

Assignment -4

Docker and Kubernetes

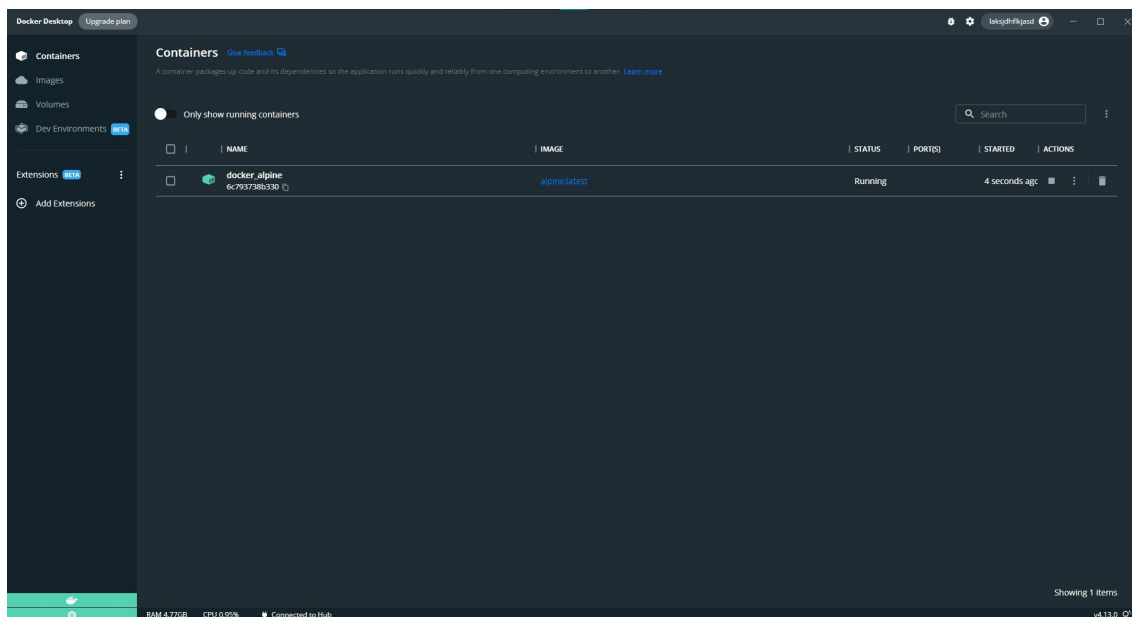
Assignment Date	24 October 2022
Student Name	Ujjwaleshwar Srikanth
Student Roll Number	SSNCE195002121
Maximum Marks	2 Marks

Question-1:

Pull an image from Docker Hub and run it in Docker playground.

Solution:

```
Developer PowerShell for VS 20
PS C:\Users\bannd\source\repos> docker pull alpine
Using default tag: latest
latest: Pulling from library/alpine
213ec9aee27d: Already exists
Digest: sha256:bc41182d7ef5ffc53a40b044e725193bc10142a1243f395ee852a8d9730fc2ad
Status: Downloaded newer image for alpine:latest
docker.io/library/alpine:latest
PS C:\Users\bannd\source\repos>
```



Containers

Images

Volumes

Dev Environments

Extensions

Add Extensions

docker_alpine

alpine:latest

RUNNING

Logs

Inspect

Terminal

Stats

Open in external terminal

```
/ # apk add neofetch
fetch https://dl-cdn.alpinelinux.org/alpine/v3.16/main/x86_64/APKINDEX.tar.gz
fetch https://dl-cdn.alpinelinux.org/alpine/v3.16/community/x86_64/APKINDEX.tar.gz
(1/5) Installing ncurses-terminfo-base (6.3_p20230521-r0)
(2/5) Installing ncurses-libs (6.3_p20230521-r0)
(3/5) Installing readline (8.1.2-r0)
(4/5) Installing bash (5.1.16-r2)
Executing bash-5.1.16-r2.post-install
(5/5) Installing neofetch (2.1.0-r0)
Executing busybox-1.35.0-r17.trigger
OK: 8 MB / 19 packages
/ # neofetch

             root@6c793738a330
             OS: Alpine Linux v3.16 on Windows 10 x86_64
             Kernel: 6.4.75-microsoft-1-standard-WSL2
             Uptime: 15 mins
             Packages: 19 (dpkg)
             Shell: ash
             CPU: AMD Ryzen 5 3600X (12) @ 3.833GHz
             Memory: 1452MiB / 1273MiB
```

