At the top, a table lists several tags with their IDs, ages, and sizes. The 'latest' tag is highlighted in yellow. Below the table, the 'Tags' tab is selected, showing a list of tags with details like 'TAG', 'Last pushed', 'DIGEST', 'OS/ARCH', 'LAST PULL', and 'COMPRESSED SIZE'. The 'latest' tag is selected, and its details are shown. A 'Pull command copied' notification is visible, showing the command 'docker pull lackhmipriya/imsrpr...'. The bottom of the screenshot shows a Windows taskbar with various application icons and a system tray with weather and time information.

Image	Architecture	Size	Age
k8s.gcr.io/pause	3.8	4873874c08ef	5 months ago
lackhmipriya/docker_exp	latest	a10b020dd682	19 days ago
lackhmipriya/imsr_proj...	latest	6d667290ffeb	about 21 hours ago
lackhmipriya/imsrproje...	latest	48f4e7b0034d	34 minutes ago
lackhmipriya/imsrproje...	latest	e57067a7258e	17 minutes ago
lackhmipriya/imsrproje...	latest	7fe9f54d3001	about 19 hours ago

RAM 3.38GB CPU 11.89% Connected to Hub v4.13.0

27°C Partly sunny

Search Docker Hub Explore Repositories Organizations Help Upgrade lackhmipriya

lackhmipriya Repositories imsrproject18119final Using 0 of 1 private repositories. Get more

General Tags Builds Collaborators Webhooks Settings

Sort by Newest Filter Tags Go to Advanced Image Management Delete

Pull command copied

docker pull lackhmipriya/imsrpr...

TAG

latest

Last pushed 2 minutes ago by lackhmipriya

DIGEST

202fe0cca8a2

OS/ARCH

linux/amd64

LAST PULL

COMPRESSED SIZE

422.81 MB

Sprint 4 (1).docx inventory manag...pptx Show all

27°C Partly sunny

Question 3. Create an IBM container registry and deploy an app.

IBM CLOUD CLI

1) Login to IBM cloud CLI

```
Command Prompt
C:\Users\lackh\OneDrive\Desktop\imsr_project>ibmcloud login
API endpoint: https://cloud.ibm.com
Region: au-syd

Email> lackhmpriyagopal@gmail.com

Password>
Authenticating...
OK

Targeted account Lackhmi Priya Gopalakrishnan's Account (c8c352587f834445a5fd10e6e00e1efa)

API endpoint: https://cloud.ibm.com
Region: au-syd
User: lackhmpriyagopal@gmail.com
Account: Lackhmi Priya Gopalakrishnan's Account (c8c352587f834445a5fd10e6e00e1efa)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

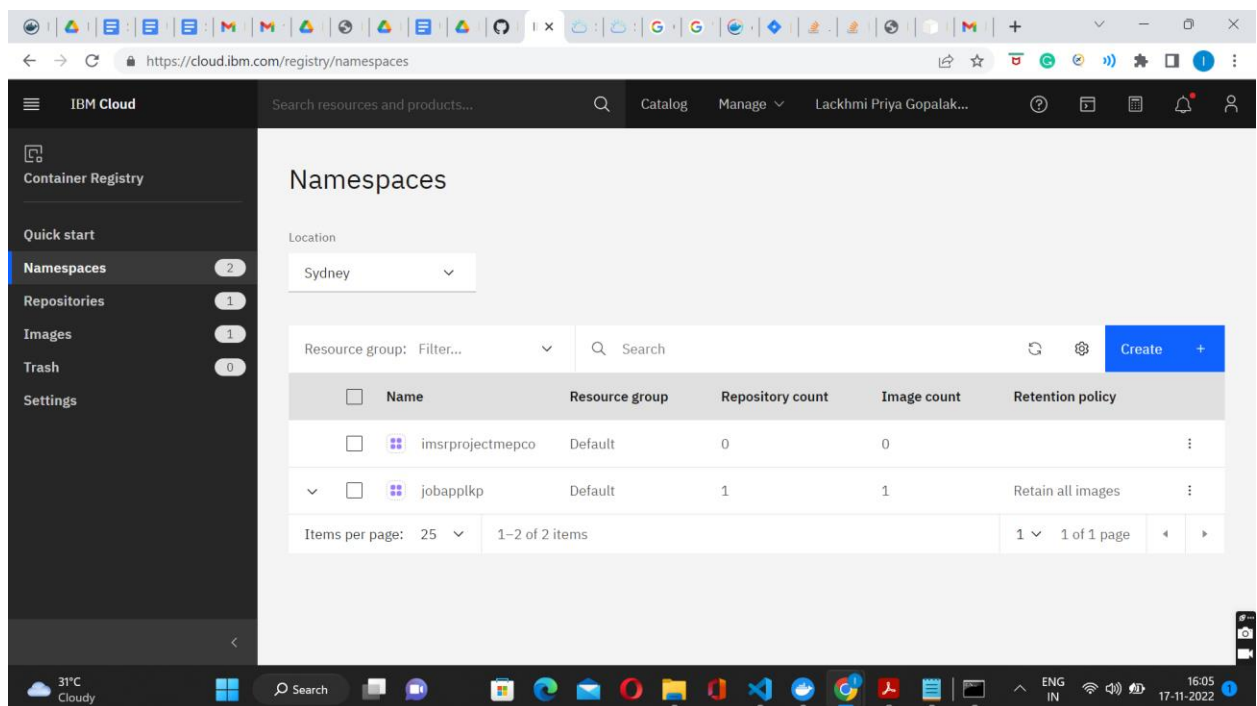
New version 2.12.1 is available.
Change logs: https://github.com/IBM-Cloud/ibm-cloud-cli-release/releases/tag/v2.12.1
TIP: use 'ibmcloud config --check-version=false' to disable update check.

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

C:\Users\lackh\OneDrive\Desktop\imsr_project>ibmcloud plugin install container-service
Looking up 'container-service' from repository 'IBM Cloud'...
Plug-in 'container-service[kubernetes-service/ks] 1.0.459' found in repository 'IBM Cloud'
Attempting to download the binary file...
26.86 MiB / 26.86 MiB [=====] 100.00% 4s
28168192 bytes downloaded
Installing binary...
OK
Plug-in 'container-service 1.0.459' was successfully installed into C:\Users\lackh\bluemix\plugins\container-service. Use 'ibmcloud plugin show container-service' to show its details.

C:\Users\lackh\OneDrive\Desktop\imsr_project>
```

2) Create a namespace in the IBM Container registry



4) Log your local Docker daemon into the IBM Cloud Container Registry.

```
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] > N

C:\Users\lackh\OneDrive\Desktop\imsr_project>docker login
Authenticating with existing credentials...
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/

C:\Users\lackh\OneDrive\Desktop\imsr_project>ibmcloud cr region-set ap-south
The region is set to 'ap-south', the registry is 'au.icr.io'.

OK

C:\Users\lackh\OneDrive\Desktop\imsr_project>ibmcloud cr login
Logging 'docker' in to 'au.icr.io'...
Logged in to 'au.icr.io'.

OK
```

5) Pushing the project into IBM Container Registry.

```
Command Prompt
C:\Users\lackh\OneDrive\Desktop\imsr_project>ibmcloud cr region-set ap-south
The region is set to 'ap-south', the registry is 'au.icr.io'.

OK

C:\Users\lackh\OneDrive\Desktop\imsr_project>ibmcloud cr login
Logging 'docker' in to 'au.icr.io'...
Logged in to 'au.icr.io'.

OK

C:\Users\lackh\OneDrive\Desktop\imsr_project>docker tag imsr_project au.icr.io/imsrprojectmepco/imsrprojectrepo:imsrprojectmepco

C:\Users\lackh\OneDrive\Desktop\imsr_project>docker tag imsr_project au.icr.io/imsrprojectmepco/lackhimpriya:imsrprojectmepco

C:\Users\lackh\OneDrive\Desktop\imsr_project>/'
'/' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\lackh\OneDrive\Desktop\imsr_project>docker tag imsr_project au.icr.io/imsrprojectmepco/imsrprojectdeploy:imsrproject

C:\Users\lackh\OneDrive\Desktop\imsr_project>docker push au.icr.io/imsrprojectmepco/imsrprojectdeploy:imsrproject
The push refers to repository [au.icr.io/imsrprojectmepco/imsrprojectdeploy]
5335456bda1a: Pushed
e36bab1a302c: Pushed
2a25a8cb3b69: Pushed
ed49f1b33024: Pushed
30009f4bc2f9: Pushed
c4c2f1c63c2f: Pushed
4be7fe848f91: Pushed
6a3d7465dae1: Pushed
2143381c9922: Pushed
12228ba7a3b1: Pushed
9b55156abf26: Pushed
293d5db30c9f: Pushed
03127cdb479b: Pushed
9c742cd6c7a5: Pushed
imsrproject: digest: sha256:7fd7fe8bc6bc4f972bd860145a9729513b64b5b63569ff026c2eae69bea3bf4f size: 3261

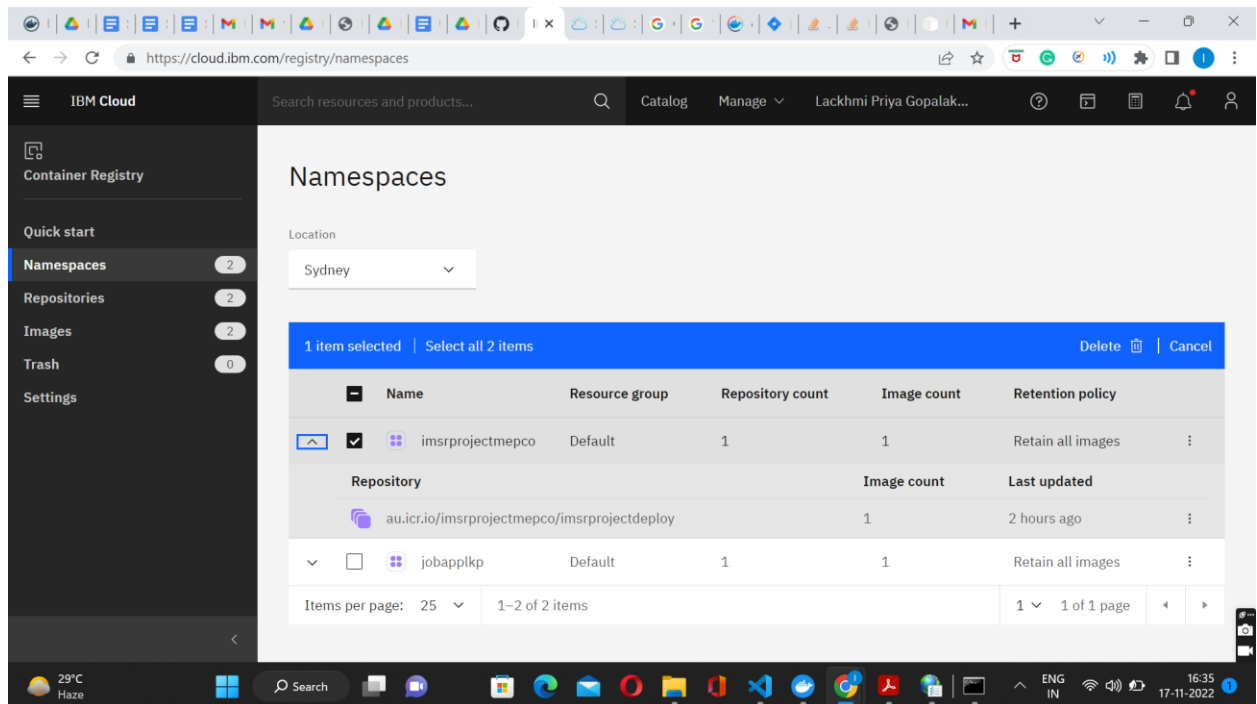
C:\Users\lackh\OneDrive\Desktop\imsr_project>
```

5. Verify that your image is in your private registry


```
C:\Users\lackh\OneDrive\Desktop\imsr_project>ibmcloud cr image-list
Listing images...

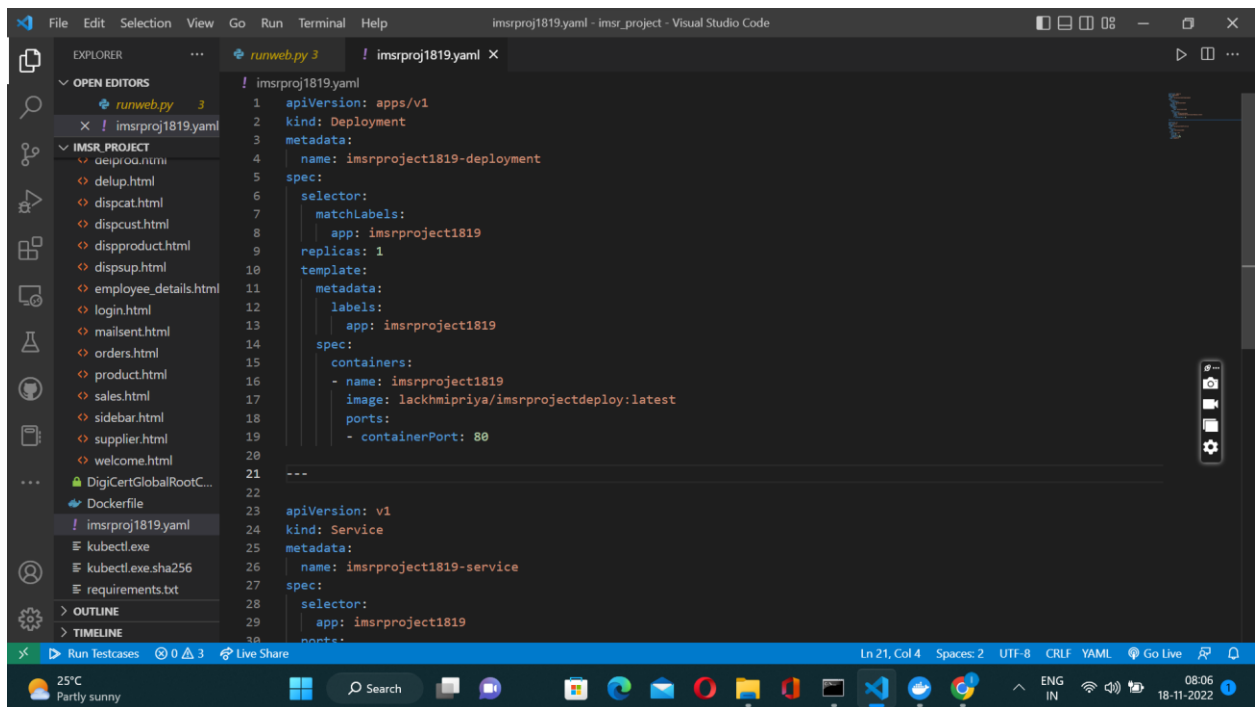
Repository          Tag          Digest          Namespace      Created      Size      Security status
au.icr.io/imsrprojectmepco/imsrprojectdeploy  imsrproject  7fd7fe8bc6bc    imsrprojectmepco  1 hour ago  443 MB    -
au.icr.io/jobapplkp/testrepo                  jobportaltest ae8079f651d8    jobapplkp        2 weeks ago  449 MB    -

OK
```



4. Create a Kubernetes cluster in IBM cloud and deploy image and also expose the same app to run in node port.

1) Created an YAML file



2)Deploy the YAML file in Kubernetes

```

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl apply -f imsrproj1819.yaml
deployment.apps/imsrproject1819-deployment created

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl apply -f imsrproj1819.yaml
deployment.apps/imsrproject1819-deployment unchanged
error: error validating "imsrproj1819.yaml": error validating data: ValidationError(Service.spec.ports[0]): unknown field "targetport" in io.k8s.api.core.v1.ServicePort; if you choose to ignore these errors, turn validation off with --validate=false

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl apply -f imsrproj1819.yaml
deployment.apps/imsrproject1819-deployment unchanged
service/imsrproject1819-service created
  
```

https://cloud.ibm.com/kubernetes/clusters/cdr245cf064lmt1s260/nodes

IBM Cloud Search resources and products... Catalog Manage Lackhmi Priya Gopalak... Help Kubernetes dashboard Actions...

Clusters / mycluster-free Normal Expires in 29 days Add tags

Overview

Worker nodes

Worker pools

DevOps New

1 item selected Reload Reboot Update Delete Cancel

Name	Status	Worker pool	Zone	Private IP	Public IP	Version
00000038	Normal	default	Milan 01	10.144.186.26	159.122.177.25	1.24.7_1543

ID
kube-cdr245cf064lmt1s260-myclusterfr-default-00000038

Status	Flavor	Private VLAN	Public VLAN
--	Free - 2 vCPUs 4GB RAM	2218181	2218179

Items per page: 25 1-1 of 1 item 1 1 of 1 page

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← → ↻ https://eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cdr245cf064lnte1s260/service/#/pod/default/imsrproject1819-depl...

kubernetes default Search + 🔔 👤

Workloads > Pods > imsrproject1819-deployment-848488867d-fsqwn

Workloads **Pods** Cron Jobs Daemon Sets Deployments Jobs Replica Sets Replication Controllers Stateful Sets Service Ingresses Ingress Classes Services

imsrproject1819

Image
lackhmipriya/imsrprojectdeploy:latest

Status

Ready	Started	Started At
true	true	2022-11-18T01:30:43Z

Mounts

Name	Read Only	Mount Path	Sub Path	Source Type	Source
kube-api-access-qjhb...	true	/var/run/secrets/kubernet...	io/serviceaccount	Projected	-

25°C Partly sunny Search [Taskbar icons] ENG IN 08:11 18-11-2022

The deployed file is highlighted

kubernetes default Search + 🔔 👤

Workloads

Workloads **Pods** Cron Jobs Daemon Sets Deployments Jobs Replica Sets Replication Controllers Stateful Sets Service Ingresses Ingress Classes Services

Replica Sets

Deployments

Name	Images	Labels	Pods	Created
imsrproject1819-deployment	Show all	-	1 / 1	an
imsrproject1819-deployment	Show all	-	0 / 2	12
imsrproject-deployment	Show all	-	0 / 2	12

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)
------	--------	--------	------	--------	----------	-------------------	----------------------

The screenshot shows the Kubernetes dashboard interface. The left sidebar contains a menu with options like Workloads, Cron Jobs, Daemon Sets, Deployments, Jobs, Pods, Replica Sets, Replication Controllers, Stateful Sets, Service, Ingresses, Ingress Classes, and Services. The main area displays the 'Pods' section for the 'imsrproject-deployment'. The table lists five pods with their names, images, labels, nodes, status, restarts, CPU usage, and memory usage. The first pod is in a 'Running' state, while the others are in 'ImagePullB 0' state.

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)
imsrproject1819-deployment-84848867d-fsqwn	Show all	Show all	10.144.186.26	Running	0	3.00m	52
imsrproject18119-deployment-878f5cb-mbkv2	Show all	Show all	10.144.186.26	ImagePullB 0	-	-	-
imsrproject18119-deployment-878f5cb-prh4t	Show all	Show all	10.144.186.26	ImagePullB 0	-	-	-
imsrproject-deployment-7df9649b7b-b7xr5	Show all	Show all	10.144.186.26	ImagePullB 0	-	-	-
imsrproject-deployment-7df9649b7b-6rcnm	Show all	Show all	10.144.186.26	ImagePullB 0	-	-	-

Nodeport:31000
Target port :80

The screenshot shows the Kubernetes dashboard interface, specifically the 'Services' section. The left sidebar is the same as the previous screenshot. The main area displays the 'Services' section. The table lists two services: 'imsrproject1819-service' and 'kubernetes'. The first service is of type 'NodePort' and has internal endpoints for ports 80 and 31000. The second service is of type 'ClusterIP' and has an internal endpoint for port 443.

Name	Labels	Type	Cluster IP	Internal Endpoints	External Endpoints
imsrproject1819-service	-	NodePort	172.21.161.165	imsrproject1819-service:80 TCP imsrproject1819-service:31000 TCP	-
kubernetes	Show all	ClusterIP	172.21.0.1	kubernetes:443 TCP kubernetes:0 TCP	-

3)View all the files deployed in Kubernetes

```
C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl get deployments
NAME                                READY    UP-TO-DATE    AVAILABLE    AGE
imsrproject-deployment              0/2      2              0            11h
imsrproject18119-deployment          0/2      2              0            11h
imsrproject1819-deployment           1/1      1              1            18m

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl get pod -o wide
NAME                                READY    STATUS              RESTARTS   AGE    IP              NODE              NOMINATED NODE    READINESS GATES
imsrproject-deployment-7df9649b7b-6rcnm    0/1      ImagePullBackOff    0           11h    172.30.45.205   10.144.186.26     <none>             <none>
imsrproject-deployment-7df9649b7b-b7xr5     0/1      ImagePullBackOff    0           11h    172.30.45.207   10.144.186.26     <none>             <none>
imsrproject18119-deployment-878fcf5cb-mbkv2  0/1      ImagePullBackOff    0           11h    172.30.45.208   10.144.186.26     <none>             <none>
imsrproject18119-deployment-878fcf5cb-prh4t  0/1      ErrImagePull        0           11h    172.30.45.209   10.144.186.26     <none>             <none>
imsrproject1819-deployment-848488867d-fsqwn  1/1      Running             0           35m    172.30.45.210   10.144.186.26     <none>             <none>

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl get service --all-namespaces
NAMESPACE    NAME                                TYPE              CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
default      imsrproject1819-service            NodePort         172.21.161.165 <none>         80:31000/TCP     25m
default      kubernetes                         ClusterIP        172.21.0.1     <none>         443/TCP          14h
kube-system  calico-typha                      ClusterIP        172.21.148.38  <none>         5473/TCP         13h
kube-system  dashboard-metrics-scraper         ClusterIP        172.21.78.107  <none>         8080/TCP         13h
kube-system  ibm-k8s-controller-default-backend ClusterIP        172.21.245.51  <none>         80/TCP           13h
kube-system  kube-dns                         ClusterIP        172.21.0.10    <none>         53/UDP,53/TCP,9153/TCP 13h
kube-system  kubernetes-dashboard             ClusterIP        172.21.209.178 <none>         443/TCP          13h
kube-system  metrics-server                   ClusterIP        172.21.67.149  <none>         443/TCP          13h
kube-system  node-local-dns                   ClusterIP        172.21.81.212  <none>         53/UDP,53/TCP     13h
kubernetes-dashboard  dashboard-metrics-scraper         ClusterIP        172.21.219.150 <none>         8080/TCP         12h

C:\Users\lackh\OneDrive\Desktop\imsr_project>kubectl describe services imsrproject1819-service
Name:         imsrproject1819-service
Namespace:    default
Labels:       <none>
Annotations:  <none>
Selector:     app=imsrproject1819
Type:         NodePort
IP Family Policy: SingleStack
IP Families:  IPv4
IP:           172.21.161.165
IPs:          172.21.161.165
Port:         <unset> 80/TCP
TargetPort:   80/TCP
NodePort:     <unset> 31000/TCP
Endpoints:    172.30.45.210:80
Session Affinity: None
External Traffic Policy: Cluster
Events:       <none>
```

To access the web application deployed in Kubernetes

http://<external-ip>:<port>

External ip :- 159.122.177.25

Port:31000

http://159.122.177.25:31000

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← → ↻ https://cloud.ibm.com/kubernetes/clusters/cdr245cf064lnte1s260/nodes

IBM Cloud | Search resources and products... | Catalog | Manage | Lackhmi Priya Gopalak... | ? | | | | |

Clusters /

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

Overview

Worker nodes

Worker pools

DevOps New

1 item selected

Reload Reboot Update Delete | Cancel

<input checked="" type="checkbox"/>	Name	Status	Worker pool	Zone	Private IP	Public IP	Version
<input checked="" type="checkbox"/>	00000038	Normal	default	Milan 01	10.144.186.26	159.122.177.25	1.24.7_1543
<div>ID</div> <div>kube-cdr245cf064lnte1s260-myclusterfr-default-00000038</div> <div>Status</div> <div>--</div> <div>Flavor</div> <div>Free - 2 vCPUs 4GB RAM</div> <div>Private VLAN</div> <div>2218181</div> <div>Public VLAN</div> <div>2218179</div>							

Items per page: 25 1-1 of 1 item 1 1 of 1 page

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