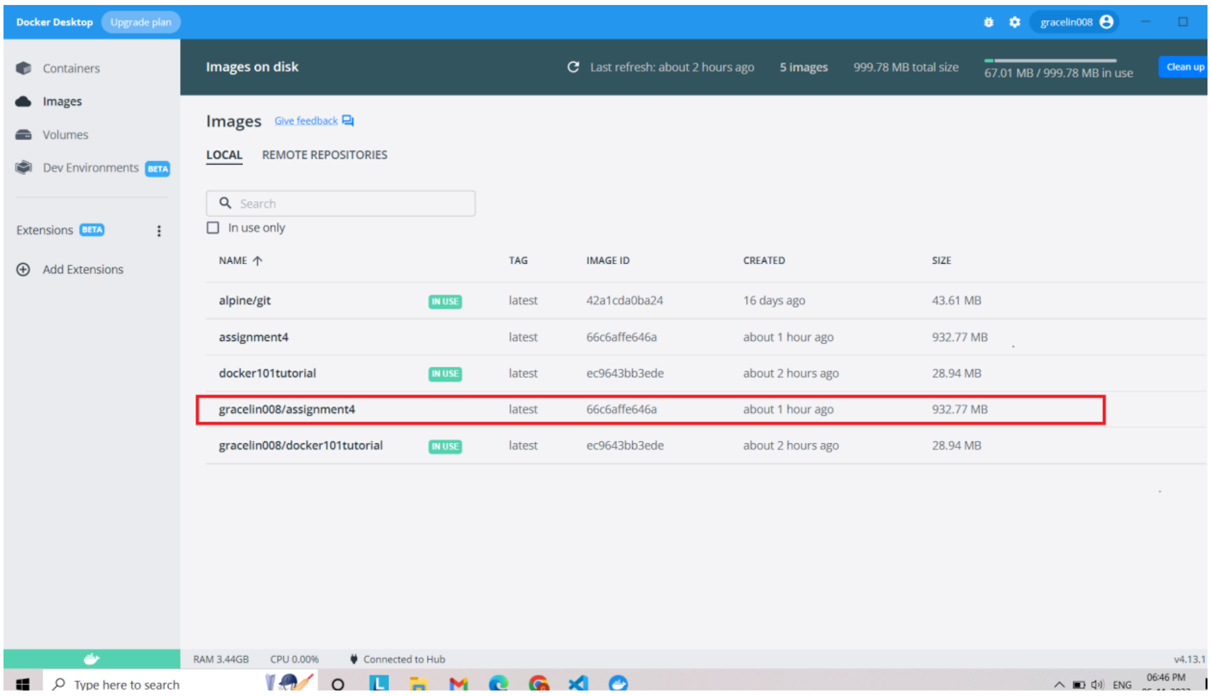
Assignment -4

Docker and Kubernetes

Student Name	GRACELIN C
Student Roll Number	113119UG07027
Maximum Marks	2 Marks

1. Pull an image from docker hub and run it in docker Playground

>> The image is built in docker desktop

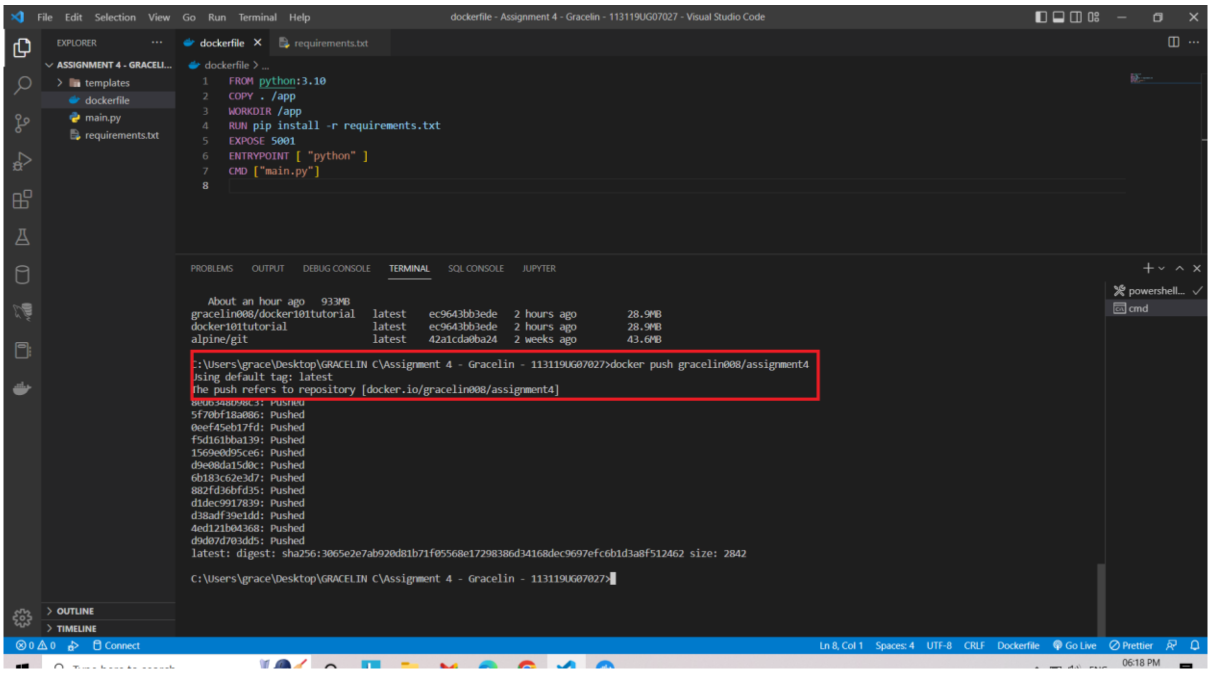


Images on disk Last refresh: about 2 hours ago 5 images 999.78 MB total size 67.01 MB / 999.78 MB in use

Images

NAME		TAG	IMAGE ID	CREATED	SIZE
alpine/git	IN USE	latest	42a1cda0ba24	16 days ago	43.61 MB
assignment4		latest	66c6affe646a	about 1 hour ago	932.77 MB
docker101tutorial	IN USE	latest	ec9643bb3ede	about 2 hours ago	28.94 MB
gracelin008/assignment4		latest	66c6affe646a	about 1 hour ago	932.77 MB
gracelin008/docker101tutorial	IN USE	latest	ec9643bb3ede	about 2 hours ago	28.94 MB

>> Then it is pushed to dockerhub using the command



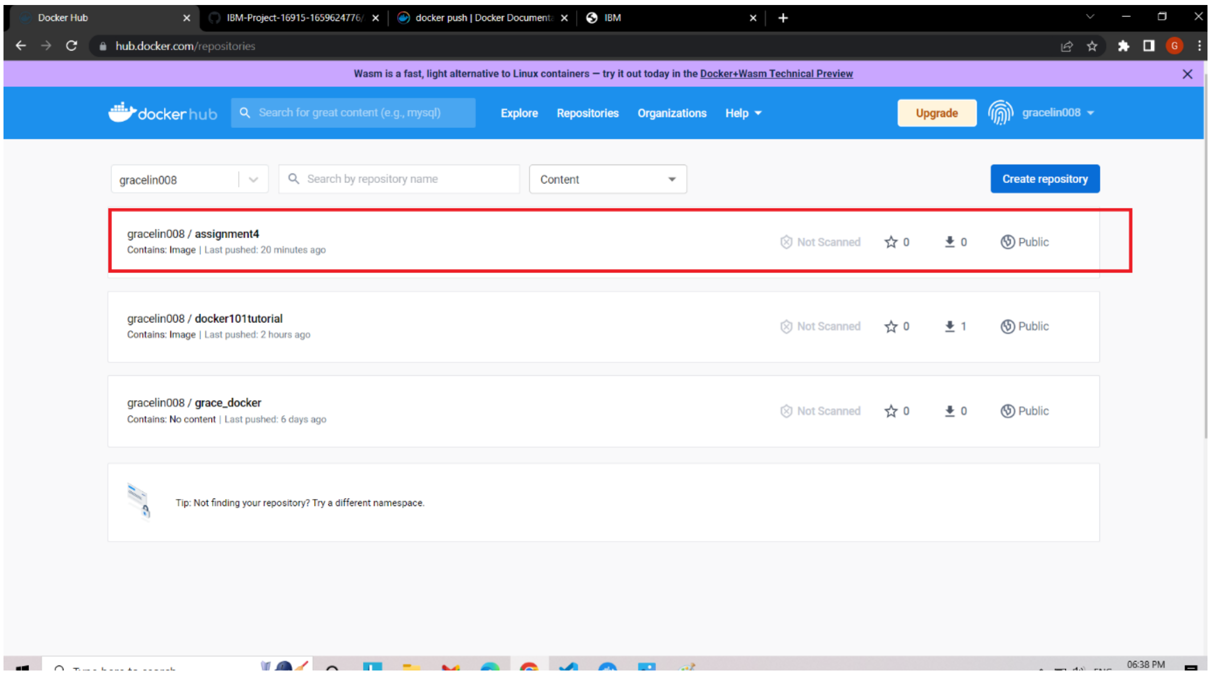
```
FROM python:3.10
COPY . /app
WORKDIR /app
RUN pip install -r requirements.txt
