

ASSIGNMENT 4

Assignment Date	29 th October 2022
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Student Roll No.	19Z350
Maximum Marks	2 Marks

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

Pulling image from docker hub –

```
PowerShell
Loading personal and system profiles took 541ms.
→ assignment 4 git:(main) docker pull docker/getting-started
Using default tag: latest
latest: Pulling from docker/getting-started
df9b9388f04a: Pull complete
5867cba5fcbd: Pull complete
4b639e65cb3b: Pull complete
061ed9e2b976: Pull complete
bc19f3e8eeb1: Pull complete
4071be97c256: Pull complete
79b586f1a54b: Pull complete
0c9732f525d6: Pull complete
Digest: sha256:b558be874169471bd4e65bd6eac8c303b271a7ee8553ba47481b73b2bf597aae
Status: Downloaded newer image for docker/getting-started:latest
docker.io/docker/getting-started:latest
→ assignment 4 git:(main) |
```

Running on docker playground -

```
Digest: sha256:b558be874169471bd4e65bd6eac8c303b271a7ee8553ba47481b73b2bf597aae
Status: Downloaded newer image for docker/getting-started:latest
docker.io/docker/getting-started:latest
→ assignment 4 git:(main) docker run -d -p 80:80 docker/getting-started
ee6d34bd49e20106c8d3a3cc85bab0bde9c96a667bb3112bc896358efd6d2f68
→ assignment 4 git:(main) D|
```

Upgrade plan

Images on disk

Last refresh: about 17 hours ago

5.54 MB total size

966.74 MB / 5.54 MB in use

Images

An image is a read-only filesystem with instructions for creating a Docker container. [Learn more](#)

LOCAL

REMOTE REPOSITORIES

Search

	NAME	TAG	STATUS	CREATED	SIZE	ACTIONS
<input type="checkbox"/>	flaskapp 9ce8223d25f9	latest	BLU	about 1 hour ago	932.41 MB	
<input type="checkbox"/>	alpine 9ce8223d25f9	latest	BLU	3 months ago	5.54 MB	
<input type="checkbox"/>	docker/getting-started d00f6ed791	latest	BLU	7 months ago	28.78 MB	

localhost/tutorial/

docker Labs

Getting Started

Search

Getting Started

Getting Started

Our Application

Updating our App

Sharing our App

Persisting our DB

Using Bind Mounts

Multi-Container Apps

Using Docker Compose

Image Building Best Practices

What Next?

Getting Started

The command you just ran

Congratulations! You have started the container for this tutorial! Let's first explain the command that you just ran. In case you forgot, here's the command:

```
docker run -d -p 80:80 docker/getting-started
```

You'll notice a few flags being used. Here's some more info on them:

- d - run the container in detached mode (in the background)
- p 80:80 - map port 80 of the host to port 80 in the container
- docker/getting-started - the image to use

Pro tip

You can combine single character flags to shorten the full command. As an example, the command above could be written as:

Table of contents

The command you just ran

The Dockerfile

What is Docker?

What is a container?

2. Create a docker file for the job portal application and deploy it in docker application.

Docker file –

```
1 FROM python:3.8-buster
2
3 WORKDIR /app
4
5 COPY requirements.txt /app/
6
7 RUN pip install -r requirements.txt
8
9 COPY . /app/
10
11 RUN cp .env.dev.sample .env
12
13 EXPOSE 8000
14
15 RUN chmod +x entrypoint.sh
16
17 CMD ["sh", "entrypoint.sh"]
```

Deployment in docker application –



```
PowerShell
- flaskapp git:(main) > docker build -t flaskapp .
[+] Building 200.2s (11/11) FINISHED
=> [internal] load build definition from Dockerfile 0.1s
=> => transferring dockerfile: 179B 0.0s
=> [internal] load .dockerignore 0.1s
=> => transferring context: 5B 0.0s
=> [internal] load metadata for docker.io/library/python:3.8-buster 4.3s
=> [auth] library/python:pull token for registry-1.docker.io 0.0s
=> [internal] load build context 0.1s
=> => transferring context: 2.56kB 0.0s
=> [1/5] FROM docker.io/library/python:3.8-buster 180.5s
=> => resolve docker.io/library/python:3.8-buster 0.0s
=> => sha256:d23a86388618281681f4696d7777bba5c0b1b912a+000e7d11250074004ac+00 3.53kB / 3.53kB 10.5s
=> => sha256:3e99d13e8e7a4e17421776437f6b0c7e1760931f8700a3926096081f6e4 3.18kB / 3.18kB 10.5s
=> => sha256:6d9c7528c8b116139e8e7f6362c7782c7b14a581a83540c4f18883860700 18.10kB / 18.10kB 23.4s
=> => sha256:79b6f47e4a4c8a822bd8c8288c13a693e877a20bd79e77c803e4a91032 2.15kB / 2.15kB 8.0s
=> => sha256:0d17943eaa731c0e856f3c072e7800366d0d0700176bf8c56d0773ac13f4e 2.22kB / 2.22kB 0.0s
=> => sha256:1871565c8b4f9c303c0661a7f0c184e73d01f1b4930c179100426f99a1a3e 33.01kB / 33.01kB 70.5s
=> => sha256:31e0072f90d164c8ab03b182926e708a11ac08f40a8e73b1609300da1001a 34.10kB / 34.10kB 70.0s
=> => sha256:d00903117b13b71817041781e5993d2a4a6611c798b0551b08a2a158e448a 100.79kB / 100.79kB 100.0s
=> => extracting sha256:1871565c8b4f9c303c0661a7f0c184e73d01f1b4930c179100426f99a1a3e 7.7s
=> => sha256:d00903117b13b71817041781e5993d2a4a6611c798b0551b08a2a158e448a 81.7s
=> => extracting sha256:3e99d13e8e7a4e17421776437f6b0c7e1760931f8700a3926096081f6e4 0.3s
=> => extracting sha256:6d9c7528c8b116139e8e7f6362c7782c7b14a581a83540c4f18883860700 0.3s
=> => extracting sha256:79b6f47e4a4c8a822bd8c8288c13a693e877a20bd79e77c803e4a91032 3.9s
=> => sha256:c71a6d17089ad44c54d1c1408040e92b15b0b204f0077e221c0ac0a1d205a1 10.02kB / 10.02kB 100.1s
=> => sha256:8d4a1083c70a551a88c3fcd12f0aee1c07008f4365f46a15e0a285413aa40b 23kB / 23kB 82.1s
=> => sha256:013062f88233170dc1c1350091aa88f22461a7c25a31c6d4c0dc48f0ed13c 3.04kB / 3.04kB 86.0s
=> => extracting sha256:d00903117b13b71817041781e5993d2a4a6611c798b0551b08a2a158e448a 7.4s
=> => extracting sha256:8d4a1083c70a551a88c3fcd12f0aee1c07008f4365f46a15e0a285413aa40b 0.1s
```

```
PowerShell
=> sha256:fab77b36c88216219eb067bf362a7782e7b1aa585ab8554aa4158882065705 18.89MB / 18.89MB 23.9s
=> sha256:748e7d7b7e0a4c72b0f62d81c3ba693e97ba248d34e77c8b1e6aa91a53 2.15kB / 2.15kB 0.0s
=> sha256:8d1f943ceae7b3c95d55c892c7958820b94b78d178b79c56d877aa137ca 2.12kB / 2.12kB 0.0s
=> sha256:187156cc80f8c365c96a61d37bc18de71d81f1b8d38c6179328428f99a9da7e 55.61MB / 55.61MB 70.8s
=> sha256:53ae872f6c018f7eb936187e28e755e11ac18e158babe78ef18d7c80de1981a 58.52MB / 58.52MB 75.8s
=> sha256:d8b982117933b718179f1761ef993d2efaa613c796c0553e9e3a118e0448a 146.79MB / 146.79MB 189.0s
=> extracting sha256:187156cc80f8c365c96a61d37bc18de71d81f1b8d38c6179328428f99a9da7e 2.1s
=> sha256:d8b982117933b718179f1761ef993d2efaa613c796c0553e9e3a118e0448a 6.19MB / 6.19MB 81.7s
=> extracting sha256:369ad13e557eae1742117e4374b5c7e1798821f796aad928895881f4e4 8.2s
=> extracting sha256:fab77b36c88216219eb067bf362a7782e7b1aa585ab8554aa4158882065705 0.2s
=> extracting sha256:53ad872f6c018f7eb936187e28e755e11ac18e158babe78ef18d7c80de1981a 1.0s
=> sha256:c71af637d59a6c44c54f3c388594c52b356b184f8857ea21c6a3a1d285a5 28.82MB / 28.82MB 180.1s
=> sha256:88a41897c784318e8c55fc011fbae1c87848f9165f6ca35e8a3e5413da48b 2346 / 2346 82.3s
=> sha256:4374b2f6d793d19a6c1c15590b1aa88f2160123c55a31cddadcb048f68ed3c 1.64MB / 1.64MB 86.6s
=> extracting sha256:d8b982117933b718179f1761ef993d2efaa613c796c0553e9e3a118e0448a 7.4s
=> extracting sha256:d8b982117933b718179f1761ef993d2efaa613c796c0553e9e3a118e0448a 8.3s
=> extracting sha256:c71af637d59a6c44c54f3c388594c52b356b184f8857ea21c6a3a1d285a5 8.8s
=> extracting sha256:88a41897c784318e8c55fc011fbae1c87848f9165f6ca35e8a3e5413da48b 8.8s
=> extracting sha256:4374b2f6d793d19a6c1c15590b1aa88f2160123c55a31cddadcb048f68ed3c 0.7s
[2/5] WORKDIR /app
[3/5] COPY requirements.txt .
[4/5] RUN pip install -r requirements.txt
[5/5] COPY
-> exporting to image
-> exporting layers
-> writing image sha256:9e8223df4d0cc12aa77b36c88216219eb067bf362a7782e7b1aa585ab8554aa4158882065705
-> Naming to docker.io/library/flaskapp
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
+ flaskapp git:(main) |
```

