Assignment-4

Kubernetes/Docker

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MaximumMarks	2Marks

Question-1:

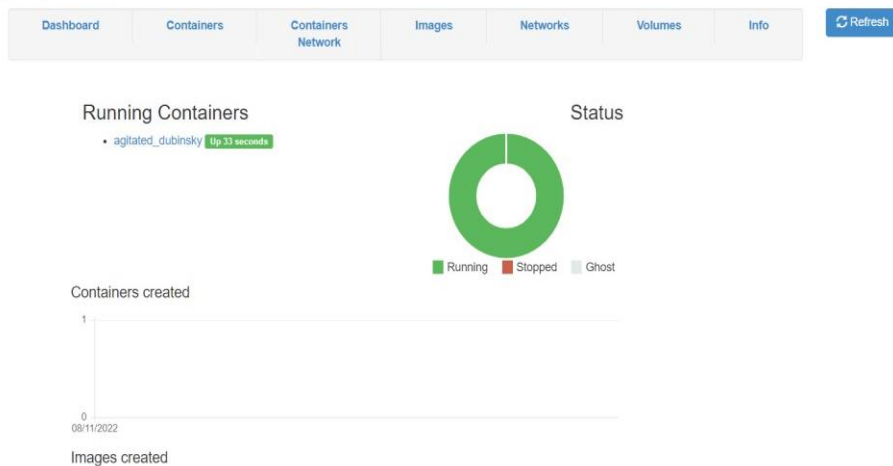PullanImagefromdocker hubandrunitindocker playground.

Solution:

Question-2:

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

Solution:

app.py
```python
from flask import *

app=Flask(__name_)

@app.route("/")
def home():

            return "HelloWorld"
if____name_=="__main_":

    app.run(debug=True)
```

Dockerfile:

```dockerfile
FROM

python:3.6WOR

KDIR

/appADD./app

  COPYrequirements.txt/app

  RUN python3 -m pip install -r

  requirements.txtRUN python3-

  mpipinstallibm_db

  EXPOSE5000

CMD["python","app.p

y"]
```

```
Usage:  docker build [OPTIONS] PATH | URL | -

Build an image from a Dockerfile

D:\OneDrive\Desktop\IBM Docs\Assigments\assignment-four>docker build -t assignment-four .
[+] Building 410.4s (12/12) FINISHED
 => [internal] load build definition from Dockerfile                                          0.0s
 => => transferring dockerfile: 231B                                                          0.0s
 => [internal] load .dockerignore                                                             0.0s
 => => transferring context: 2B                                                               0.0s
 => [internal] load metadata for docker.io/library/python:3.6                                 3.1s
 => [auth] library/python:pull token for registry-1.docker.io                                 0.0s
 => [1/6] FROM docker.io/library/python:3.6@sha256:f8652afaf88c25f0d22354d547d892591067aa4026a7fa9a6819df9f303af6fc   0.0s
 => [internal] load build context                                                             0.0s
 => => transferring context: 292B                                                             0.0s
 => CACHED [2/6] WORKDIR /app                                                                 0.0s
 => [3/6] ADD . /app                                                                          0.0s
 => [4/6] COPY requirements.txt /app                                                          0.0s
 => [5/6] RUN python3 -m pip install -r requirements.txt                                      5.7s
 => [6/6] RUN python3 -m pip install ibm_db                                                 400.6s
 => exporting to image                                                                        0.8s
 => => exporting layers                                                                       0.7s
 => => writing image sha256:c978f0dadaefc509e6a60020e5640f17a4aae981c58d3f7c7c416ec0c88fcbac  0.0s
 => => naming to docker.io/library/assignment-four                                            0.0s

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

D:\OneDrive\Desktop\IBM Docs\Assigments\assignment-four>
```

```
ago      43.6MB
cker/desktop-git-helper                    c1e302e18fba86bb07f6b657155011bd6791dfc5                                352f04e41a19
ago      45.8MB
bproxy.docker.internal:5000/docker/desktop-kubernetes   kubernetes-v1.25.2-cni-v1.1.1-critools-v1.24.2-cri-dockerd-v0.2.5-1-debian   69d7e1dbc2c4
ago      363MB
s.gcr.io/kube-apiserver                    v1.25.2                                                                 97801f839490
ago      128MB
s.gcr.io/kube-scheduler                    v1.25.2                                                                 ca0ea1ee3cfd
ago      50.6MB
s.gcr.io/kube-controller-manager           v1.25.2                                                                 dbfceb93c69b
ago      117MB
s.gcr.io/kube-proxy                        v1.25.2                                                                 1c7d8c51823b
ago      61.7MB
s.gcr.io/pause                             3.8                                                                     4873874c08ef
 ago     711kB
s.gcr.io/etcd                              3.5.4-0                                                                 a8a176a5d5d6
 ago     300MB
s.gcr.io/coredns                           v1.9.3                                                                  5185b96f0bec
 ago     48.8MB
cker/getting-started                       latest                                                                  cb90f98fd791
 ago     28.8MB
cker/desktop-git-helper                    5a4fca126aadcd3f6cc3a011aa991de982ae7000                                efe2d67c403b
s ago    44.2MB
cker/desktop-vpnkit-controller             v2.0                                                                    8c2c38aa676e
s ago    21MB
cker/desktop-storage-provisioner           v2.0                                                                    99f89471f470
s ago    41.9MB

\OneDrive\Desktop\IBM Docs\Assigments\assignment-four>docker run -p 5000:5000 assignment-four
 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: on
 Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
 Restarting with stat
```
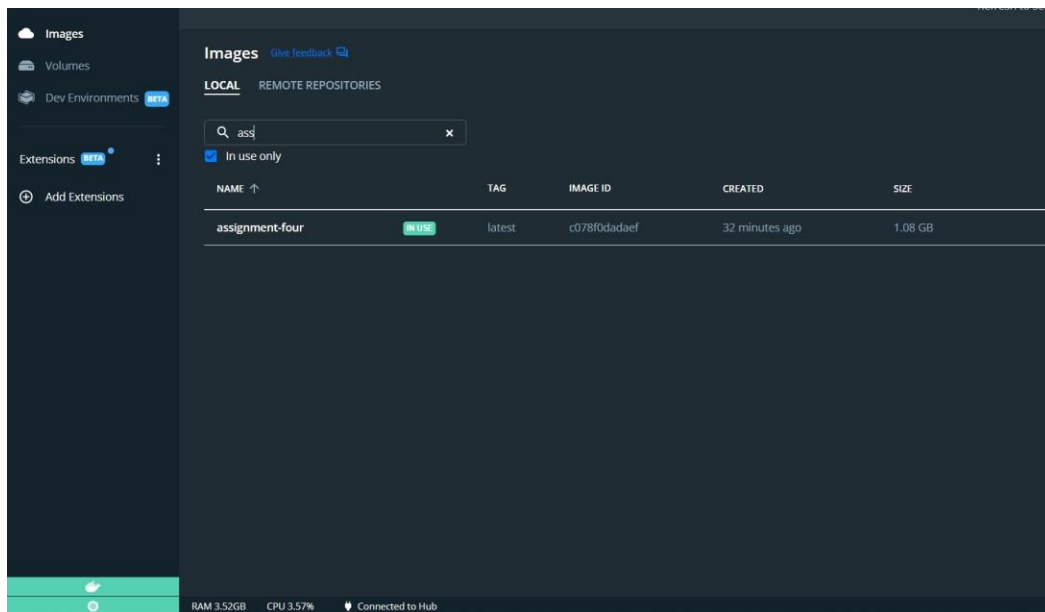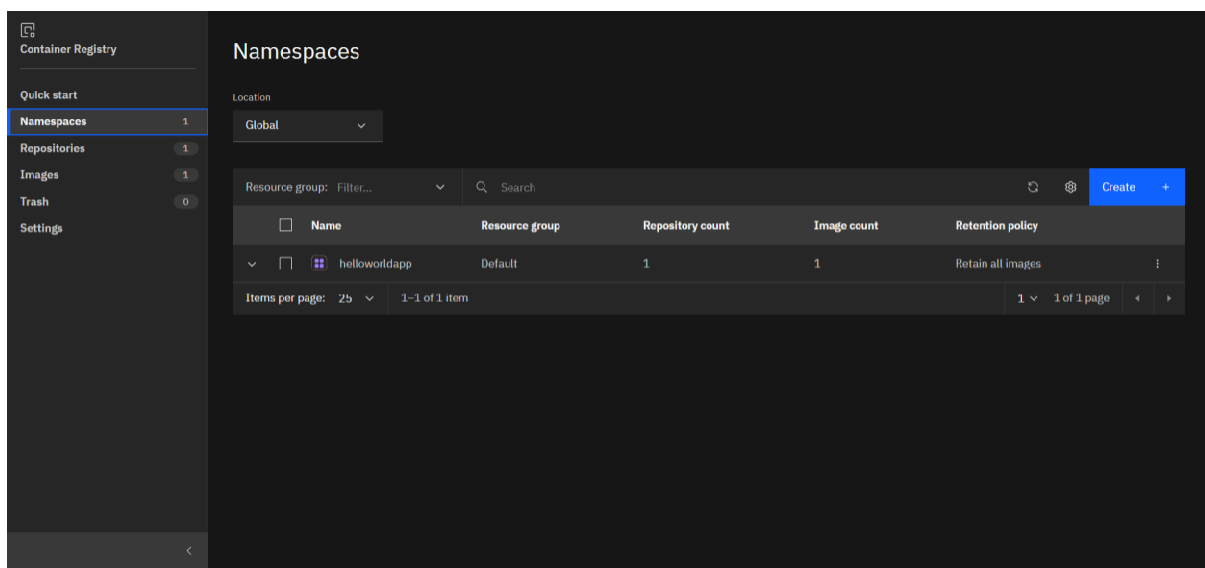
Hello World

Question-3:

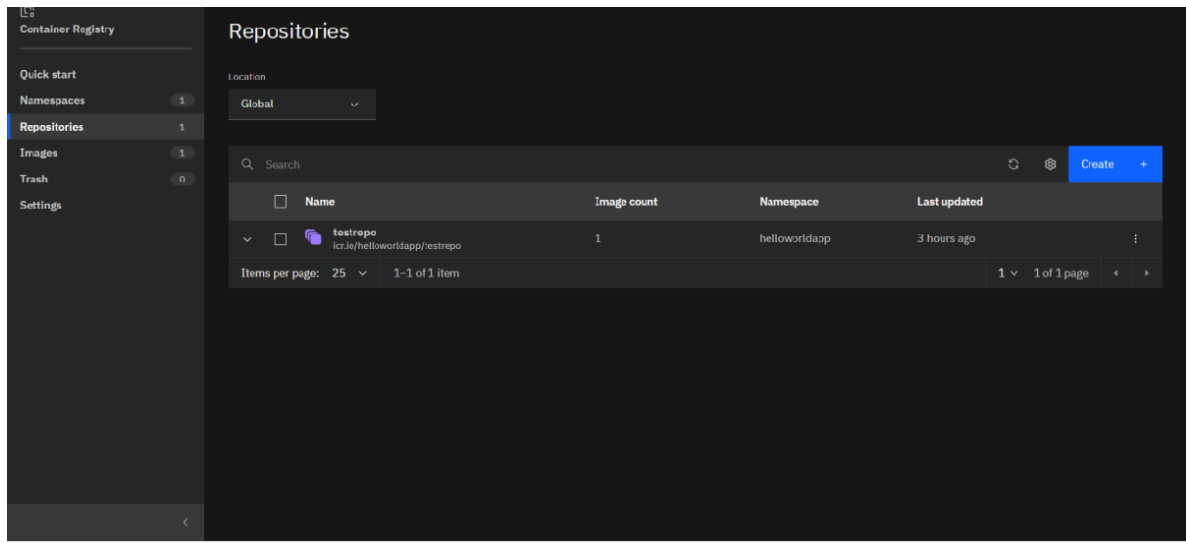CreateaIBMcontainerregistryanddeployhelloworldappor nutrition app.

```
C:\Users\ASUS>docker push icr.io/helloworldapp/testrepo:helloworldtest
The push refers to repository [icr.io/helloworldapp/testrepo]
7f54fa305bac: Pushed
22a411d35e51: Pushed
3b94bdb2ef50: Pushed
9ea062ac7e5d: Pushed
78ac81885ac4: Pushed
aa4c808c19f6: Pushed
8ba9f690e8ba: Pushed
3e607d59ef9f: Pushed
1e18e7e1fcc2: Pushed
c3a0d593ed24: Pushed
26a504e63be4: Pushed
8b42db0de72: Pushed
31892cc314cb: Pushed
11936051f93b: Pushed
helloworldtest: digest: sha256:78e5bb538c5b55c5827f0eecf765cb3690a4cf37ec0195dc98cb222669f0155e size: 3262

C:\Users\ASUS>ibmcloud cr image-list
Listing images...

Repository                      Tag             Digest          Namespace       Created       Size      Security status
icr.io/helloworldapp/testrepo   helloworldtest  78e5bb538c5b    helloworldapp   2 hours ago   435 MB    -

OK

C:\Users\ASUS>
```

Container Registry

Quick start
Namespaces   1
Repositories   1
Images   1
Trash   0
Settings

Repositories

Location

Global

	Name	Image count	Namespace	Last updated	
	testrepo icr.io/helloworldapp/:estrepo	1	helloworldapp	3 hours ago	

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Question-4:

CreateaKubernetesclusterinIBMcloudanddeployhelloworldimageornu tritionimageand alsoexposethe sameapp toruninnodeport.