RAM 4.78GB

CPU 1.26%

Connected to Hub

v4.13.0

Question-2:

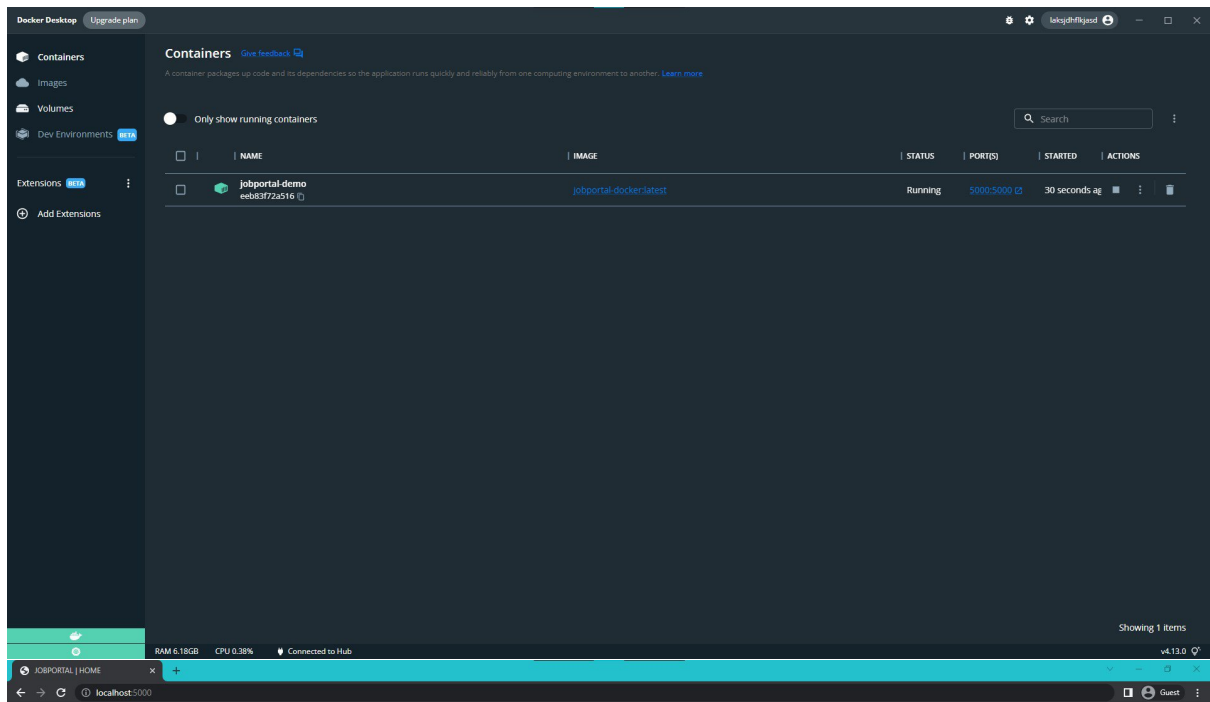
Create a Docker file for the jobportal application and deploy it in Docker Desktop.

