

# 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.