Deployment on Flask

Iris Flower Classification

Machine Learning Model:

model.py

```python
#Importing libraries
import pickle


from sklearn import datasets
iris = datasets.load_iris()

X = iris.data
y = iris.target

from sklearn.tree import DecisionTreeClassifier

decision_tree = DecisionTreeClassifier(random_state=0, max_depth=2)

#Fitting model with trainig data
decision_tree.fit(X, y)

# Saving model to disk
pickle.dump(decision_tree, open('model.pkl','wb'))

# Loading model to compare the results
model = pickle.load(open('model.pkl','rb'))
print(model.predict([[2, 2, 5,4]]))
```

Creating an API From a Machine Learning Model using Flask:

app.py

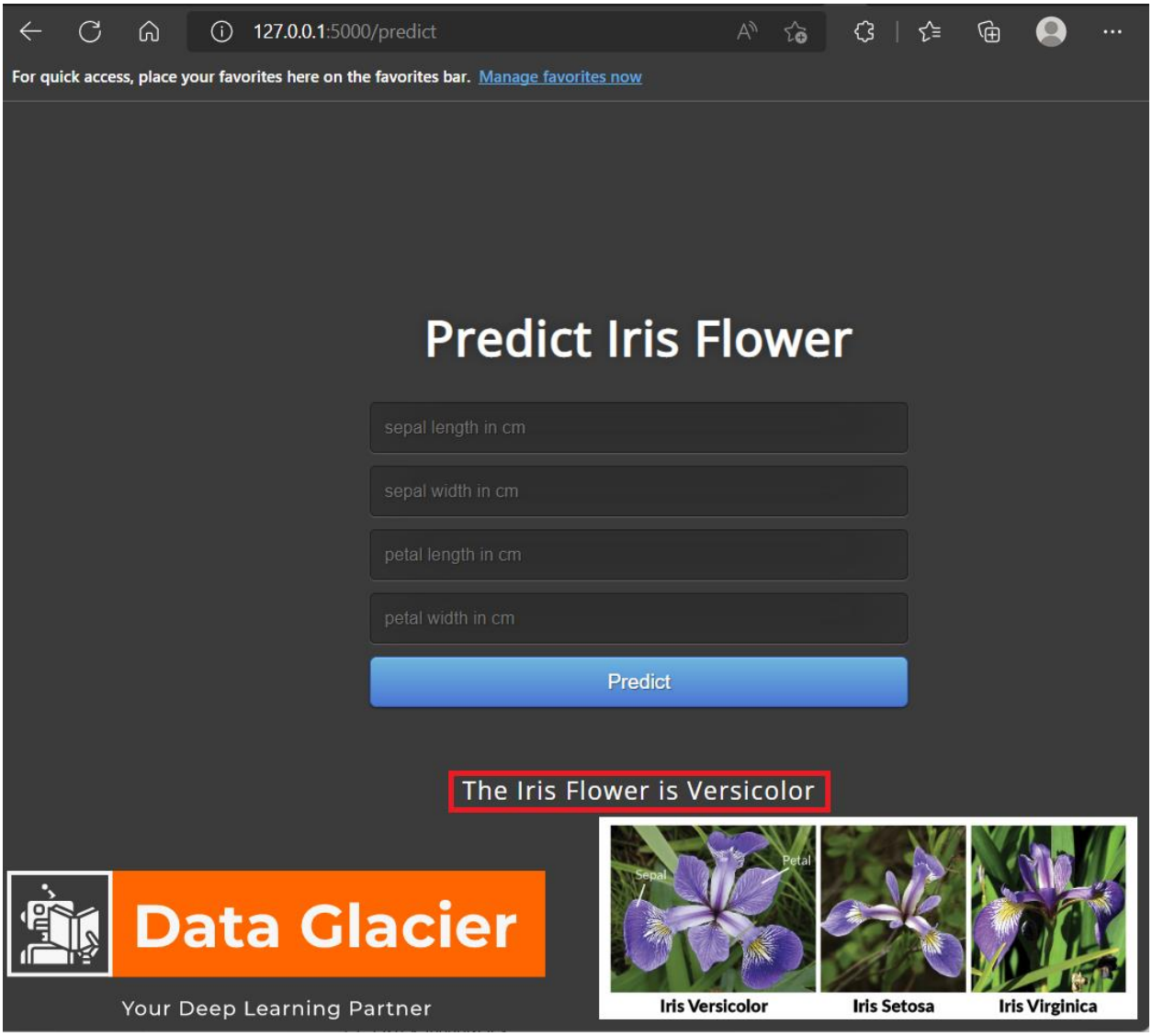
```python
import numpy as np
from flask import Flask, request,render_template
import pickle

app = Flask(__name__)
model = pickle.load(open('model.pkl', 'rb'))

@app.route('/')
def home():
    return render_template('index.html')

@app.route('/predict',methods=['POST'])
def predict():
    '''
    For rendering results on HTML GUI
    '''
    int_features = [x for x in request.form.values()]
    final_features = [np.array(int_features)]
    prediction = model.predict(final_features)

    flower_dict = {0:'Setosa', 1:'Versicolor', 2:'Virginica'}
    output = flower_dict[prediction[0]]

    return render_template('index.html', prediction_text='The Iris Flower is {}'.format(output))

if __name__ == "__main__":
    app.run(debug=True)
```

HTML code:

index.html

```
<!DOCTYPE html>
<html >
<head>
  <meta charset="UTF-8">
  <title>ML API</title>
  <link href='https://fonts.googleapis.com/css?family=Pacifico' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Arimo' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Hind:300' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300' rel='stylesheet' type='text/css'>
<link rel="stylesheet" href="{{ url_for('static', filename='css/style.css') }}">

</head>

<body>
 <div class="login">
    <h1>Predict Iris Flower</h1>

     <!-- Main Input For Receiving Query to our ML -->
    <form action="{{ url_for('predict')}}"method="post">
        <input type="text" name="sepal length" placeholder="sepal length in cm" required="required" />
        <input type="text" name="sepal width" placeholder="sepal width in cm" required="required" />
        <input type="text" name="petal length" placeholder="petal length in cm" required="required" />
        <input type="text" name="petal width" placeholder="petal width in cm" required="required" />

        <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
    </form>

   <br>
   <br>
   {{ prediction_text }}

 </div>
 <img src="/static/images/Original.svg" style="width: 400px;position: absolute;bottom: 10px;left: 10px;" alt="Company Logo"/>
 <img src="/static/images/iris-machinelearning.png" style="width: 400px;position: absolute;bottom: 10px;right: 10px;" alt="Flowers"/>

</body>
</html>
```

Result:


127.0.0.1:5000/predict
For quick access, place your favorites here on the favorites bar. Manage favorites now
Predict Iris Flower
sepal length in cm
sepal width in cm
petal length in cm
petal width in cm
Predict
The Iris Flower is Versicolor
Data Glacier
Your Deep Learning Partner
Sepal
Petal
Iris Versicolor
Iris Setosa
Iris Virginica