Solution:

```
.dockerfile X
.dockerfile > ...
1 FROM python:latest
2
3 WORKDIR /app
4
5 COPY . /app
6
7 RUN pip install -r requirements.txt
8
9 CMD ["python", "-m", "flask", "run", "--host=0.0.0.0"]
10
11 EXPOSE 5000

PS G:\Ujjwaleshwar Srikanth\docker\job-portal-main> docker build . -t jobportal-docker
[+] Building 110.9s (12/12) FINISHED
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 229B 0.0s
=> [internal] load .dockerignore 0.1s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/python:3.6 3.5s
=> [auth] library/python:pull token for registry-1.docker.io 0.0s
=> [1/6] FROM docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc 46.8s
=> => resolve docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc 0.0s
=> => sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc 1.86kB / 1.86kB 0.0s
=> => sha256:54260638d07c5e3ad24c6e21fc889abb8c8486a27634c0892086ff71f3f44b104 9.27kB / 9.27kB 0.0s
=> => sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 5.15MB / 5.15MB 2.2s
=> => sha256:d097a4907a8ec079df5ac31872359c2de510f82214c0448e926393b376d3b60d 2.22kB / 2.22kB 0.0s
=> => sha256:0e29546d541cddb309281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3 54.92MB / 54.92MB 17.2s
=> => sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d740cdd56 10.87MB / 10.87MB 4.2s
=> => sha256:6494e4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793 54.57MB / 54.57MB 19.5s
=> => sha256:6f9f74896dfa93fe0172f594faba85e0b4e8a0481a0fef9d9112efc7e4d3c78f7 196.51MB / 196.51MB 37.4s
=> => sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 6.29MB / 6.29MB 20.2s
=> => extracting sha256:0e29546d541cddb309281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3 2.8s
=> => sha256:9fddfdc56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 14.21MB / 14.21MB 23.6s
=> => extracting sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 0.3s
=> => sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7 235B / 235B 20.5s
=> => extracting sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d740cdd56 0.3s
=> => sha256:c4f42be2be53b900ebffcc040c1df13de538434ccc5f5d954a56848a6169a3a3f 2.21MB / 2.21MB 21.6s
=> => extracting sha256:6494e4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793 3.1s
=> => extracting sha256:6f9f74896dfa93fe0172f594faba85e0b4e8a0481a0fef9d9112efc7e4d3c78f7 7.1s
=> => extracting sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 0.3s
=> => extracting sha256:9fddfdc56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 0.6s
=> => sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7 0.0s
=> => extracting sha256:c4f42be2be53b900ebffcc040c1df13de538434ccc5f5d954a56848a6169a3a3f 0.2s
=> [internal] load build context 0.1s
=> => transferring context: 57.48kB 0.0s
=> [2/6] WORKDIR /app 2.9s
=> [3/6] ADD . /app 0.2s
=> [4/6] COPY requirements.txt /app 0.1s
=> [5/6] RUN python3 -m pip install -r requirements.txt 55.1s
=> [6/6] RUN python3 -m pip install ibm_db 1.0s
=> exporting to image 1.0s
=> => exporting layers 0.9s
=> => writing image sha256:f95c8867748a0cee1840ee4423ff90e58313a032737c9ba4f80bd274092ed4a6 0.0s
=> => naming to docker.io/library/jobportal-docker 0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS G:\Ujjwaleshwar Srikanth\docker\job-portal-main>
```



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Aboutus

Mission

SMARTBRIDGE 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. SmartBridge offers suitable skill deployment and training to the young talent before on boarding their first job. Our skill development programs are designed considering the present expectations in the industry.

Objective

Well directed career guidance programs for educational institutions
Appropriate certification courses that suit the industry need
Train the trainers; expanded awareness about the current industry standards
Liaise with corporates to offer niche internships
Establish technology development centers in colleges
Specialised incubation centers in collaboration with corporates

JobPortal

Lorem ipsum dolor sit amet consectetur adipiscing elit. Voluptatum quis, reiciendis id magni magnam, accusamus nobis in, temporibus molestias ab placeat rerum aperiam illum perspiciatis ducimus non! Fugiat, odit ducimus.

Get in Touch

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Question 3:

Create an IBM container registry and deploy helloworld app or jobportal app.

