

# **Final Project Report**

## **Explore with AI: Custom Itineraries for Your Next Journey**

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# 1. INTRODUCTION

## 1.1 Project Overview

**Explore with AI** is a Generative AI-based travel planning application developed using Streamlit and Google's PaLM model. The system is designed to simplify and automate the process of travel itinerary creation by generating personalized travel plans based on user inputs.

Travel planning traditionally requires extensive research across multiple platforms to identify destinations, attractions, accommodations, dining options, and activities that match individual preferences. This process can be time-consuming and overwhelming, particularly for users with specific budget, duration, or interest constraints.

The proposed system addresses this challenge by integrating Generative AI to produce structured, day-wise travel itineraries instantly. Users provide key inputs such as destination, trip duration, budget range, and travel interests (e.g., adventure, cultural exploration, relaxation, family trip). The AI model processes this information and generates a customized itinerary that includes suggested activities, major attractions, local recommendations, and helpful travel tips.

Built using Streamlit for the user interface and PaLM for AI-driven content generation, the application ensures:

- Quick and automated itinerary creation
- Personalized travel recommendations
- Reduced manual research effort
- Structured and easy-to-read travel plans

The system can be used by individual travelers seeking efficient planning assistance, as well as by travel consultants who require fast and customizable itinerary drafting support.

Overall, **Explore with AI** demonstrates the practical application of Generative AI in solving real-world problems by enhancing user convenience, improving planning efficiency, and delivering intelligent travel solutions.

## 1.2 Purpose

The primary purpose of **Explore with AI** is to simplify and automate the process of travel itinerary planning using Generative AI. The project aims to reduce the time, effort, and complexity involved in creating personalized travel plans by generating customized itineraries based on user preferences.

Traditional travel planning requires extensive research across multiple platforms to gather information about destinations, attractions, accommodations, and activities. This process can be

overwhelming and inefficient, especially when users have specific constraints such as budget, duration, or travel interests. The purpose of this project is to address these challenges by providing an intelligent system that instantly produces structured, day-wise travel plans.

The system leverages Google's PaLM model for AI-based content generation and Streamlit for building an interactive user interface. By integrating Generative AI, the application delivers tailored recommendations that align with the user's input, making travel planning more accessible, efficient, and user-friendly.

Additionally, the project demonstrates the practical implementation of Large Language Models (LLMs) in solving real-world problems. It showcases how AI can enhance user experience, support decision-making, and improve productivity in the travel planning domain.

In summary, the purpose of this project is to:

- Automate itinerary generation
- Provide personalized travel recommendations
- Reduce manual research effort
- Improve planning efficiency
- Demonstrate the real-world application of Generative AI

## 2. IDEATION PHASE

### 2.1 Problem Statement

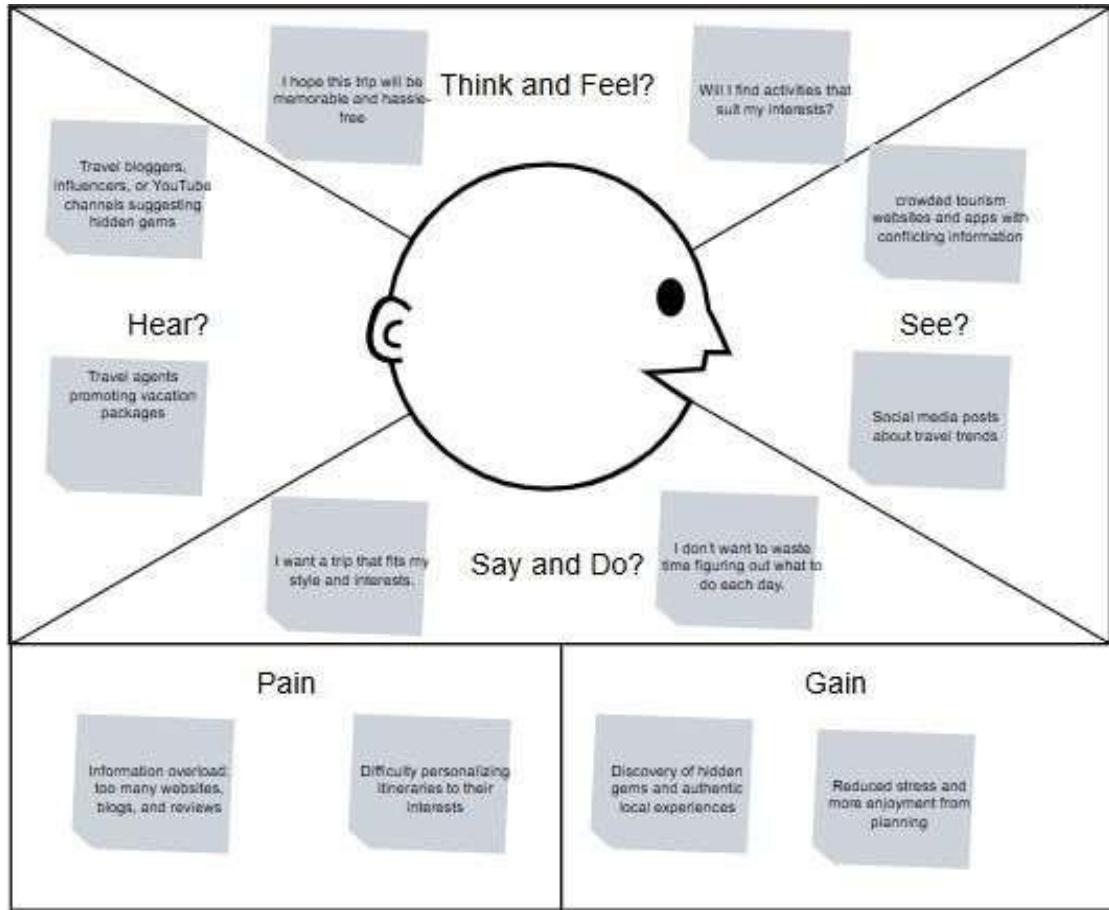
Travel planning is often time-consuming, overwhelming, and complex due to the vast amount of information travelers must research. Individual travelers frequently face difficulties in identifying the best destinations, attractions, accommodations, and activities that match their preferences, budget, and trip duration. This can lead to stress, missed opportunities, or inefficient travel experiences.

