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# **CAPSTONE PROJECT**

## **TRAVEL PLANNER AGENT**

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# OUTLINE

- Problem Statement
- Proposed System/Solution
- System Development Approach
- Result (Output Image)
- Conclusion
- Future Scope
- References

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# PROBLEM STATEMENT

Planning a trip involves juggling multiple variables such as destination choices, itinerary building, transport and accommodation bookings, budget constraints, and real-time changes like weather or availability. Travelers often find this process time-consuming, fragmented, and stressful. The challenge is to develop an AI-powered Travel Planner Agent that intelligently streamlines the entire trip planning experience. By understanding user preferences and constraints, the agent must provide personalized travel plans, suggest destinations, recommend transport and lodging options, manage bookings, and adapt to real-time data such as weather and local events. The goal is to simplify and automate complex travel planning into a seamless, interactive, and efficient experience.

# PROPOSED SOLUTION

The proposed system aims to address the challenge of simplifying travel-related information access by providing users with a responsive, AI-powered Travel Planner Agent. Instead of complex bookings, this solution focuses on answering user queries using real-time and reliable search tools. Built on IBM watsonx Assistant, the system delivers quick, contextual answers to support trip planning. The solution will consist of the following components:

## 1. User Interaction

- The user interacts by typing travel-related queries in natural language, such as:
  - “What are some famous places in Kerala?”
  - “Best time to visit Paris?”

## 2. Tool-Based Knowledge Retrieval

- The assistant is enhanced with built-in tools via Watsonx:
  - Google Search – for diverse, up-to-date web content.
  - DuckDuckGo Search – for alternative search results.
  - Wikipedia Search – for factual, encyclopedic answers.
  - Weather Tool – for current forecasts in specific locations.

## 3. Agent Development Workflow

- Created within a Sandbox Project in IBM Watsonx.
- Agent built by selecting tools, setting prompts, and testing outputs.
- Saved and deployed in a Deployment Space with associated Watsonx.ai Runtime.
- Preview link allows end users to chat with the agent through a simple web interface.

## 6. Evaluation & Simplicity

- Since the assistant’s role is limited to answering queries, its effectiveness is measured through response relevance and user satisfaction.

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# SYSTEM APPROACH

The System Approach outlines the strategic steps and methodologies adopted in the design, development, and deployment of the AI-powered Travel Planner Agent using IBM watsonx. The project follows a low-code/no-code architecture, utilizing built-in tools and models to provide an efficient and responsive user experience.

## System Requirements

- **Platform:** IBM Cloud (Watsonx Assistant + Watsonx.ai Runtime)
- **Access:** IBM Cloud account with Lite plan
- **Deployment Target:** Web-based (Preview in IBM Cloud interface)
- **Agent Interface:** Agentic AI console (Watsonx Agent Lab)
- **Foundation Model Used:** Llama 3-3-70b-instruct
- **Hardware:** Cloud-hosted
- **User Access:** Through IBM Cloud preview link

# RESULT

## Build



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



### Setup



Name

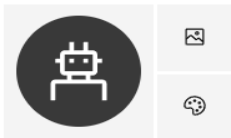
Travel Agent

Description

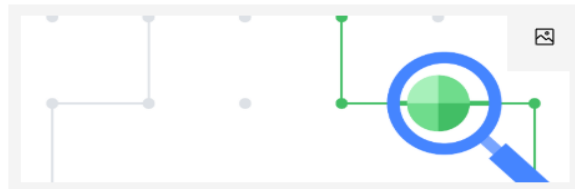
60/100

A travel agent that helps you to plan your trips effectively

Icon



Placeholder image



## Configuration



Framework

LangGraph



Architecture

ReAct



Instructions

[Advanced configuration](#)

you are an assistant that helps users plan trips efficiently and intelligently. Use real-time data to suggest destinations, build itineraries, and recommend transport and accommodation options. By understanding user preferences, budgets, and constraints, you will tailor personalised travel plans. Integrated with maps, weather updates, and local guides, it ensures a smooth travel experience. You will also manage bookings, alert users to changes, and optimise schedules on the go.

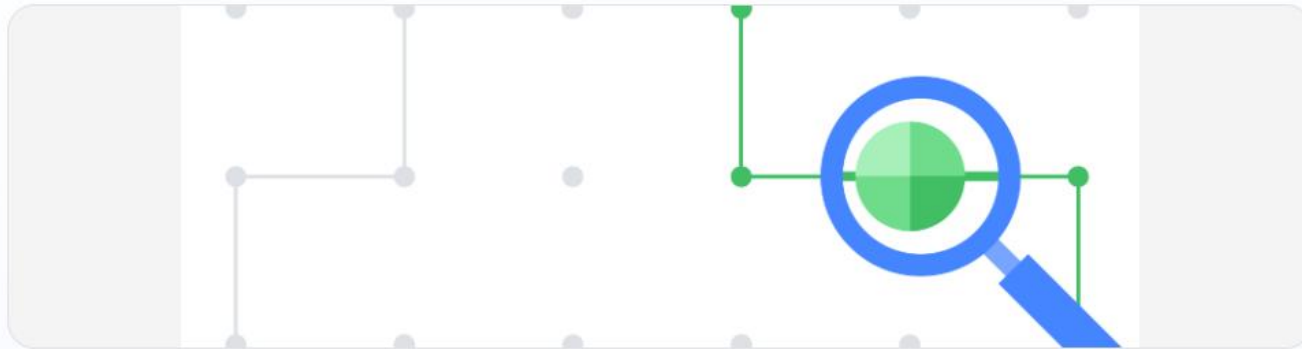
# RESULT



Travel Agent 06:58 PM

Welcome to Travel Agent

A travel agent that helps you to plan your trips effectively



Type something...



# RESULT

 You: 12:06 PM

i want to go to Paris for a 4 day trip, please tell me the best time to visit there, what all places to visit and also tell where to stay. Also, give me the approximate budget

 Travel Agent 12:06 PM

The best time to visit Paris is in the spring (April-May) and autumn (September-October), when the weather is mild and pleasant.

Some popular places to visit in Paris include the Eiffel Tower, the Louvre Museum, Notre-Dame Cathedral, and the Arc de Triomphe.

For accommodation, consider staying in the city center, near the Latin Quarter or Montmartre, for easy access to public transportation and popular attractions.

The approximate budget for a 4-day trip to Paris can vary depending on your travel style and preferences, but here are some estimated costs:

- Accommodation: €80-€150 per night (approximately \$90-\$170 USD) for a budget-friendly hotel or hostel
- Food: €15-€30 per meal (approximately \$17-\$35 USD) for a mid-range restaurant
- Transportation: €1.90 per ticket (approximately \$2.20 USD) for a single metro ride, or €14.50 (approximately \$16.50 USD) for a carnet of 10 tickets
- Attractions: €10-€20 per person (approximately \$11-\$22 USD) for a museum or landmark visit

Overall, a budget of €500-€1,000 per person (approximately \$570-\$1,140 USD) for a 4-day trip to Paris should cover basic expenses, but this can vary depending on your individual preferences and exchange rates.

► How did I get this answer?



# RESULT

 You: 06:59 PM

i want to visit dehradun, tell me 2 day itinerary also tell hotels under rupees 2000 budget

 Travel Agent 06:59 PM

Here is a 2-day itinerary for Dehradun:

Day 1:

- Morning: Visit the Robber's Cave, a natural cave with a river flowing through it.
- Afternoon: Explore the Dehradun Zoo, which is home to a variety of animals and birds.
- Evening: Visit the Clock Tower, a iconic landmark in Dehradun.

Day 2:

- Morning: Visit the Sahastradhara, a scenic spot with a waterfall and a temple.
- Afternoon: Explore the Mindrolling Monastery, a beautiful Buddhist monastery.
- Evening: Visit the Rajpur Road, a popular shopping and dining destination.

As for hotels under a budget of 2000, here are a few options:

- Hotel Doon Castle: Starting price @ ₹274
- Hotel Rajpur Heights: Starting price @ ₹320
- Hotel Pacific: Starting price @ ₹400
- Hotel Madhuban: Starting price @ ₹500
- Hotel President: Starting price @ ₹600

# CONCLUSION

- The AI-powered Travel Planner Agent effectively simplifies travel-related information retrieval through natural language interaction. By integrating tools like Google Search, Wikipedia, DuckDuckGo, and a Weather API, the agent provides real-time, accurate, and relevant responses to user queries. Its conversational interface makes travel research easier and more engaging. The implementation was smooth but faced minor challenges such as interface navigation within IBM Cloud and limitations in feature expansion due to Lite plan constraints. Despite these, the agent performed reliably in answering diverse travel questions. This solution is especially valuable for users seeking quick and hassle-free travel insights, making it a useful companion for early-stage trip planning.

# FUTURE SCOPE

- Potential enhancements for the Travel Planner Agent include integrating dynamic itinerary generation based on user preferences such as travel dates, budget, and interests. Adding APIs for flight, hotel, and local activity bookings would allow users to not just get information, but also take action directly through the agent. Connecting the agent with real-time alerts for weather, delays, or travel advisories would further enhance its utility.

