

TRAVEL & TOURISM RECOMMENDATION SYSTEM

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College : K. S. School of Engineering and Management, Bengaluru
Branch : Department of Artificial Intelligence & Data Science
Guide(s) : Mrs. Rajashree D Ingale
Student(s) : Mr. K Saideepak
 Ms. Bhargavi Y
 Ms. D Pavani
 Ms. Sanjeevini R A

Keywords:

Travel Recommendation System, Machine Learning, Women Safety Index, Crowd Analysis, Weather Analysis, AI Chatbot, Safe Travel Planning.

Introduction:

A Travel and Tourism Recommendation System is an intelligent AI-driven platform designed to provide personalized travel suggestions to users. It analyzes user preferences such as interests, budget, travel history, and location to recommend suitable destinations. The system integrates real-time data including weather conditions, safety information, maps, and crowd density. By combining these dynamic inputs, it ensures that recommendations are both relevant and practical. Machine learning algorithms are used to understand user behavior and improve recommendations over time. Natural Language Processing (NLP) enables interaction through chatbots, allowing users to communicate easily with the system. The chatbot can assist users in planning trips, answering queries, and suggesting travel plans. External APIs such as Google Maps and weather services are integrated to provide accurate and up-to-date information. The system can suggest routes, nearby attractions, hotels, and restaurants based on user needs. It also considers seasonal trends and popular tourist spots to enhance recommendations. The platform generates customized travel itineraries that help users plan their trips efficiently. It reduces the time and effort required for travel planning by automating the decision-making process. Users receive context-aware suggestions that match their preferences and current conditions. Additionally, the system ensures safety by considering real-time alerts and crowd levels in different locations. This makes travel planning not only convenient but also secure. Overall, the system enhances the travel experience by providing smart, personalized, and reliable recommendations. It bridges the gap between user expectations and available travel options using advanced technologies. The platform aims to make travel planning easier, faster, and more enjoyable for users.

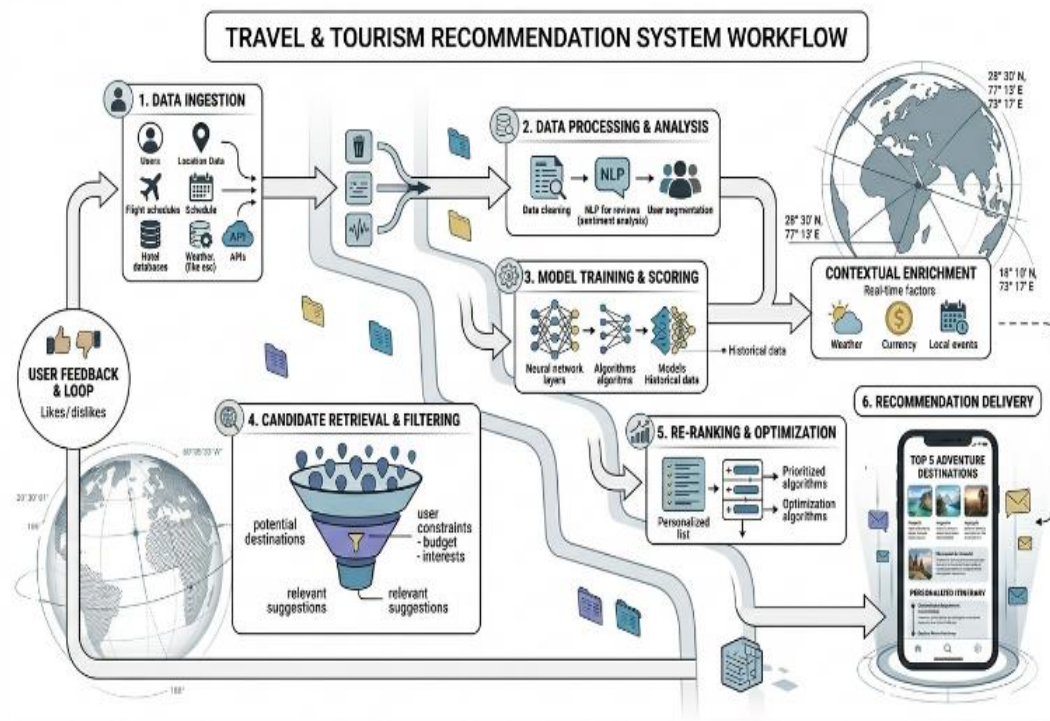


Figure 1: Travel and Tourism Recommendation System Workflow

Objectives:

1. Develop an AI-driven recommendation system that suggests travel destinations based on user preferences. The system takes user input such as current location, desired destination/place. This helps users explore destinations more effectively and plan their trips with personalized insights.
2. Integrate real-time weather and crowd analysis using Google APIs to help users plan smarter and safer trips.
3. To develop a Women Safety Index (WSI) that analyzes user reviews and provides a safety score (0–100) for each place, helping women travelers identify safe, moderate, or unsafe destinations.
4. To improve travel by offering easy map-based navigation and an AI chatbot that provides personalized assistance for safe and convenient trips.

Methodology:

The project Travel and Tourism Recommendation System follow a structured approach to design, develop, and deliver personalized travel insights.

1. Data Collection and Preprocessing

First, data collection is performed using Google APIs to gather real-time information such as places, ratings, reviews, weather, and location details. Next, data preprocessing is carried out to clean and organize the collected data, including filtering relevant reviews and formatting inputs for analysis.

2. Recommendation System (Machine Learning)

Machine learning techniques are then applied to generate personalized recommendations based on user preferences, search inputs, and location context.

3. Women Safety Index (NLP Analysis)

Natural Language Processing (NLP) is used to analyze user reviews and derive the Women Safety Index (WSI) by identifying safety-related sentiments and keywords.

4. Feature Integration and User Interface

The system also integrates additional modules such as weather forecasting, crowd analysis, and navigation using external APIs to enhance decision-making. A user-friendly web interface is developed with interactive components like search, place cards, and detailed views.

5. AI Chatbot Integration

An AI chatbot is incorporated to provide real-time assistance, recommendations, and query handling.

6. Testing and Optimization

Finally, the system is tested and optimized to ensure accuracy, usability, and performance, resulting in a reliable and intelligent travel recommendation platform.

Result and Conclusion:

Results, The Destini Guide web application provides a smooth and interactive travel planning experience through its well-structured workflow. Users begin at the homepage by entering their current and destination locations to search for recommended places. The system processes the input and displays top attractions in a clean, card-based layout with essential details. Users can register or log in to access personalized features and enhanced functionality. Selecting a place opens a detailed view with multiple tabs offering insights like overview, safety, crowd levels, weather, and directions. The Women Safety module provides a safety score along with detailed analysis and real user reviews. The Crowd Analysis feature helps users identify peak and off-peak times for better planning. Weather forecasts give current conditions and future predictions for informed decision-making. The Directions feature integrates with Google Maps to provide real-time navigation. Additionally, the AI chatbot assists users with instant recommendations and travel-related queries, making the system a complete travel companion.

In conclusion, The Travel and Tourism Recommendation System demonstrates how AI can enhance travel planning through personalized and data-driven suggestions. By combining machine learning with real-time data, it delivers accurate and adaptive recommendations tailored to user preferences. A key feature is the Women Safety Index (WSI), which uses NLP on user reviews to provide safety insights, promoting secure and inclusive travel. The system also integrates real-time weather updates, crowd analysis, and map-based navigation to improve decision-making and efficiency. An AI chatbot further enhances user interaction by offering instant support. Overall, the platform simplifies travel planning while emphasizing safety and user empowerment. It successfully meets its objectives of creating a smart and reliable travel assistant. With future improvements like multilingual support and advanced prediction models, it can evolve into a scalable and comprehensive solution for modern travelers.

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Future Scope:

The future scope of this project includes:

1. Integration of Advanced Machine Learning and deep learning Models.
2. Multilingual Chatbot Support
3. Mobile and Wearable Application Development
4. Expansion of the Women Safety Index (WSI)
5. Cost-Based Trip Planning Features