
CAPSTONE PROJECT

TRAVEL PLANNER AGENT

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OUTLINE

- **Problem Statement**
- **Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Algorithm & Deployment**
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PROBLEM STATEMENT

A Travel Planner Agent is an AI-powered assistant that helps users plan trips efficiently and intelligently. It uses real-time data to suggest destinations, build itineraries, and recommend transport and accommodation options. By understanding user preferences, budgets, and constraints, it tailors personalized travel plans. Integrated with maps, weather updates, and local guides, it ensures a smooth travel experience. The agent can also manage bookings, alert users to changes, and optimize schedules on the go. This smart assistant transforms complex travel planning into a seamless, enjoyable process.

PROPOSED SOLUTION

- The proposed solution is an intelligent AI agent named "Plan your Trip," built to simplify travel planning.
- **Intelligent Itinerary Generation:** The agent generates detailed day-by-day travel itineraries based on user needs.
- **Personalization:** It understands and adapts to user preferences and constraints, such as planning a trip that avoids specific types of locations like temples.
- **Conversational Interface:** The system provides a simple chat interface where users can type requests and receive detailed plans, transforming complex planning into a conversation.
- Personalized trip suggestions (destinations, activities)
- Smart itinerary builder (day-by-day plan)
- Real-time weather and event alerts
- In-app booking and updates
- Local insights and cultural tips

SYSTEM APPROACH

- IBM watsonx platform (for agent orchestration and deployment)
- IBM Cloud Lite services (for scalable, secure hosting)
- Mistral Large Language Model (for itinerary generation, reasoning, and user interaction)
- External API integration for:
 - Real-time weather updates
 - Location recommendation services
 - Hotel and transportation booking platforms
- User Interface: Web-based dashboard or chat UI
- Internet connectivity for fetching live travel and weather data

ALGORITHM & DEPLOYMENT

■ Algorithm Selection:

- The core of the Travel Planner Agent is powered by the Mistral Large Language Model (LLM), selected for its advanced capabilities in understanding natural language, multi-turn reasoning, and generating personalized, actionable itineraries. Mistral was chosen because it excels at interpreting user input, integrating external data sources, and dynamically constructing day-by-day travel plans tailored to user preferences and real-time conditions.

■ Data Input:

- The agent utilizes the following inputs:
- User preferences: desired destination, travel dates, budget, personal interests (sightseeing, food, adventure, relaxation, etc.)
- Real-time data: weather forecasts, local events, COVID advisories, transportation availability, hotel and activity options (via API integrations)

■ Training Process:

- The Mistral model is pre-trained on massive datasets for language understanding and reasoning, eliminating the need for custom model training.
- Task-specific behavior (trip planning and information retrieval) is achieved through prompt engineering, retrieval augmented generation (RAG), and integration with APIs for up-to-date information.
- If required, performance is enhanced using feedback loops—analyzing user satisfaction and retention to optimize prompt formulation and workflow design.

■ Prediction Process:

- Upon receiving user input, the agent parses preferences and retrieves relevant real-time data from integrated APIs.
- The Mistral model uses this information, along with internal logic (ReAct/LangGraph), to generate a detailed, practical itinerary.
- The output includes optimized day-wise plans, personalized recommendations, and real-time updates (such as weather-based activity suggestions or alerts about closures).
- Results are delivered instantly through a chat or web interface, with continuous updating capabilities as the user interacts or as external conditions change.

RESULT

IBM watsonx

Upgrade ⓘ 🔔

Harmanik Patidar's Account ▾ Dallas ▾ HP ▾

[Deployment spaces](#) / [Travel_Agent2](#) / [watsonx Agent](#) /

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Plan your Trip

✔️ Deployed Online

API reference

Test

Preview

New cl

H

You 12:20 AM

Plan a trip to United Kingdom for 15 days

👤

Plan your Trip 12:20 AM

Here's a 15-day trip plan to the United Kingdom:

Day 1-4: London

- Explore the British Museum
- Visit the Tower of London
- Take a ride on the London Eye
- Watch a play in West End

Day 5-6: Oxford and Cambridge

type something...



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➤

edunet
foundation



Build


Model: llama-3-3-70b-instruct LangGraph ReAct 

Instructions

[Advanced configuration](#)

You are an intelligent agent who plans trip according to user's needs. Consider the weather and places to visit in city. Generate a detailed itinerary day-by-day, considering realistic travel time, local culture, and weather. Keep suggestions practical and enjoyable

Knowledge



Tools

[Add a tool](#)[Create custom tool](#)

Added tools (1)

Google search

Retrieve information from the internet with the Google search engine.



