

ASSIGNMENT 4

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1.Create a dockerfile for the jobportal application and deploy it in Docker desktop application.

=>Jobportal Working directory:

Name	Date modified	Type	Size
static	10/25/2022 2:48 PM	File folder	
templates	10/25/2022 6:08 PM	File folder	
app.py	10/25/2022 5:52 PM	Python Source File	5 KB
Cert.crt	9/26/2022 9:43 PM	Security Certificate	1 KB
deployment.yaml	10/25/2022 6:10 PM	Yaml Source File	1 KB
Dockerfile	10/9/2022 12:18 PM	File	1 KB
requirements.txt	10/9/2022 11:17 AM	Text Document	1 KB
service.yaml	10/25/2022 6:11 PM	Yaml Source File	1 KB

=>Dockerfile:



File Edit Format View Help

```
FROM python:3.6
WORKDIR /app
ADD . /app
COPY Templates /app/templates
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

=>Deploy jobportal application to docker desktop:

```
Administrator: C:\Windows\System32\cmd.exe
D:\1 Work Space\Web Apps\Jobportal>docker build -t jobportal .
[*] Building 2670.8s (13/13) FINISHED
[Internal] load build definition from Dockerfile
[*] transferring context: 120
[Internal] load .dockerignore
[*] transferring context: 20
[Internal] load metadata for docker.io/library/python:3.6
[Internal] load build context
[*] transferring context: 4640
[1/6] FROM docker.io/library/python:3.6@sha256:f8652afaf8c25f0d22354d5470892591067aa026a7f9a8d19df9300af5fc
[*] resolve docker.io/library/python:3.6@sha256:f8652afaf8c25f0d22354d5470892591067aa026a7f9a8d19df9300af5fc
[*] sha256:f8652afaf8c25f0d22354d5470892591067aa026a7f9a8d19df9300af5fc 1.864k / 1.864k
[*] sha256:407f9a90d6c20d53c3187223592de310f92216e44a8e9203376c3b0d4 2.22k / 2.22k
[*] sha256:5452603807c5e3ad23ce21f1c88b6bcb480a27634a8092080ff73f16d0104 9.27k / 9.27k
[*] sha256:90823c730520926975d5c07a54f0f30921995a296c714b53a32a670d19311fd 5.159k / 5.159k
[*] sha256:be29540f41c0b3078d121a73bdf1d187065c3b95b7af732b0090b077ae1c3 54.920k / 54.920k
[*] sha256:c85b7e301722107eecc31f58230d13baa56b5d5d95c49faab53748cd96 10.070k / 10.070k
[*] sha256:6a4ed11023b01037c3ce322ad40371f4d085f5a0d3edf15d10ande7137013 54.570k / 54.570k
[*] sha256:6f9f74890cf031ef07172f5041aba5e0bda04d1a0fef09111efc7e4d3c7817 5.910k / 5.910k
[*] sha256:5e3b1213efc565908e78b0d0081045c364de2a37205e0a62dad823124dc743 6.299k / 6.299k
[*] extracting sha256:be29540f41c0b3078d121a73bdf1d187065c3b95b7af732b0090b077ae1c3
[*] extracting sha256:407f9a90d6c20d53c3187223592de310f92216e44a8e9203376c3b0d4
[*] extracting sha256:c85b7e301722107eecc31f58230d13baa56b5d5d95c49faab53748cd96
[*] sha256:9fd4fd63634f26eead7e241bf5e7450c40e01095c5478057641c1244bd00752 14.210k / 14.210k
[*] sha256:404f02044bec0432ca522cb07f25d4b1c91fca0680b6feef00eb263a32f31bab7 2.330k / 2.330k
[*] sha256:c4f42be305309008f7f040b1df13d53434cc5cf5095a5684ba0109a34b7 2.120k / 2.120k
[*] extracting sha256:404f02044bec0432ca522cb07f25d4b1c91fca0680b6feef00eb263a32f31bab7
[*] extracting sha256:c4f42be305309008f7f040b1df13d53434cc5cf5095a5684ba0109a34b7
[*] extracting sha256:6f9f74890cf031ef07172f5041aba5e0bda04d1a0fef09111efc7e4d3c7817
[*] extracting sha256:5e3b1213efc565908e78b0d0081045c364de2a37205e0a62dad823124dc743
[*] extracting sha256:be29540f41c0b3078d121a73bdf1d187065c3b95b7af732b0090b077ae1c3
[*] extracting sha256:404f02044bec0432ca522cb07f25d4b1c91fca0680b6feef00eb263a32f31bab7
[*] extracting sha256:c4f42be305309008f7f040b1df13d53434cc5cf5095a5684ba0109a34b7
[auth] library/python:pull token for registry-1.docker.io
[auth] library/python:pull token for registry-1.docker.io
[2/6] WORKDIR /app
[1/1] ADD . /app
[4/6] COPY Templates /app/Template
[5/6] COPY requirements.txt /app
[6/6] RUN python3 -m pip install -r requirements.txt
[*] exporting to image
[*] exporting layers
[*] writing image sha256:1c4d6756dd4dc23094038d640b1da9e070172c08f0ba08bd3c2f4950607419
[*] naming to docker.io/library/jobportal

