Project Design Phase
Solution Architecture

Date	18 February 2026
Team ID	LTVIP2026TMIDS79519
Project Name	Travel Guide AI
Maximum Marks	4 Marks

Solution Architecture:

The **AI Travel Itinerary Generator** is a web-based application that generates personalized travel plans based on user input such as destination, duration, and interests.

The solution architecture bridges the gap between:

- **Business Problem:** Travelers spend time searching multiple websites to plan trips.
- **Technology Solution:** AI-powered itinerary generation using Google Gemini API integrated into a Streamlit web application.

Goals of the Solution Architecture

1. Find the Best Tech Solution

- Use **Streamlit** for fast and lightweight web application development.
- Use **Google Generative AI (Gemini 2.5 Flash)** for dynamic itinerary generation.
- Use cloud deployment (optional) for scalability.

2. Describe Structure & Behavior

The system consists of:

- Frontend (User Interface)
- Backend (Business Logic in Python)
- AI Service Layer (Gemini API)
- External API Integration (Google Generative AI)

3. Define Features & Development Phases

Phase 1 :

- User input collection
- AI itinerary generation
- Display output
- Input validation

Phase 2 (Future Enhancement):

- Download itinerary as PDF
- Save itinerary

- Add budget planning
- Add hotel suggestions

4. Provide Specifications

- Python-based application
- Gemini API integration
- Stateless request-response architecture
- Secure API key management

Example - Solution Architecture Diagram:

The architecture of the system follows a simple and modular design to ensure clarity and maintainability.