EXPOSE 5001
ENTRYPOINT [ "python" ]
CMD ["main.py"]
```

```
   About an hour ago   933MB
gracelin008/docker101tutorial   latest    ec9643bb3ede   2 hours ago        28.9MB
docker101tutorial               latest    ec9643bb3ede   2 hours ago        28.9MB
alpine/git                      latest    42a1cda0ba24   2 weeks ago        43.6MB

C:\Users\grace\Desktop\GRACELIN C\Assignment 4 - Gracelin - 113119UG07027>docker push gracelin008/assignment4
Using default tag: latest
The push refers to repository [docker.io/gracelin008/assignment4]
8e0634809 8c3: Pushed
5f70bf18a086: Pushed
0eef45eb17fd: Pushed
f5d161bba139: Pushed
1569e0d95ce6: Pushed
d9e08da15d0c: Pushed
6b183c62e3d7: Pushed
882fd36bfd35: Pushed
d1dec9917839: Pushed
d38adf39e1dd: Pushed
4ed121b04368: Pushed
d9d07d703dd5: Pushed
latest: digest: sha256:3065e2e7ab920d81b71f05568e17298386d34168dec9697efc6b1d3a8f512462 size: 2842

C:\Users\grace\Desktop\GRACELIN C\Assignment 4 - Gracelin - 113119UG07027>
```

