Practical-4

Deploy the Machine Learning Model using Flask and Docker.

Task 1: Install the required libraries

```
  pip install Flask
pip install gunicorn
```

Task 2: Follow the steps described in theory material to deploy the model using Flask. Run the flask application to execute the deployed model.

Flask Code :

```
from flask import Flask, jsonify, request
from your_model import predict  # Import your model's prediction function

app = Flask(__name__)

@app.route('/predict', methods=['POST'])
def prediction():     data =
request.get_json(force=True)
   result = predict(data)  # Use your model to make predictions
return jsonify(result)

if __name__ == '__main__':
   app.run(port=5000)
```

Task 3: Create the docker file using the steps described in theory material.

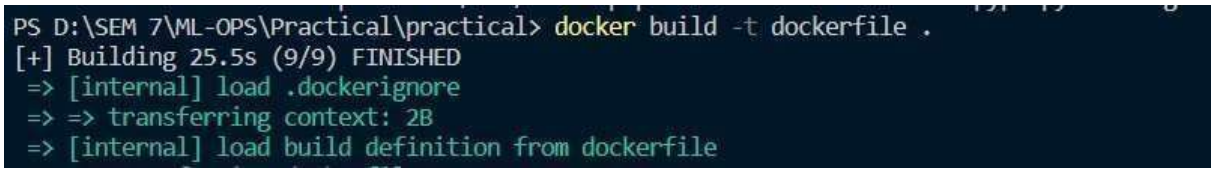
Docker File Code :

```
FROM python:3.8-slim
WORKDIR /app
COPY . /app
```

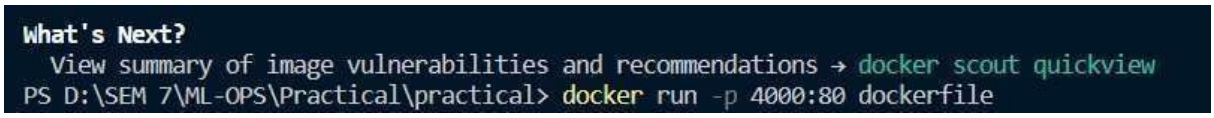
```
RUN pip install --trusted-host pypi.python.org -r requirements.txt
EXPOSE 80
ENV NAME World
CMD ["python", "app.py"]
```

Task 4 : Create the Docker Image

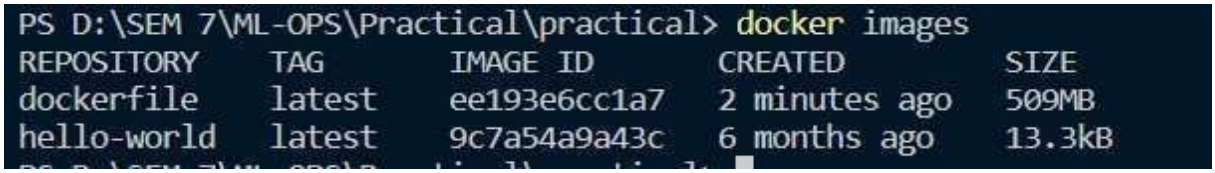
docker build -t dockerfile .



Task 5 : Create the Docker File



Task 6 : Check Performance



Task 7 : Hands-on on docker commands:

1. docker pull ubuntu:latest

```
PS D:\SEM 7\ML-OPS\Practical\practical> docker pull ubuntu:latest
latest: Pulling from library/ubuntu
aece8493d397: Downloading [==========================================>     ]  26.84MB/29.54MB
```

2. docker ps

```
PS D:\SEM 7\ML-OPS\Practical\practical> docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
```

3. docker ps -a

```
PS D:\SEM 7\ML-OPS\Practical\practical> docker ps -a
CONTAINER ID   IMAGE              COMMAND          CREATED         STATUS                     PORTS     NAMES
785e4a62c222   dockerfile         "python app.py"  7 minutes ago   Exited (0) 7 minutes ago           quizzical_bardeen
523f21a1dd21   dockerfile         "python app.py"  8 minutes ago   Exited (0) 8 minutes ago           xenodochial_moser
98032478cfe5   hello-world:latest  "/hello"         2 months ago    Exited (0) 25 minutes ago          mystifying_fermi
```

4. docker inspect container_name or id

```
PS D:\SEM 7\ML-OPS\Practical\practical> docker inspect 785e4a62c222
[
    {
        "Id": "785e4a62c2221af87166077e7d40adb41cac19f42a69ec6c4200dc583e5eb5ab",
        "Created": "2023-11-10T14:03:56.854950025Z",
        "Path": "python",
        "Args": [
            "app.py"
        ],
        "State": {
            "Status": "exited",
            "Running": false,
            "Paused": false,
            "Restarting": false,
            "OOMKilled": false,
            "Dead": false,
            "Pid": 0,
```