Practical - 6

AIM : Deployment of ML project using Flask.

Task 1: Ensure that the required libraries are installed
pip install Flask
pip install gunicorn

Task 2: Create the docker file using the steps described in theory material.

a) Create a Dockerfile :

```
FROM python:3.8-slim
WORKDIR /app
COPY . /app
RUN pip install --no-cache-dir -r requirements.txt
EXPOSE 80
ENV NAME World CMD ["gunicorn", "--bind", "0.0.0.0:80", "app:app"]
```

b) Create a requirement.txt file :

```
scikit-learn==0.24.2
pandas==1.3.3
numpy==1.21.2
gunicorn==20.1.0
Flask==2.0.2
Werkzeug==2.0.2
```

c) Create a Docker Image :

```
PS E:\7sem\MLOPS\practicals\wordfiles\practical_6> docker build -t tirth E:\7sem\MLOPS\practicals\wordfiles\practical_6
[+] Building 121.4s (9/9) FINISHED
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 568B
 => [internal] load metadata for docker.io/library/python:3.8-slim
 => [internal] load build context
 => => transferring context: 698B
 => [1/4] FROM docker.io/library/python:3.8-slim@sha256:3cb3ea0dfa00f89921c9e780618c515a7cbb5f0e0c531dc9b657cf9f155f3a66
 => => resolve docker.io/library/python:3.8-slim@sha256:3cb3ea0dfa00f89921c9e780618c515a7cbb5f0e0c531dc9b657cf9f155f3a66
 => => sha256:442c5d63eafd969b755d7c8e0914319677ca8d5112a84e851b16677a4fc1d189 3.32MB / 3.32MB
 => => sha256:3cb3ea0dfa00f89921c9e780618c515a7cbb5f0e0c531dc9b657cf9f155f3a66 4.42kB / 4.42kB
 => => sha256:10425670f3dc20aeae4a4b36797109183636cb6896ccded30377a3e24787f055 1.25kB / 1.25kB
 => => sha256:50f30729fa3ef47986ae433e765706c2e85fa0fcf79cd3c8105ad9c96123e02e 6.95kB / 6.95kB
 => => sha256:b5b64aefe47cbfa37759552a8864ab919a9b5a9687ef9089a8d27cb0b8e896df 13.75MB / 13.75MB
 => => sha256:5319590ca294258d4b2bcb339c05af534cdbc4879400b5c36b43ea2e3ff5eccc 233B / 233B
 => => sha256:ef256e9b23e3a9de10cd933f658113bea148b1623f3b3b9749a5488a87a983ae 2.93MB / 2.93MB
 => => extracting sha256:442c5d63eafd969b755d7c8e0914319677ca8d5112a84e851b16677a4fc1d189
 => => extracting sha256:b5b64aefe47cbfa37759552a8864ab919a9b5a9687ef9089a8d27cb0b8e896df
 => => extracting sha256:5319590ca294258d4b2bcb339c05af534cdbc4879400b5c36b43ea2e3ff5eccc
 => => extracting sha256:ef256e9b23e3a9de10cd933f658113bea148b1623f3b3b9749a5488a87a983ae
 => [2/4] WORKDIR /app
 => [3/4] COPY . /app
 => [4/4] RUN pip install --no-cache-dir -r requirements.txt
 => exporting to image
 => => exporting layers
 => => writing image sha256:a35dc89c94601ce7a1228f22c35e54be7e60553e2fcf17b4e516427cf44978ff
 => => naming to docker.io/library/tirth
```

• Check the image is created or not :

```
PS E:\7sem\MLOPS\practicals\wordfiles\practical_6> docker images
REPOSITORY    TAG       IMAGE ID       CREATED          SIZE
tirth         latest    a35dc89c9460   9 minutes ago    477MB
nginx         latest    a6bd71f48f68   9 days ago       187MB
ubuntu        latest    e4c58958181a   8 weeks ago      77.8MB
hello-world   latest    9c7a54a9a43c   6 months ago     13.3kB
PS E:\7sem\MLOPS\practicals\wordfiles\practical_6>
```

```
PS E:\7sem\MLOPS\practicals\wordfiles\practical_6> ls


    Directory: E:\7sem\MLOPS\practicals\wordfiles\practical_6


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
-a----        30-11-2023     17:42            529 Dockerfile
-a----        30-11-2023     18:07         103991 MLOPS_P6_20012531031_Tirth Shah.docx
-a----        30-11-2023     17:45             85 requirements.txt
```

• Locate the file app.py and start build of a project

```
PS E:\7sem\MLOPS\practicals\wordfiles\practical_6> docker run -p 4000:80 tirth
[2023-11-30 16:13:09 +0000] [1] [INFO] Starting gunicorn 20.1.0
[2023-11-30 16:13:09 +0000] [1] [INFO] Listening at: http://0.0.0.0:80 (1)
[2023-11-30 16:13:09 +0000] [1] [INFO] Using worker: sync
[2023-11-30 16:13:09 +0000] [8] [INFO] Booting worker with pid: 8
```