

PROJECT REPORT

Team id- LTVIP2026TMIDS52031

1. INTRODUCTION

1.1 Project Overview

Explore with AI: Custom Itineraries for Your Next Journey is an AI-powered travel planning solution designed to simplify and personalize trip organization for individuals and travel professionals. Using generative AI (Gemini Pro) and a Streamlit-based interface, the system collects user inputs such as destination, travel duration, and preferences, and transforms them into a detailed, day-wise itinerary. It provides recommendations for attractions, dining, activities, and travel tips in a structured format. The goal is to eliminate time-consuming manual research and enable users to plan efficient, customized trips quickly, making travel planning smarter, faster, and more accessible.

1.2 Purpose

The purpose of this project is to develop an AI-powered system that automatically generates personalized travel itineraries based on user inputs such as destination, duration, and preferences. It aims to simplify travel planning, reduce the time and effort required for research, and provide users with a well-structured plan that enhances their travel experience.

2. IDEATION PHASE

2.1 Problem Statement

Travel planning information is scattered across multiple sources and requires extensive manual research, making it difficult for users to quickly create personalized and efficient itineraries. Existing tools often provide generic recommendations and lack intelligent customization, limiting their usefulness for travelers with specific preferences, time constraints, or unique needs.

Customer Problem Statement Template					
I am	I'm trying to	But	Because	Which makes me feel	
I am	An individual traveler planning a trip	Plan a complete travel itinerary	Travel planning requires extensive research	Information is scattered across many sources	Overwhelmed by planning complexity
	A busy professional with limited time	Organize a trip efficiently	I don't have time to compare options	No single tool provides personalized plans	Stressed and discouraged from traveling
A travel agent handling multiple clients	Create customized travel plans for clients	Manual itinerary creation takes too long	Gathering accurate information is difficult	Each traveler has different preferences	Overloaded with work
	A travel blogger or website owner	Provide engaging travel content		Content creation needs constant updates	Pressured to maintain quality content

Team: Santhija, Deepika, Snehalatha, Sai Dinesh

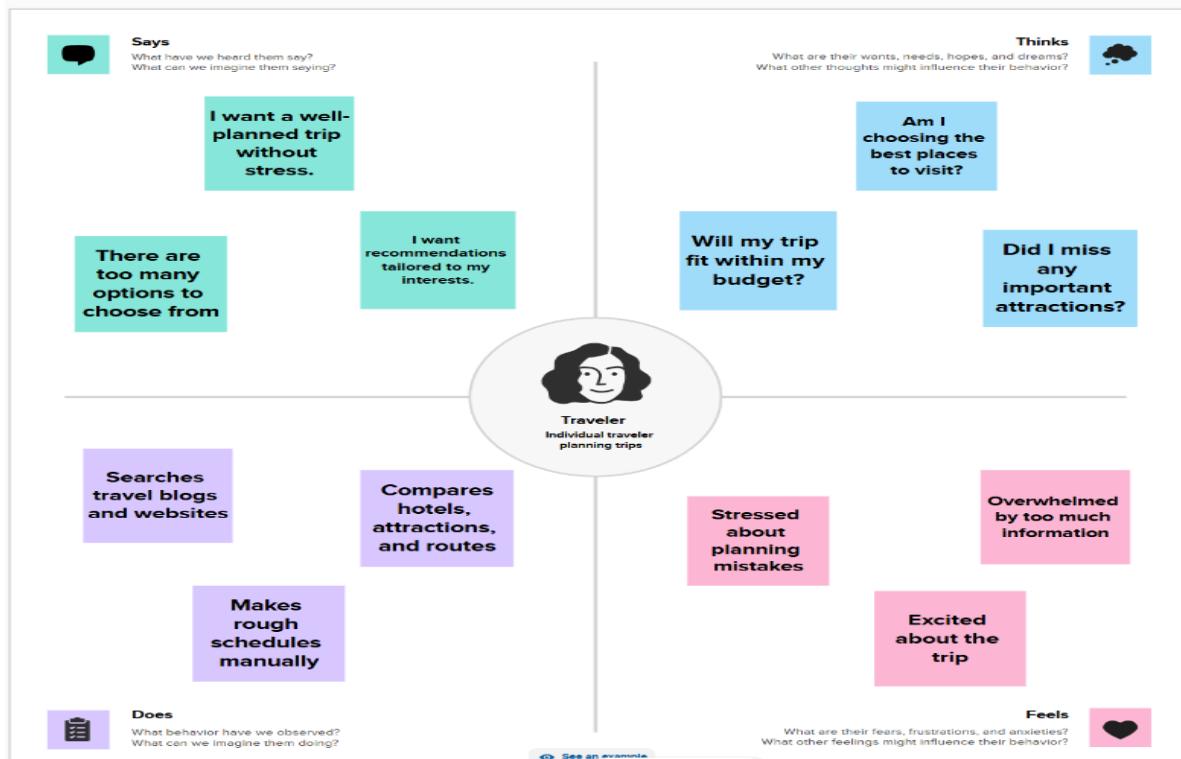
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Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A traveler planning a vacation	Create a detailed travel plan for my trip	Travel planning requires extensive research and is time-consuming	Information is scattered across many websites and not personalized	Overwhelmed and unsure about my travel decisions
PS-2	A working professional with limited time	Plan a short trip efficiently	I don't have time to research destinations, hotels, and activities	Planning requires comparing multiple options and schedules	Stressed and discouraged from traveling
PS-3	A travel agent serving multiple clients	Create customized itineraries quickly	Manual planning takes too long for each client	Every client has different preferences and requirements	Overloaded and less productive
PS-4	A travel content creator or website manager	Provide engaging travel guides regularly	Creating detailed content requires extensive research	Information must be accurate, updated, and appealing	Under pressure to maintain quality content consistently