Similarly, travel agencies and consultants struggle to create high-quality, customized itineraries for multiple clients quickly and efficiently. Manual itinerary creation is labor-intensive, repetitive, and prone to inconsistencies.

There is a clear need for a system that can **automate and personalize travel itinerary generation**, providing reliable, structured, and tailored travel plans. Such a solution should reduce planning time, minimize manual research, and offer recommendations that align with the traveler's interests, budget, and constraints.

**Explore with AI** addresses this problem by leveraging Generative AI (PaLM) to create personalized, day-wise itineraries instantly through an interactive Streamlit interface. This ensures a faster, smarter, and more efficient travel planning experience for both individuals and professionals.

### 2.2 Empathy Map Canvas



## 2.3 Brainstorming

### Step-1: Team Gathering, Collaboration and Select the Problem Statement

In the initial phase of the Explore with AI project, the team comes together to align on goals, roles, and expectations. The focus is on understanding the challenges travelers and travel agencies face in planning personalized itineraries.

Key activities:

- Build a collaborative environment for sharing ideas and insights.
- Conducted brainstorming sessions to explore pain points in travel planning, such as information overload, difficulty in personalizing itineraries, and time-consuming research.
- Identified a **relevant, meaningful, and user-centered problem statement**.
- For example:  
*"Travelers and agencies need an easy way to generate personalized, detailed travel itineraries without spending hours on research and planning."*

**Outcome:** A clear problem statement that guides the design and development of Explore with AI, ensuring the team is aligned and committed to solving a problem that truly matters to users.

**Brainstorm & idea prioritization**

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

⌚ 10 minutes to prepare  
⌚ 1 hour to collaborate  
👤 2-8 people recommended

**Before you collaborate**  
A little bit of preparation goes a long way with this session. Here's what you need to do to get going.  
⌚ 10 minutes

**A Team gathering**  
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

**B Set the goal**  
Think about the problem you'll be focusing on solving in the brainstorming session.

**C Learn how to use the facilitation tools**  
Use the Facilitation Superpowers to run a happy and productive session.  
[Open article](#)

**Define your problem statement**  
What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.  
⌚ 5 minutes

**PROBLEM**  
How might we [your problem statement]?

**Key rules of brainstorming**  
To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

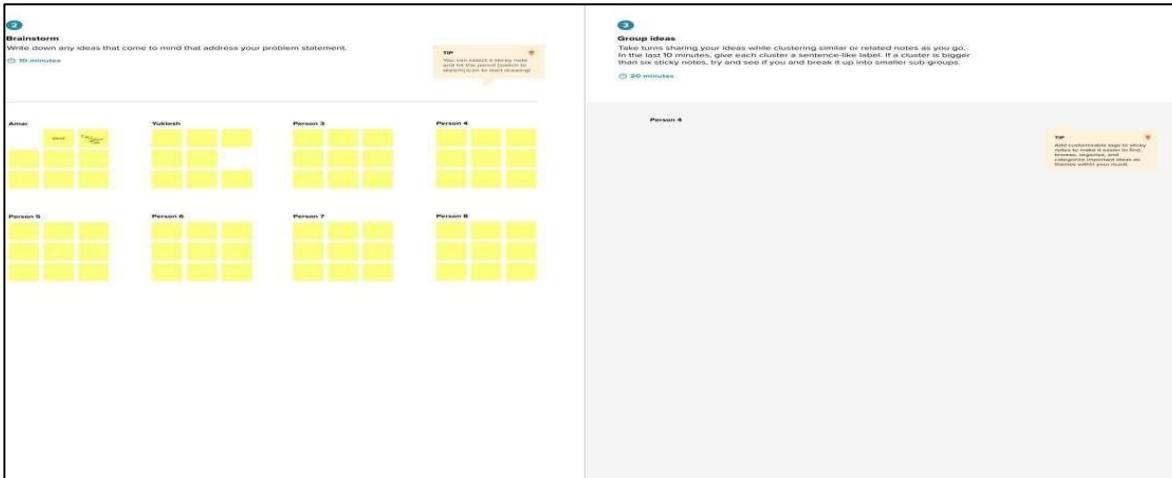
## Step-2: Brainstorm, Idea Listing and Grouping

Once the problem statement is defined, the team moves into ideation to explore potential solutions for Explore with AI.

Key activities:

- Brainstorm a wide range of ideas for the app, including features such as:
  - AI-generated daily itineraries with attractions, dining, and tips
  - User input customization (interests, travel duration, activity types)
  - Exportable itineraries (PDF, text)
  - Integration with travel blogs or local guides
- Encourage all ideas, no matter how big or small.
- Document and group ideas in a shared space to visualize feature clusters and solution approaches.

**Outcome:** A comprehensive list of potential features and functionalities for Explore with AI, categorized into themes like **user customization**, **AI automation**, and **content generation**.



