## Practical-5

**Aim**: Deployment of ML project using Flask Deploying machine learning models with Flask in an ML lab is crucial because it enables researchers and data scientists to turn their models into accessible APIs or web applications. This facilitates collaboration, testing, and real-world usage of ML models, making them more practical and applicable to various domains. Flask provides a lightweight, flexible framework for building and deploying these interfaces quickly and efficiently.

In this lab, you will deploy the ML project using Flask. Perform the following tasks:

Task 1: Install the required libraries:

Install Flask library (https://flask.palletsprojects.com/en/2.3.x/installation/)

```
C:\Users\gchaw\OneDrive\Documents\sem7\ML_OPS\p4>pip install flask
Requirement already satisfied: flask in c:\users\gchaw\appdata\local\program
s\python\python311\lib\site-packages (2.3.3)Requirement already satisfied: W
erkzeug>=2.3.7 in c:\users\gchaw\appdata\local\programs\python\python311\lib
\site-packages (from flask) (2.3.7)
Requirement already satisfied: Jinja2>=3.1.2 in c:\users\gchaw\appdata\local
\programs\python\python311\lib\site-packages (from flask) (3.1.2)
Requirement already satisfied: itsdangerous>=2.1.2 in c:\users\gchaw\appdata
\local\programs\python\python311\lib\site-packages (from flask) (2.1.2)
Requirement already satisfied: click>=8.1.3 in c:\users\gchaw\appdata\local\
programs\python\python311\lib\site-packages (from flask) (8.1.6)
Requirement already satisfied: blinker>=1.6.2 in c:\users\gchaw\appdata\loca
l\programs\python\python311\lib\site-packages (from flask) (1.6.2)
Requirement already satisfied: colorama in c:\users\gchaw\appdata\local\prog
rams\python\python311\lib\site-packages (from click>=8.1.3->flask) (0.4.6)
Requirement already satisfied: MarkupSafe>=2.0 in c:\users\gchaw\appdata\loc
al\programs\python\python311\lib\site-packages (from Jinja2>=3.1.2->flask) (
2.1.3)
```

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

• Create the Templates for the various views of the project

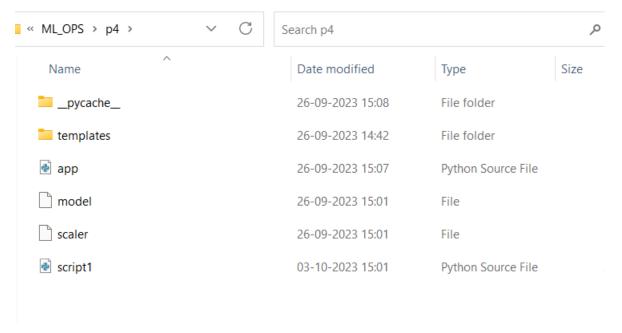
Index.html

```
</div>
</body>
</html>
```

#### Result.html

```
<!doctype html>
<html>
<body>
<h1> The predicted amount of house is {{ prediction }}</h1>
</body>
</html>
```

• Import the Model, Dataset, and Scalar objects into the project folder



• Create the script.py file to serve the deployment

#### App.py

```
from flask import Flask, render_template, jsonify, request
import numpy as np
import pickle

app = Flask(__name__)

def ValuePredictor(to_predict_list):
    X_test = np.array(to_predict_list).reshape(1, 1)

#Load the instance of Standarscalar object
    scaler = pickle.load(open("scaler", "rb"))
```

```
#Normalize the data
    X test Normalized = scaler.transform(X test)
    loaded model = pickle.load(open("model", "rb"))
    result = loaded model.predict(X test Normalized)
    return result[0]
@app.route('/result', methods = ['POST'])
def result():
    if request.method == 'POST':
        to_predict_list = request.form.to_dict()
        to predict list = list(to predict list.values())
        to predict list = list(map(int, to predict list))
        prediction = ValuePredictor(to_predict_list)
        return render template("result.html", prediction = prediction)
@app.route("/")
def hello world():
    return render_template("index.html")
```

### **OUTPUT:**

```
C:\Users\gchaw\OneDrive\Documents\sem7\ML_OPS\p4>flask --app app.py run

* Serving Flask app 'app.py'

* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment.

* Running on http://127.0.0.1:5000
Press CTRL+C to quit
127.0.0.1 - - [03/Oct/2023 23:27:47] "GET / HTTP/1.1" 200 -
```

## **House Rate Prediction Form**

```
House Area [in sq. feet] : 1600 range:[1500-15000]
```

# The predicted amount of house is 1872.8747612793236

Gayatri Chawada 20012531003 3 | Page