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

=>running the image from docker desktop:

REPOSITORY TAG IMAGE ID CREATED SIZE

D:\1 Work Space\Web Apps\Jobportal\docker build -t jobportal .

[+] Building 646.2s (11/11) FINISHED

-> [internal] load build definition from Dockerfile

-> transferring context file: Dockerfile

-> [internal] load .dockerignore

-> transferring context: 2B

-> [internal] load metadata for docker.io/library/python:3.6

-> [internal] load build context

-> transferring context: 660B

-> [1/6] FROM docker.io/library/python:3.6@sha256:f8052aaf88c25f6d2235d547d892591067aa026a74d5a81b0d44774d1c53

-> CACHED [2/6] WORKDIR /app

-> CACHED [3/6] ADD . /app

-> CACHED [4/6] COPY templates /app/templates

-> CACHED [5/6] COPY requirements.txt /app

-> [6/6] Run python3 -m pip install -r requirements.txt

-> exporting to image

-> exporting layers

-> writing image sha256:478c4f160585d08425f00f22ac4b3f237742e3f08b5c6fd8dd44774d1c53

-> naming to docker.io/library/jobportal

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

D:\1 Work Space\Web Apps\Jobportal\docker images

REPOSITORY TAG IMAGE ID CREATED SIZE

jobportal latest 478c4f169585 About a minute ago 1.88GB

D:\1 Work Space\Web Apps\Jobportal\docker run -p 5000:5000 jobportal

* Serving Flask app 'app' (lazy loading)

* Environment: production

WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.

* Debug mode: off

* Running on all addresses.

WARNING: This is a development server. Do not use it in a production deployment. Running on http://172.17.0.2:5000/ (Press CTRL+C to quit)

172.17.0.1 - - [22/Oct/2022 11:48:40] "GET / HTTP/1.1" 200 -

172.17.0.1 - - [22/Oct/2022 11:48:51] "GET /css/style.css HTTP/1.1" 404 -

172.17.0.1 - - [22/Oct/2022 11:48:51] "GET /static/img/smartintern.png HTTP/1.1" 404 -

172.17.0.1 - - [22/Oct/2022 11:49:33] "GET /assets/img/favicon-32x32.png HTTP/1.1" 404 -

172.17.0.1 - - [22/Oct/2022 11:49:43] "GET /login HTTP/1.1" 200 -

172.17.0.1 - - [22/Oct/2022 11:49:44] "GET /css/style.css HTTP/1.1" 404 -

172.17.0.1 - - [22/Oct/2022 11:49:44] "GET /static/img/smartintern.png HTTP/1.1" 404 -

172.17.0.1 - - [22/Oct/2022 11:50:18] "POST /login HTTP/1.1" 200 -

172.17.0.1 - - [22/Oct/2022 11:50:18] "GET /static/img/smartintern.png HTTP/1.1" 404 -

172.17.0.1 - - [22/Oct/2022 11:50:18] "GET /css/style.css HTTP/1.1" 404 -

172.17.0.1 - - [22/Oct/2022 11:50:31] "GET /login HTTP/1.1" 200 -

sheep-logo

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Aboutus

Mission

JOBPORTAL is an edTech organization with a vision to bridge the gap between academia & industry. Our outcome-based experiential learning programs on emerging technologies (Internet of Things, Machine Learning, Data Science, Artificial Intelligence, Robotics) are building skilled entry-level engineers, for the corporate world..

Vission

Our main objective is to bridge the existing gaps between prevailing industry standards and what the academics offer to the graduates while passing out of university. Jobportal offers suitable skill deployment and training to the young talent before on boarding their first job. Our skill development programs are designed

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

=>Pushing image to docker hub

```
Administrator: C:\Windows\System32\cmd.exe

D:\1 Work Space\Web Apps\Jobportal\docker image tag jobportal sajeethguru/sajee:jobportal

D:\1 Work Space\Web Apps\Jobportal\docker push sajeethguru/sajee:jobportal
The push refers to repository [docker.io/sajeethguru/sajee]
be54ef4e97eb: Pushed
3de59cda81ee: Layer already exists
cf207e805158: Layer already exists
afe94017dff3: Layer already exists
bb49da2eeef9: Layer already exists
aa4c808c19f6: Layer already exists
8ba9f690e8ba: Layer already exists
3e607d59ef9f: Layer already exists
1e18e7e1fcc2: Layer already exists
c3a0d593ed24: Retrying in 1 second
26a504e63bed: Retrying in 1 second
8bf42db0de72: Retrying in 1 second
31892cc314cb: Retrying in 1 second
11936051f93b: Retrying in 1 second
net/http: TLS handshake timeout

D:\1 Work Space\Web Apps\Jobportal\docker push sajeethguru/sajee:jobportal
The push refers to repository [docker.io/sajeethguru/sajee]
Get "https://registry-1.docker.io/v2/": Failed to lookup host: registry-1.docker.io

D:\1 Work Space\Web Apps\Jobportal\docker image tag jobportal sajeethguru/sajee:jobportal

D:\1 Work Space\Web Apps\Jobportal\docker push sajeethguru/sajee:jobportal
The push refers to repository [docker.io/sajeethguru/sajee]
Get "https://registry-1.docker.io/v2/": Failed to lookup host: registry-1.docker.io

D:\1 Work Space\Web Apps\Jobportal\docker image push sajeethguru/sajee:jobportal
The push refers to repository [docker.io/sajeethguru/sajee]
be54ef4e97eb: Layer already exists
3de59cda81ee: Layer already exists
cf207e805158: Layer already exists
afe94017dff3: Layer already exists
bb49da2eeef9: Layer already exists
aa4c808c19f6: Layer already exists
8ba9f690e8ba: Layer already exists
3e607d59ef9f: Layer already exists
1e18e7e1fcc2: Layer already exists
c3a0d593ed24: Layer already exists
26a504e63bed: Layer already exists
8bf42db0de72: Layer already exists
31892cc314cb: Layer already exists
11936051f93b: Layer already exists
jobportal: digest: sha256:9a54c36bba35e00e7a0221d1d8a89d8e7d4047989ea00f57c69ec7e3e864fc52 size: 3262

D:\1 Work Space\Web Apps\Jobportal>
```

=>Pulling the jobportal image from docker hub in docker playground:

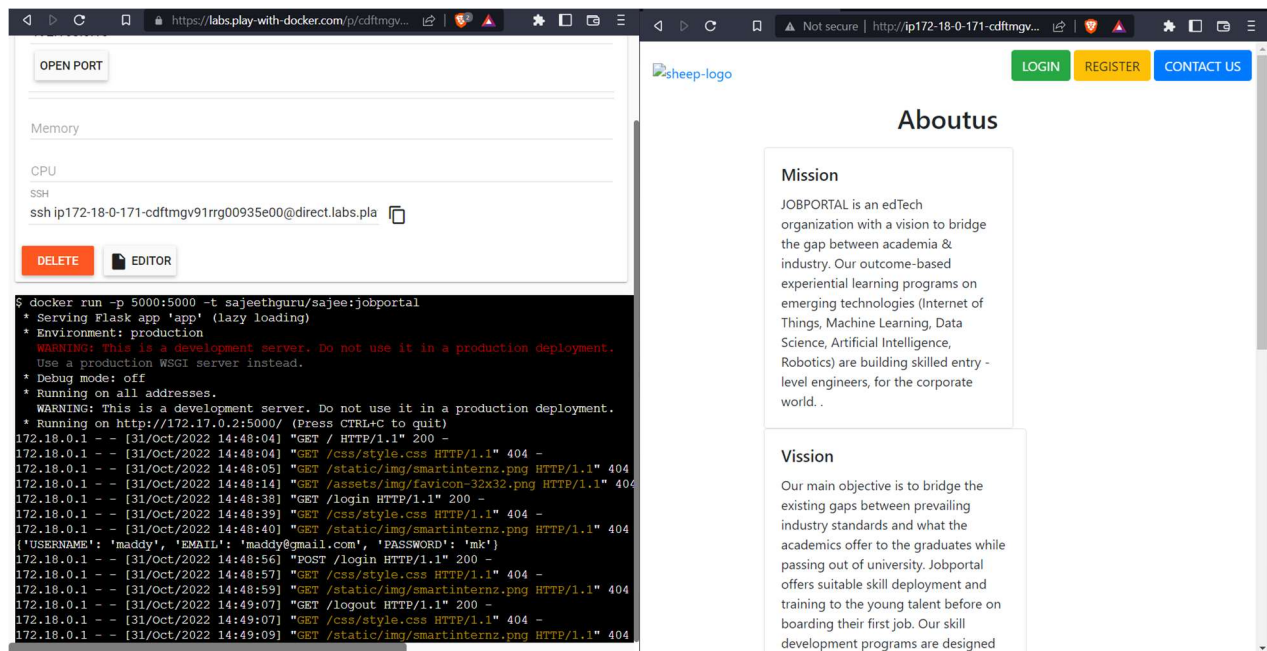
The screenshot shows the Labs Play with Docker interface. On the left, there's a sidebar with a clock showing 03:48:22, a 'CLOSE SESSION' button, and an 'Instances' section with a '+ ADD NEW INSTANCE' button and a list of instances including '192.168.0.18 node1'. The main panel displays the session title 'cdftmgv9_cdftmj63tccg00c71au0'. Below the title, there's an 'IP' field with '192.168.0.18' and an 'OPEN PORT' button. A 'Memory' and 'CPU' section is visible. The 'SSH' field contains the command 'ssh ip172-18-0-171-cdftmgv91rrg00935e00@direct.labs.pla'. Below this are 'DELETE' and 'EDITOR' buttons. The terminal window shows the following commands and output:

```
root@192.168.0.18 ~
$ docker pull sajeethguru/sajee:jobportal
jobportal: Pulling from sajeethguru/sajee
0e29546d541c: Pull complete
9b829c73b52b: Pull complete
cb5b7ae3e172: Pull complete
6d94e4811622: Pull complete
6f9f74896dfa: Pull complete
5a3b1213afc5: Pull complete
9fddfdc56334: Pull complete
404f02044bac: Pull complete
c4f42be2be53: Pull complete
37b82ab5c38e: Pull complete
8b7e23bdaac: Pull complete
abf5d48c97e7: Pull complete
2ccfa4387ec3: Pull complete
e59f5d4cae159: Pull complete
Digest: sha256:9a54c36bba35e00e7a0221d1d8a89dbe7d4047989ea60f57c69ec7e3e864fc52
Status: Downloaded newer image for sajeethguru/sajee:jobportal
docker.io/sajeethguru/sajee:jobportal
root@192.168.0.18 ~
```

