Practical-6

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.

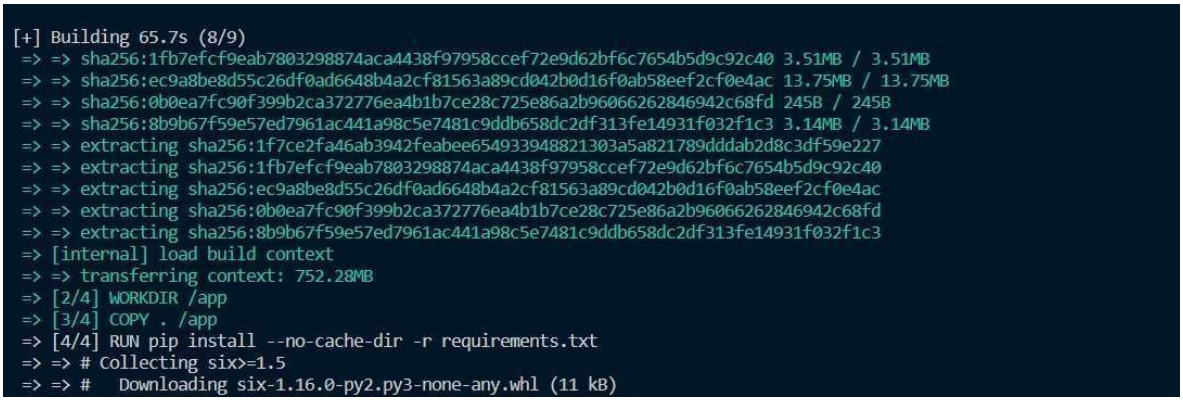
a) Create a Dockerfile :

```
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
flask==2.1.0 gunicorn==20.1.0
```

c) Create a Docker Image :



- Check the image is created or not :

```
PS D:\Capstone Project-1> docker images
REPOSITORY    TAG       IMAGE ID       CREATED          SIZE
project       latest    75ebfac9ab69   5 minutes ago    1.23GB
dockerfile    latest    ee193e6cc1a7   12 days ago      509MB
ubuntu        latest    e4c58958181a   7 weeks ago      77.8MB
hello-world   latest    9c7a54a9a43c   6 months ago     13.3kB
```

```
PS D:\Capstone Project-1> ls


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        30-12-2022  11:43 PM                .idea
d-----        28-06-2023  12:40 PM                Capstone Project-1
d-----        12-03-2023  12:11 PM                Car Price Prediction
d-----        30-06-2023  06:57 PM                Datasets
d-----        30-12-2022  07:43 PM                Group Members
d-----        07-05-2023  06:36 AM                Laptop_Price_Prediction
d-----        30-12-2022  08:13 PM                model
d-----        27-12-2022  02:54 PM                PPT
d-----        01-07-2023  07:21 PM                README
d-----        02-05-2023  12:48 PM                Report
d-----        28-06-2023  02:38 PM                UI
-a----        13-04-2023  01:36 PM            108 updated
```

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

```
PS D:\Capstone Project-1\UI> cd '.\New UI\'
PS D:\Capstone Project-1\UI\New UI> ls


    Directory: D:\Capstone Project-1\UI\New UI


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        23-04-2023  02:03 PM                static
d-----        07-05-2023  04:02 AM                templates
-a----        23-11-2023  04:10 PM           4701 app_final.py
-a----        23-11-2023  04:24 PM            550 Dockerfile
-a----        23-11-2023  04:24 PM             94 requirements.txt


PS D:\Capstone Project-1\UI\New UI> docker build -t projecta .
[+] Building 0.0s (0/0)
[+] Building 39.8s (10/10) FINISHED
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 589B
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load metadata for docker.io/library/python:3.8-slim
 => [auth] library/python:pull token for registry-1.docker.io
 => [1/4] FROM docker.io/library/python:3.8-slim@sha256:19e07fa24813e88b04e606772213bd03ba044637cc939a211e28ccf997a9162a
 => [internal] load build context
 => => transferring context: 13.14MB
```

Task 4: Run the docker container to execute the docker image and host the machine learning model using gunicorn wsgi server.

```
D:\Capstone Project-1\UI\New UI>
D:\Capstone Project-1\UI\New UI>docker run -p 4000:80 projecta
[2023-11-23 11:17:21 +0000] [1] [INFO] Starting gunicorn 20.1.0
[2023-11-23 11:17:21 +0000] [1] [INFO] Listening at: http://0.0.0.0:80 (1)
[2023-11-23 11:17:21 +0000] [1] [INFO] Using worker: sync
[2023-11-23 11:17:21 +0000] [8] [INFO] Booting worker with pid: 8
```