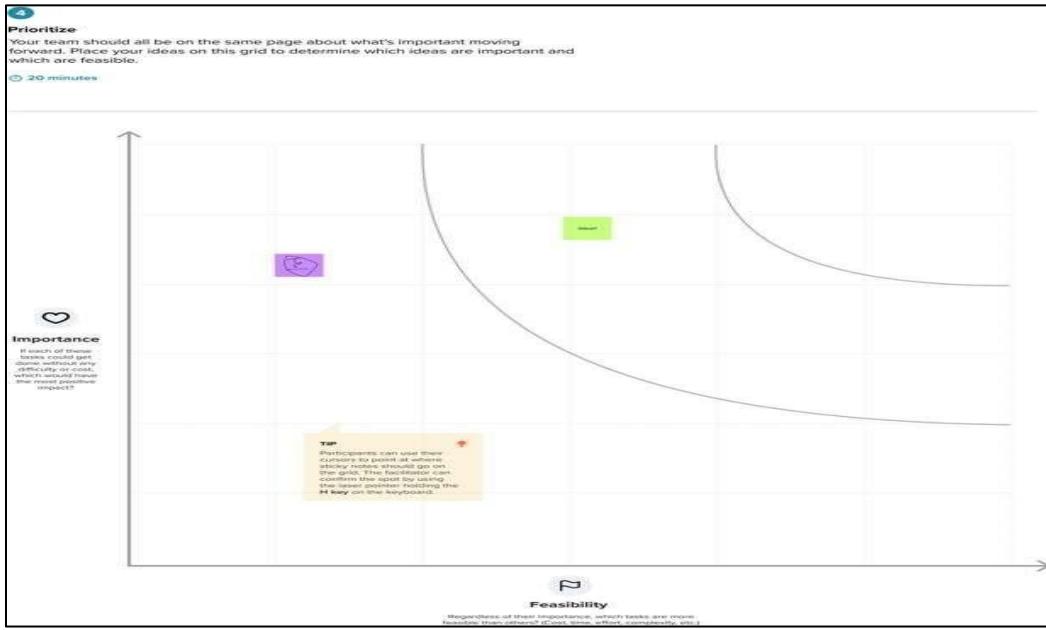
### Step-3: Idea Prioritization

After gathering and grouping ideas, the team prioritizes features and solutions to focus on the **highest value and most feasible elements** for Explore with AI.

Key activities:

- Evaluated ideas based on **user impact, feasibility, and development effort**.
- Used prioritization techniques such as:
  - **MoSCoW Method** (Must Have, Should Have, Could Have, Won't Have)
  - **Impact vs. Effort Matrix**
  - **Dot Voting** or team consensus
- Decided which features to implement first, such as:
  - Must-Have: Personalized daily itinerary generation
  - Should-Have: Dining and local attraction recommendations
  - Could-Have: Exportable itinerary formats and travel blog integration

Outcome: A focused development roadmap for Explore with AI that maximizes user value while staying realistic within the project timeline. This ensures the team prioritizes features that solve core user problems without overcomplicating the app.



### 3. REQUIREMENT ANALYSIS

#### 3.1 Customer Journey map

The **customer journey** for Explore with AI describes the steps a user takes from discovering the system to receiving a personalized travel itinerary, highlighting their actions, thoughts, and experiences along the way.

##### 1. Awareness:

Users first learn about Explore with AI through social media, search engines, blogs, recommendations from friends. At this stage, travelers often feel overwhelmed by the amount of research needed to plan a trip and are looking for an easier, faster solution. Awareness of the tool sparks curiosity and interest in a smarter way to create personalized itineraries.

##### 2. Interest:

After discovering the platform, users visit the Streamlit application to explore its features. They may wonder whether the AI can truly understand their preferences and provide a meaningful travel plan. Clear explanations and an intuitive interface help users see the value of the system.

##### 3. Input / Data Entry:

Users enter their travel details, including destination, trip duration, budget, and specific interests such as adventure, culture, or relaxation. At this stage, they may feel unsure if their inputs are sufficient for a useful itinerary. The system validates these inputs and structures them into a prompt suitable for AI processing, ensuring the user feels guided and supported.

##### 4. AI Processing:

Once the user submits the form, the PaLM Generative AI model processes the input. The

system converts the user's preferences into a detailed, day-wise travel plan. Users experience anticipation at this stage, hoping the generated itinerary aligns with their expectations.

#### 5. Output / Review:

The AI-generated itinerary is displayed in a structured and readable format. It includes daily activities, recommended attractions, dining suggestions, and travel tips. Users feel satisfied and confident, appreciating how the system simplifies the planning process and reduces the stress of manual research.

#### 6. Optional Actions:

Users can save, download, or share their itinerary. These features enhance convenience and usability, allowing travelers to retain or distribute their personalized plans.

#### 7. Feedback / Iteration:

Users may refine their inputs or provide feedback to generate an updated itinerary. This iterative process ensures continuous improvement and personalization, increasing user engagement and satisfaction.

### 3.2 Solution Requirement

#### Functional Requirements:

Following are the functional requirements of the proposed solution.

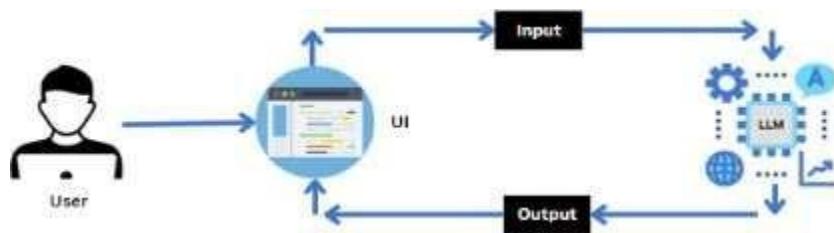
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Input Interface	Enter travel destination
		Enter trip duration (days/nights)
		Select travel interests (sightseeing, adventure, food, relaxation, etc.)
FR-2	AI Itinerary Generation	Generate a day-wise personalized itinerary based on user inputs
		Include attractions, dining, and travel tips
FR-3	Itinerary Review & Customization	Review the generated itinerary
		Modify or adjust activities, timing, or remove items
FR-4	Export & Sharing	Export itinerary as PDF or copy to clipboard
FR-5	Error Handling	Validate inputs and provide user-friendly error messages
FR-6	Optional Recommendations	AI suggests hidden gems or additional attractions based on preferences

#### Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

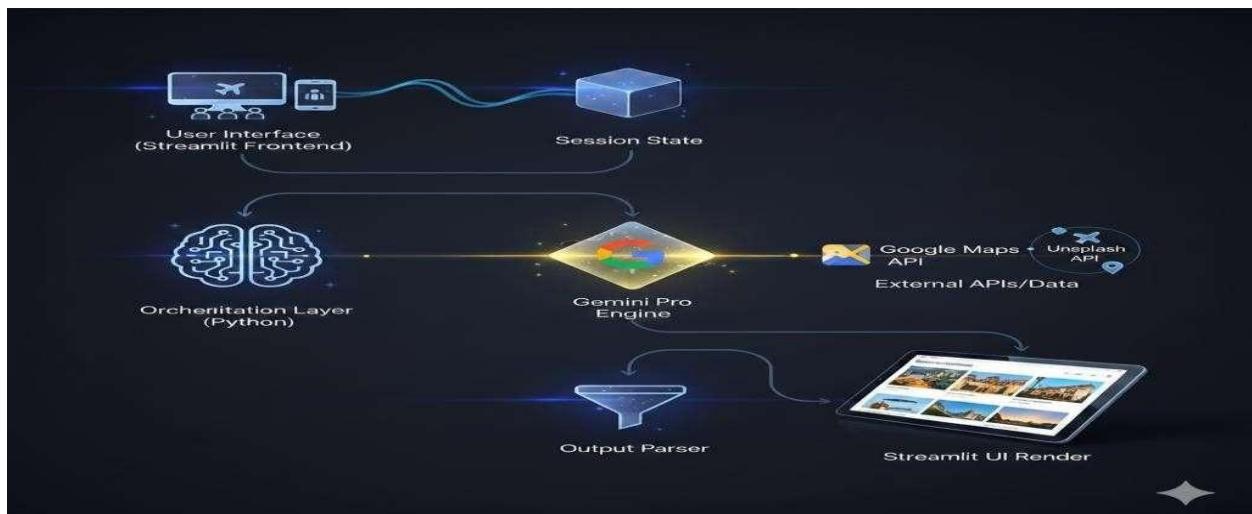
NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	The app must offer a simple, intuitive interface for users of all experience levels
NFR-2	Security	API calls to Gemini Pro should be secure; inputs/outputs should be safely handled
NFR-3	Reliability	The system must generate itineraries consistently without crashes
NFR-4	Performance	AI-generated itineraries should be returned in under 5 seconds (depending on destination and complexity)
NFR-5	Availability	The platform should maintain high uptime ( $\geq 99.5\%$ )
NFR-6	Scalability	System should handle multiple users generating itineraries simultaneously
NFR-7	Extensibility	System should allow future integration with features like multi-destination trips, chatbots, or travel booking APIs

### 3.3 Data Flow Diagram



A **Data Flow Diagram (DFD)** represents the flow of data within the system, showing how information moves from inputs to processes and finally to outputs. For **Explore with AI**, the DFD illustrates how user inputs are processed by the system to generate personalized travel itineraries using Streamlit and the PaLM Generative AI model.

### 3.4 Technology Stack



The **technology stack** for this project has been carefully chosen to build a lightweight, interactive, and AI-driven travel itinerary application. The system leverages **Streamlit** for the user interface and **PaLM Generative AI** for personalized content generation.

## 1. Frontend / User Interface

Technology: Streamlit

- Streamlit is a Python-based framework for building interactive web applications.
- Used to design the user-friendly interface where travelers input:
  - Destination
  - Trip duration
  - Budget
  - Travel interests and preferences
- Displays AI-generated itineraries in a structured and readable format.
- Provides buttons, sliders, dropdowns, and text inputs for dynamic interaction.

## 2. Backend / Application Logic

Technology: Python

- Handles the processing of user inputs and prepares prompts for the AI.
- Manages communication with the PaLM Generative AI API.
- Formats the AI response into day-wise itineraries.
- Ensures smooth interaction between frontend inputs and AI outputs.

## 3. Generative AI Engine

Technology: PaLM API (Google Generative AI)

- PaLM is a Large Language Model (LLM) capable of generating human-like text.
- Receives structured prompts from the application and generates personalized travel itineraries.
- Ensures outputs align with user preferences, trip duration, and budget.
- Can be extended in the future to suggest restaurants, activities, or themed trips.

## 4. Deployment / Hosting

Technology: Streamlit Cloud or Local Deployment

- The application is deployed using Streamlit Cloud for easy access by users.
- Optionally, can be hosted locally or on other cloud platforms for testing.