# REFERENCES

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- Conversational Agents and Natural Language Interfaces: A Review
- Authors: Diederich, S. et al. (2019)
- IBM Cloud Docs – *Getting started with watsonx Assistant*.  
URL: <https://cloud.ibm.com/docs/watsonx?topic=watsonx-assistant>
- IBM Cloud Docs – *Deploying AI projects in watsonx.ai*.  
URL: <https://cloud.ibm.com/docs/watsonx?topic=watsonx-deploy>

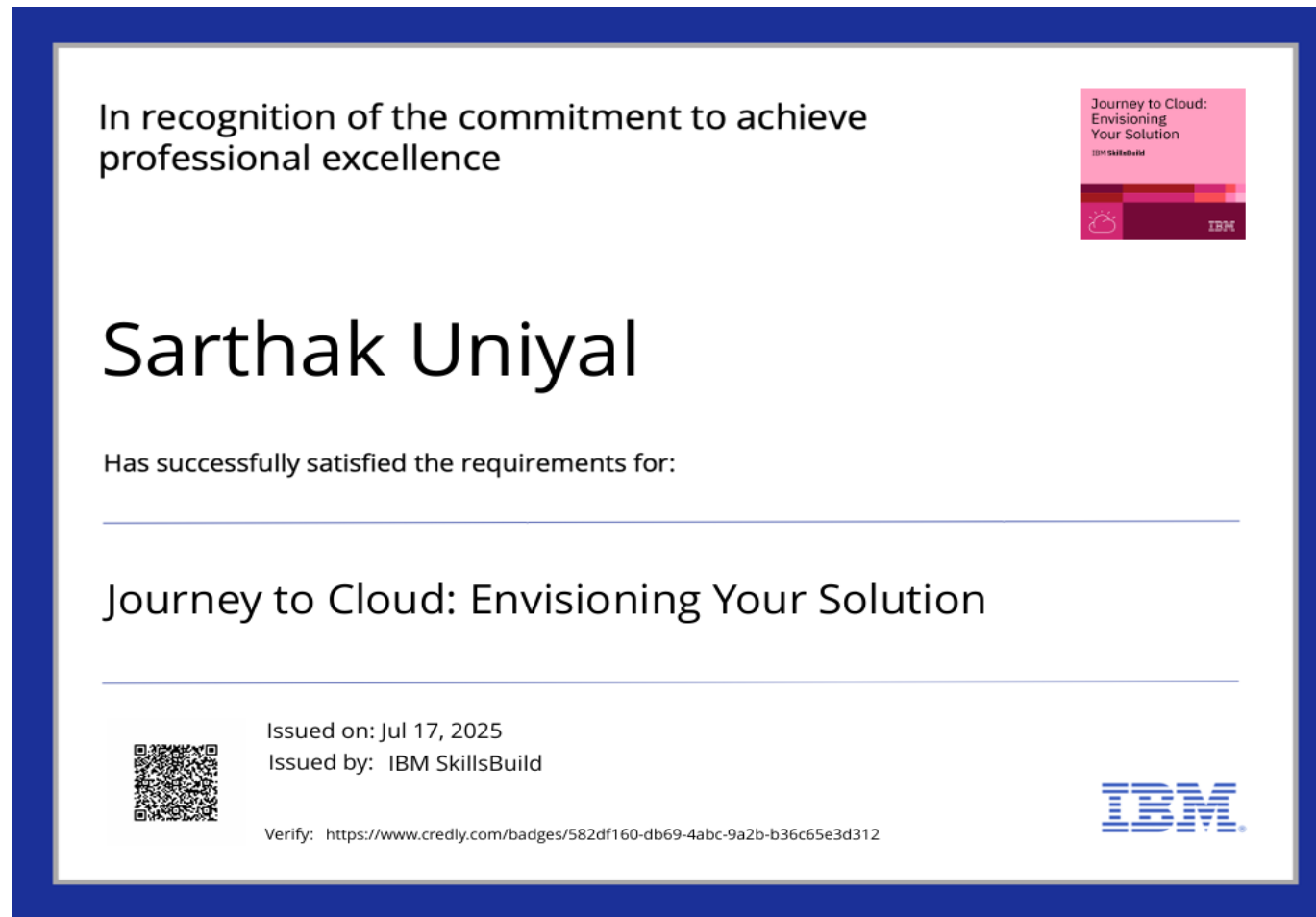
# IBM CERTIFICATIONS

- Screenshot/ credly certificate( getting started with AI)



# IBM CERTIFICATIONS

- Screenshot/ credly certificate( Journey to Cloud)



# IBM CERTIFICATIONS

- Screenshot/ credly certificate( RAG Lab)





**THANK YOU**