Solution:

```
Developer PowerShell for VS 20
PS C:\Users\bannd\source\repos> ibmcloud cr region-set global
The region is set to 'global', the registry is 'icr.io'.

OK
PS C:\Users\bannd\source\repos> ibmcloud cr namespace assign4
FAILED
'namespace' is not a registered command. Check your list of installed plug-ins. See 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe cr help'.

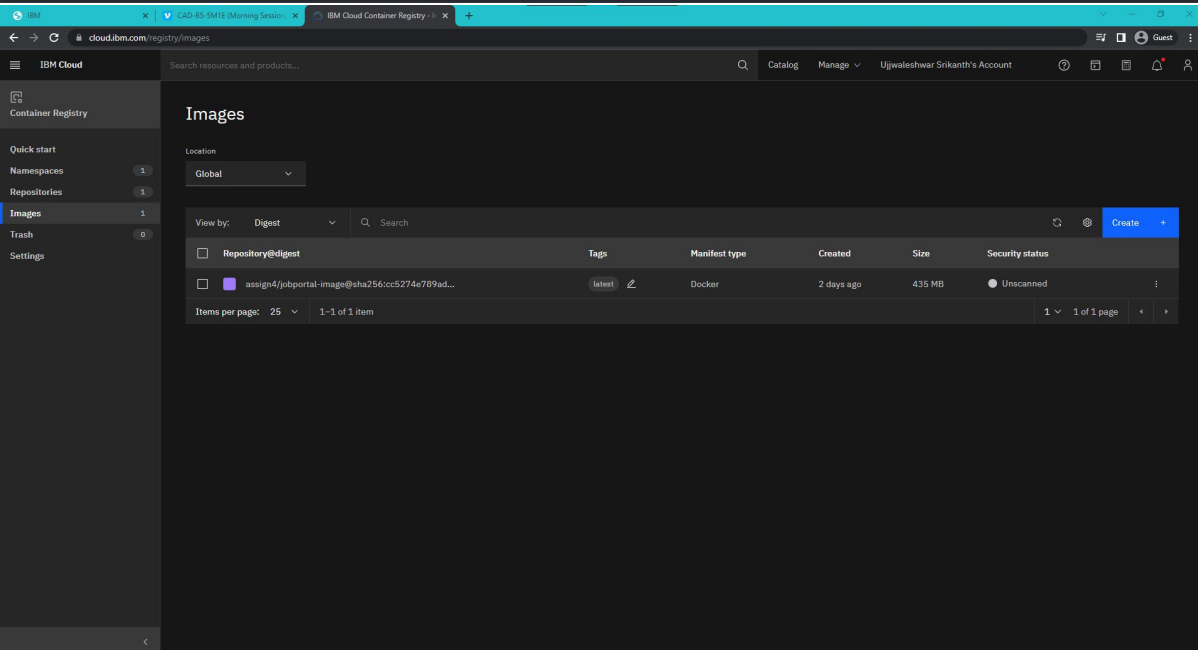
PS C:\Users\bannd\source\repos> ibmcloud cr namespace-add assign4
No resource group is targeted. Therefore, the default resource group for the account ('Default') is targeted.

Adding namespace 'assign4' in resource group 'Default' for account Ujjwaleshwar Srikanth's Account in registry icr.io...

Successfully added namespace 'assign4'

OK
PS C:\Users\bannd\source\repos> ibmcloud cr login
Logging 'docker' in to 'icr.io'...
Logged in to 'icr.io'.

OK
PS C:\Users\bannd\source\repos> docker tag jobportal-docker icr.io/assign4/jobportal-image:latest
PS C:\Users\bannd\source\repos> docker push icr.io/assign4/jobportal-image:latest
The push refers to repository [icr.io/assign4/jobportal-image]
8add3b00c4c: Pushed
edebd43fe410: Pushed
3fa395485791: Pushed
917078fe0376: Pushed
8e157428c808: Pushed
```



Repository	Tags	Manifest type	Created	Size	Security status
assign4/jobportal-image@sha256cc5274e789ad...	latest	Docker	2 days ago	435 MB	Unscanned

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: