DesiVoyageAI

Personalised Travel Recommendations System

PROJECT REPORT:

1. Introduction

The Indian Travel Recommender is a web-based application designed to help travellers explore destinations in India. It provides recommendations based on two approaches:

1. Finding similar destinations based on an already visited location.

2. Suggesting destinations based on user preferences using adjustable parameters.

This project integrates a machine learning model with a Flask backend and a responsive front-end built with HTML, CSS, and JavaScript.

2. Project Objective

The main objective of this project is to provide personalized travel recommendations for users by leveraging machine learning techniques. The system aims to enhance travel planning by offering insightful recommendations tailored to user preferences.

3. Dataset & Features

The system utilizes a dataset consisting of the **top 50 destinations in India**. The dataset contains information on various attributes such as:

- **Culture**

- **Nature**

- **Adventure**

- **Relaxation**

- **Spirituality**

Each destination is assigned a rating for these attributes, enabling personalized recommendations.

4. Model Explanation

The recommendation system uses two main approaches:

4.1 Finding Similar Destinations

- This approach is based on **cosine similarity**, where destinations with similar feature vectors (culture, nature, adventure, etc.) are suggested.

- The user selects a known destination, and the system retrieves the top similar destinations.

4.2 Preference-Based Matching

- Users can adjust sliders corresponding to different travel aspects (e.g., culture, nature, adventure, etc.).

- The system calculates the similarity between user preferences and destination features to suggest the best-matching places.

5. System Architecture

The project follows a **client-server architecture**:

- **Frontend (HTML, CSS, JavaScript)**: Provides an interactive UI for users.

- **Backend (Flask API - app.py)**: Handles user requests and interacts with the model.

- **Model (model.ipynb)**: Implements the recommendation logic.

- **Database (CSV-based storage)**: Stores destination details and features.

Workflow:

1. The user interacts with the UI (selects a place or adjusts preferences).

2. The frontend sends a request to the Flask backend.

3. The backend processes the request using the ML model.

4. Results are sent back and displayed on the UI.

6. Implementation Details

6.1 Backend (Flask - app.py)

- Serves as the API to process user requests.

- Loads the dataset and model for recommendations.

- Routes:

    o /find_similar – Finds destinations similar to a given place.

    o /match_preferences – Suggests places based on user-selected parameters.

6.2 Frontend (index.html, script.js, styles.css)

- **HTML**: Builds the UI structure.

- **CSS**: Enhances UI aesthetics and responsiveness.

- **JavaScript**: Handles user interactions and API calls.

6.3 Model (model.ipynb)

- Implements recommendation logic.

- Uses cosine similarity for finding similar places.

- Computes weighted scores for preference-based recommendations.

7. Testing & Results

- The system was tested with different input preferences.

- Verified that the recommendations align with expected outputs.

- Conducted performance evaluation based on response times.

8. Conclusion & Future Scope

Conclusion:

- The Indian Travel Recommender successfully provides personalized destination suggestions.

- It effectively combines machine learning and web technologies to enhance travel planning.

Future Scope:

- **Expand dataset** to include more destinations and real-time user ratings.

- **Integrate user feedback** to refine recommendations over time.

- **Implement a user login system** for personalized travel history and preferences.

- **Enhance UI/UX** with more interactive features and better visual representations.

Snippets:

DesiVoyageAI 🌍 - Personlised Travel Recommender

Discover your perfect destination in incredible India

Find Similar Destinations   Match Your Preferences

Find Similar Destinations

Select a destination you've enjoyed and find similar places to explore

Select a Destination:

Agra	⌄

Number of results:

5	⌄

🔍 **Find Similar**

Results:

Jaipur	Similarity Score: 99.4%	Details
Hyderabad	Similarity Score: 99.2%	Details
Lucknow	Similarity Score: 99.1%	Details
Udaipur	Similarity Score: 99.1%	Details
Ahmedabad	Similarity Score: 99%	Details

Hyderabad   ✕

Culture:		8/10
Nature:		5/10
Adventure:		5/10
Relaxation:		6/10
Spiritual:		7/10
Food:		10/10

Find Places Based on Preferences

Adjust the sliders to match your travel preferences

Culture:

7

Nature:

5

Adventure:

3

Relaxation:

6

Spiritual:

7

Food:

8

Number of results:

5

⊘ Get Recommendations

8

Number of results:

5

⊘ Get Recommendations

Results:

Patna	Match Score: 99.7%	Details
Chennai	Match Score: 99.7%	Details
Mysore	Match Score: 99.6%	Details
Madurai	Match Score: 99.5%	Details
Kolkata	Match Score: 99.4%	Details

8

Number of results:

5

Get Recomm...

Mysore   ✕

Culture:		8/10
Nature:		6/10
Adventure:		5/10
Relaxation:		7/10
Spiritual:		8/10
Food:		9/10

Patna

Chennai

Mysore

Madurai

Kolkata