#flask app for recommendation sys

from flask import Flask, request, render\_template, abort

import pandas as pd

from sklearn.feature\_extraction.text import TfidfVectorizer

from sklearn.metrics.pairwise import cosine\_similarity

import os

app = Flask(\_\_name\_\_)

# Get the absolute path of the current directory

current\_dir = os.path.dirname(os.path.abspath(\_\_file\_\_))

file\_path = os.path.join(current\_dir, 'Updated\_Skill\_Matchmaking\_Dataset.csv')

# Load the dataset

df = pd.read\_csv(file\_path)

@app.route('/')

def home():

    return render\_template('index.html')

@app.route('/recommend', methods=['POST'])

def recommend():

    # Required fields

    required\_fields = ['Rating (Out of 5)', 'Skills', 'Description', 'Experience']

    # Validate form data

    for field in required\_fields:

        if field not in request.form:

            abort(400, description=f"Missing form field: {field}")

    try:

        # Parse and validate input

        rating = float(request.form['Rating (Out of 5)'])

        skills = request.form['Skills']

        description = request.form['Description']

        experience = int(request.form['Experience'])

        if not (0 <= rating <= 5):

            abort(400, description="Rating must be between 0 and 5.")

        if experience < 0:

            abort(400, description="Experience cannot be negative.")

    except ValueError as e:

        abort(400, description="Invalid input. Please ensure all fields are of the correct type.")

    # Process data for recommendation

    recommendations = get\_recommendations(rating, skills, description, experience)

    return render\_template('index.html', profiles=recommendations)

def get\_recommendations(rating, skills, description, experience):

    # Filter profiles based on rating and experience

    filtered\_df = df[(df['Rating (Out of 5)'] >= rating) & (df['Experience'] >= experience)]

    # Feature extraction for skills and description

    vectorizer = TfidfVectorizer()

    filtered\_df['Combined'] = filtered\_df['Skills'] + ' ' + filtered\_df['Description']

    combined\_matrix = vectorizer.fit\_transform(filtered\_df['Combined'])

    # Calculate cosine similarity

    query = vectorizer.transform([skills + ' ' + description])

    cosine\_similarities = cosine\_similarity(query, combined\_matrix).flatten()

    # Get top 3 profiles

    top\_indices = cosine\_similarities.argsort()[-3:][::-1]

    top\_profiles = filtered\_df.iloc[top\_indices]

    return top\_profiles.to\_dict('records')

if \_\_name\_\_ == '\_\_main\_\_':

    app.run(debug=True, port=8000)

#index.html

<!-- index.html -->

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Skill Matchmaking</title>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

    <div class="container mt-5">

        <h1 class="text-center">Skill Matchmaking</h1>

        <form action="/recommend" method="POST" class="mt-4">

            <!-- Rating Field -->

            <div class="mb-3">

                <label for="rating" class="form-label">Rating (Out of 5)</label>

                <input type="number" id="rating" name="Rating (Out of 5)" class="form-control" placeholder="Enter a rating between 0 and 5" min="0" max="5" step="0.1" required>

            </div>

            <!-- Skills Field -->

            <div class="mb-3">

                <label for="skills" class="form-label">Skills</label>

                <input type="text" id="skills" name="Skills" class="form-control" placeholder="Enter relevant skills" required>

            </div>

            <!-- Description Field -->

            <div class="mb-3">

                <label for="description" class="form-label">Description</label>

                <textarea id="description" name="Description" class="form-control" rows="4" placeholder="Enter a brief description" required></textarea>

            </div>

            <!-- Experience Field -->

            <div class="mb-3">

                <label for="experience" class="form-label">Experience (in years)</label>

                <input type="number" id="experience" name="Experience" class="form-control" placeholder="Enter years of experience" min="0" required>

            </div>

            <!-- Submit Button -->

            <button type="submit" class="btn btn-primary w-100">Get Recommendations</button>

        </form>

    </div>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

<!-- results.html -->

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Recommendations</title>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

    <div class="container mt-5">

        <h1 class="text-center">Top Recommendations</h1>

        {% if profiles %}

            <div class="mt-4">

                <div class="row">

                    {% for profile in profiles %}

                        <div class="col-md-4">

                            <div class="card mb-3">

                                <div class="card-body">

                                    <h5 class="card-title">{{ profile['Name'] }}</h5>

                                    <p><strong>Rating:</strong> {{ profile['Rating (Out of 5)'] }}</p>

                                    <p><strong>Skills:</strong> {{ profile['Skills'] }}</p>

                                    <p><strong>Description:</strong> {{ profile['Description'] }}</p>

                                    <p><strong>Experience:</strong> {{ profile['Experience'] }} years</p>

                                </div>

                            </div>

                        </div>

                    {% endfor %}

                </div>

            </div>

        {% else %}

            <p class="text-center">No recommendations match your criteria.</p>

        {% endif %}

        <div class="text-center mt-4">

            <a href="/" class="btn btn-secondary">Go Back</a>

        </div>

    </div>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

#results.html

<!DOCTYPE html>

<html>

<head>

    <title>Recommended Freelancers</title>

</head>

<body>

    <h1>Top Freelancers for Your Project</h1>

    {% for profile in profiles %}

    <div>

        <h2>{{ profile['Name'] }}</h2>

        <p><strong>Rating:</strong> {{ profile['Rating'] }}</p>

        <p><strong>Skills:</strong> {{ profile['Skills'] }}</p>

        <p><strong>Experience:</strong> {{ profile['Experience'] }} years</p>

        <p><strong>Description:</strong> {{ profile['Description'] }}</p>

    </div>

    <hr>

    {% endfor %}

</body>

</html>