2.2 Empathy Map Canvas



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2.3 Brainstorming

Template

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

- Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.
- Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#)

1 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 enable travelers and travel agencies to quickly create personalized, detailed travel itineraries using AI based on destination, duration, and user preferences?

2 Key rules of brainstorming

To run a smooth and productive session:

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

Need some inspiration?
See a finished version of this template to kickstart your work.

[Open example](#)

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1 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

2 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label if a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

AI-generated personalized itinerary	Input destination, days, nights	Daily travel schedule generation	User preferences input	Customization options	Budget planning
Tourist attraction recommendations	Travel tips & safety guidelines	Support for travel agencies	Tourist attractions	Hotels/accommodation	Travel tips & safety
Budget-friendly planning suggestions	Customization of itinerary	Streamlit web interface	AI processing of inputs	Automatic itinerary generation	Content generation
Content for travel blogs/websites	Export or download itinerary	Copy/share itinerary option	Streamlit web interface	Export/download option	Copy/share itinerary

3 Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

4 After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Importance
How much value does this idea bring to the project? Does it align with our overall goals?

Feasibility
Regardless of their importance, some ideas are easier to implement than others (cost, time, effort, complexity, etc.)

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3.REQUIREMENT ANALYSIS

The system requires users to provide travel details such as destination, trip duration, and personal preferences. Based on these inputs, the application must process the information using a generative AI model to produce a personalized itinerary. The system should generate a clear day-wise travel plan that includes recommended attractions, activities, dining options, and travel tips. Additionally, the interface must allow users to review, modify, and regenerate the plan if needed. The application should be easy to use, responsive, and capable of delivering results quickly to support efficient travel planning.

3.1 Customer Journey Map



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 of Travel Details	<ul style="list-style-type: none">• Enter destination• Enter number of days and nights• Provide travel preferences (interests, budget, etc.)
FR-2	AI-Based Itinerary Generation	<ul style="list-style-type: none">• Process user inputs using Gemini Pro AI• Generate personalized travel plan• Create day-wise schedule
FR-3	Recommendations Generation	<ul style="list-style-type: none">• Suggest tourist attractions• Recommend restaurants and local food• Provide travel tips and safety guidelines
FR-4	Itinerary Display	<ul style="list-style-type: none">• Show structured itinerary in Streamlit interface• Display daily activities clearly• Present recommendations in readable format
FR-5	Customization & Export	<ul style="list-style-type: none">• Allow user to modify inputs• Regenerate itinerary• Copy or download itinerary for future use

