

# Assignment 4

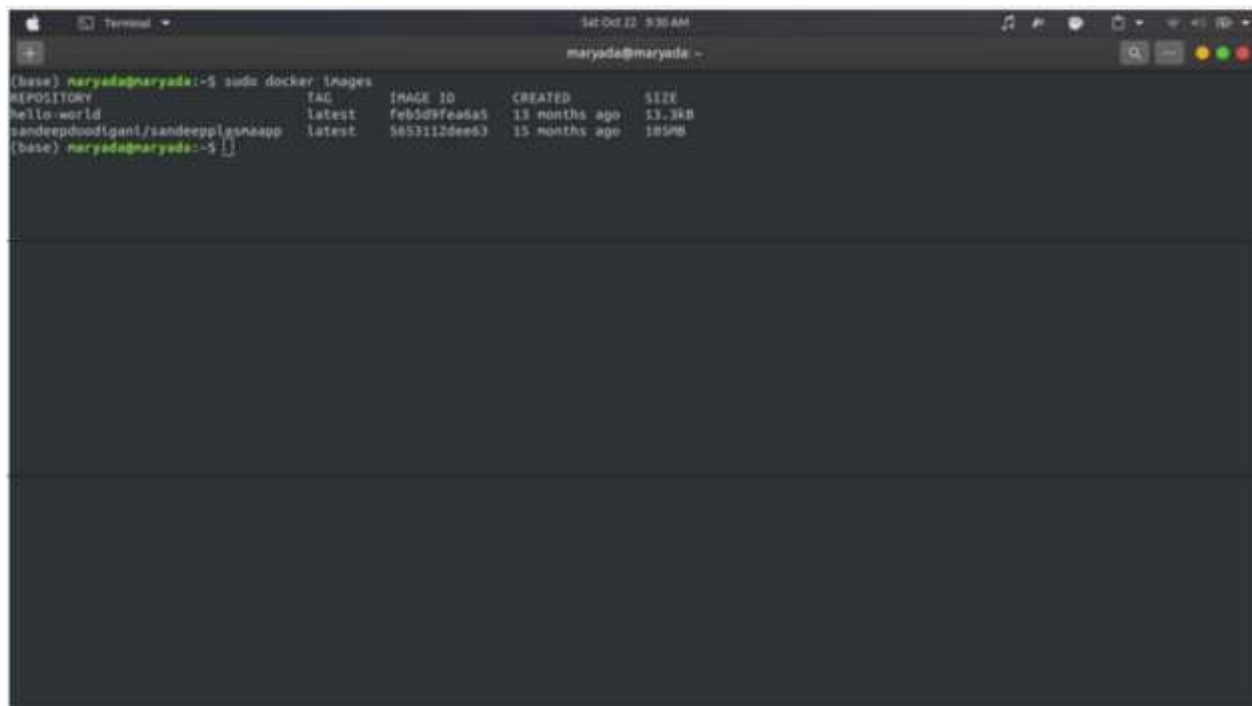
## Kubernetes / Docker

### Inventory Management Application:

Team ID : PNT2022TMID05629

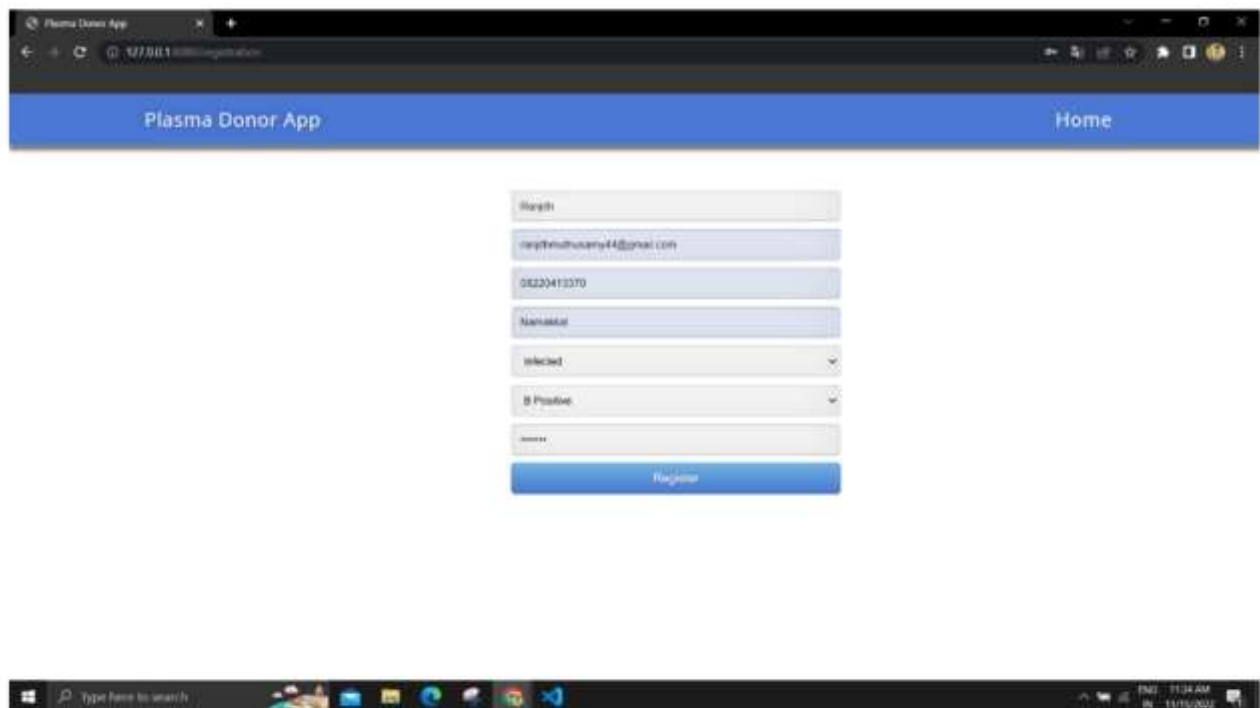
Name : Nalayathiran

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

A screenshot of a macOS Terminal window. The title bar shows 'Terminal' and the date 'Sat Oct 12 9:30 AM'. The prompt is 'maryada@maryada: ~'. The user has entered the command 'sudo docker images'. The output is a table with columns: TAG, IMAGE ID, CREATED, and SIZE. The table lists three images: 'hello-world' (latest, feb5d97fead6, 13 months ago, 13.3kB), 'sandeepdodigani/sandeepplgsnaapp' (latest, 5653112dee63, 15 months ago, 185MB), and '(base) maryada@maryada: ~\$'.

TAG	IMAGE ID	CREATED	SIZE
hello-world	feb5d97fead6	13 months ago	13.3kB
sandeepdodigani/sandeepplgsnaapp	5653112dee63	15 months ago	185MB

```
Terminal - Sat Oct 22 9:31 AM
maryada@maryada: ~
(base) maryada@maryada:~$ sudo docker run -p 8080:8080 sandeepdoodigani/sandeepplasmaapp
* 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://172.17.0.2:8080/ (Press CTRL+C to quit)
```