Containers

Images

Volumes

Dev Environments BETA

Extensions BETA

Add Extensions

Containers Give feedback

A container packages up code and its dependencies so the application runs quickly and reliably from one computing environment to another. [Learn more](#)

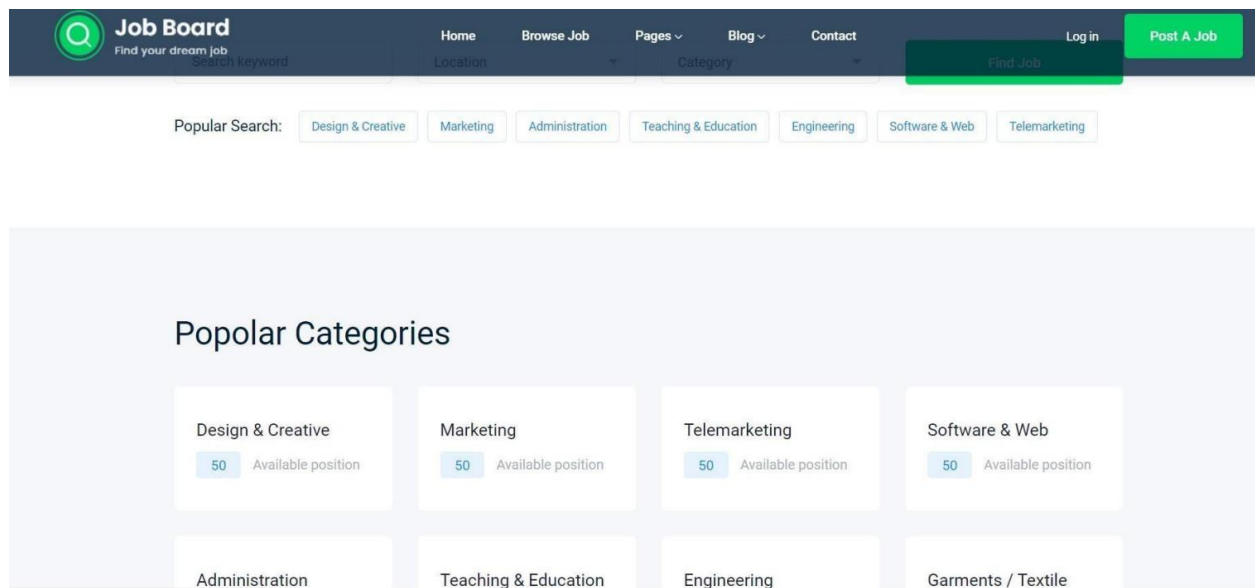
☐ Only show running containers

:

<input type="checkbox"/>	NAME	IMAGE	STATUS	PORT(S)	STARTED	ACTIONS
<input type="checkbox"/>	<div>agitated_neumann</div> <div>918d20882039</div>	icr.io/helloapp/ibm:latest	Exited (137)	49160:8080		▶ : 🗑
<input type="checkbox"/>	<div>jolly_turing</div> <div>b62c0712bdd3</div>	jobportalapplication:latest	Running	1234:8000	4 minutes ago	■ : 🗑

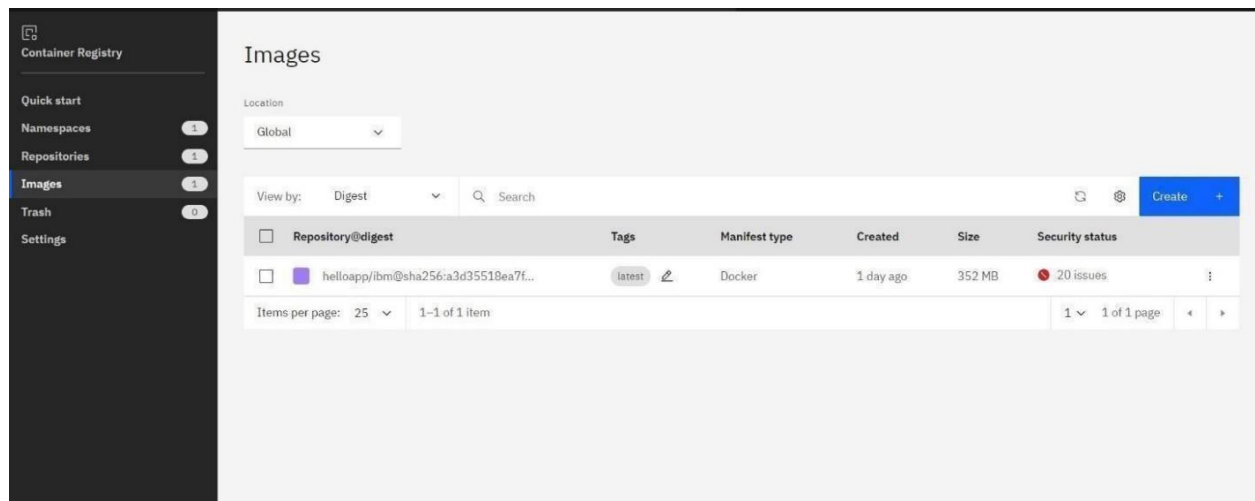
Showing 2 items

OUTPUT –

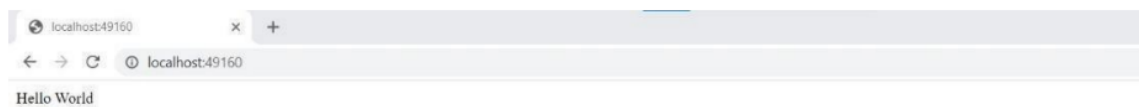


3. Create a IBM container registry and deploy hello-world app or job portal app.

Container registry deployment –

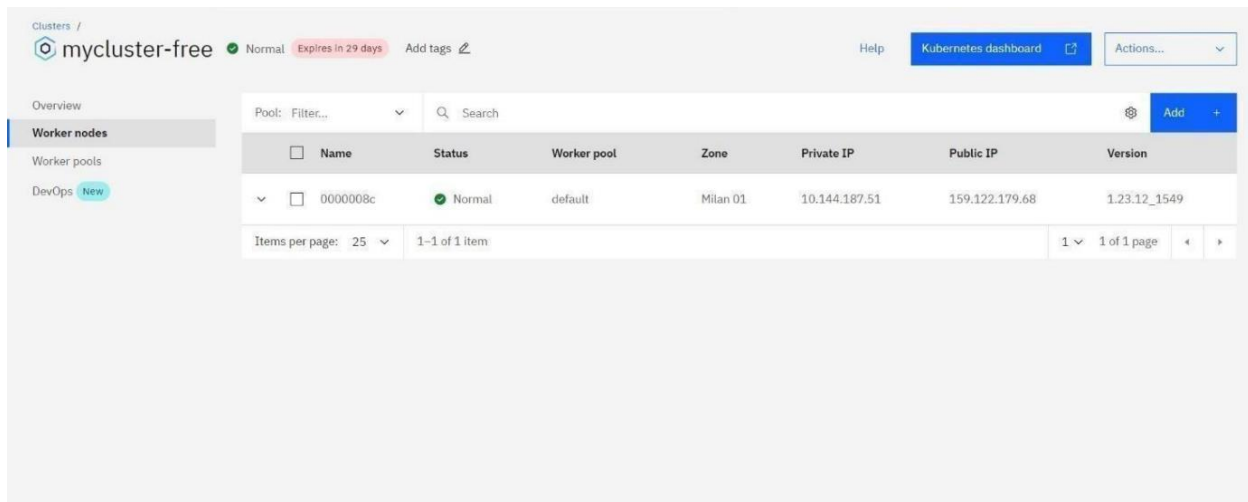


OUTPUT –

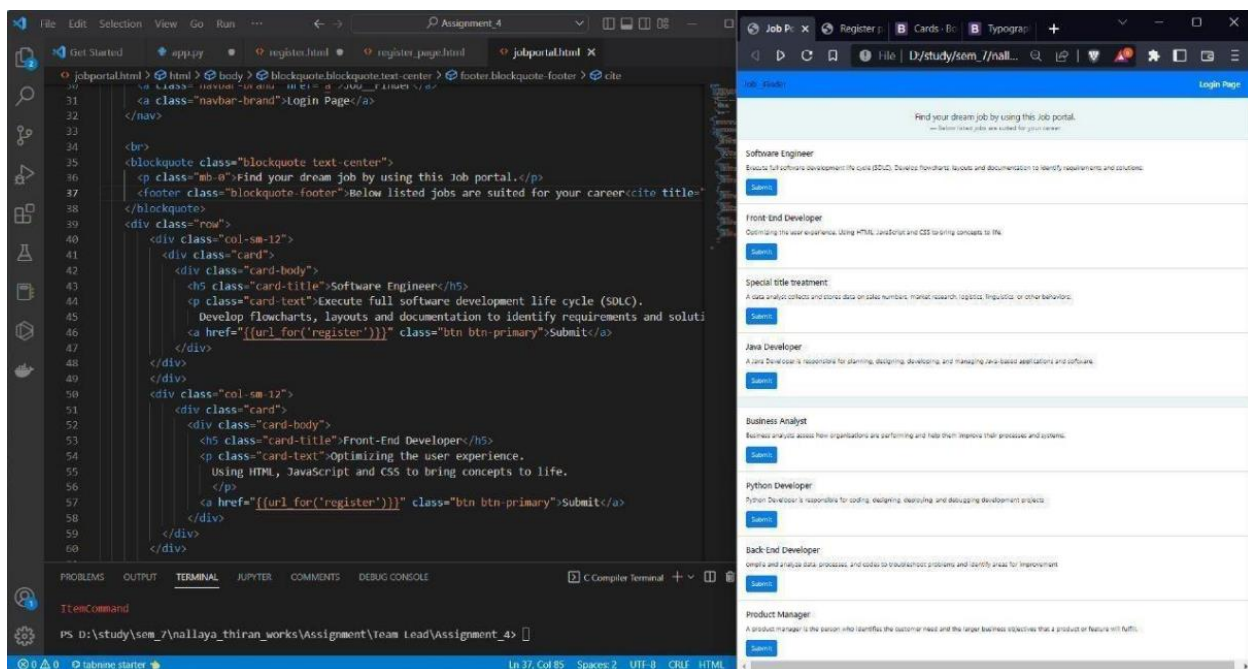


4. Create a Kubernetes cluster in IBM cloud and deploy hello world image or job portal image and also expose the same app to run in node port.

Creating Kubernetes cluster in IBM cloud –



OUTPUT –



Exposing the same app to run in node port –

```
C:\Windows\System32\cmd.exe
10/16/2022 12:28 PM 3,721 windows shortcut.txt
08/25/2022 08:40 PM 2,897 YouTube.lnk
24 File(s) 804,677,196 bytes
9 Dir(s) 79,221,886,976 bytes free

C:\Users\gani\Desktop>cd deploy
The system cannot find the path specified.

C:\Users\gani\Desktop>kubectl apply -f kubernetes/depoly.yaml
error: the path "kubernetes/depoly.yaml" does not exist

C:\Users\gani\Desktop>kubectl apply -f depoly.yaml
error: the path "depoly.yaml" does not exist

C:\Users\gani\Desktop>kubectl apply -f C:\Users\gani\Desktop\deploy.yaml
deployment.apps/flask-app created

C:\Users\gani\Desktop>
```



```
C:\Windows\System32\cmd.exe
C:\Windows\system32>kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")

C:\Windows\system32>kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")