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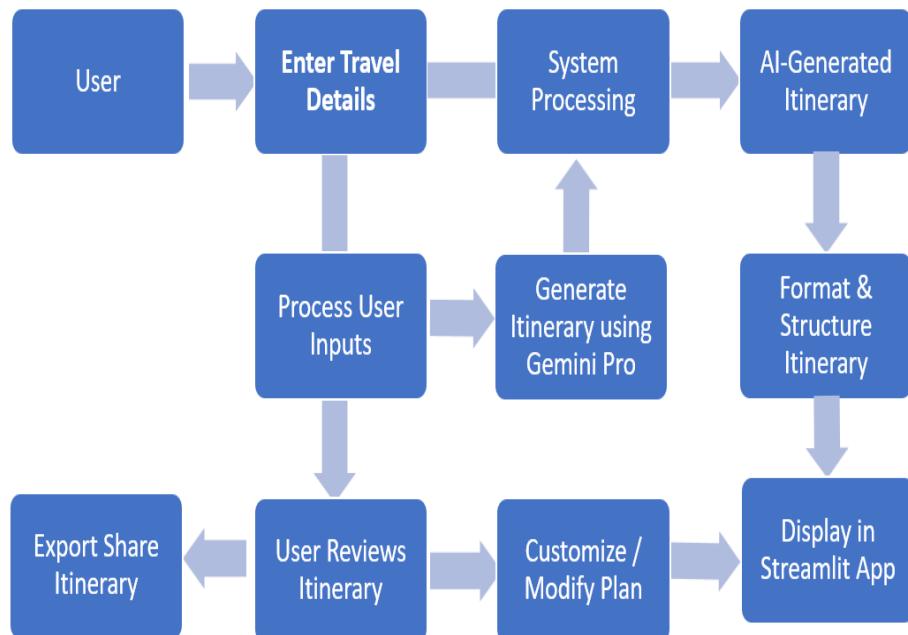
Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system should have a simple and intuitive interface so users can easily enter details and understand the itinerary.
NFR-2	Security	User inputs and generated data should be handled securely without unauthorized access.
NFR-3	Availability	The system should consistently generate accurate and complete itineraries without failures.
NFR-4	Performance	The itinerary should be generated within a few seconds after submitting inputs.
NFR-5	Availability	The application should be accessible anytime via the web interface.

3.3 Data Flow Diagram

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



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3.4 Technology Stack

Technology Stack for "Explore with AI: Custom Itineraries for Your Next Journey".

Component	Tool or Technology	Purpose
Data Source	User Input (Destination, Duration, Preferences)	Collect travel details required for itinerary generation
AI Model	Gemini Pro (Google Generative AI API)	Generate personalized travel itinerary using A
Processing	Python	Process user inputs and interact with AI model
User Interface	Streamlit	Provide interactive web interface for users to enter details and view results
Storage	Local storage	Store inputs and generated itinerary temporarily

4. PROJECT DESIGN

4.1 Problem Solution Fit

Template: Measuring the Pulse of Prosperity: An Index of Economic Freedom Analysis

Define CS, fit into CC Focus on J&P, tap into BE, understand NC	1. CUSTOMER SEGMENT(S) Who is your customer? I.e. working parents of 0-5 y.o. kids	CS	6. CUSTOMER CONSTRAINTS What constraints prevent your customers from taking action or limit their choices of solutions? I.e. spending power, budget, no cash, network connection, available devices.	CC	5. AVAILABLE SOLUTIONS Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? I.e. pen and paper is an alternative to digital notetaking	AS	Explore AS, differentiate
	Travelers, busy professionals, travel agencies, and travel content creators who need help planning trips		They have limited time, budget constraints, and lack personalized guidance.		They currently use travel websites, blogs, videos, or travel agents.		
Identify strong TR & EM	2. JOBS-TO-BE-DONE / PROBLEMS What jobs-to-be-done (or problems) do you address for your customer? There could be more than one; explore different sides.	J&P	9. PROBLEM ROOT CAUSE What is the real reason that this problem exists? What is the back story behind the need to do this job? I.e. customers have to do it because of the change in regulations.	RC	7. BEHAVIOUR What does your customer do to address the problem and get the job done? I.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (I.e. Greenpeace)	BE	Focus on J&P, tap into BE, understand NC
	They need to create a complete travel plan but find it time-consuming and difficult.		Travel information is scattered and not tailored to individual needs.		They search online, compare options, and manually create rough plans.		
Extract online & offline CH of BE	3. TRIGGERS What triggers customers to act? I.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.	TR	10. YOUR SOLUTION If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.	SL	8. CHANNELS of BEHAVIOUR 8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7 They use search engines, travel apps, social media, and booking websites.	CH	
	An upcoming trip or client request creates the need for quick planning.	EM	TravelGuideAI uses AI to automatically generate personalized travel itineraries.		8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.		

