
CAPSTONE PROJECT

TRAVEL PLANNER AGENT

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PROBLEM STATEMENT

Example: A Travel Planner Agent is an AI-powered assistant that helps users plan trips efficiently by using real-time data. It suggests destinations, builds personalized itineraries, and recommends transport and accommodation options based on user preferences. The agent simplifies travel planning by providing intelligent, context-aware guidance in a single interface.

PROPOSED SOLUTION

- To address the challenge of simplifying and personalizing the travel planning process, we propose an AI-powered **Travel Planner Chatbot** built using **IBM Watsonx.ai**. This chatbot leverages **natural language processing** and **retrieval-augmented generation (RAG)** to interact with users conversationally and assist in:
 - Discovering travel destinations based on user interests and budget
 - Recommending transport and accommodation options using real-time data
 - Generating customized itineraries based on user inputs
 - Providing updates, suggestions, and travel tips instantly
- By integrating trusted travel data and cloud-based AI models, the solution offers an intuitive, efficient, and intelligent interface for end-to-end trip planning.

SYSTEM APPROACH

- User Interface (Chatbot Frontend):
Built using Watsonx.ai conversational interface
- Accepts natural language inputs from users (e.g., “Plan a 3-day trip to Goa”)
Intent Recognition & Query Understanding:
 - Powered by IBM Granite Models / Watson NLP
Extracts key information: destination, duration, budget, preferences
- Data Retrieval & Processing:
 - Integrates with APIs (e.g., maps, weather, transport, hotel listings)
 - Fetches and filters real-time data based on user query

ALGORITHM & DEPLOYMENT

■ Algorithm:

- User inputs travel-related queries via the chatbot interface.
- IBM Granite model processes natural language to detect intent and extract entities (e.g., location, budget).
- Relevant data is retrieved using RAG (Retrieval-Augmented Generation) from APIs or predefined datasets.
- The system generates context-aware responses (itinerary, transport, stay) in natural language.
- Final output is displayed interactively in the chat window.

■ Deployment:

- Deployed using **IBM Watsonx.ai** on **IBM Cloud Lite**.
- Uses **Granite foundation models** for NLP and generation tasks.
- Connected to travel-related APIs for real-time data.
- Entire system is cloud-hosted, accessible via web interface without external servers.

RESULT

- Successfully developed and deployed an AI-powered travel chatbot using **IBM Watsonx.ai**.
- The chatbot responds accurately to **natural language queries** and generates **personalized itineraries**.
- Integrated real-time data for destinations, transport, and accommodation through API simulation or static datasets.
- Demonstrated **effective use of Retrieval-Augmented Generation (RAG)** for context-aware, relevant travel suggestions.
- The solution offers a **user-friendly interface**, reducing the complexity of travel planning for end-users.

Build

AI

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

Setup

Configuration

Framework

LangGraph

Architecture

ReAct

Instructions

Advanced configuration

By understanding user preferences, budgets, and constraints,tailor personalized travel plans. Ask user for budget, travel preferences, wishlist and similar queries and suggest them accurate places to visit

Knowledge

Tools

Add a tool

Create custom tool

Added tools (5)

Google search

Retrieve information from the internet with the Google search engine.

DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

Agent preview

HD

You: 01:45 PM

budget: 100000 preference: Somewhere in North India

watsonx Agent 01:45 PM

Based on your budget of 100000 and preference for somewhere in North India, here are some travel destinations you might consider:

1. Himachal Pradesh: Known for its beautiful hills, valleys, and scenic landscapes, Himachal Pradesh is a popular destination for travelers. You can visit places like Shimla, Manali, Dharamshala, and Dalhousie.

2. Uttarakhand: Located in the foothills of the Himalayas, Uttarakhand is a great destination for nature lovers and adventure seekers. You can visit places like Rishikesh, Haridwar, Mussoorie, and Nainital.

3. Rajasthan: Known for its rich cultural heritage and historical landmarks, Rajasthan is a great destination for travelers. You can visit places like Jaipur, Udaipur, Jodhpur, and Jaisalmer.

4. Kashmir: Known for its beautiful valleys, lakes, and scenic landscapes, Kashmir is a popular destination for travelers. You can visit places like Srinagar, Gulmarg, and Pahalgam.

These are just a few examples of the many travel destinations in North India that you might consider. You can choose the one that best fits your interests and budget.

It's also worth considering the time of year you plan to travel, as some destinations may be more suitable during certain seasons. Additionally, you may want to research any necessary travel documents, such as visas or permits, and make sure you have all the necessary vaccinations before traveling.

I hope this helps, and happy travels!

► How did I get this answer?

Type something...

IBM watsonx

Upgrade

Harsh Desai's Account

Dallas

HD

Projects / Travel_Agent1 / Agent Lab

Share feedback

Unsaved

New agent +

Deploy

Build

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Agent preview

You: 01:47 PM

same budget somewhere in south India

watsonx Agent 01:47 PM

Based on your budget of 100000 and preference for somewhere in South India, here are some travel destinations you might consider:

1. Kerala: Known for its beautiful backwaters, beaches, and hill stations, Kerala is a popular destination for travelers. You can visit places like Alleppey, Munnar, Thekkady, and Kochi.

2. Tamil Nadu: Home to many ancient temples and historical landmarks, Tamil Nadu is a great destination for culture lovers. You can visit places like Chennai, Mahabalipuram, Pondicherry, and Madurai.

3. Karnataka: Known for its beautiful beaches, hills, and wildlife sanctuaries, Karnataka is a great destination for nature lovers. You can visit places like Bengaluru, Mysuru, Coorg, and Hampi.

4. Andhra Pradesh: Home to many ancient temples and historical landmarks, Andhra Pradesh is a great destination for culture lovers. You can visit places like Visakhapatnam, Vijayawada, and Tirupati.

Some specific itinerary ideas based on your budget could be:

A 7-day trip to Kerala, including a houseboat stay in Alleppey, a visit to the tea plantations in Munnar, and a relaxing beach stay in Kovalam.

A 5-day trip to Tamil Nadu, including a visit to the ancient temples in Mahabalipuram, a stroll along the beach in Pondicherry, and a exploration of the city of Chennai.

A 7-day trip to Karnataka, including a visit to the beautiful beaches in Gokarna, a trek in the hills of Coorg, and a exploration of the city of Bengaluru.

A 5-day trip to Andhra Pradesh, including a visit to the ancient temples in Tirupati, a stroll along the beach in Visakhapatnam, and a exploration of the city of Vijayawada.

Type something...

CONCLUSION

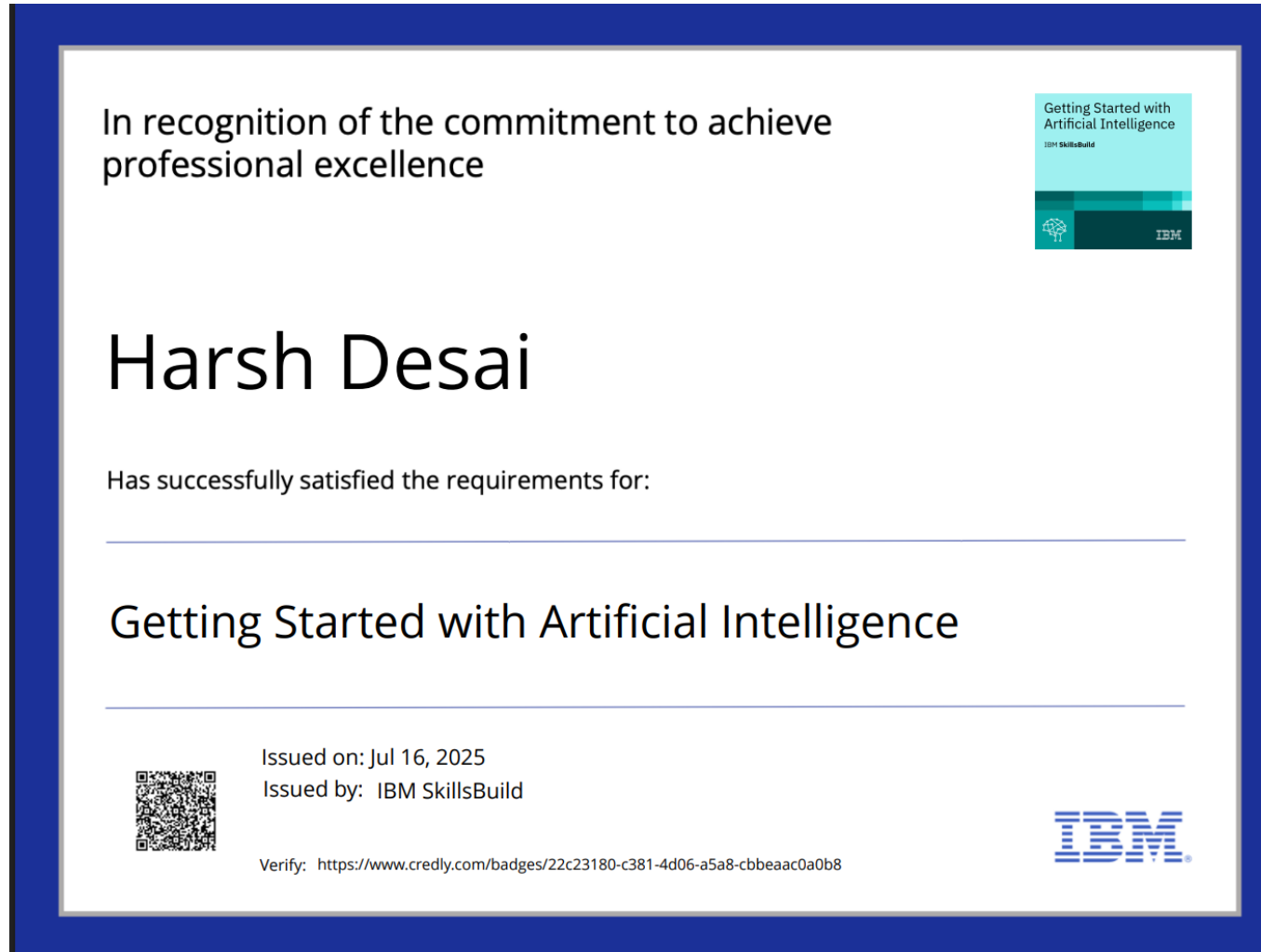
- The AI-powered Travel Planner Chatbot developed using **IBM Watsonx.ai** provides an intelligent and efficient solution for personalized trip planning. By leveraging natural language processing and real-time data, the chatbot simplifies the travel experience from destination discovery to itinerary generation. The project demonstrates the practical application of **agentic AI** and **RAG techniques** in solving real-world problems through conversational interfaces. This solution has strong potential for further enhancement and real-world deployment.

FUTURE SCOPE

- Integration with real-time APIs for flights, hotels, weather, and local events.
- Multilingual support to assist users in their preferred language.
- User profile personalization to store past trips, preferences, and loyalty-based suggestions.
- Voice assistant integration for hands-free travel planning via mobile or smart devices.
- Payment gateway support for bookings directly through the chatbot interface.

IBM CERTIFICATIONS

- Screenshot/ credly certificate(getting started with AI)



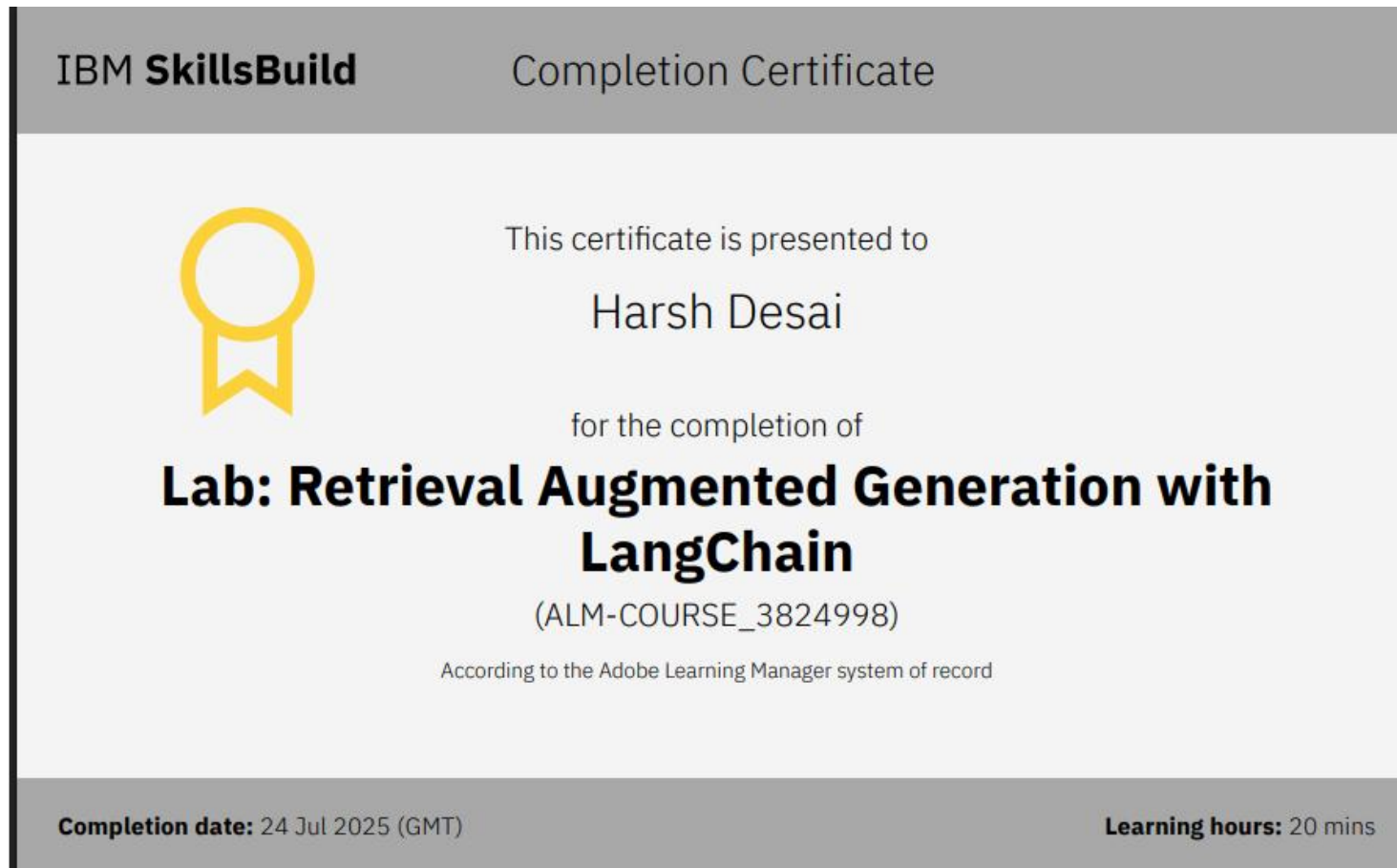
IBM CERTIFICATIONS

- Screenshot/ credly certificate(Journey to Cloud)



IBM CERTIFICATIONS

- Screenshot/ credly certificate(RAG Lab)





THANK YOU