Assignment - 4
Docker and Kubernetes

Assignment Date	8 November 2022
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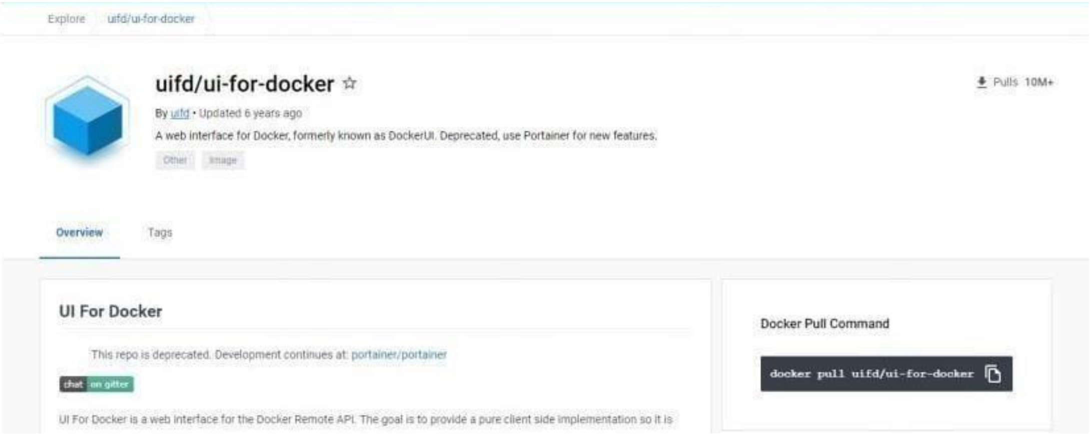
Student Roll Number	913019104013
Maximum Marks	2 Marks

Questions:

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

Solution:

```
docker run --rm -p 8787:8787 rocker/verse
docker pull rocker/verse
docker login --username=nishanthc --email=ssnehasri178@gmail.com
WARNING: login credentials saved in
/home/nishanthc/.docker/config.jsonLogin Succeeded

REPOSITORY        TAG     IMAGE ID      CREATED       SIZE
verse_gapminder_gsl     latest    023ab91c6291     3 minutes ago     1.975
GB verse_gapminder      latest    bb38976d03cf   13 minutes ago 1.955 GB
rocker/verse            latest    0168d115f220     3 days ago       1.954 GB
docker tag bb38976d03cf nishanthc
/verse_gapminder:firsttry
docker push nishanthc
/verse_gapminder

Saving and loading
images docker save
verse_gapminder
docker save verse_gapminder > verse_gapminder.tar
docker load --input verse_gapminder.tar
docker load --input verse_gapminder.tar
```



uifd/ui-for-docker ☆

By uifd • Updated 6 years ago

A web interface for Docker, formerly known as DockerUI. Deprecated, use Portainer for new features.

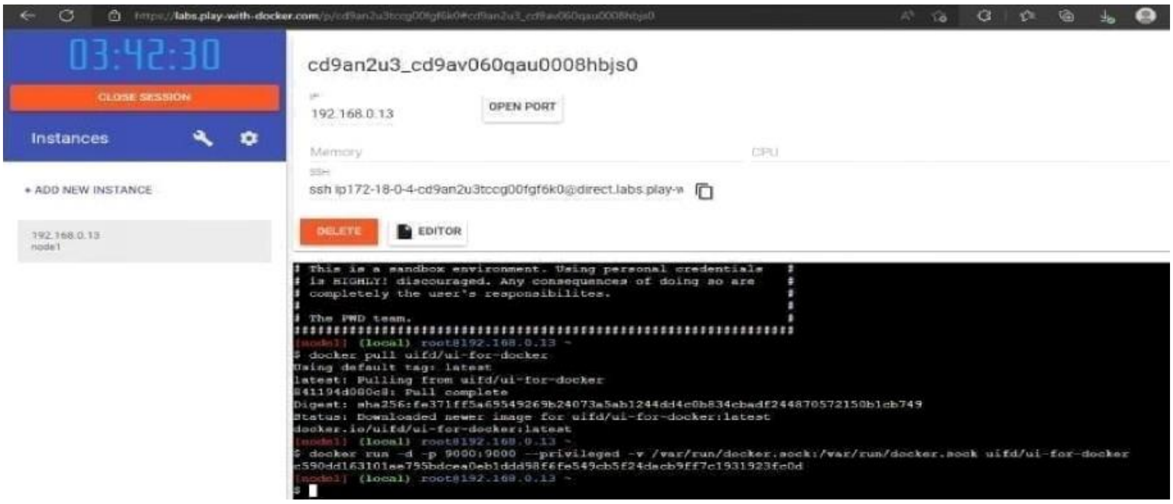
UI For Docker

This repo is deprecated. Development continues at: portainer/portainer

UI For Docker is a web interface for the Docker Remote API. The goal is to provide a pure client side implementation so it is

Docker Pull Command

```
docker pull uifd/ui-for-docker
```

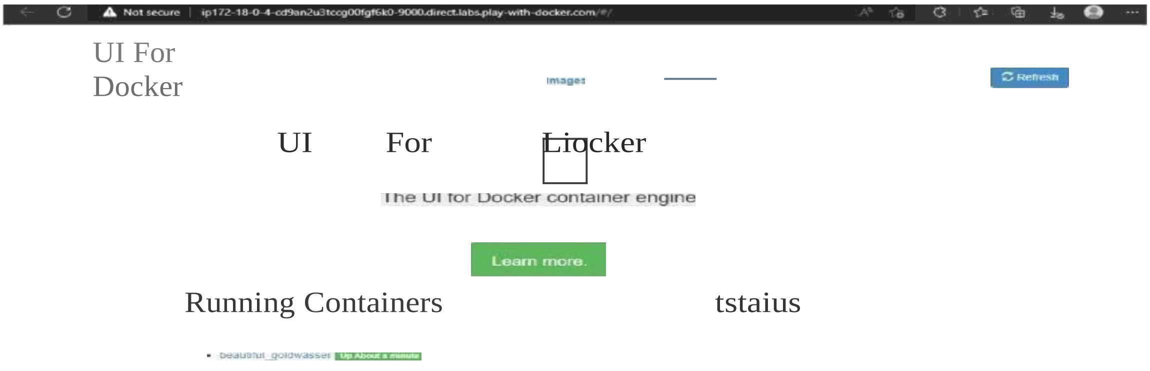


cd9an2u3_cd9av060qau0008hbjs0

IP: 192.168.0.13

ssh ip172-18-0-4-cd9an2u3tccg00fgf6k0@direct.labs.play-w

```
# This is a sandbox environment. Using personal credentials   #
# is HIGHLY! discouraged. Any consequences of doing so are    #
# completely the user's responsibilites.                      #
#                                                             #
# The PWD team.                                               #
###############################################################
[node1] (local) root@192.168.0.13 ~
$ docker pull uifd/ui-for-docker
Using default tag: latest
latest: Pulling from uifd/ui-for-docker
841194d080c8: Pull complete
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834cbadf244870572150b1cb749
Status: Downloaded newer image for uifd/ui-for-docker:latest
docker.io/uifd/ui-for-docker:latest
[node1] (local) root@192.168.0.13 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
c590dd163101ae755bdcea0eb1ddd58f6fe549cb5f24dacb9ff7c1931923fc0d
[node1] (local) root@192.168.0.13 ~
$ 
```



Not secure | ip172-18-0-4-cd9an2u3tccg00fgf6k0-9000.direct.labs.play-with-docker.com/#/
Images
Refresh
Learn more.

UI For
Docker

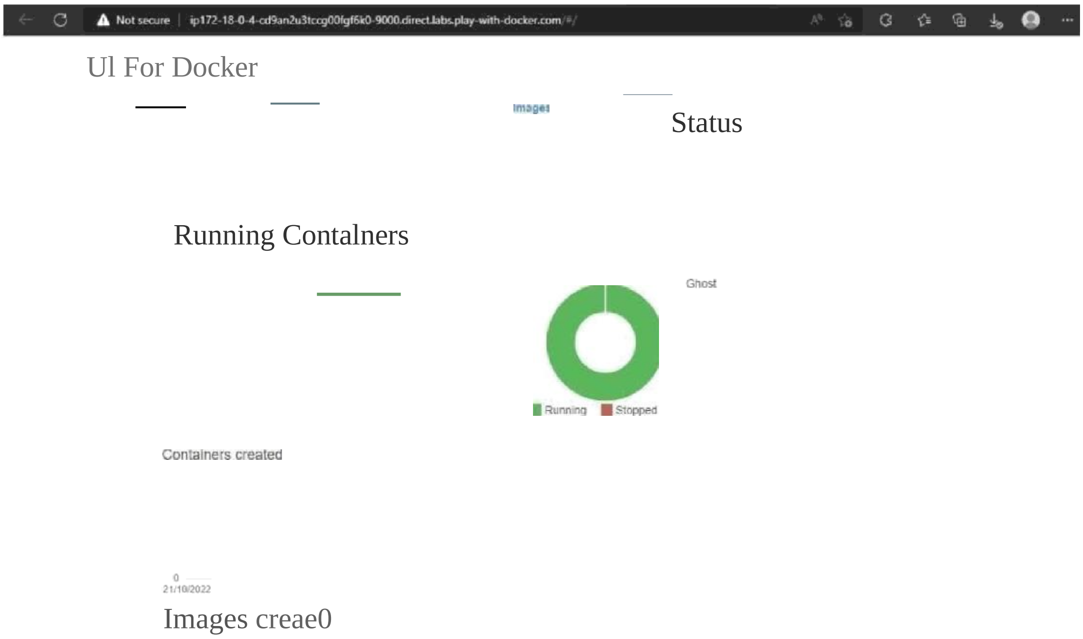
UI For Liocker

The UI for Docker container engine

Running Containers

tstaius

- beautiful_goldwasser Up About a minute



Not secure | ip172-18-0-4-cd9an2u3tccg00fgf6k0-9000.direct.labs.play-with-docker.com/#/
Images
Ghost
🟩 Running
🟥 Stopped
0
21/10/2022

Ul For Docker

Status

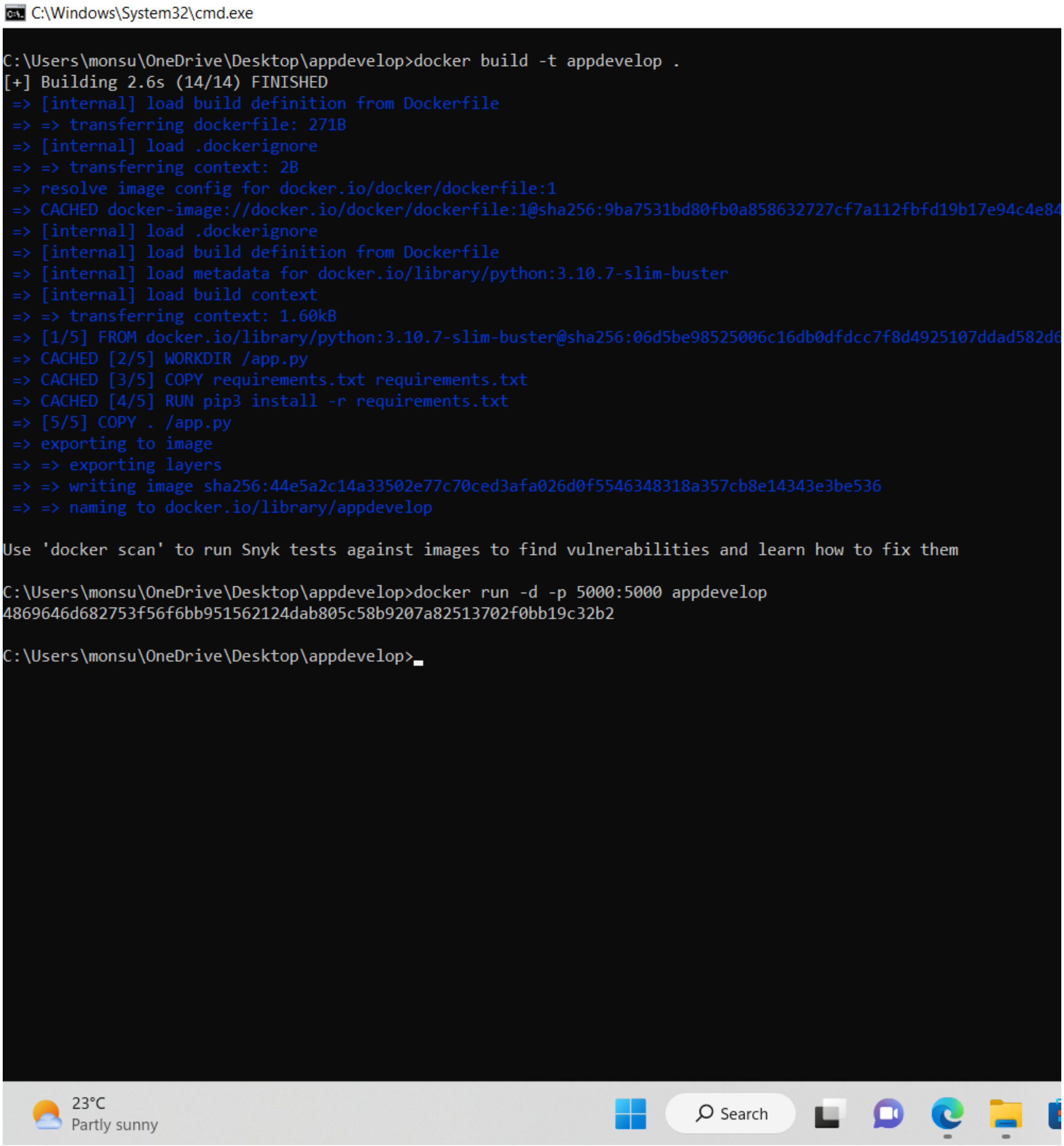
Running Contalners

Containers created

Images creae0

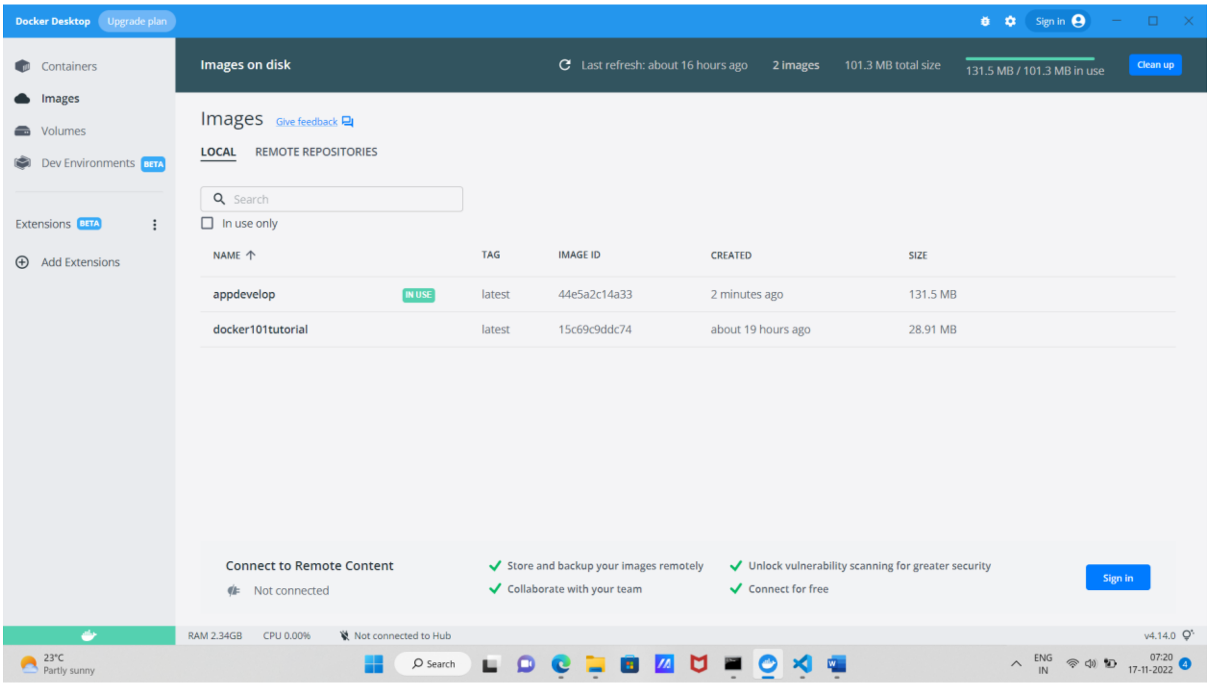
2. Create a docker file for the flask application and deploy it in Docker desktop application.

SOLUTION:



```
C:\Users\monsu\OneDrive\Desktop\appdevelop>docker build -t appdevelop .
[+] Building 2.6s (14/14) FINISHED
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 271B
 => [internal] load .dockerignore
 => => transferring context: 2B
 => resolve image config for docker.io/docker/dockerfile:1
 => CACHED docker-image://docker.io/docker/dockerfile:1@sha256:9ba7531bd80fb0a858632727cf7a112fbfd19b17e94c4e84
 => [internal] load .dockerignore
 => [internal] load build definition from Dockerfile
 => [internal] load metadata for docker.io/library/python:3.10.7-slim-buster
 => [internal] load build context
 => => transferring context: 1.60kB
 => [1/5] FROM docker.io/library/python:3.10.7-slim-buster@sha256:06d5be98525006c16db0dfdcc7f8d4925107ddad582d6
 => CACHED [2/5] WORKDIR /app.py
 => CACHED [3/5] COPY requirements.txt requirements.txt
 => CACHED [4/5] RUN pip3 install -r requirements.txt
 => [5/5] COPY . /app.py
 => exporting to image
 => => exporting layers
 => => writing image sha256:44e5a2c14a33502e77c70ced3afa026d0f5546348318a357cb8e14343e3be536
 => => naming to docker.io/library/appdevelop

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

C:\Users\monsu\OneDrive\Desktop\appdevelop>docker run -d -p 5000:5000 appdevelop
4869646d682753f56f6bb951562124dab805c58b9207a82513702f0bb19c32b2

C:\Users\monsu\OneDrive\Desktop\appdevelop>
```

Image :



Images on disk

Last refresh: about 16 hours ago 2 images 101.3 MB total size 131.5 MB / 101.3 MB in use

Images

□ In use only

NAME ↑		TAG	IMAGE ID	CREATED	SIZE
appdevelop	IN USE	latest	44e5a2c14a33	2 minutes ago	131.5 MB
docker101tutorial		latest	15c69c9ddc74	about 19 hours ago	28.91 MB

Connect to Remote Content

Not connected

✓ Store and backup your images remotely

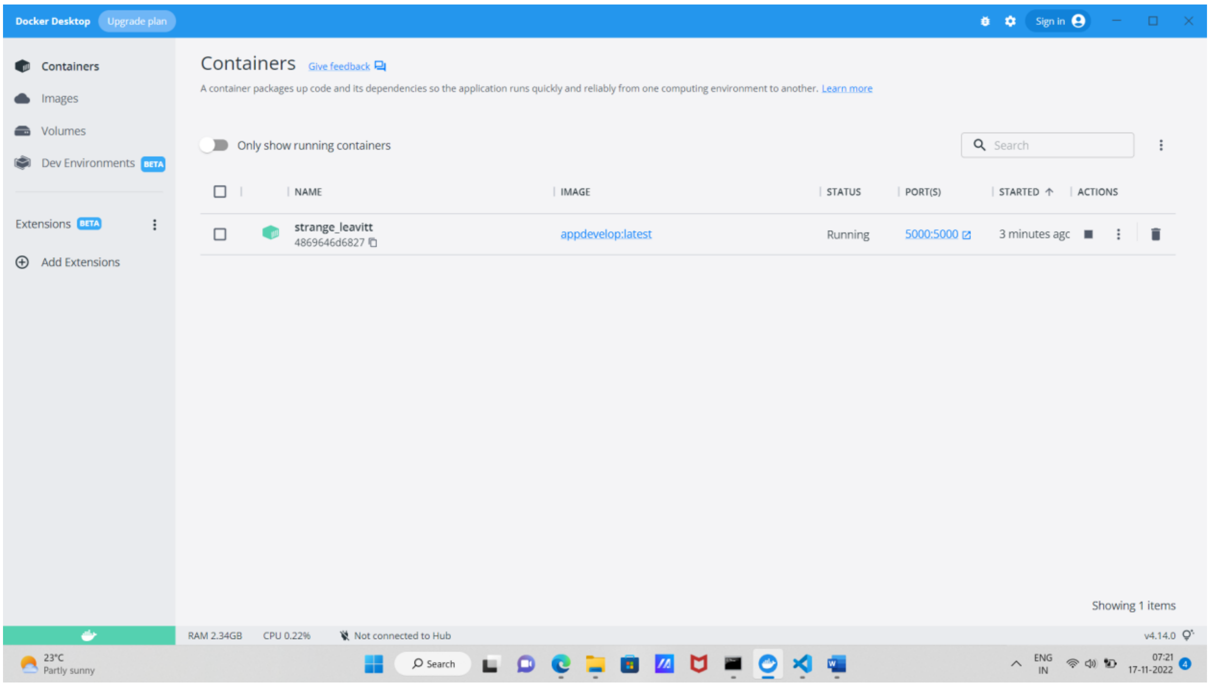
✓ Collaborate with your team

✓ Unlock vulnerability scanning for greater security

✓ Connect for free

RAM 2.34GB CPU 0.00% Not connected to Hub v4.14.0

Running in docker desktop:



Containers

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

□		NAME	IMAGE	STATUS	PORT(S)	STARTED ↑	ACTIONS
□		strange_leavitt 4869646d6827	appdevelop:latest	Running	5000:5000	3 minutes agc	

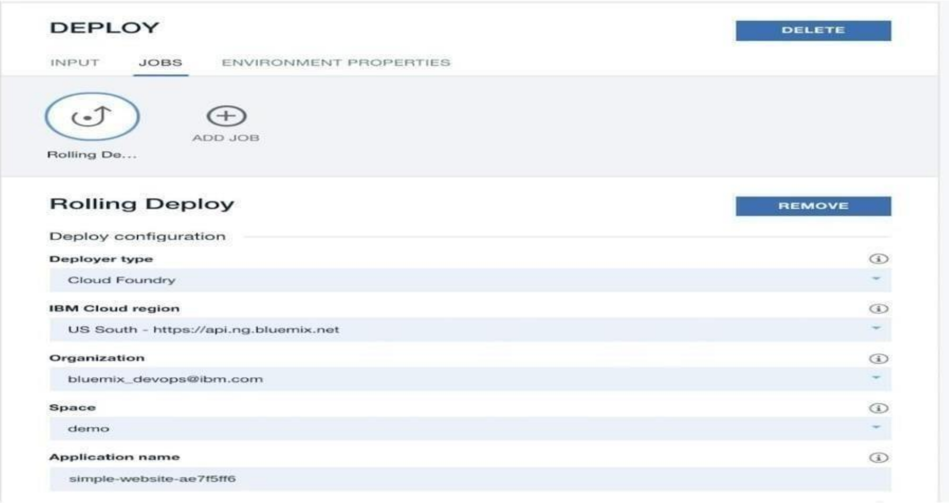
Showing 1 items

RAM 2.34GB CPU 0.22% Not connected to Hub v4.14.0

3. **Create a IBM container registry and deploy helloworld app or jobportalapp.**

Solution:

```
        <html>
    <body>
        Hello, IBM Cloud World!
    </body>
</html>-
--
applicati
ons:
- buildpack: https://github.com/cloudfoundry/staticfile-
  buildpack.git host: simple-website-${random}
  name: simple-website-
  ${random} memory: 64M
  stack: cflinuxfs2
```



Rolling Deploy

Deploy configuration

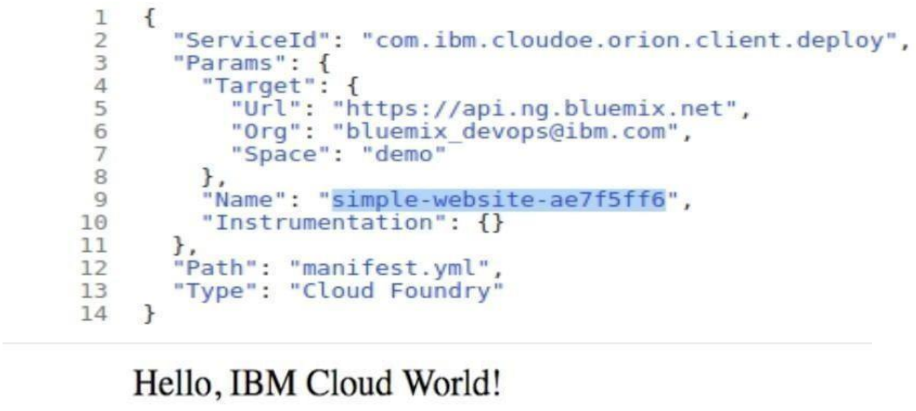
Deployer type: Cloud Foundry

IBM Cloud region: US South - https://api.ng.bluemix.net

Organization: bluemix_devops@ibm.com

Space: demo

Application name: simple-website-ae7f5ff6



```
{
  "ServiceId": "com.ibm.cloudoe.orion.client.deploy",
  "Params": {
    "Target": {
      "Url": "https://api.ng.bluemix.net",
      "Org": "bluemix_devops@ibm.com",
      "Space": "demo"
    },
    "Name": "simple-website-ae7f5ff6",
    "Instrumentation": {}
  },
  "Path": "manifest.yml",
  "Type": "Cloud Foundry"
}
```

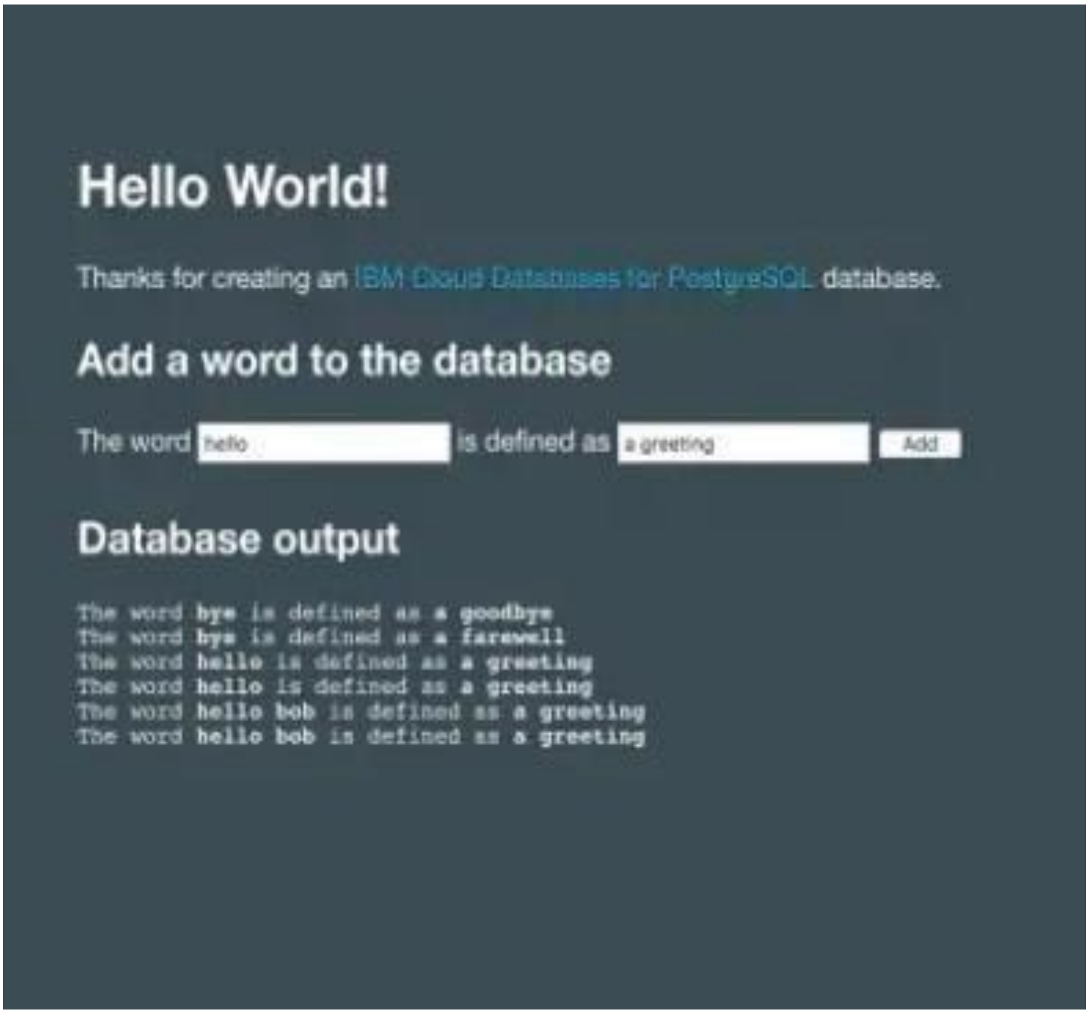
Hello, IBM Cloud World!

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:

```
ibmcloud target -g <resource_group_name>ibmcloud cr nishanthc-add
<your_nishanthc>ibmcloudresource service-instance-create example-postgresql databases-for-
postgresql standard us- southibmcloud ks cluster-service-bind mycluster default example-
postgresqlgit clone -b node git@github.com:IBM-Cloud/clouddatabases-helloworld-kubernetes-
examples.gitspec:

    replicas: 3name: cloudpostgres-nodejs-app

  image: "registry.<region>.bluemix.net/<namespace>/icdpg" # Edit me

  imagePullPolicy: Alwaysibmcloud cr regionYou are targeting region 'us-south', the registry is
'registry.ng.bluemix.net'.ibmcloud cr build -t registry.ng.bluemix.net/<namespace>/icdpg .ibmcloud
cr images

env:

       - name:

        BINDING

        valueFrom:

         secretKeyRef:

          name: <postgres-secret-name> # Edit me

          key: binding

apiVersion:

v1 kind:

Service

metadata:

 name: cloudpostgres-service

 labels:

  run: clouddb-demo

spec:

 type: NodePort

 selector:

  run: clouddb-demo

 ports:

 - protocol:

  TCP port:

  8080

  nodePort: 30081
```

```
kubectl apply -f clouddb-deployment.yml
deployment.apps/icdpostgres-app created
service/cloudpostgres-service created
kubectl get pods -o wideibmcloud ks workers <your_cluster_name>
```



Hello World!

Thanks for creating an IBM Cloud Databases for PostgreSQL database.

Add a word to the database

The word hello is defined as a greeting

Database output

```
The word bye is defined as a goodbye
The word bye is defined as a farewell
The word hello is defined as a greeting
The word hello is defined as a greeting
The word hello bob is defined as a greeting
The word hello bob is defined as a greeting
```