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Course Code: LISUM24, Submitted: 28/08/2023, URL:
https://github.com/kbmPractice/Week4

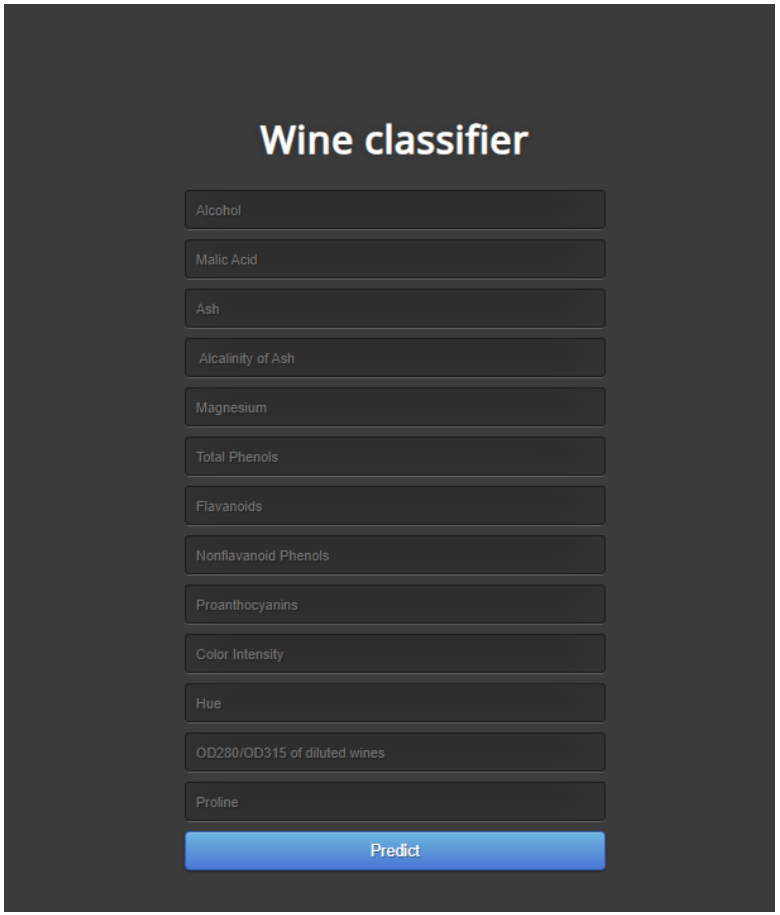
Creating the model:

```
import pandas as pd
import pickle
from sklearn.datasets import load_wine
from sklearn.model_selection import train_test_split
#from sklearn.linear_model import LinearRegression
from sklearn import svm



wine = load_wine()
X, y = wine.data, wine.target

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size =0.2, random_state=42)

clf = svm.SVC(gamma =0.001,kernel="linear")
clf.fit(X_train,y_train)
pred = clf.predict(X_test)

#lm = LinearRegression()
#lm.fit(X_train,y_train)

pickle.dump(clf,open('model.pkl','wb'))
```

Deploying the model:

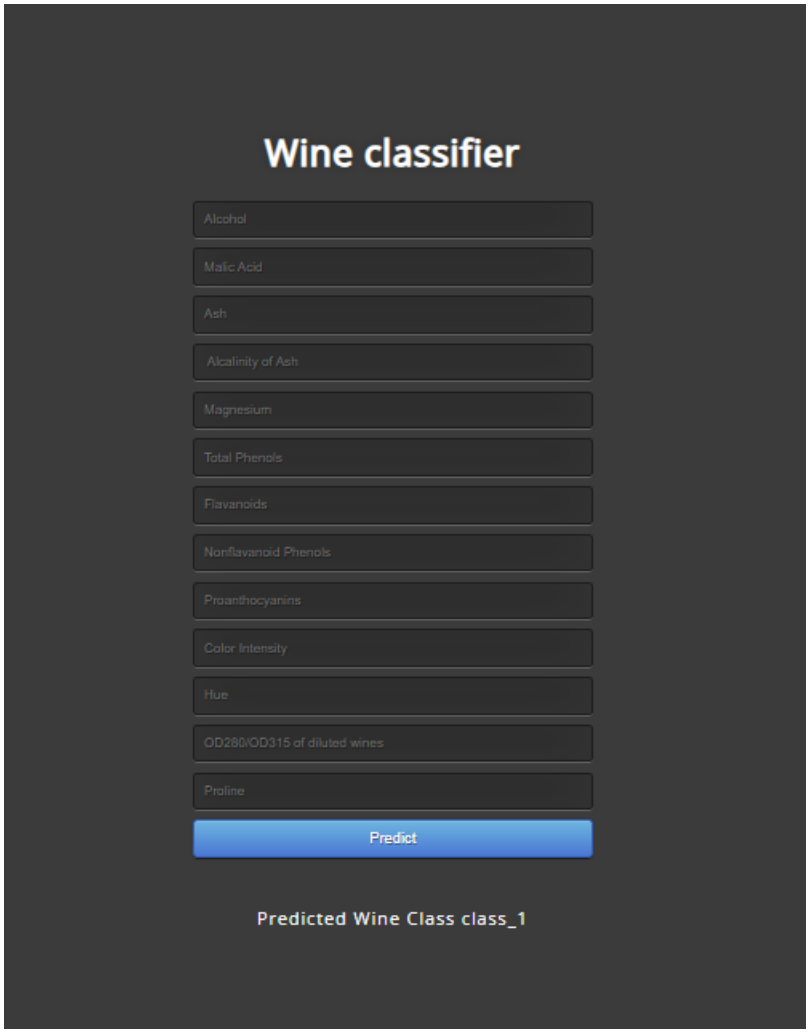
```
import numpy as np
from flask import Flask, request,render_template
import pickle

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 = [float(x) for x in request.form.values()]
    final_features = [np.array(int_features)]
    prediction = model.predict(final_features)

    #output = round(prediction[0], 2)
    #iris_names= ['Setosa','Versicolor','Virginica']
    wine_class = ['class_0', 'class_1', 'class_2']
    #output = iris_names[int(prediction[0])]
    output = wine_class[int(prediction[0])]

    return render_template('index.html', prediction_text='Predicted Wine Class {}'.format(output))

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

HTML output:



Step: 1

Step: 2


Wine classifier
Alcohol
Malic Acid
Ash
Alcalinity of Ash
Magnesium
Total Phenols
Flavanoids
Nonflavanoid Phenols
Proanthocyanins
Color Intensity
Hue
OD280/OD315 of diluted wines
Proline
Predict
Predicted Wine Class class_1

Step: 3