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Batch code:LISUM02

Submission date: 8/15/2021

Submitted to: Data Glacier

Screenshots

The screenshot displays the Spyder Python IDE interface. The main editor shows a Python script named `index.html` (though the extension is `.py`) which defines a Flask application. The script imports `Flask`, `request`, `render_template`, and `pickle`. It loads a pre-trained Random Forest classifier and a StandardScaler from a file named `model.pkl`. The application has two routes: a home page and a prediction endpoint. The prediction endpoint receives POST data, processes it, and returns the predicted class. The right sidebar shows the variable explorer with the following data:

Name	Type	Size	Value
classifier	ensemble_forest.RandomForestClassifier	100	RandomForestClassifier object
df	DataFrame	(150, 5)	Column names: Sepal_Length,...
sc	preprocessing_data.StandardScaler	1	StandardScaler object of sk...
X	DataFrame	(150, 4)	Column names: Sepal_Length,...
X_test	Array of float64	(45, 4)	[[0.27340169 -0.19650869 ...
X_train	Array of float64	(105, 4)	[[0.80476917 0.9626718 ...
y	Series	(150,)	Series object of

The bottom console shows the execution of the script, displaying the output of the `runfile` function and the predicted class for the first five samples of the Iris dataset.

```
In [1]: runfile('C:/Users/Hanno/Desktop/Data Glacier/flashAssign/model.py', wdir='C:/Users/Hanno/Desktop/Data Glacier/flashAssign')
Sepal_Length Sepal_Width Petal_Length Petal_Width Class
0 5.1 3.5 1.4 0.2 Setosa
1 4.9 3.0 1.4 0.2 Setosa
2 4.7 3.2 1.3 0.2 Setosa
3 4.6 3.1 1.5 0.2 Setosa
4 5.0 3.6 1.4 0.2 Setosa

In [2]: runfile('C:/Users/Hanno/Desktop/Data Glacier/flashAssign/app.py', wdir='C:/Users/Hanno/Desktop/Data Glacier/flashAssign')
* Serving Flask app "app" (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Press Ctrl+C to quit
```

```
C:\Users\Hanno\Desktop\Data Glacier\flaskAssign\templates\index.html
app.py x index.html x model.py x

1 <!DOCTYPE html>
2 <html>
3 <!-- From https://codepen.io/frytyler/pen/EGdtg-->
4 <head>
5   <meta charset="UTF-8">
6   <title>ML API</title>
7   <link href="https://fonts.googleapis.com/css?family=Pacifico" rel="stylesheet" type="text/css">
8   <link href="https://fonts.googleapis.com/css?family=Arimo" rel="stylesheet" type="text/css">
9   <link href="https://fonts.googleapis.com/css?family=Hind:300" rel="stylesheet" type="text/css">
10  <link href="https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300" rel="stylesheet" type="text/css">
11 </head>
12
13 <body>
14   <div class="Login">
15     <h1>Flower Class Prediction</h1>
16
17     <!-- Main Input For Receiving Query to our ML -->
18     <form action="{{ url_for('predict')}}" method="post">
19       <input type="text" name="Sepal_Length" placeholder="Sepal_Length" required="">
20       <input type="text" name="Sepal_Width" placeholder="Sepal_Width" required="">
21       <input type="text" name="Petal_Length" placeholder="Petal_Length" required="">
22       <input type="text" name="Petal_Width" placeholder="Petal_Width" required="">
23
24       <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
25     </form>
26
27     <br>
28     <br>
29     {{ prediction_text }}
30
31   </div>
32 </body>
33 </html>
```

```

Spyder (Python 3.8)
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C:\Users\Hanno\Desktop\Data Glacier\flaskAssign
app.py x index.html x model.py x

1 # -*- coding: utf-8 -*-
2 """
3 Created on Thu Aug 12 05:13:48 2021
4 @author: Hanno
5 """
6
7 import pandas as pd
8 from sklearn.preprocessing import StandardScaler
9 from sklearn.ensemble import RandomForestClassifier
10 from sklearn.model_selection import train_test_split
11 import pickle
12
13 # Load the csv file
14 df = pd.read_csv("https://raw.githubusercontent.com/siddiquiamir/ML-MODEL-DEPLOYMENT/main/data/flower.csv")
15 print(df.head())
16
17 # Select independent and dependent variable
18 X = df[["Sepal_Length", "Sepal_Width", "Petal_Length", "Petal_Width"]]
19 y = df["Class"]
20
21 # Split the dataset into train and test
22 X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)
23
24 # Feature scaling
25 sc = StandardScaler()
26 X_train = sc.fit_transform(X_train)
27 X_test = sc.transform(X_test)
28
29 # Instantiate the model
30 classifier = RandomForestClassifier()
31
32 # Fit the model
33 classifier.fit(X_train, y_train)
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base) C:\Users\Hanno\Desktop\Data Glacier\flaskAssign>python app.py
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 150-016-164
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

The output

Flower Class Prediction

Predicted Class: ['Virginica']