

Travel Planner AI Assistant

1. Introduction

Travel planning involves searching through a vast amount of information—destinations, transport, hotels, budgets, and itineraries. Travelers often feel overwhelmed when making decisions.

This project builds an AI-powered Travel Planner using conversational AI that interacts with users in natural language. The assistant can:

- Understand user inputs like *"I want to go to Jaipur for 5 days"*.
- Ask clarifying questions (budget, interests, transport preferences).
- Recommend destinations, transport options (nearest airport/railway), and hotels.
- Generate personalized itineraries.

The system is designed to simulate a human-like travel agent experience.

2. Data Sources

The AI uses LLM-powered reasoning (OpenAI/Perplexity Sonar), not a fixed dataset.

3. Instructions for assistant

- Assistant should collect the values for the following features : *Origin City, Destination, Budget, Number of Days, Travel Style and Accommodation Preference*
- The values for key 'Accommodation Preference' should be either 'budget', 'mid-range', or 'luxury' based on the user's preference.
- The values for key 'Travel Style' should be either 'relaxation', 'adventure', 'cultural', or 'mixed' based on the user's preference.
- The values for keys 'Number of Days' and 'Budget' should be a numerical value extracted from the user's response.
- Minimum budget for a trip should be ≥ 5000 .
- If the user provides a range for 'Budget', take the upper limit of the range.
- If the user provides a range for 'Number of Days', take the upper limit of the range.
- If the user provides a budget in words, convert it to numerical value. For example, "1 lakh" should be converted to "100000".

4. Technical Setup

- Language Model: Perplexity AI ([sonar-pro](#)) via [OpenAI](#) client wrapper.
- Programming Language: Python.
- Interface: Jupyter Notebook (real-time input via [input\(\)](#)).

5. Core Components

- Dialogue Management System - [dialogue_mgmt_system\(\)](#)
- Conversation Initialization - [initialize_conversation\(\)](#)
 - The assistant greets the user and introduces the purpose.
 - Starts with a friendly greeting: *"Hi there! 🙌 I'm here to help you plan your next trip. Where would you like to travel, and for how many days?"*
- Chat Completion - [get_chat_model_completions\(conversation\)](#)
 - Ensures correct alternation: user → assistant → user → assistant
 - Provides an "exit" option to end the chat gracefully.
- Moderation Layer (optional) - [moderation_check\(response_assistant\)](#)
 - Screens unsafe/off-topic inputs.
- Intent Confirmation Layer - [intent_confirmation_layer_travel\(response_assistant\)](#)
 - Confirms whether the assistant understood the user's request.
 - Checks if all information is collected
- Recommendation Engine
 - Suggests destinations, nearest airports/railway stations.
 - Generates detailed itineraries with attractions and hotel options.

6. Workflow

- Conversation Initialization
 - The assistant greets the user and introduces the purpose.
- User Input → Moderation Check
 - If input passes → continue.
 - If input fails → ask user to re-enter valid input (loop back to User Input).
- Assistant Response → Intent Confirmation Layer
 - Checks: Do we have all required information ?
 - No → Ask Next Question → Loop back to User Input.
 - Yes → Proceed to Recommendation Engine.

- Recommendation Engine
 - Suggests itinerary, hotels, travel options.
- Follow up question to continue or Exit Chat
 - Asks a follow up question if the user wants to continue the chat or gracefully ends with goodbye.

7. Result

- Working Conversational Agent that:
 - Greet user.
 - Collects travel details.
 - Suggests itineraries, hotels, and transport.
 - Handles user inputs in real-time via console.
- Sample Interaction:

Assistant: Hi there! 🌟 I'm here to help you plan your perfect trip. Where would you like to travel, and for how many days?

You: jaipur

Assistant: Welcome! Jaipur is a fantastic choice—rich in history, culture, and vibrant colors. To help you plan the perfect trip, could you tell me how many days you'd like to spend in Jaipur?

You: a week

Assistant: Great! You'd like to spend **a week in Jaipur**. Could you please tell me your origin city—where you'll be traveling from? This will help me suggest the nearest major airport or railway station and estimate your journey time.

You: mumbai

Assistant: Perfect! You'll be traveling from **Mumbai to Jaipur** for a week.

The nearest major airport in Mumbai is **Chhatrapati Shivaji Maharaj International Airport (BOM)**, and in Jaipur, it's **Jaipur International Airport (JAI)**. The fastest way is by flight, which takes about **1 hour and 50 minutes** and typically costs between **₹4,500 and ₹6,000** for economy class [3][5]. If you prefer the train, the journey takes around **17 hours** and costs start from **₹500**[1][2].

What is your total budget for this week-long trip?

You: 50k max

Assistant: Noted! Your **maximum budget is ₹50,000** for a week-long trip from Mumbai to Jaipur.

To tailor your itinerary, could you tell me your preferred travel style? Do you want your trip to be focused on relaxation, adventure, cultural experiences, or a mix?

You: cultural

Assistant: You prefer a **cultural** travel style—excellent choice for Jaipur!

To complete your travel profile, what type of accommodation do you prefer: **budget**, **mid-range**, or **luxury**? This will help me recommend the best hotels within your ₹50,000 budget.

You: luxury

✅ Assistant: Great! I've gathered all details. Here's your itinerary:

Thank you! You prefer ****luxury accommodation**** for your cultural week in Jaipur.

Here's your updated travel profile:

- ****Origin City:**** Mumbai
- ****Destination:**** Jaipur
- ****Number of Days:**** 7
- ****Budget:**** 50000
- ****Travel Style:**** cultural
- ****Accommodation Preference:**** luxury

Recommended Luxury Hotels (within your budget)

While luxury hotels in Jaipur such as ****The Oberoi Rajvilas****, ****Rambagh Palace****, and ****Anantara Jewel Bagh Jaipur**** are renowned for their opulence, their nightly rates typically start from ₹15,000-₹30,000 per night[1][3][4][5]. For a 7-night stay, this may exceed your ₹50,000 budget. However, you can consider:

- ****The Lalit Jaipur****: Approx. ₹7,000-₹10,000 per night[3].
- ****Hilton Jaipur****: Approx. ₹8,000-₹12,000 per night[3].
- ****ITC Rajputana****: Approx. ₹10,000 per night[3].

If you wish to experience true luxury, you may need to increase your budget or opt for a shorter stay at one of the top-tier properties.

Jaipur Cultural Itinerary (7 Days)

****Day 1: Arrival & Relaxation****

- Arrive at Jaipur International Airport.
- Check into your luxury hotel.
- Evening stroll at ****Jal Mahal**** (free to view from outside; boat ride paid).

****Day 2: Royal Heritage****

- ****City Palace**** (Entry: ₹200-₹500, depending on ticket type)[2].
- ****Jantar Mantar**** (Entry: ₹200)[2].
- Explore artisan workshops in the Pink City (free to visit, shopping paid).

****Day 3: Architectural Marvels****

- ****Amber Fort**** (Entry: ₹100; elephant ride extra)[2].
- ****Sheesh Mahal**** inside Amber Fort (included in Amber Fort ticket).
- Evening at ****Nahargarh Fort**** (Entry: ₹50)[5].

****Day 4: Palaces & Museums****

- ****Hawa Mahal**** (Entry: ₹50)[2].
- ****Albert Hall Museum**** (Entry: ₹150).
- Rooftop dinner with views of Hawa Mahal (paid, approx. ₹1,000-₹2,000).

****Day 5: Local Crafts & Shopping****

- Visit local bazaars: Johari Bazaar, Bapu Bazaar (free to enter, shopping paid).
- Block printing or pottery workshop (paid, approx. ₹500-₹1,000).

****Day 6: Gardens & Temples****

- ****Sisodia Rani Garden**** (Entry: ₹50).
- ****Birla Mandir**** (free entry).
- Spa treatment at your hotel (paid, approx. ₹2,000-₹5,000).

****Day 7: Leisure & Departure****

- Relax at hotel pool or gardens.
- Last-minute shopping or sightseeing.
- Depart from Jaipur International Airport.

Hotel Recommendations (Luxury, within budget)

- ****The Lalit Jaipur****: Approx. ₹7,000-₹10,000 per night[3].
- ****Hilton Jaipur****: Approx. ₹8,000-₹12,000 per night[3].

If you wish to experience the Oberoi Rajvilas or Rambagh Palace, consider a shorter stay or increase your budget.

Let me know if you'd like more details on any hotel or attraction, or if you want to adjust your budget or accommodation preference!

Would you like to continue planning (yes/no)? no

Assistant: Got it 🍷 Ending here. Have a wonderful trip!

8. Future Enhancements

- Real-time Data Integration
 - Flight & Train APIs: Integrate with Skyscanner, Amadeus, or IRCTC APIs to fetch live prices, timings, and booking links.
 - Hotel APIs: Connect to Booking.com for real-time hotel availability and dynamic pricing.
 - Weather APIs: Suggest itineraries based on real-time weather forecasts (e.g., avoid outdoor attractions on rainy days).
- Safety & Guidance
 - Visa & Travel Rules: Provide entry requirements, visa info, and COVID-related advisories.
 - Local Emergency Info: Share nearest hospitals, police stations, or embassy contacts.
 - Safety Tips: Suggest safe neighborhoods, common scams to avoid, etc.
- Advanced Planning
 - Day-wise Budget Tracking: Break down expenses (transport, accommodation, attractions) per day.
 - Multi-City Planning: Allow users to plan multi-stop itineraries (e.g., Delhi → Jaipur → Udaipur).
 - Group Planning: Handle group trips with shared budgets and preferences.