

AI Travel Recommendation System

Project Report

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Technology Stack: HTML, CSS, Python (Flask), Google Maps API

An intelligent travel planning application that generates personalized itineraries, optimizes budgets, and delivers structured destination insights using scalable content processing and efficient retrieval mechanisms.

1. Introduction

The AI Travel Recommendation System is designed to assist users in planning multi-destination trips efficiently. It aggregates structured travel knowledge and applies optimized content compression techniques to handle large travel guides (5,000+ words per destination) while maintaining semantic accuracy.

2. Objectives

- Generate personalized multi-destination itineraries.
- Optimize travel budgets dynamically.
- Reduce system latency through efficient data processing.
- Store and manage 10,000+ destination guides.
- Provide a modern and responsive travel planning interface.

3. System Architecture

Data Aggregation Layer: Collects travel content from structured sources.

Content Processing Layer: Compresses guides, extracts highlights and local tips.

Storage Layer: Indexed storage for fast retrieval.

Recommendation Engine: User preference analysis and budget optimization.

Application Layer: Itinerary builder, budget calculator, Google Maps integration.

4. Key Features

- Day-by-day personalized itinerary generation.
- Smart budget optimizer with cost allocation.
- Multi-city route planning and distance optimization.
- Google Maps integration for navigation.
- Photo and landmark recommendations.
- Local travel tips extraction from structured content.

5. Technologies Used

Frontend: HTML5, CSS3 (Glassmorphism UI)

Backend: Python (Flask)

Database: PostgreSQL / MongoDB

APIs: Google Maps API, Travel APIs

Data Format: JSON-based structured metadata

6. Conclusion

This project demonstrates how structured data engineering and optimized context processing can significantly enhance scalability, reduce latency, and improve decision-making in AI-based systems. The result is a production-oriented, efficient, and scalable travel assistant platform.