C:\Windows\system32>kubectl expose deployment flask-app --type=NodePort --name=flask-service
The Service "flask-service" is invalid: metadata.name: Invalid value: "flask-service": a DNS-1035 label must consist of lower case alphanumeric characters or '-', start with an alphabetic character, and end with an alphanumeric character (e.g. "my-name", or "abc-123", regex used for validation is "[a-z]([-a-z0-9]*[a-z0-9])?")

C:\Windows\system32>kubectl expose deployment flask-app --type=NodePort --name=flask-service
Error from server (AlreadyExists): services "flask-service" already exists

C:\Windows\system32>
C:\Windows\system32>kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32>kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32>kubectl proxy
Starting to serve on 127.0.0.1:8001

C:\Windows\system32>kubectl -n kubernetes-dashboard get deploy
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32>kubectl -n kubernetes-dashboard get pods
No resources found in kubernetes-dashboard namespace.

C:\Windows\system32>kubectl expose deployment flask-app --type=NodePort --name=flask-service
Error from server (AlreadyExists): services "flask-service" already exists

C:\Windows\system32>kubectl get ing
NAME          CLASS  HOSTS  ADDRESS  PORTS  AGE
flask-app-ingress  cnames  *      80       276s

C:\Windows\system32>kubectl get svc
NAME          TYPE          CLUSTER-IP      EXTERNAL-IP  PORT(S)  AGE
```