=> Running the pulled image:

The screenshot shows the Labs Play with Docker interface. On the left, there's a sidebar with a clock showing 03:39:21, 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 panel displays the session title 'cdftmgv9_cdftmj63tccg00c71au0'. Below the title, there's an 'IP' field with '192.168.0.18' and an 'OPEN PORT' button. A 'Memory' and 'CPU' section is visible. The 'SSH' field contains the command 'ssh ip172-18-0-171-cdftmgv91rrg00935e00@direct.labs.pla'. Below this are 'DELETE' and 'EDITOR' buttons. The terminal window shows the following commands and output:

```
root@192.168.0.18 ~
$ docker volume ls
DRIVER    VOLUME NAME
root@192.168.0.18 ~
$ docker run -p 5000:5000 -t sajeethguru/sajee:jobportal
docker: Error response from daemon: write /var/lib/docker/overlay2/1f2761d52e4e99deb721af89235014201865eb8b13falb254ee6b5e2e50d9262-ini
t/link: no space left on device.
See 'docker run --help'.
root@192.168.0.18 ~
$ ^C
root@192.168.0.18 ~
$ docker volume ls -qf dangling=true
root@192.168.0.18 ~
$ docker run -p 5000:5000 -t sajeethguru/sajee:jobportal
* Serving Flask app 'app' (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: off
* Running on all addresses.
  WARNING: This is a development server. Do not use it in a production deployment.
* Running on http://172.17.0.2:5000/ (Press CTRL+C to quit)
```



3.Create a IBM Container Registry and deploy jobportal app:

=>Pushing image to Container registry:

```
Administrator C:\Windows\System32\cmd.exe
D:\1 Work Space\Web Apps\Jobportal>ibmcloud login -a https://cloud.ibm.com
API endpoint: https://cloud.ibm.com

Email> 81001910606@smartinternz.com

Password>
Authenticating...
OK

Targeted account Sajeeth Guru G P's Account (6d963594c60f4f6e89d33f009aac2bde)

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> 1
Targeted region au-syd

API endpoint:      https://cloud.ibm.com
Region:           au-syd
User:             81001910606@smartinternz.com
Account:          Sajeeth Guru G P's Account (6d963594c60f4f6e89d33f009aac2bde)
Resource group:   No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:
```

```
D:\1 Work Space\Web Apps\Jobportal>ibmcloud cr region-set ap-south
The region is set to 'ap-south', the registry is 'au.icr.io'.

OK

D:\1 Work Space\Web Apps\Jobportal>ibmcloud cr login
Logging 'docker' in to 'au.icr.io'...
Logged in to 'au.icr.io'.

OK

D:\1 Work Space\Web Apps\Jobportal>ibmcloud cr image-list
Listing images...

Repository      Tag      Digest      Namespace    Created      Size      Security status
au.icr.io/sajeeth/loginapp  latest    a7f272edbfdd  sajeeth      3 weeks ago  435 MB    -

OK

D:\1 Work Space\Web Apps\Jobportal>docker tag jobportal au.icr.io/sajeeth/jobportal

D:\1 Work Space\Web Apps\Jobportal>docker push au.icr.io/sajeeth/jobportal
Using default tag: latest
The push refers to repository [au.icr.io/sajeeth/jobportal]
be54ef4e97eb: Retrying in 1 second
3de59cda81ee: Retrying in 1 second
cf207e865158: Pushing [=====>] 41.98kB
afe94017dff3: Retrying in 1 second
bb49da2eeef9: Retrying in 1 second
aa6c800c19f6: Retrying in 10 seconds
8ba9f690e8ba: Retrying in 1 second
3e607d59ef9f: Retrying in 10 seconds
1e18e7e1fcc2: Retrying in 1 second
c3a0d593ed24: Retrying in 14 seconds
26a304e63be4: Retrying in 14 seconds
8bf42db0de72: Waiting
31892cc314cb: Waiting
11936051f93b: Waiting
Failed to lookup host: au.icr.io

D:\1 Work Space\Web Apps\Jobportal>
```

```

Administrator: C:\Windows\System32\cmd.exe
The push refers to repository [au.icr.io/sajeeth/jobportal]
be54ef4e97eb: Layer already exists
3de59cda81ee: Layer already exists
cf207e865158: Layer already exists
afe94017df3: Layer already exists
bb49da2eeef9: Layer already exists
aa4c808c19f6: Layer already exists
8ba9f690e8ba: Layer already exists
3e607d59ef9f: Layer already exists
1e18e7elfcc2: Layer already exists
c3a0d93ed24: Pushed
26a594e63b04: Retrying in 1 second
8bf42db0de72: Layer already exists
31892cc314cb: Layer already exists
11936051f93b: Pushing [=====>] 123.9MB/123.9MB
net/http: TLS handshake timeout

D:\1 Work Space\Web Apps\Jobportal>docker push au.icr.io/sajeeth/jobportal
Using default tag: latest
The push refers to repository [au.icr.io/sajeeth/jobportal]
be54ef4e97eb: Layer already exists
3de59cda81ee: Layer already exists
cf207e865158: Layer already exists
afe94017df3: Layer already exists
bb49da2eeef9: Layer already exists
aa4c808c19f6: Layer already exists
8ba9f690e8ba: Layer already exists
3e607d59ef9f: Layer already exists
1e18e7elfcc2: Layer already exists
c3a0d93ed24: Layer already exists
26a594e63b04: Pushed
8bf42db0de72: Layer already exists
31892cc314cb: Layer already exists
11936051f93b: Pushed
latest: digest: sha256:9a54c36bba35e00e7a0221d1d8a89dbe7d4047989ea60f57c69ec7e3e864fc52 size: 3262

D:\1 Work Space\Web Apps\Jobportal>docker cr images
docker: 'cr' is not a docker command.
See 'docker --help'

D:\1 Work Space\Web Apps\Jobportal>ibmcloud cr image-list
Listing images...

Repository          Tag      Digest          Namespace   Created      Size      Security status
au.icr.io/sajeeth/jobportal  latest  9a54c36bba35   sajeeth     4 days ago   435 MB   -
au.icr.io/sajeeth/loginapp  latest  a7f272edbdfd   sajeeth     3 weeks ago  435 MB   -

OK

D:\1 Work Space\Web Apps\Jobportal>

```

4. Create a Kubernetes cluster in IBM cloud and deploy jobportal image and also expose the same app to run in nodeportal:

=> deploying and exposing jobportal image into kubernetes cluster:

```
Administrator: C:\Windows\System32\cmd.exe
API endpoint: https://cloud.ibm.com
Region: au-syd

Email> 810019106068@smartinternz.com
Password>
Authenticating...
OK
Targeted account Sajeeth Guru G P's Account (6d963594c60f4f6e89d33f009aac2bde)

API endpoint: https://cloud.ibm.com
Region: au-syd
User: 810019106068@smartinternz.com
Account: Sajeeth Guru G P's Account (6d963594c60f4f6e89d33f009aac2bde)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

D:\1 Work Space\Web Apps\Jobportal>ibmcloud ks cluster config -c cdbc2d9f007rmkanc67g
OK
The configuration for cdbc2d9f007rmkanc67g was downloaded successfully.

Added context for cdbc2d9f007rmkanc67g to the current kubeconfig file.
You can now execute 'kubectl' commands against your cluster. For example, run 'kubectl get nodes'.
If you are accessing the cluster for the first time, 'kubectl' commands might fail for a few seconds while RBAC synchronizes.

D:\1 Work Space\Web Apps\Jobportal>kubectl create -f deployment.yaml
deployment.apps/jobportal created

D:\1 Work Space\Web Apps\Jobportal>kubectl create -f service.yaml
service/jobportal created

D:\1 Work Space\Web Apps\Jobportal>
```

=>Running the app in nodeport:

