**app.py:**

from flask import Flask, render\_template, request  
import pickle  
import numpy as np  
import sklearn  
  
  
app = Flask(\_\_name\_\_)  
# Load the scaler, label encoder, model, and class names=====================  
scaler = pickle.load(open("Model/scaler.pkl", 'rb'))  
model = pickle.load(open("Model/model.pkl", 'rb'))  
class\_names = ['Lawyer', 'Doctor', 'Government Officer', 'Artist', 'Unknown',  
 'Software Engineer', 'Teacher', 'Business Owner', 'Scientist',  
 'Banker', 'Writer', 'Accountant', 'Designer',  
 'Construction Engineer', 'Game Developer', 'Stock Investor',  
 'Real Estate Developer']  
  
  
def Recommendations(gender, part\_time\_job, absence\_days, extracurricular\_activities,  
 weekly\_self\_study\_hours, math\_score, history\_score, physics\_score,  
 chemistry\_score, biology\_score, english\_score, geography\_score,  
 total\_score, average\_score):  
 # Encode categorical variables  
 gender\_encoded = 1 if gender.lower() == 'female' else 0  
 part\_time\_job\_encoded = 1 if part\_time\_job else 0  
 extracurricular\_activities\_encoded = 1 if extracurricular\_activities else 0  
  
 # Create feature array  
 feature\_array = np.array([[gender\_encoded, part\_time\_job\_encoded, absence\_days, extracurricular\_activities\_encoded,  
 weekly\_self\_study\_hours, math\_score, history\_score, physics\_score,  
 chemistry\_score, biology\_score, english\_score, geography\_score, total\_score,  
 average\_score]])  
  
 # Scale features  
 scaled\_features = scaler.transform(feature\_array)  
  
 # Predict using the model  
 probabilities = model.predict\_proba(scaled\_features)  
  
 # Get top five predicted classes along with their probabilities  
 top\_classes\_idx = np.argsort(-probabilities[0])[:5]  
 top\_classes\_names\_probs = [(class\_names[idx], probabilities[0][idx]) for idx in top\_classes\_idx]  
  
 return top\_classes\_names\_probs  
  
@app.route('/')  
def home():  
 return render\_template('home.html')  
@app.route('/recommend')  
def recommend():  
 return render\_template('recommend.html')  
@app.route('/pred', methods=['POST','GET'])  
def pred():  
 if request.method == 'POST':  
 gender = request.form['gender']  
 part\_time\_job = request.form['part\_time\_job'] == 'true'  
 absence\_days = int(request.form['absence\_days'])  
 extracurricular\_activities = request.form['extracurricular\_activities'] == 'true'  
 weekly\_self\_study\_hours = int(request.form['weekly\_self\_study\_hours'])  
 math\_score = int(request.form['math\_score'])  
 history\_score = int(request.form['history\_score'])  
 physics\_score = int(request.form['physics\_score'])  
 chemistry\_score = int(request.form['chemistry\_score'])  
 biology\_score = int(request.form['biology\_score'])  
 english\_score = int(request.form['english\_score'])  
 geography\_score = int(request.form['geography\_score'])  
 total\_score = float(request.form['total\_score'])  
 average\_score = float(request.form['average\_score'])  
  
 recommendations = Recommendations(gender, part\_time\_job, absence\_days, extracurricular\_activities,  
 weekly\_self\_study\_hours, math\_score, history\_score, physics\_score,  
 chemistry\_score, biology\_score, english\_score, geography\_score,  
 total\_score, average\_score)  
  
 return render\_template('results.html', recommendations=recommendations)  
 return render\_template('home.html')  
  
  
if \_\_name\_\_ == '\_\_main\_\_':  
 app.run(debug=True)

**Home.html:**

<!DOCTYPE html>  
<html lang="en">  
<head>  
 <meta charset="UTF-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1.0">  
 <title>Studies Recommendation</title>  
 <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">  
 <link rel="stylesheet" href="{{ url\_for('static', filename='style.css') }}">  
 <style>  
 .mynav {  
 border-radius: 10px;  
 box-shadow: 0px 20px 60px rgba(0, 0, 0, 0.1); /\* Increased shadow for mynav \*/  
 background: rgba(0, 0, 0, 0.7); /\* Semi-transparent background color \*/  
 color: white;  
 padding: 10px;  
 width: 100%;  
 }  
  
 .container {  
 margin-top: 50px;  
 border-radius: 15px;  
 box-shadow: 0 4px 20px rgba(0, 0, 0, 0.1); /\* Increased shadow for container \*/  
 padding: 30px;  
 background-color: rgba(255, 255, 255, 0.7);  
 text-align: center;  
 }  
  
 .bg-image {  
 background-size: cover;  
 background-position: center;  
 height: 100vh;  
 transition: background-image 2s ease-in-out;  
 }  
 </style>  
</head>  
<body>  
  
 <div class="bg-image" id="bgImage">  
  
 <div class="mynav shadow-sm" style="background:transparent; color:white;text:bold; padding:10px;width:100%;">  
 <h1 class="text-center">Education Recommendation System</h1>  
 </div>  
  
 <div class="container mt-5">  
 <h1>Welcome to our BrightPath Adviser System</h1>  
 <p>This recommendation system aims to assist individuals in selecting the most suitable studies and courses based on their academic performance, interests, and career aspirations.</p>  
 <p>Click the button below to get recommendations:</p>  
 <a href="/recommend" class="btn btn-primary">Get Recommendations</a>  
 </div>  
 </div>  
  
  
</body>  
<script>  
 const images = ["Project/static/back.jpg", "Project/static/back2.jpg", "Project/static/back3.jpg"]; // Update image paths  
 let currentIndex = 0;  
  
 function changeBackground() {  
 document.getElementById('bgImage').style.backgroundImage = `url('${images[currentIndex]}')`;  
 currentIndex = (currentIndex + 1) % images.length;  
 setTimeout(changeBackground, 4000); // Change every 4 seconds  
 }  
  
 changeBackground();  
 </script>  
</html>

**Recommendation.html:**

<!DOCTYPE html>  
<html lang="en">  
<head>  
 <meta charset="UTF-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1.0">  
  
 <title>Studies Recommendation</title>  
 <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">  
<style>  
 body {  
 background-color: #f8f9fa;  
 }  
  
 .container {  
 margin-top: 50px;  
 border-radius: 15px;  
 box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);  
 padding: 30px;  
 background-color: #fff;  
 }  
  
 .form-group label {  
 font-weight: bold;  
 }  
 </style>  
 <script>  
 function calculateScores() {  
 var mathScore = parseFloat(document.getElementById("math\_score").value);  
 var historyScore = parseFloat(document.getElementById("history\_score").value);  
 var physicsScore = parseFloat(document.getElementById("physics\_score").value);  
 var chemistryScore = parseFloat(document.getElementById("chemistry\_score").value);  
 var biologyScore = parseFloat(document.getElementById("biology\_score").value);  
 var englishScore = parseFloat(document.getElementById("english\_score").value);  
 var geographyScore = parseFloat(document.getElementById("geography\_score").value);  
  
 var totalScore = mathScore + historyScore + physicsScore + chemistryScore + biologyScore + englishScore + geographyScore;  
 var averageScore = totalScore / 7;  
  
 document.getElementById("total\_score").value = totalScore.toFixed(2);  
 document.getElementById("average\_score").value = averageScore.toFixed(2);  
 }  
 </script>  
</head>  
  
<body>  
<div class="mynav shadow-sm" style="background:black; color:white;text:bold; padding:10px;width:100%;">  
 <h1 class="text-center">BrightPath Recommendation System</h1>  
 </div>  
<div class="container">  
 <h2 class="text-center">Fill the details to get recommendations</h2>  
 <form method="post" action="/pred">  
 <div class="row">  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="gender">Gender:</label>  
 <select class="form-control" id="gender" name="gender">  
 <option value="male">Male</option>  
 <option value="female">Female</option>  
 </select>  
 </div>  
 </div>  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="part\_time\_job">Part-Time Job:</label>  
 <select class="form-control" id="part\_time\_job" name="part\_time\_job">  
 <option value="true">Yes</option>  
 <option value="false">No</option>  
 </select>  
 </div>  
 </div>  
 </div>  
 <div class="row">  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="absence\_days">Absence Days:</label>  
 <input type="number" class="form-control" id="absence\_days" name="absence\_days">  
 </div>  
 </div>  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="extracurricular\_activities">Extracurricular Activities:</label>  
 <select class="form-control" id="extracurricular\_activities" name="extracurricular\_activities">  
 <option value="true">Yes</option>  
 <option value="false">No</option>  
 </select>  
 </div>  
 </div>  
 </div>  
 <div class="row">  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="weekly\_self\_study\_hours">Weekly Self-Study Hours:</label>  
 <input type="number" class="form-control" id="weekly\_self\_study\_hours" name="weekly\_self\_study\_hours">  
 </div>  
 </div>  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="math\_score">Math Score:</label>  
 <input type="number" class="form-control" id="math\_score" name="math\_score" onchange="calculateScores()">  
 </div>  
 </div>  
 </div>  
 <div class="row">  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="history\_score">History Score:</label>  
 <input type="number" class="form-control" id="history\_score" name="history\_score" onchange="calculateScores()">  
 </div>  
 </div>  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="physics\_score">Physics Score:</label>  
 <input type="number" class="form-control" id="physics\_score" name="physics\_score" onchange="calculateScores()">  
 </div>  
 </div>  
 </div>  
 <div class="row">  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="chemistry\_score">Chemistry Score:</label>  
 <input type="number" class="form-control" id="chemistry\_score" name="chemistry\_score" onchange="calculateScores()">  
 </div>  
 </div>  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="biology\_score">Biology Score:</label>  
 <input type="number" class="form-control" id="biology\_score" name="biology\_score" onchange="calculateScores()">  
 </div>  
 </div>  
 </div>  
 <div class="row">  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="english\_score">English Score:</label>  
 <input type="number" class="form-control" id="english\_score" name="english\_score" onchange="calculateScores()">  
 </div>  
 </div>  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="geography\_score">Geography Score:</label>  
 <input type="number" class="form-control" id="geography\_score" name="geography\_score" onchange="calculateScores()">  
 </div>  
 </div>  
 </div>  
 <div class="row">  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="total\_score">Total Score:</label>  
 <input type="number" class="form-control" id="total\_score" name="total\_score" readonly>  
 </div>  
 </div>  
 <div class="col-md-6">  
 <div class="form-group">  
 <label for="average\_score">Average Score:</label>  
 <input type="number" step="0.000001" class="form-control" id="average\_score" name="average\_score" readonly>  
 </div>  
 </div>  
 </div>  
 <!-- Add more form fields here as needed -->  
  
 <button type="submit" class="btn btn-primary">Submit</button>  
 </form>  
</div>  
  
</body>  
</html>

**Result.html:**

<!DOCTYPE html>  
<html lang="en">  
<head>  
 <meta charset="UTF-8">  
 <meta name="viewport" content="width=device-width, initial-scale=1.0">  
  
 <title>Results</title>  
 <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">  
  
</head>  
<body>  
<div class="container mt-5">  
 <h1>Top Recommended Career with Probabilities</h1>  
 <ul class="list-group mt-3">  
 {% for recommendation in recommendations %}  
 <li class="list-group-item">{{ recommendation[0] }} with probability {{ recommendation[1] }}</li>  
 {% endfor %}  
 </ul>  
 </div>  
</body>  
</html>