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

### Dockerfile:

FROM python:3.6

WORKDIR /app

ADD . /app

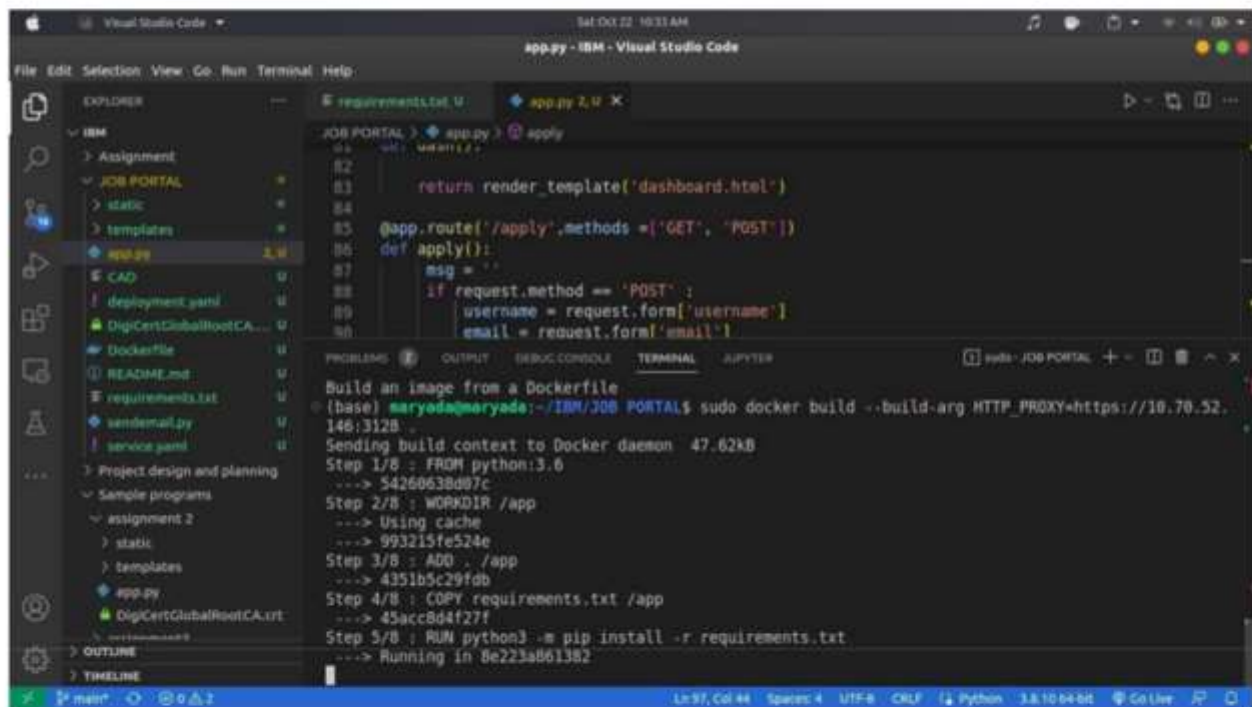
COPY requirements.txt /app

RUN python3 -m pip install -r requirements.txt

RUN python3 -m pip install ibm\_db

EXPOSE 5000

CMD ["python", "app.py"]



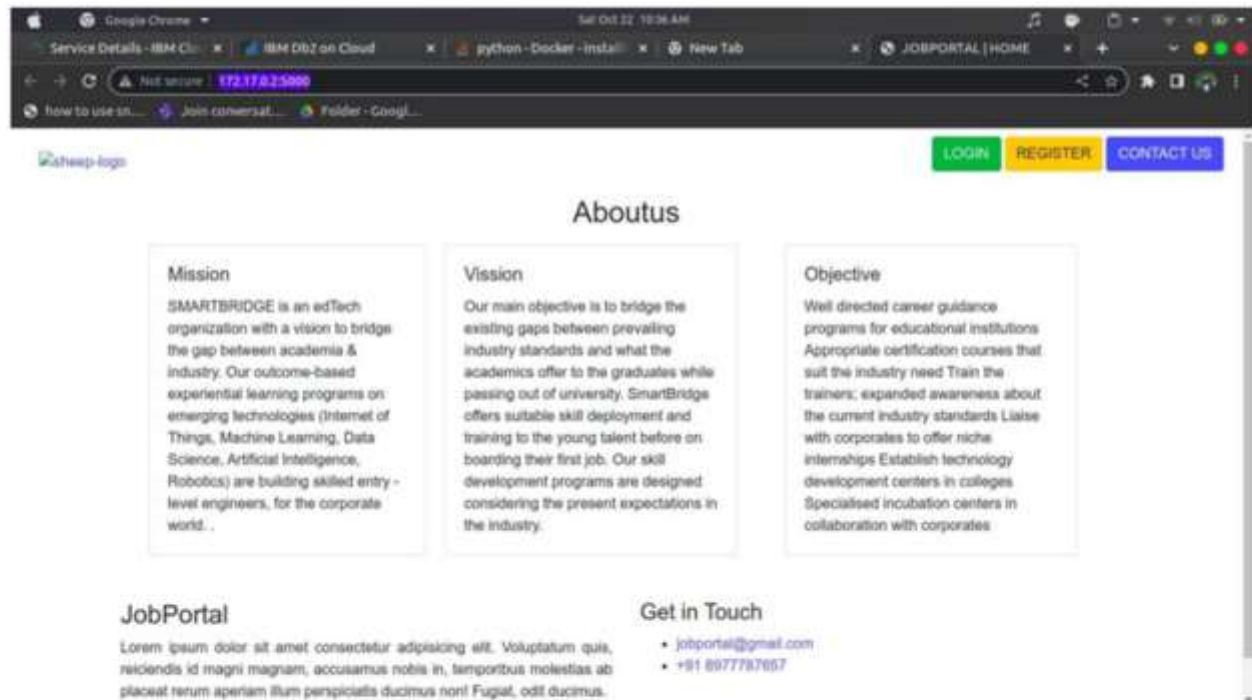
The screenshot shows the Visual Studio Code interface with the Dockerfile build process for the jobportal application. The Explorer pane on the left shows the project structure, including the Dockerfile. The Output pane at the bottom shows the build steps and their results.