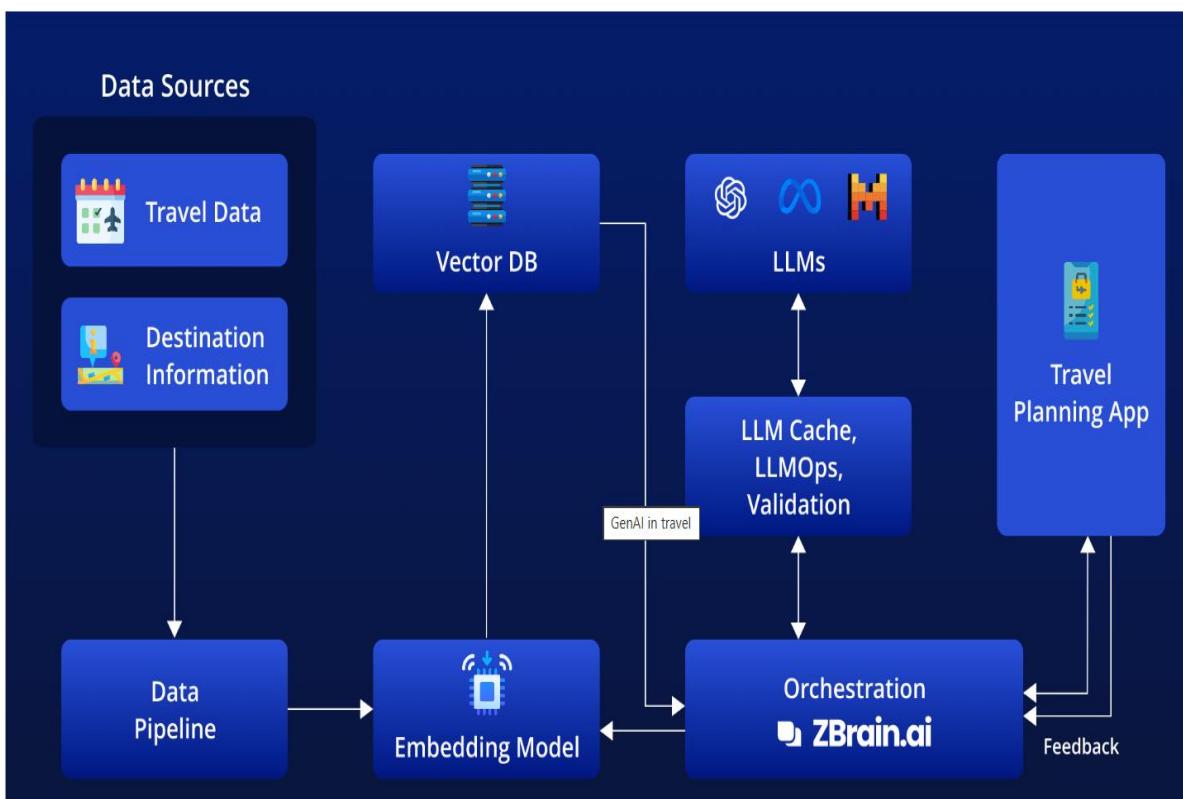
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4.2 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Travel planning is time-consuming and difficult because information is scattered and not personalized.
2.	Idea / Solution description	An AI-based system that generates personalized travel itineraries using destination, duration, and user preferences.
3.	Novelty / Uniqueness	The solution uses generative AI to automatically create customized, day-wise travel plans instantly.
4.	Social Impact / Customer Satisfaction	It simplifies travel planning and helps users save time while making better travel decisions.
5.	Business Model (Revenue Model)	Free basic usage with potential premium features for advanced planning or agency use.
6.	Scalability of the Solution	The system can be expanded to support more destinations, features, and users globally.