Thus the image named assignment4 is successfully pushed to dockerhub



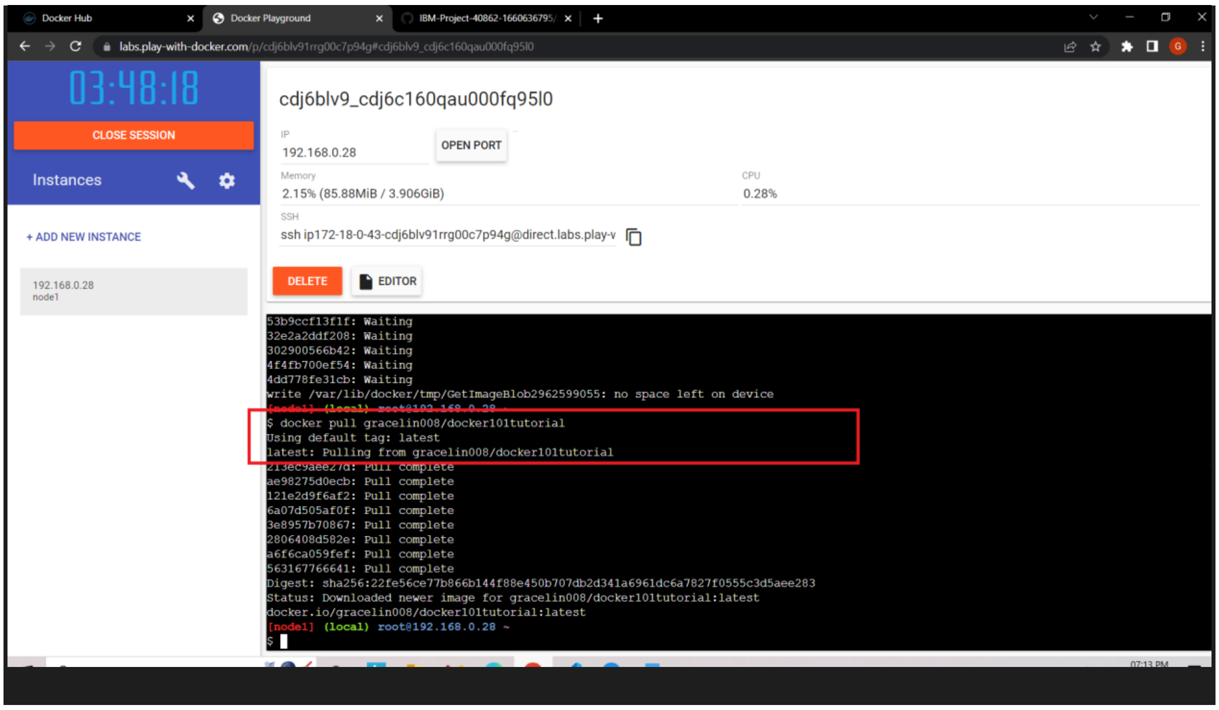
gracelin008 / assignment4
Contains: Image | Last pushed: 20 minutes ago
Not Scanned ☆ 0 ⬇ 0 Public

gracelin008 / docker101tutorial
Contains: Image | Last pushed: 2 hours ago
Not Scanned ☆ 0 ⬇ 1 Public

gracelin008 / grace_docker
Contains: No content | Last pushed: 6 days ago
Not Scanned ☆ 0 ⬇ 0 Public

Tip: Not finding your repository? Try a different namespace.

>> Pulled an image from docker hug and ran in dockerplaygound


Docker Hub
Docker Playground
IBM-Project-40862-1660636795/
labs.play-with-docker.com/p/cdj6blv91rrg00c7p94g#cdj6blv9_cdj6c160qau000fq95l0
03:48:18
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.28
node1
cdj6blv9_cdj6c160qau000fq95l0
IP
192.168.0.28
OPEN PORT
Memory
2.15% (85.88MiB / 3.906GiB)
CPU
0.28%
SSH
ssh ip172-18-0-43-cdj6blv91rrg00c7p94g@direct.labs.play-v
DELETE
EDITOR

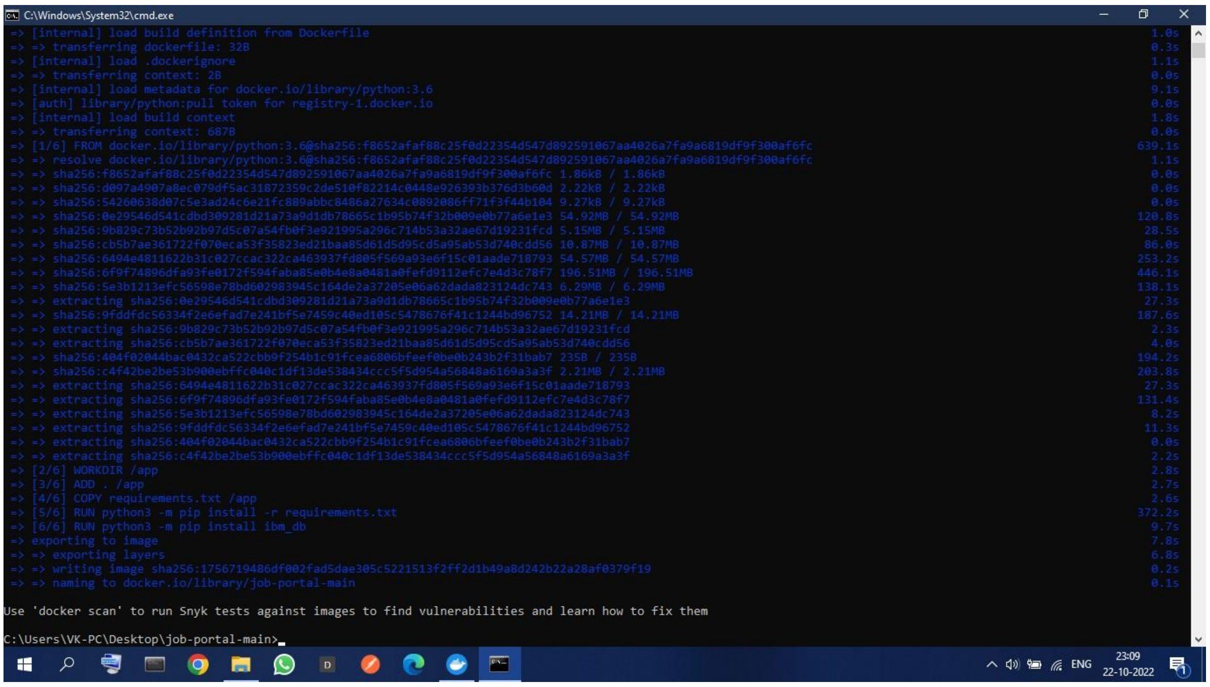
```
53b9ccf13f1f: Waiting
32e2a2ddf208: Waiting
302900566b42: Waiting
4f4fb700ef54: Waiting
4dd778fe31cb: Waiting
write /var/lib/docker/tmp/GetImageBlob2962599055: no space left on device
[node1] (local) root@192.168.0.28 ~
$ docker pull gracelin008/docker101tutorial
Using default tag: latest
latest: Pulling from gracelin008/docker101tutorial
213ec9aee27d: Pull complete
ae98275d0ecb: Pull complete
121e2d9f6af2: Pull complete
6a07d505af0f: Pull complete
3e8957b70867: Pull complete
2806408d582e: Pull complete
a6f6ca059fef: Pull complete
563167766641: Pull complete
Digest: sha256:22fe56ce77b866b144f88e450b707db2d341a6961dc6a7827f0555c3d5aee283
Status: Downloaded newer image for gracelin008/docker101tutorial:latest
docker.io/gracelin008/docker101tutorial:latest
[node1] (local) root@192.168.0.28 ~
$ 
```

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

Docker File

```
FROM python:3.10
COPY . /app
WORKDIR /app
RUN pip install -r requirements.txt
EXPOSE 5001
ENTRYPOINT [ "python" ]
CMD ["main.py"]
```

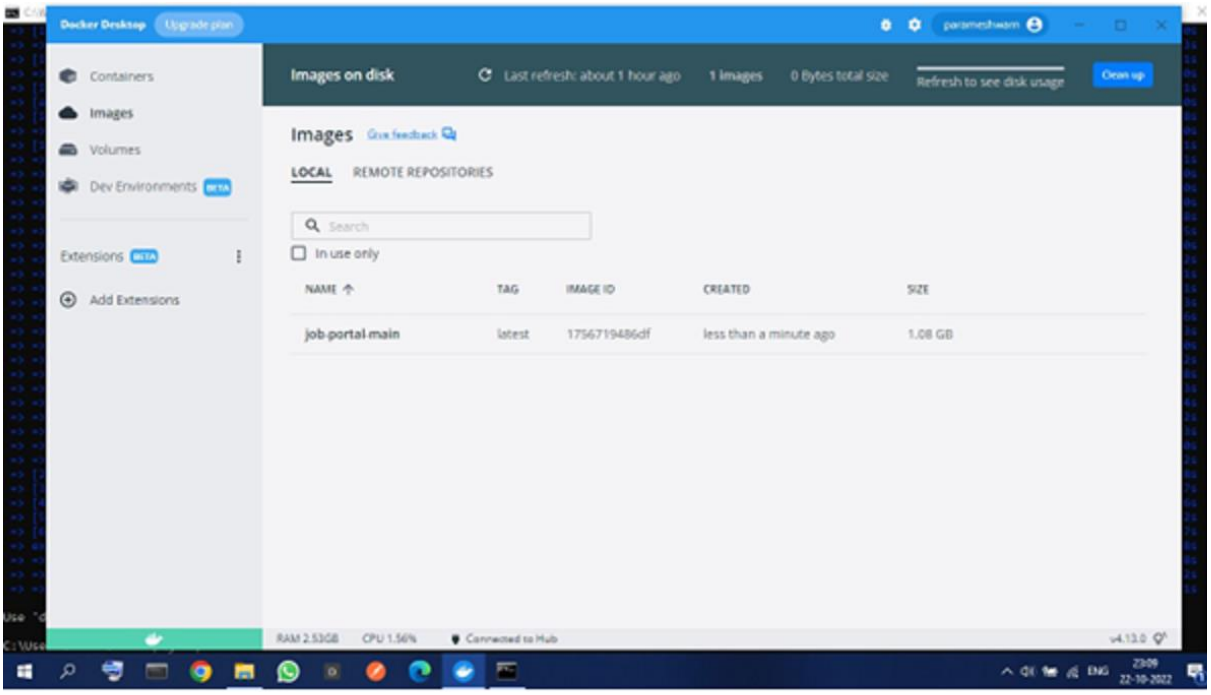
Thus docker file is created



```
=> [internal] load build definition from Dockerfile                                                         1.0s
=> => transferring dockerfile: 32B                                                                          0.3s
=> [internal] load .dockerignore                                                                            1.1s
=> => transferring context: 2B                                                                              0.0s
=> [internal] load metadata for docker.io/library/python:3.6                                                9.1s
=> [auth] library/python:pull token for registry-1.docker.io                                                0.0s
=> [internal] load build context                                                                            1.8s
=> => transferring context: 687B                                                                            0.0s
=> [1/6] FROM docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc  639.1s
=> => resolve docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc  1.1s
=> => sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f300af6fc 1.86kB / 1.86kB               0.0s
=> => sha256:d097a4907a8ec079df5ac31872359c2de510f82214c0448e926393b376d3b60d 2.22kB / 2.22kB               0.0s
=> => sha256:54260638d07c5e3ad24c6e21fc889abbc8486a27634c0892086ff71f3f44b104 9.27kB / 9.27kB               0.0s
=> => sha256:0e29546d541cdbd309281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3 54.92MB / 54.92MB           120.8s
=> => sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd 5.15MB / 5.15MB              28.5s
=> => sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d740cdd56 10.87MB / 10.87MB            86.0s
=> => sha256:6494e4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793 54.57MB / 54.57MB           253.2s
=> => sha256:6f9f74896dfa93fe0172f594faba85e0b4e8a0481a0fefd9112efc7e4d3c78f7 196.51MB / 196.51MB         446.1s
=> => sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743 6.29MB / 6.29MB             138.1s
=> => extracting sha256:0e29546d541cdbd309281d21a73a9d1db78665c1b95b74f32b009e0b77a6e1e3                   27.3s
=> => sha256:9fddfdc56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752 14.21MB / 14.21MB           187.6s
=> => extracting sha256:9b829c73b52b92b97d5c07a54fb0f3e921995a296c714b53a32ae67d19231fcd                    2.3s
=> => extracting sha256:cb5b7ae361722f070eca53f35823ed21baa85d61d5d95cd5a95ab53d740cdd56                    4.0s
=> => sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7 235B / 235B                 194.2s
=> => sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d954a56848a6169a3a3f 2.21MB / 2.21MB             203.8s
=> => extracting sha256:6494e4811622b31c027ccac322ca463937fd805f569a93e6f15c01aade718793                   27.3s
=> => extracting sha256:6f9f74896dfa93fe0172f594faba85e0b4e8a0481a0fefd9112efc7e4d3c78f7                  131.4s
=> => extracting sha256:5e3b1213efc56598e78bd602983945c164de2a37205e06a62dada823124dc743                    8.2s
=> => extracting sha256:9fddfdc56334f2e6efad7e241bf5e7459c40ed105c5478676f41c1244bd96752                   11.3s
=> => extracting sha256:404f02044bac0432ca522cbb9f254b1c91fcea6806bfeef0be0b243b2f31bab7                    0.0s
=> => extracting sha256:c4f42be2be53b900ebffc040c1df13de538434ccc5f5d954a56848a6169a3a3f                    2.2s
=> [2/6] WORKDIR /app                                                                                       2.8s
=> [3/6] ADD . /app                                                                                         2.7s
=> [4/6] COPY requirements.txt /app                                                                         2.6s
=> [5/6] RUN python3 -m pip install -r requirements.txt                                                   372.2s
=> [6/6] RUN python3 -m pip install ibm_db                                                                  9.7s
=> exporting to image                                                                                       7.8s
=> => exporting layers                                                                                      6.8s
=> => writing image sha256:1756719486df002fad5dae305c5221513f2ff2d1b49a8d242b22a28af0379f19                0.2s
=> => naming to docker.io/library/job-portal-main                                                           0.1s

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

C:\Users\VK-PC\Desktop\job-portal-main>
```

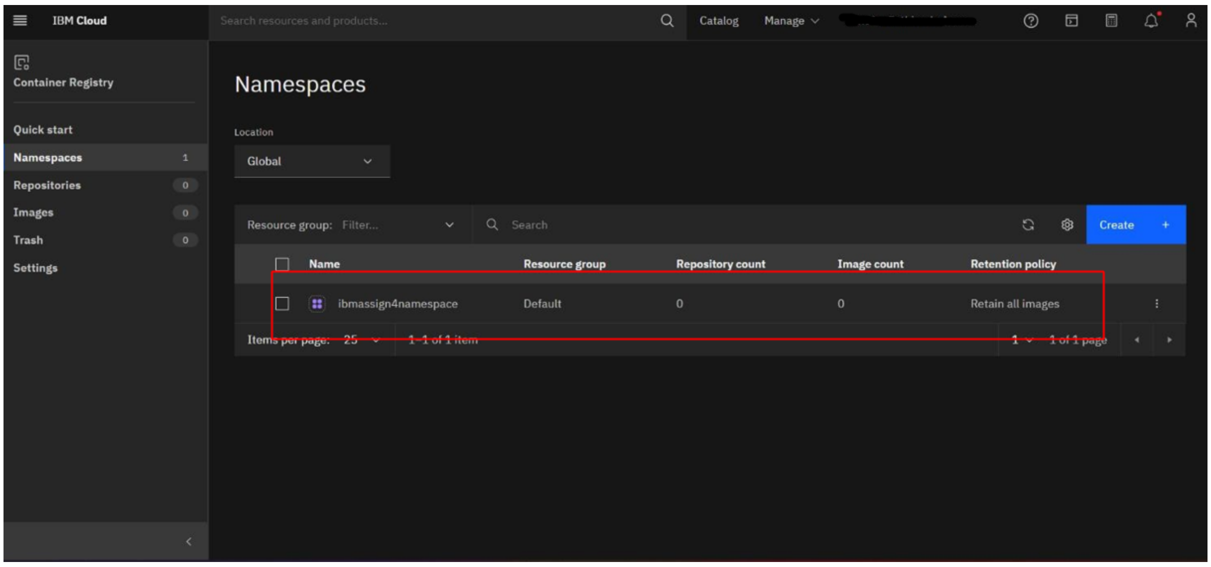


NAME	TAG	IMAGE ID	CREATED	SIZE
job-portal-main	latest	1756719486df	less than a minute ago	1.08 GB

3.Create a IBM container registry and deploy helloworld app

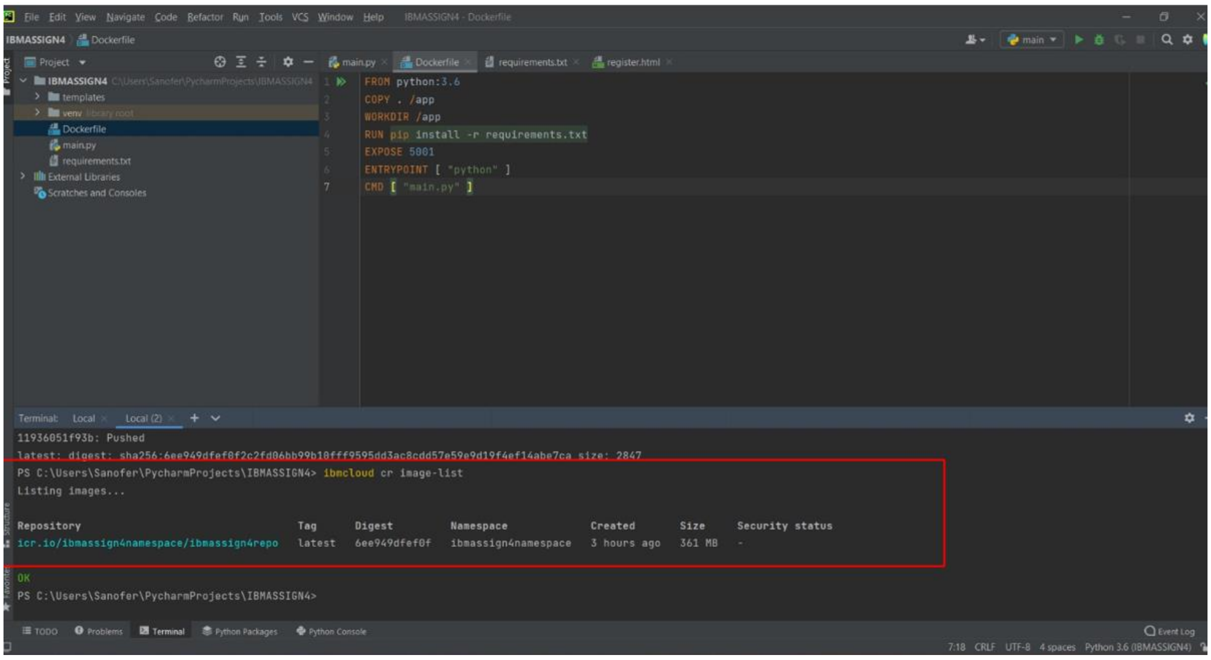
Container registry created using

> docker tag sanoferrasheed/ibmassign4deploy:latest icr.io/ibmassign4namespace/ibmassign4repo:latest
> docker push icr.io/ibmassign4namespace/ibmassign4repo:latest



	Name	Resource group	Repository count	Image count	Retention policy
☐	ibmassign4namespace	Default	0	0	Retain all images

Thus, images in container registry are listed



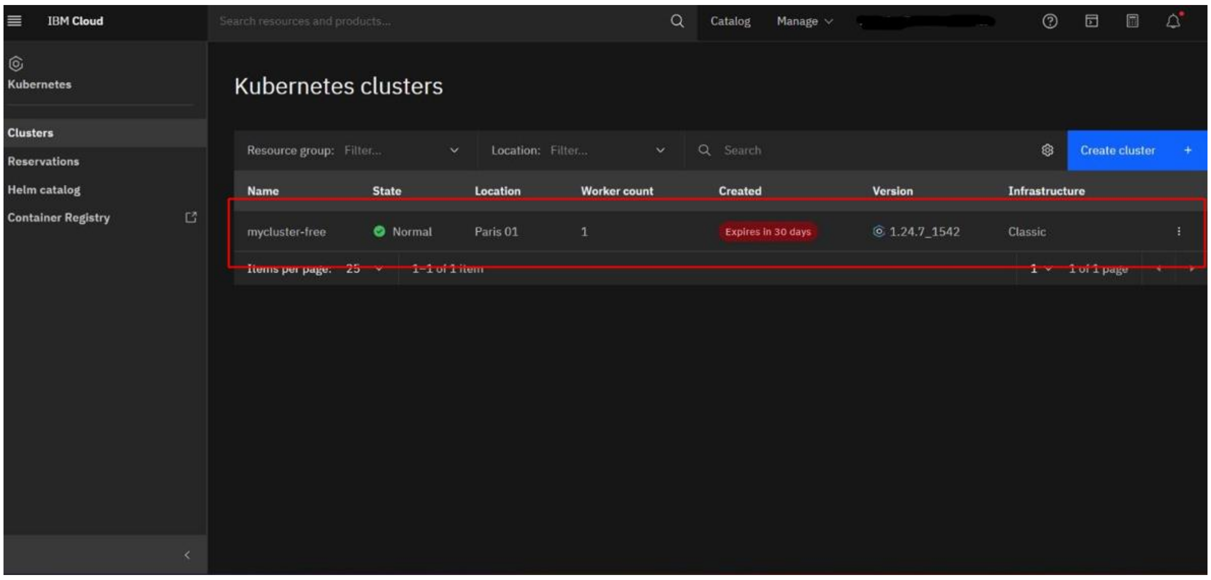
```
FROM python:3.6
COPY . /app
WORKDIR /app
RUN pip install -r requirements.txt
EXPOSE 5001
ENTRYPOINT [ "python" ]
CMD [ "main.py" ]
```

```
11936051f93b: Pushed
latest: digest: sha256:6ee949dfef0f2c2fd06bb99b10fff9595dd3ac8cdd57e59e9d19f4ef14abe7ca size: 2847
PS C:\Users\Sanofer\PycharmProjects\IBMASSIGN4> ibmcloud cr image-list
Listing images...

Repository                                 Tag      Digest         Namespace             Created       Size     Security status
icr.io/ibmassign4namespace/ibmassign4repo  latest   6ee949dfef0f   ibmassign4namespace   3 hours ago   361 MB   -

OK
PS C:\Users\Sanofer\PycharmProjects\IBMASSIGN4>
```

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.



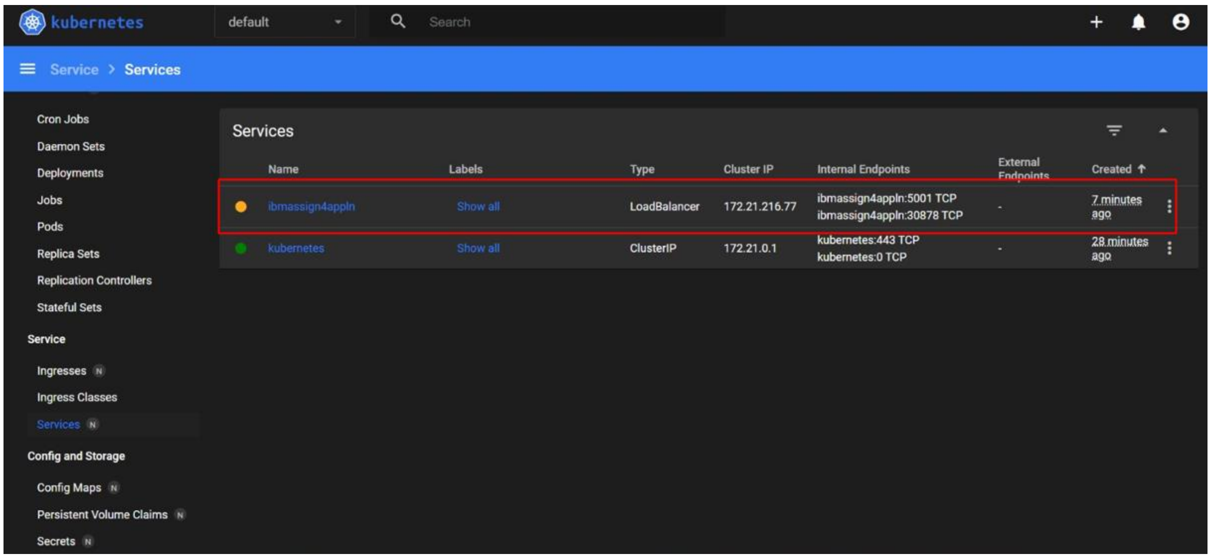
Kubernetes clusters

Resource group: Filter... Location: Filter... Search

Name	State	Location	Worker count	Created	Version	Infrastructure
mycluster-free	Normal	Paris 01	1	Expires in 30 days	1.24.7_1542	Classic

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

cluster is created



Services

	Name	Labels	Type	Cluster IP	Internal Endpoints	External Endpoints	Created
●	ibmassign4appln	Show all	LoadBalancer	172.21.216.77	ibmassign4appln:5001 TCP ibmassign4appln:30878 TCP	-	7 minutes ago
●	kubernetes	Show all	ClusterIP	172.21.0.1	kubernetes:443 TCP kubernetes:0 TCP	-	28 minutes ago

APP IS LIVE AT http://159.122.174.152:30878/