## 4. PROJECT DESIGN

### 4.1 Problem Solution Fit

Travel planning can be overwhelming, time-consuming, and stressful, especially for travelers seeking personalized experiences. Individual travelers such as solo adventurers, families, or groups often face difficulties navigating fragmented information about destinations, attractions, dining options, and schedules. Current solutions like generic travel blogs, apps or tour packages are either too broad, outdated, or lack customization.

These challenges lead to wasted time, missed experiences, and frustration in organizing trips. Similarly, travel agencies struggle to efficiently generate high-quality, personalized itineraries for diverse clients, often relying on manual research and repetitive tasks.

The **core problem** is the absence of a centralized, intelligent, and efficient solution that allows travelers and agencies to create personalized itineraries quickly, reliably, and with minimal effort. Users face issues like information overload, conflicting recommendations, and inefficient planning processes.

#### Explore with AI Solution:

Explore with AI addresses these pain points by providing **AI-powered platform** (web and app-based) that automatically generates detailed, customized travel itineraries. Key features include:

- **Personalized Itineraries:** AI-generated daily plans tailored to user preferences, trip duration, and interests.
- **Local Recommendations:** Curate suggestions for attractions, restaurants, and hidden gems.
- **Optimized Schedules:** Efficient routing and timing to maximize experiences while minimizing travel stress.
- **Customizable Output:** Users can review, edit, and export itineraries in formats like PDF or text.
- **Agency Support:** Travel agencies can input client details and instantly generate high-quality itineraries for multiple clients.
- **Content Integration:** Explore with AI can produce articles, guides, and tips for blogs and websites, keeping content fresh and engaging.

By automating personalized travel planning and providing trustworthy recommendations, Explore with AI reduces planning time, increases convenience, and enhances the overall travel experience for both individuals and agencies.

#### Purpose of Problem–Solution Fit

Defining the Problem–Solution Fit for Explore with AI ensures the product addresses real, validated needs of travelers and agencies:

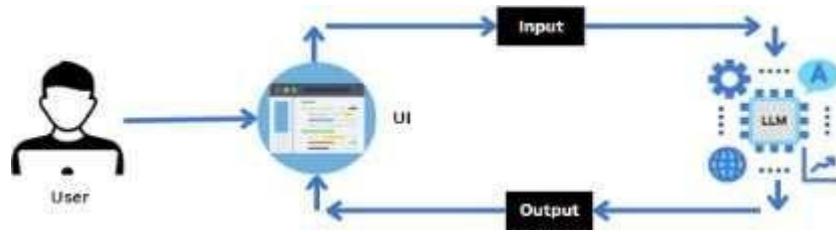
- **Solve actual travel planning pain points:** Reduce stress, save time, and simplify itinerary creation.
- **Accelerate adoption:** Provide intuitive, AI-driven features aligned with traveler behavior and preferences.
- **Enhance communication and engagement:** Deliver relevant, personalized content and recommendations.
- **Increase trust and reliability:** Users gain confidence in AI-generated itineraries and curate travel information.
- **Deliver immediate value:** From the first interaction, users experience actionable, tailored itineraries that enhance their trips.

## 4.2 Proposed Solution

S. No.	Parameter	Description
1.	<b>Problem Statement (Problem to be solved)</b>	Travelers and travel agencies face difficulties planning personalized, detailed itineraries due to fragmented information, overwhelming choices, and time-consuming research. This often results in missed experiences, inefficient schedules, and planning stress.
2.	<b>Idea / Solution Description</b>	Explore with AI is a web and mobile-based AI platform that generates personalized travel itineraries. Users input destination, duration, and interests, and the AI produces detailed daily plans with attractions, dining options, activity schedules, and local tips. Travel agencies can generate high-quality itineraries for clients quickly, while travel websites can automatically generate engaging content.
3.	<b>Novelty / Uniqueness</b>	Unlike generic travel blogs or apps, Explore with AI combines <b>AI-driven personalization, dynamic content generation, and automated itinerary creation</b> in one platform. It provides optimized daily schedules, insider recommendations, and editable itineraries reducing planning time and enhancing travel experiences.
4.	<b>Social Impact / Customer Satisfaction</b>	Explore with AI reduces travel planning stress, saves time, and ensures users discover authentic experiences. It empowers travelers and agencies to plan trips efficiently, boosting trust, engagement, and satisfaction. The platform makes personalized travel planning accessible to all types of travelers, from solo adventurers to families.
5.	<b>Business Model (Revenue Model)</b>	Multiple revenue streams: Freemium model: Basic itinerary generation free; Premium features like detailed guides, multi-destination trips, or export options paid Subscription plans for travel agencies Affiliate commissions from bookings (hotels, activities) Sponsored content partnerships with tourism boards or local businesses

6.	<b>Scalability of the Solution</b>	Explore with AI is built using scalable architecture (e.g., Python backend + Streamlit frontend + API for AI models). The platform can expand to support: Multiple destinations worldwide Integration with local services, travel APIs, and content providers AI-powered recommendations, chat bots, and multi-language support for global users
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## 4.3 Solution Architecture



### 1. Overview

Explore with AI is a web and mobile-based platform that allows users to enter travel preferences (destination, duration, interests) and receive a **personalized, AI-generated travel itinerary**. The system is designed for simplicity, speed, and scalability.

### 2. High-Level Components

#### A. User Interface (Frontend)

- **Technology:** Streamlit (Python) or React.js for web/mobile interface
- **Functionality:**
  - Input fields for destination, trip duration, and preferences/interests
  - Submit button to generate itinerary
  - Display of AI-generated itinerary in a structured, day-wise format
  - Options to review, customize, or export itinerary (PDF/Text)
  - Display user-friendly error messages

#### B. API Layer / Backend

- **Technology:** Python (Flask/FastAPI)
- **Functionality:**
  - Receives user input from frontend
  - Validates inputs (destination, dates, preferences)
  - Handles requests to the AI model
  - Returns structured itinerary results to frontend

### C. AI Engine

- **Technology:** Gemini Pro LLM / OpenAI GPT / other generative AI model
- **Functionality:**
  - Processes input parameters (destination, duration, interests)
  - Generates detailed day-wise itinerary including:
    - Attractions and sightseeing
    - Local dining recommendations
    - Suggested activities and timing
    - Travel tips and optional hidden gems
  - Ensures structured output for easy rendering on frontend

### D. Data Layer (Optional)

- **Technology:** Cloud database (MongoDB/PostgreSQL)
- **Functionality:**
  - Stores predefined destination data (optional)
  - Stores user-generated itineraries (if history/export feature is implemented)
  - Logs analytics for system monitoring

### E. Export & Reporting Module

- **Functionality:**
  - Convert itinerary to PDF or downloadable formats
  - Copy/export to clipboard
  - Optional integration with email or messaging for sharing

## 3. Key Features of Architecture

- **Modular Design:** Frontend, backend, AI engine, and data layer are loosely coupled.
- **Scalable:** Can handle more destinations, multiple users, and AI requests simultaneously.
- **Extensible:** Future features can include multi-destination planning, travel booking integrations, or content generation for blogs.
- **Simple Workflow:** Focused on **input → AI processing → output**, minimizing user friction.

## 5. PROJECT PLANNING & SCHEDULING

### 5.1 Project Planning

Product Backlog, Sprint Schedule, and Estimation (Explore with AI)

Sprint	Functional Requirement	User Story	User Story / Task	Story Points	Priority
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	(Epic)	Number			
Sprint-1	Input Interface	USN-1	As a user, I can enter my travel destination.	2	High
Sprint-1	Input Interface	USN-2	As a user, I can enter the number of days/nights for my trip.	2	High
Sprint-1	Input Interface	USN-3	As a user, I can select my travel interests and preferences.	3	High
Sprint-2	AI Itinerary Generation	USN-4	As a user, I can submit my inputs and receive a personalized travel itinerary.	5	High
Sprint-2	AI Itinerary Generation	USN-5	As a user, I can see a well-structured day-wise itinerary with attractions, dining, and tips.	5	High
Sprint-3	Itinerary Review & Customization	USN-6	As a user, I can edit or customize activities in the generated itinerary.	3	Medium
Sprint-3	Itinerary Export	USN-7	As a user, I can export the itinerary as PDF or copy it for offline use.	3	Medium
Sprint-4	Error Handling & Validation	USN-8	As a user, I receive user-friendly error messages for invalid or empty inputs.	2	High
Sprint-4	Optional Features	USN-9	As a user, I can view recommended attractions or hidden gems suggested by AI.	3	Low

#### Project Tracker, Velocity & Burn down Chart (Explore with AI)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (Planned)	Sprint Release Date (Actual)
Sprint-1	7	2 Days	9 Feb 2026	15 Feb 2026	7	10 Feb 2026
Sprint-2	10	2 Days	12 Feb 2026	14 Feb 2026	10	14 Feb 2026
Sprint-3	6	2 Days	13 Feb 2026	15 Feb 2026	6	15 Feb 2026

## 6. FUNCTIONAL AND PERFORMANCE TESTING

### 6.1 Performance Testing

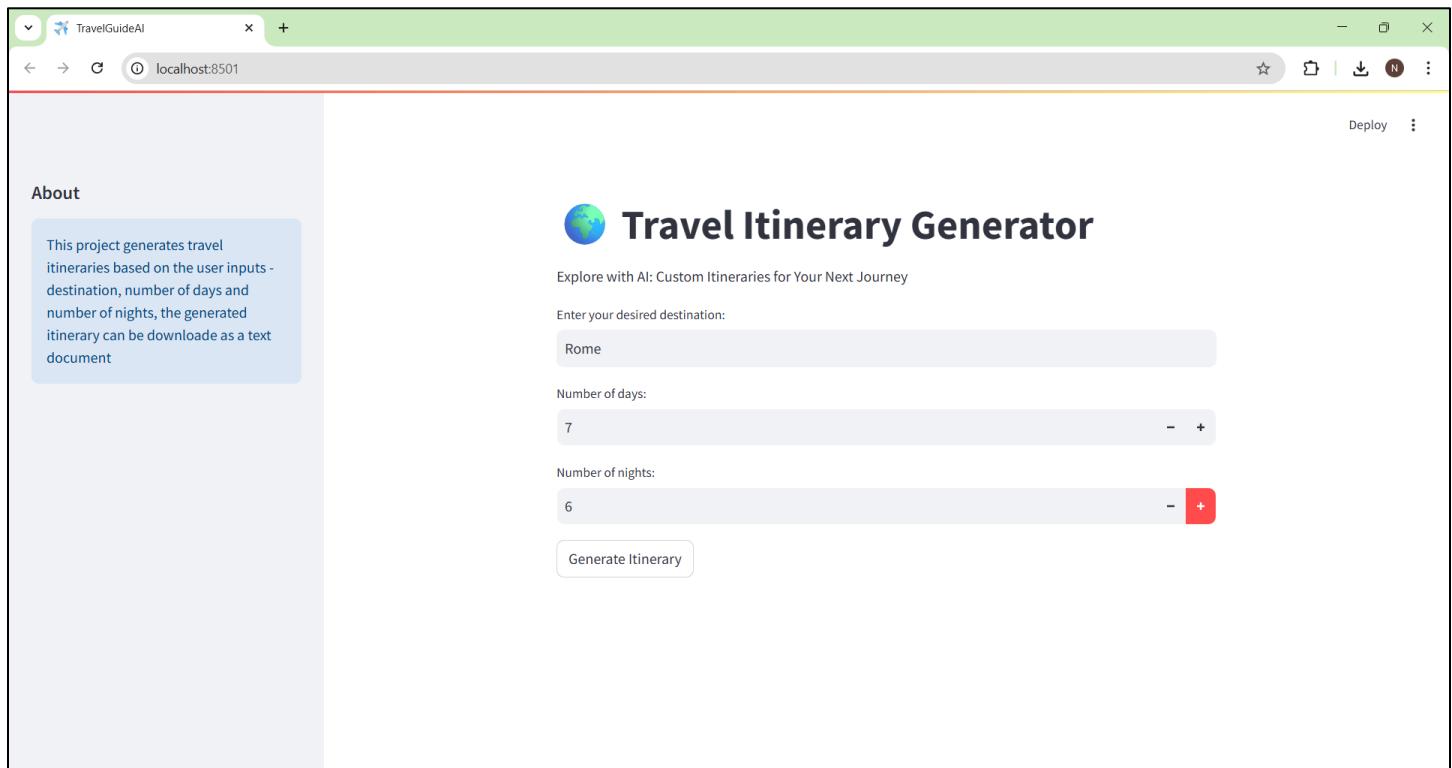
#### Test Scenarios & Results

Test Case ID	Scenario (What to test)	Test Steps (How to test)	Expected Result	Actual Result	Pass/Fail
FT-01	Text Input Validation (Destination, Preferences)	Enter valid destination (e.g., Paris) and leave field empty	Accepts valid input, shows warning for empty input	Valid inputs accepted; warning displayed for empty fields	Pass
FT-02	Number Input Validation (Budget, Duration)	Enter budget within range (e.g., 1000–5000) and negative/invalid values	Accepts valid numbers; shows error for invalid/negative values	Valid numbers accepted; error shown for invalid input	Pass
FT-03	Itinerary Generation	Fill all inputs and click “Generate Itinerary”	AI generates structured day-wise travel plan	Personalized itinerary generated successfully	Pass
FT-04	API Connection Check	Use correct and incorrect API key	Valid key connects; invalid key shows authentication error	Valid key works; error displayed for invalid key	Pass
FT-05	Prompt Structure Validation	Provide different themes (Adventure, Relaxation, Family Trip)	Output changes based on selected theme	AI output adapts correctly to theme	Pass
PT-01	Response Time Test	Measure time after clicking “Generate”	Response generated within 3–5 seconds	Average response time: ~2.8–3.5 seconds	Pass
PT-02	API Load Test	Trigger multiple requests consecutively	System handles multiple requests without crash	Minor delay observed, but stable	Pass
PT-03	Large Input Handling	Enter long preference	System processes	Handled successfully	Pass

		descriptions	without crashing		
ET-01	Error Handling Test	Disconnect internet and try generating itinerary	Proper error message displayed	“Connection Error” message shown	Pass
UI-01	UI Responsiveness Test	Open app on different screen sizes	Layout adjusts properly	Responsive layout maintained	Pass

## 7. RESULTS

### 7.1 Output Screenshots



This screenshot shows a web-based travel guide application. On the left, there's a sidebar with an "About" section containing a brief description of the service. In the center, a main content area features a "Generate Itinerary" button and a title "Your Personalized Plan". Below the title is a section titled "Rome: A Journey Through Eternity - 7 Days of Grandeur, Art & La Dolce Vita". A descriptive paragraph follows, followed by a section titled "Important Travel Tips for Rome:" with a bulleted list of tips.

**About**

This project generates travel itineraries based on the user inputs - destination, number of days and number of nights, the generated itinerary can be downloaded as a text document

**Generate Itinerary**

**Your Personalized Plan**

**Rome: A Journey Through Eternity - 7 Days of Grandeur, Art & La Dolce Vita**

Welcome, fellow traveler, to the Eternal City! Prepare to step back in time, immerse yourself in unparalleled artistry, and savor the flavors of one of the world's most magnificent destinations. This 7-day, 6-night itinerary is crafted to give you a comprehensive and unforgettable Roman experience, blending iconic landmarks with hidden gems and delicious culinary adventures.

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**Important Travel Tips for Rome:**

- Book Ahead, Seriously! For the Colosseum, Roman Forum, Palatine Hill, Vatican Museums/Sistine Chapel, and Borghese Gallery, advance online booking is absolutely essential. Tickets often sell out weeks in advance, especially during peak season. Don't risk disappointment.
- Comfortable Shoes are a Must: Rome is best explored on foot. You'll be walking miles each day over cobblestones, so prioritize comfortable footwear.
- Dress Code for Churches: When visiting churches, especially St. Peter's Basilica and the Vatican Museums, ensure shoulders and knees are covered. Carry a light scarf for women if needed.
- Transportation:

This screenshot shows a continuation of the travel guide application. It includes the same sidebar and "About" section as the previous screenshot. The main content area now displays a detailed itinerary for "Day 3: Baroque Masterpieces & Iconic Fountains". The itinerary is organized into three sections: Morning (Vatican Museums & Sistine Chapel), Afternoon (St. Peter's Basilica & Castel Sant'Angelo), and Evening (Prati District & Roman Delights). Each section contains specific recommendations and tips.