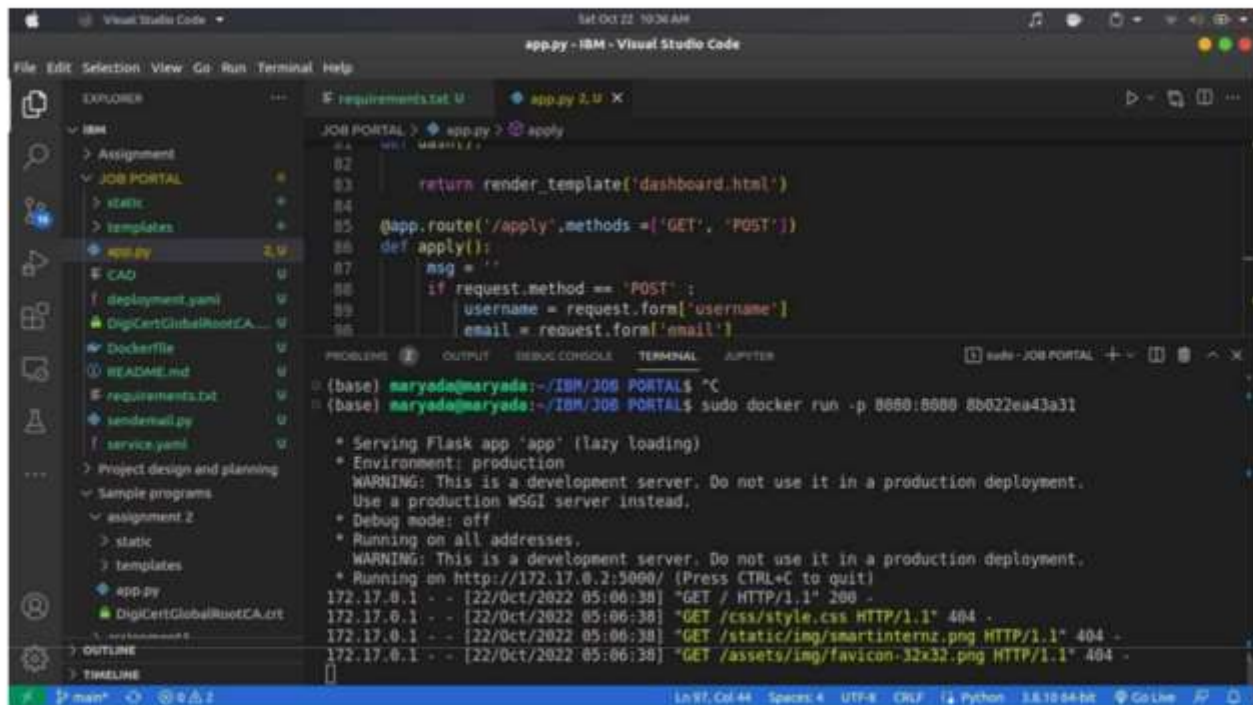
```
Build an image from a Dockerfile
(base) maryoda@maryoda:~/IBM/JOB PORTAL$ sudo docker build --build-arg HTTP_PROXY=https://10.70.52.146:3128 .
Sending build context to Docker daemon 47.62kB
Step 1/8 : FROM python:3.6
--> 54260638d07c
Step 2/8 : WORKDIR /app
--> Using cache
--> 993215fe524e
Step 3/8 : ADD . /app
--> 4351b5c29fdb
Step 4/8 : COPY requirements.txt /app
--> 45acc8d4f27f
Step 5/8 : RUN python3 -m pip install -r requirements.txt
--> Running in 8e223a861382
```

```
JOB PORTAL > app.py > apply
82
83     return render_template('dashboard.html')
84
85 @app.route('/apply', methods = ['GET', 'POST'])
86 def apply():
87     msg = ''
88     if request.method == 'POST':
89         username = request.form['username']
90         email = request.form['email']
```

```
Step 8/8 : CMD ["python","app.py"]
--> Running in e76a612bbca1
Removing intermediate container e76a612bbca1
--> 8b022ea43a31
Successfully built 8b022ea43a31

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix the
#
(base) meryada@meryada:~/IBM/JOB PORTAL$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
<none>              <none>             8b022ea43a31       12 seconds ago     1.06GB
<none>              <none>             32695b39400c       26 minutes ago     902MB
python               3.6                54268638d07c       10 months ago      902MB
hello-world          latest             feb5d9fea6a5       13 months ago      13.3kB
sandeepdoodigani/sandeepplasmaapp latest             5653112dee63       15 months ago      105MB
(base) meryada@meryada:~/IBM/JOB PORTAL$
```





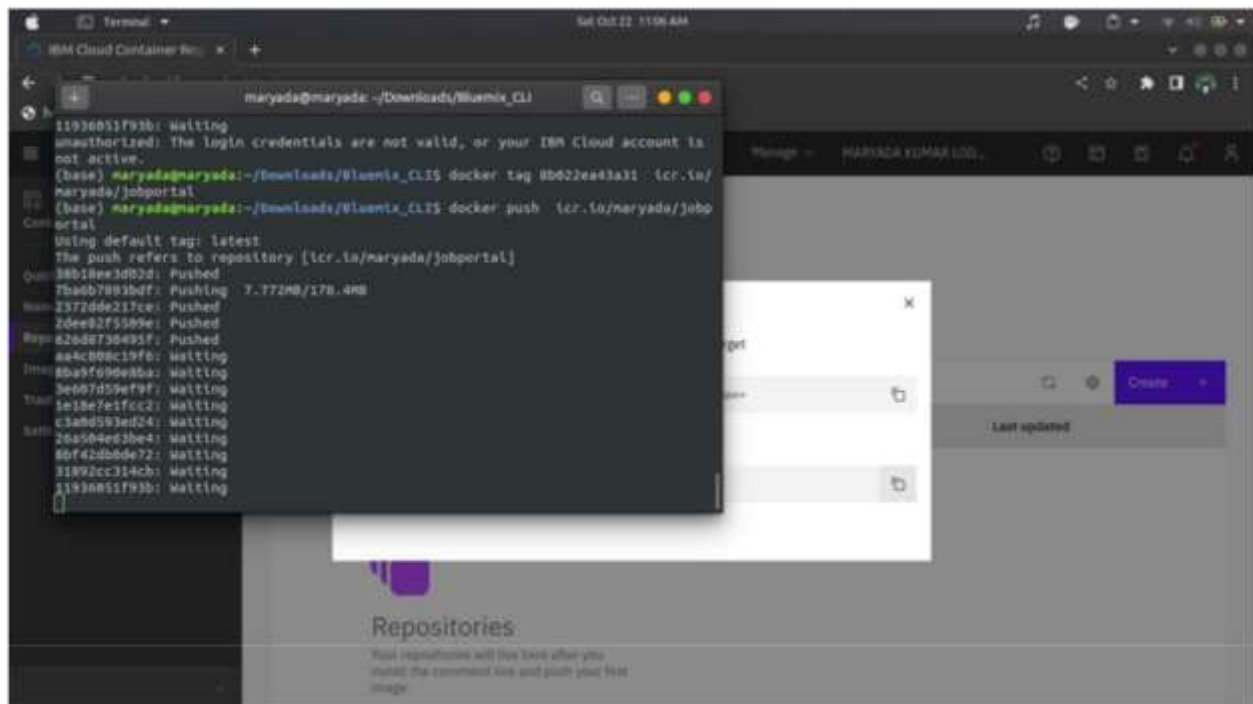
The screenshot shows the Visual Studio Code editor with a file explorer on the left displaying a project structure for 'JOB PORTAL'. The main editor window shows the 'app.py' file with the following code:

```
82 return render_template('dashboard.html')
83
84 @app.route('/apply', methods = ['GET', 'POST'])
85 def apply():
86     msg = ''
87     if request.method == 'POST':
88         username = request.form['username']
89         email = request.form['email']
```

The terminal window at the bottom shows the command `sudo docker run -p 8080:8080 8b622ea43a31` and the output of the application, which includes Flask's startup messages and a list of incoming HTTP requests:

```
(base) maryada@maryada:~/IBM/JOB PORTALS$ sudo docker run -p 8080:8080 8b622ea43a31
* 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 05:06:38] "GET / HTTP/1.1" 200 -
172.17.0.1 - - [22/Oct/2022 05:06:38] "GET /css/style.css HTTP/1.1" 404 -
172.17.0.1 - - [22/Oct/2022 05:06:38] "GET /static/img/smartinternz.png HTTP/1.1" 404 -
172.17.0.1 - - [22/Oct/2022 05:06:38] "GET /assets/img/favicon-32x32.png HTTP/1.1" 404 -
```

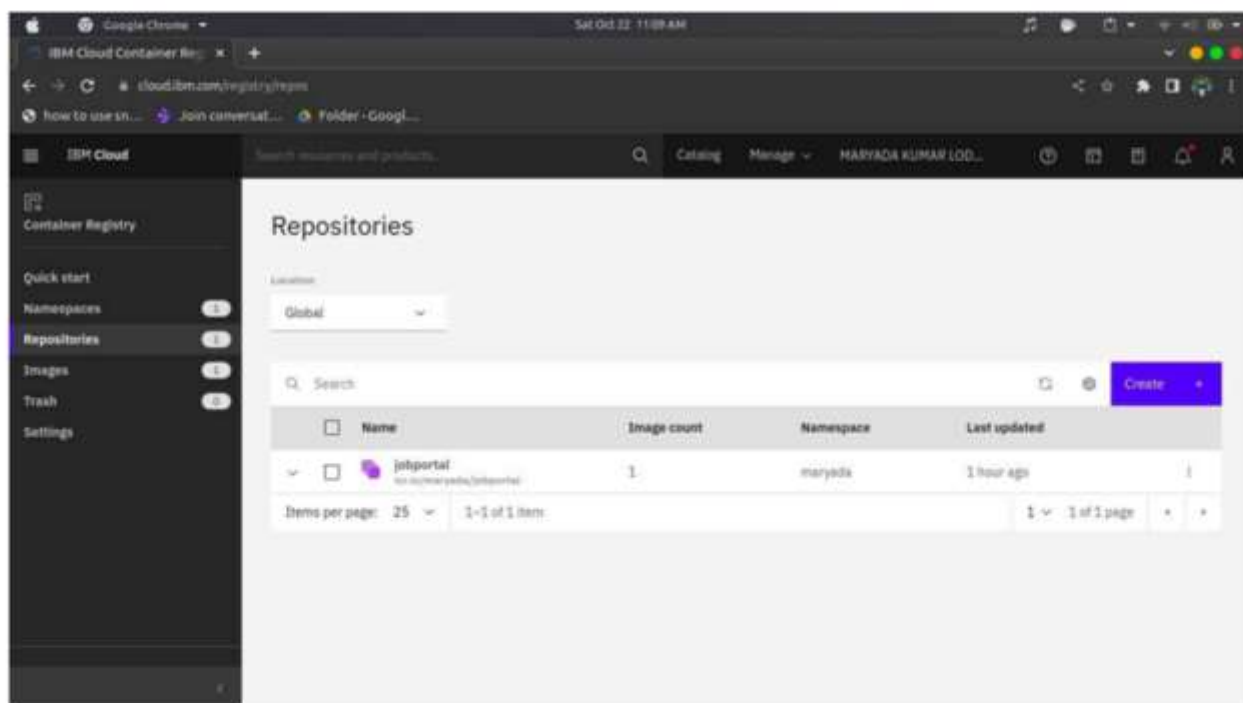
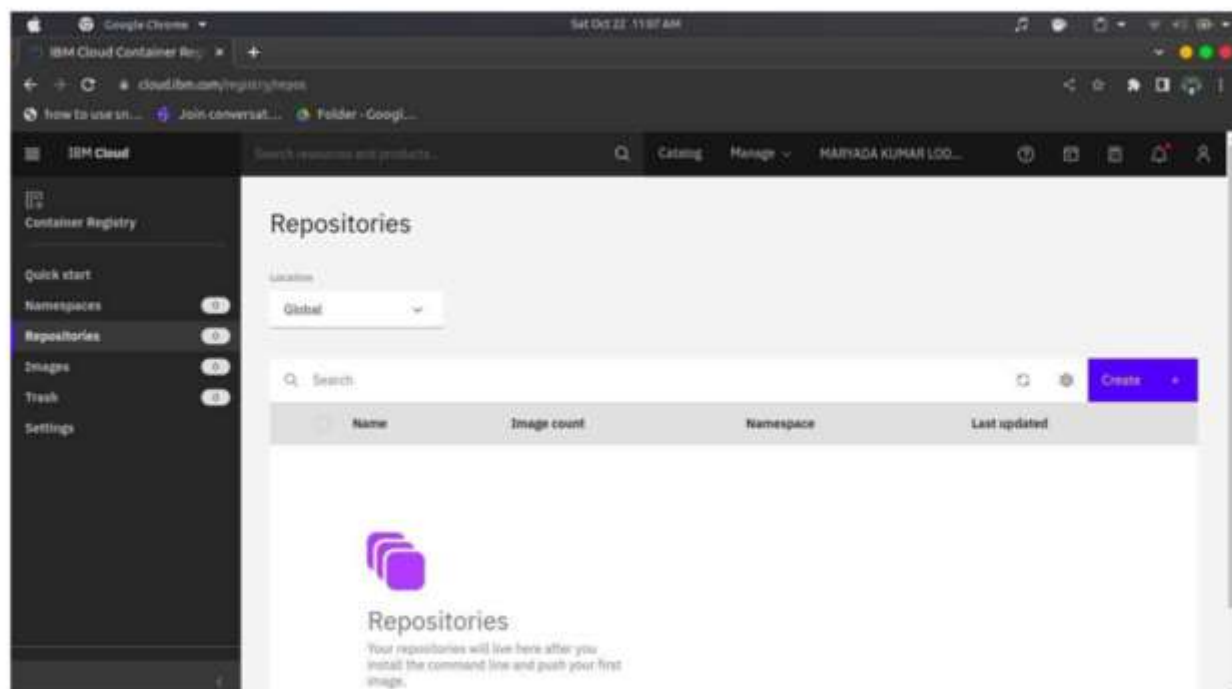
### 3. Create a IBM container registry and deploy helloworld app or jobportalapp.



The screenshot shows a terminal window with the following commands and output:

```
maryada@maryada: ~/Downloads/Bluemix_CLI
11930851f93b: Waiting
unauthorized: The login credentials are not valid, or your IBM Cloud account is
not active.
(base) maryada@maryada:~/Downloads/Bluemix_CLI$ docker tag 8b622ea43a31 icr.io/
maryada/jobportal
(base) maryada@maryada:~/Downloads/Bluemix_CLI$ docker push icr.io/maryada/job
portal
Using default tag: latest
The push refers to repository [icr.io/maryada/jobportal]
38018ee3d92d: Pushed
75adb7893bdf: Pushing 7.772MB/178.4MB
2372dde217ce: Pushed
2dee02f5589e: Pushed
e2e0d8736495f: Pushed
aa4c88dc19fe: Waiting
8ba9f69d98ba: Waiting
3e607d59ef9f: Waiting
1e18e7e1fc2d: Waiting
c3ab053a1d2d: Waiting
26a504ed3be4: Waiting
80f42db0e72d: Waiting
31892cc314cb: Waiting
11930851f93b: Waiting
```

The background shows the IBM Cloud Container Registry interface, which includes a 'Repositories' section and a 'Create' button.



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.