Agent preview



You: 11:46 PM

plan a trip to jaipur for 4 days



watsonx Agent 11:46 PM

Here's a 4-day trip plan to Jaipur:

Day 1:

- Morning: Arrive in Jaipur and check into your hotel.
- Afternoon: Visit the City Palace and Jantar Mantar.
- Evening: Explore the local markets, such as Johari Bazaar and Nehru Bazaar.

Day 2:

- Morning: Visit the Amber Fort.
- Afternoon: Visit the Hawa Mahal and watch a movie at Rajmandir.
- Evening: Enjoy traditional Rajasthani cuisine and folk music.

Day 3:

• Morning: Visit the Bhimbika Fort and Amber Fort.



Plan your Trip ✔️ Deployed Online

[API reference](#)[Test](#)[Preview](#)**Success**

Deployment **Travel Agent** was successfully updated.

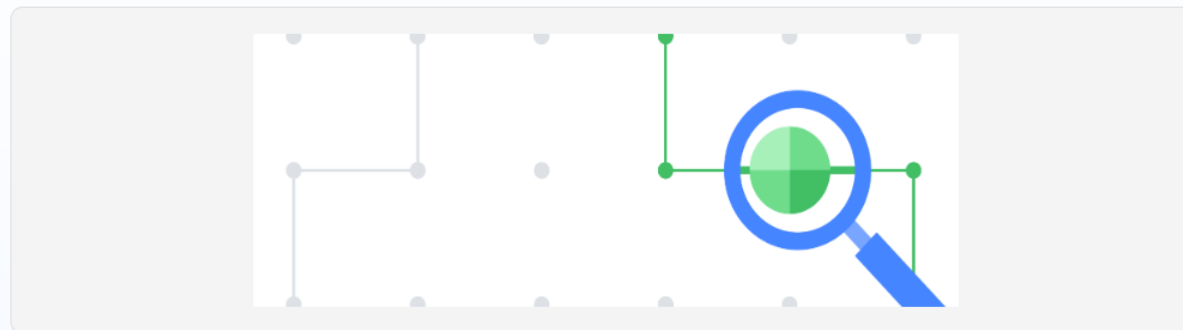
Timestamp 12:01:34 AM

[New chat](#) +

Plan your Trip 12:01 AM

Welcome to Plan your Trip

plan your trip is an intelligent AI agent who helps you to plan your travel itinerary.



Type something



CONCLUSION

- The AI-powered Travel Planner Agent successfully addresses the complexity and challenges of personalized trip planning by leveraging advanced Large Language Models, specifically the Mistral model, deployed on IBM Cloud Lite. The system intelligently generates detailed, day-by-day itineraries that consider user preferences, real-time weather updates, local culture, and practical travel constraints.
- By integrating dynamic data sources and utilizing sophisticated prompt engineering and orchestration techniques (LangGraph and ReAct), the agent provides users with seamless, adaptive travel experiences. Its ability to handle multi-turn conversations and update itineraries on the fly enhances user satisfaction and reduces planning time significantly.
- Despite challenges associated with real-time data integration and contextual understanding, the solution demonstrates a robust, scalable approach to travel planning utilizing cutting-edge AI and cloud technologies. The Travel Planner Agent proves its potential as a valuable tool for travelers seeking efficient, enjoyable, and personalized trip arrangements.

FUTURE SCOPE

- The Travel Planner Agent can be enhanced by integrating more real-time data sources such as live traffic, public transport schedules, and user reviews to offer richer, personalized itineraries. Optimizing the Mistral model and agent workflows will improve response speed and relevance. Expanding coverage to multiple cities and enabling multimodal travel planning can broaden its usability. Adding voice-based and mobile app interfaces will enhance ease of use on the go. Advanced learning of user preferences can enable tailored recommendations over time. Finally, leveraging edge computing and blockchain for faster, secure transactions will boost performance and trustworthiness.

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- *Include additional API, SDK, or integration documentation (e.g., Google Maps API, OpenWeatherMap API) as relevant to your implementation.*
- Replace or add to these entries as needed to fit the actual sources, tools, and academic literature you referenced in your project. If your college or instructor requests a particular citation style (APA, IEEE, etc.), you may format the references accordingly in your PPT slide.

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Completion Certificate



This certificate is presented to

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for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 23 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU