

AI-Powered Personalized Travel Recommendation and Itinerary Planner: A Machine Learning Approach

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Abstract: *This paper proposes an intelligent travel recommender system that uses machine learning algorithms such as collaborative filtering and content-based filtering to make personalized travel recommendations. The system, through analyzing user interest, travel history, and budget, suggests customized travel plans, filling the gap between conventional travel planning tools and AI-powered personalization. The model constantly improves suggestions using predictive analytics and real-time data integration to improve user satisfaction and ease of use. The system employs supervised machine learning algorithms to study user behavior and make appropriate travel suggestions. The recommendation engine takes input parameters like past destinations, budget, and travel type to produce customized travel plans. The travel schedule optimization module schedules trips by matching recommendations with user preferences and constraints. The system learns from user ratings to enhance the accuracy of recommendations over time. The suggested system improves travel planning by providing data-driven, real-time, and personalized travel suggestions. It dispenses with exhaustive manual research, saving users planning stress and making travel more efficient. The use of real-time data, user preferences, and predictive analytics guarantees that the recommendations are dynamic and strongly relevant. The system greatly enhances user participation and satisfaction by providing itineraries appropriate for personal styles of travel.*

Keywords: Personalized travel recommendation, Machine learning, Collaborative filtering, Content-based filtering, Itinerary planning system, Real-time travel recommendations, User preferences in travel, Travel behaviour analysis, Smart travel system