**About**

This project generates travel itineraries based on the user inputs - destination, number of days and number of nights, the generated itinerary can be downloaded as a text document

- **Morning (Vatican Museums & Sistine Chapel):**
  - Start your day early at the **Vatican Museums**. Pre-booked tickets are essential to beat the crowds. Allow 3-4 hours to explore the vast collections, culminating in Michelangelo's breathtaking **Sistine Chapel**.
  - **Tip:** Consider a "First Entry" ticket or an early morning tour to experience the Sistine Chapel with fewer people.
- **Afternoon (St. Peter's Basilica & Castel Sant'Angelo):**
  - After the museums, enter **St. Peter's Basilica**, the largest church in the world. Marvel at Michelangelo's Pietà and the stunning dome.
  - **Optional:** Climb to the top of St. Peter's Dome for panoramic views of Rome and Vatican City (additional cost, can be tiring).
  - **Local Dining Suggestion (Lunch):** Find a quick bite near the Vatican, perhaps a panino or another **pizza al taglio**.
  - Walk along the Tiber River to **Castel Sant'Angelo**, once Hadrian's mausoleum, then a papal fortress. Explore its ramparts and secret passages.
- **Evening (Prati District & Roman Delights):**
  - Explore the elegant **Prati** district around Castel Sant'Angelo, known for its upscale shopping and restaurants.
  - **Local Dining Suggestion (Dinner):** Dine in Prati. Sample **arancini** (fried rice balls with tomato and mozzarella) as an appetizer, followed by **Saltimbocca alla Romana** (veal with prosciutto and sage).

**Day 3: Baroque Masterpieces & Iconic Fountains**

## 8. ADVANTAGES & DISADVANTAGES

### Advantages

#### 1. Time-Saving

- Automates travel planning, eliminating hours of manual research.
- Generates ready-to-use itineraries instantly based on user inputs.

## **2. Personalization**

- Provides travel plans tailored to user preferences, interests, budget, and duration.
- Day-wise recommendations for activities, dining, and attractions.

## **3. User-Friendly Interface**

- Interactive Streamlit UI allows easy input and instant results.
- Simple navigation ensures accessibility for all types of users.

## **4. Scalability**

- Can serve both individual travelers and travel agencies.
- Future integration with databases and APIs can enhance features.

## **5. Enhanced Decision-Making**

- AI-generated suggestions help users make informed choices about destinations, activities, and accommodations.

## **6. Content Generation for Websites/Blogs**

- Can produce travel-related content like guides, tips, and recommendations automatically.

## **Disadvantages**

### **1. Dependence on AI Accuracy**

- The quality of itineraries depends on the AI model's understanding of user inputs.
- Incorrect or ambiguous inputs may lead to less relevant recommendations.

### **2. Limited Offline Functionality**

- Requires an internet connection to interact with the PaLM Generative AI API.

### **3. Customization Limits**

- Current system may not handle highly complex or unusual travel preferences without further AI training.

### **4. No Real-Time Updates (Current Version)**

- Flight, weather, or local event changes are not automatically reflected in itineraries.

### **5. Potential API Limitations**

- Usage depends on the availability, rate limits, and subscription plan of the PaLM API.

### **6. Data Privacy Concerns**

- User inputs are sent to an external AI model; proper measures must be in place to handle sensitive information securely.

## **9. CONCLUSION**

**Explore with AI: Custom Itineraries for Your Next Journey** successfully demonstrates how Generative AI (PaLM) integrated with a Streamlit interface can simplify and personalize travel planning. The system reduces the time and effort required for creating day-wise travel itineraries, providing tailored recommendations for destinations, attractions, dining, and activities.

The project highlights the practical application of AI in solving real-world problems, offering value to both individual travelers and travel professionals. Users benefit from a structured,

interactive, and efficient travel planning experience, while travel agencies can generate high-quality itineraries quickly.

Overall, the project showcases the potential of AI-driven solutions to enhance decision-making, improve user experience, and make complex processes more accessible and manageable.

## 10. FUTURE SCOPE

The system can be further enhanced to increase functionality, user engagement, and real-world applicability:

### 1. Integration with Databases

- Store user preferences and past itineraries to provide personalized suggestions and repeat trip recommendations.

### 2. Real-Time Travel Updates

- Incorporate APIs for live weather, flight schedules, local events, or transportation to make itineraries dynamic and up-to-date.

### 3. Mobile Application Development

- Extend the system to mobile platforms for on-the-go access.

### 4. Enhanced Personalization

- Include more detailed customization options such as dietary preferences, accessibility requirements, or adventure level.

### 5. Export and Sharing Features

- Allow users to download itineraries as PDF, share via email or social media, or integrate with calendar apps.

### 6. Multi-Language Support

- Enable support for multiple languages to cater to a global audience.

### 7. Integration with Booking Services

- Connect with hotel, flight, and activity booking APIs to provide end-to-end trip planning in one platform.

### 8. AI Learning from User Feedback

- Implement feedback loops so the AI model can learn user preferences over time, improving the quality of future itineraries.

## 11. Github Link & Project Demo Link

### 11.1 Github Link

<https://github.com/NALLAVARSHITHA/Explore-with-AI-Custom-Itineraries-for-Your-Next-Journey>

### 11.2 Project Demo Link

<https://github.com/NALLAVARSHITHA/Explore-with-AI-Custom-Itineraries-for-Your-Next-Journey/tree/main/Video%20Demo>