4.3 Solution Architecture



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PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (web/Mobile user)	Trip Planning & Itinerary Generation	USN-1	As a user, I can enter destination, duration, and preferences to plan my trip	I can submit travel details successfully.	High	Sprint-1
		USN-2	As a user, I can generate a personalized travel itinerary using AI	The system generates a detailed itinerary.	High	Sprint-1
		USN-3	As a user, I can view daily activities, attractions, and recommendations	Itinerary shows day-wise schedule.	High	Sprint-1
	Customization & Interaction	USN-4	As a user, I can modify or customize the generated itinerary.	Changes update the itinerary.	Medium	Sprint-2
		USN-5	As a user, I can regenerate the itinerary with different preferences.	New itinerary is generated based on updated inputs.	Medium	Sprint-2
	Output & Sharing	USN-6	As a user, I can export or copy the itinerary for future use.	Itinerary can be downloaded or copied.	Medium	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
		USN-7	As a user, I can share the itinerary with others.	Share option works correctly.	Low	Sprint-3
Travel Agency	Client Support	USN-8	As a travel agent, I can generate itineraries for multiple clients	System handles different inputs for each client	Medium	Sprint-2

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	01 Feb 2026	06 Feb 2026	20	06 Feb 2026
Sprint-2	20	6 Days	08 Feb 2026	13 Feb 2026	20	13 Feb 2026
Sprint-3	20	6 Days	15 Feb 2026	20 Feb 2026	2020	20 Feb 2026
Sprint-4	20	6 Days	22 Feb 2026	27 Feb 2026		27 Feb 2026

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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 & Interests)	Enter valid destination like "Paris" and invalid input like empty field	Valid destination accepted, warning for empty input	Application accepts valid destination and shows warning when field is empty	Pass
FT-02	Number Input Validation (Days & Nights)	Enter valid numbers (3,4) and invalid values (0 or negative)	Accepts valid values, shows warning for invalid range	Valid numbers accepted, warning displayed for invalid values	Pass
FT-03	Itinerary Generation	Enter all inputs and click "Generate Itinerary"	Day-wise itinerary generated based on user input	Personalized itinerary generated correctly	Pass
FT-04	API Connection Check	Check if API key is correct and model responds	API responds and returns generated content	API successfully generated itinerary (when quota available)	Pass
PT-01	Response Time Test	Measure time after clicking generate	Itinerary should generate within 3–5 seconds	Response generated within acceptable time	Pass
PT-02	API Speed Test	Trigger multiple requests quickly	System should handle requests or show proper error	System shows quota message after limit reached	Pass

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7. RESULTS

7.1 Output Screenshots

The image displays two screenshots of a mobile application titled "Travel Guide AI".

Screenshot 1: Itinerary Generation Screen

This screen shows the input fields for generating a travel itinerary:

- Destination: Tirupati
- Number of days: 1
- Number of nights: 1
- Interests: Spirituality

A "Generate Itinerary" button is at the bottom.

Screenshot 2: Personalized Itinerary Screen

This screen displays a personalized itinerary for Tirupati:

Itinerary Summary:

Here's a short 1-day spiritual itinerary for Tirupati:

Day 1: Divine Darshan & Blessings

- Morning: Ascend to Tirumala for Sri Venkateswara Swamy Temple. Book Darshan tickets online beforehand. Immerse in the divine 'Govinda' chants and serene atmosphere.
- Afternoon: Descend to Tirupati and visit Sri Padmavathi Ammavari Temple in Tiruchanur, completing the traditional pilgrimage.

Food Recommendations:

- Indulge in the famous Tirupati Laddu (prasadam) post-Darshan.
- For lunch, savor an authentic South Indian vegetarian Thali.

Travel Tips:

- Adhere to the traditional dress code (modest attire).
- Book Darshan slots well in advance.
- Keep belongings secure.

Cultural Insights: Devotees believe offerings to Lord Venkateswara, including hair tonsuring, fulfill wishes and purify the soul. The pilgrimage reflects profound faith in the 'Lord of Seven Hills' and is a deeply spiritual experience.

A "Back to Home" button is at the bottom.

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8. ADVANTAGES & DISADVANTAGES

8.1 ADVANTAGES

- Generates personalized travel itineraries instantly.
- Saves time and reduces manual trip planning effort.
- Provides day-wise structured travel plans.
- Simple and user-friendly interface.

8.2 DISADVANTAGES

- Depends on internet connection.
- Limited by API usage quota.
- May not always provide perfectly accurate suggestions.
- Does not include real-time booking or pricing information.

9. CONCLUSION

Explore with AI simplifies travel planning by generating personalized, day-wise itineraries quickly and efficiently. It demonstrates how intelligent systems can enhance user experience and make trip planning easier.

10. FUTURE SCOPE

- Add hotel and flight booking integration.
- Include budget-based itinerary planning.
- Add real-time weather and map integration.
- Support multiple languages for global users.

Github : [link](#)