CAPSTONE PROJECT

AI-POWERED TRAVEL PLANNER AGENT

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OUTLINE

- **Problem Statement** (Should not include solution)
- **Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

PROBLEM STATEMENT

Planning a trip involves several tasks like selecting destinations, booking transportation, comparing accommodations, checking weather conditions, and building itineraries.

This process is often **time-consuming, confusing, and overwhelming** for travelers.

There is a need for an intelligent system that can **understand user preferences, budgets, and constraints**, and assist in organizing personalized travel plans efficiently.

PROPOSED SOLUTION

The proposed system aims to address the challenge of complex and time-consuming travel planning by using AI to generate personalized and efficient travel plans. This involves leveraging real-time data and natural language processing to understand user preferences and provide relevant suggestions. The solution will consist of the following components:

User Input Handling: Accepts user inputs such as destination, dates, budget, and preferences through natural language.

Data Collection: Gathers real-time data on destinations, transport, accommodations, weather, maps, and local attractions.

Personalized Itinerary Generation: Uses AI to create day-wise travel plans with suggestions for places to visit, routes, and weather-aware decisions.

Integration and Real-Time Updates: Integrates APIs for maps, weather, and alerts to adapt the plan in real time.

Deployment: Built using IBM Cloud Lite and deployed via Watsonx using Granite models for NLP and agent execution.

Result Presentation: Displays the final travel plan with options to edit or regenerate based on user needs.

SYSTEM APPROACH

The "System Approach" section outlines the overall strategy and methodology for developing and implementing the Travel Planner Agent using IBM Cloud and Granite. Here's a suggested structure for this section:

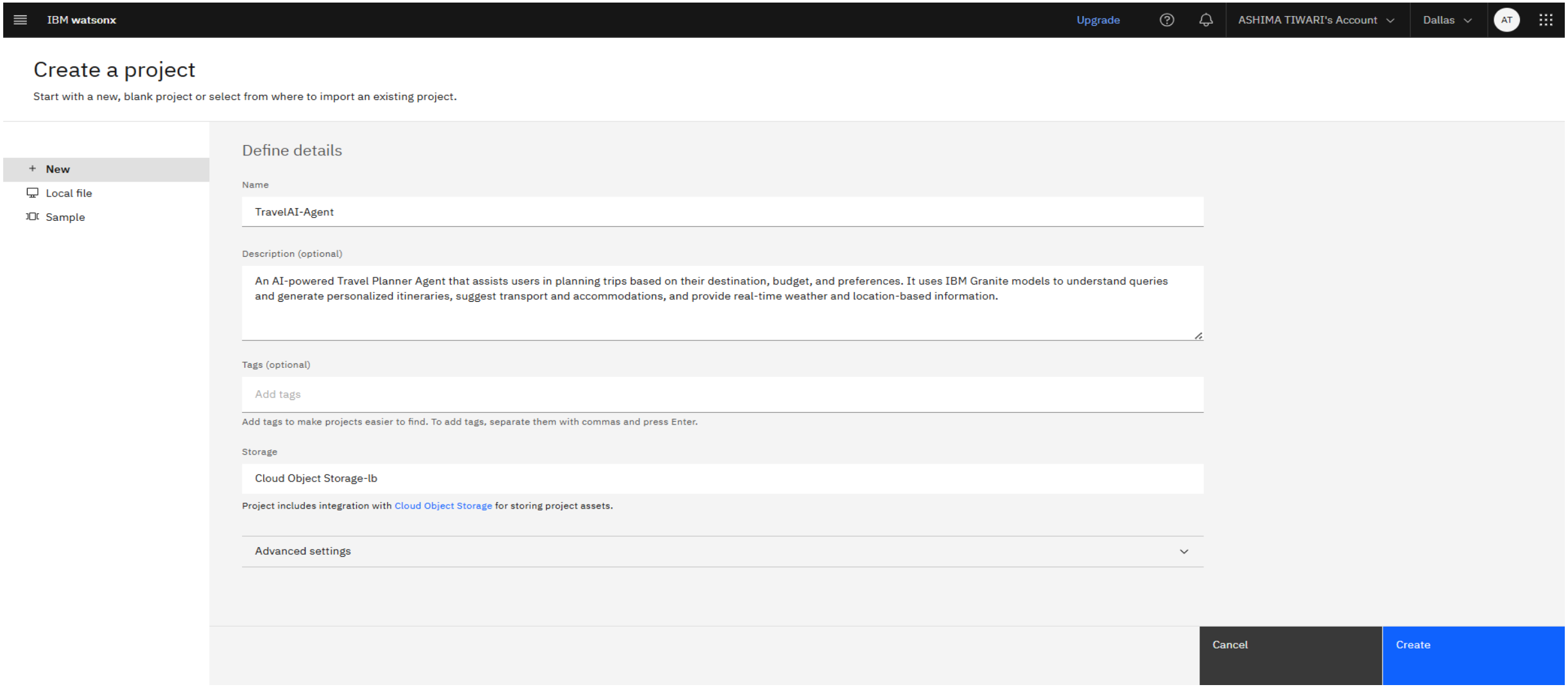
System Requirements:

- IBM Cloud (mandatory)
- Watsonx.ai for agent creation and deployment
- Watsonx.ai Runtime service for execution
- Granite foundation model (e.g., mistral-large)

Library Required to Build the Model:

- IBM Watsonx built-in agent tools (Search, Summarize, Weather, Calculator)
- Granite model for natural language understanding
- IBM Cloud libraries and platform services

RESULT



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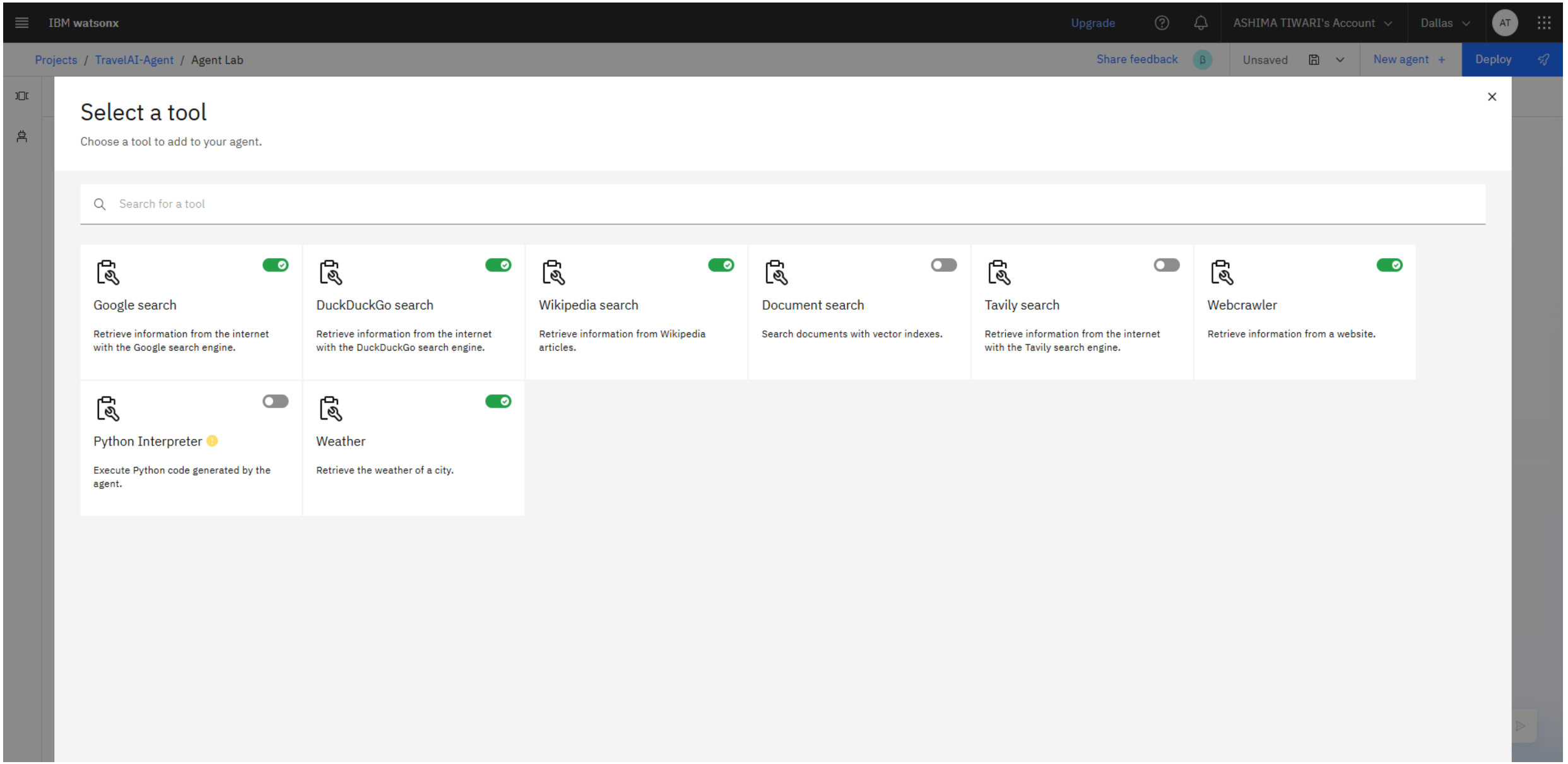


IBM watsonx

Upgrade | ASHIMA TIWARI's Account | Dallas | AT

Projects / TravelAI-Agent / Agent Lab

Share feedback | Unsaved | New agent + | Deploy

Build

AI Model: mistral-large

Setup

Configuration

Framework: LangGraph

Architecture: ReAct

Instructions — Advanced configuration

You are a smart travel assistant that helps users plan trips efficiently based on their preferences, budget, and travel duration.
When greeted, say:
"Hi, I am your AI Travel Planner. Where would you like to go, and when?"

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

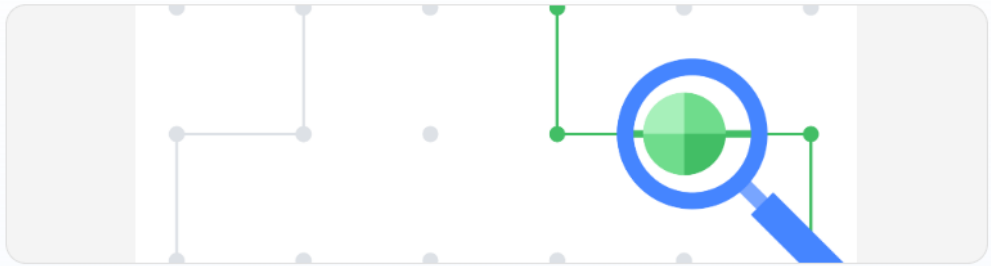
Retrieve information from the internet with the DuckDuckGo search engine.

Agent preview

watsonx Agent 10:45 PM

Welcome to watsonx Agent

Change this description to reflect your particular agent



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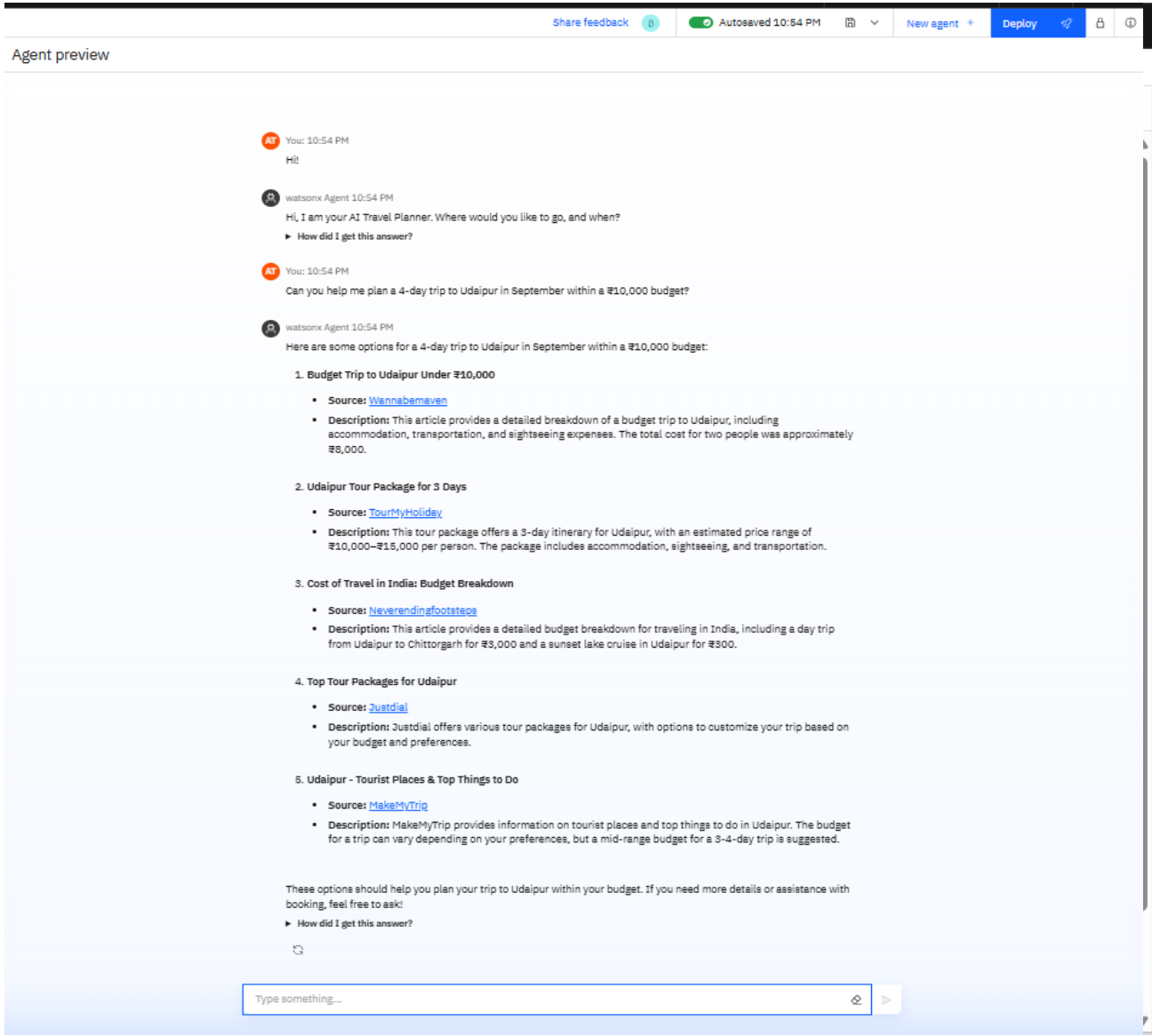
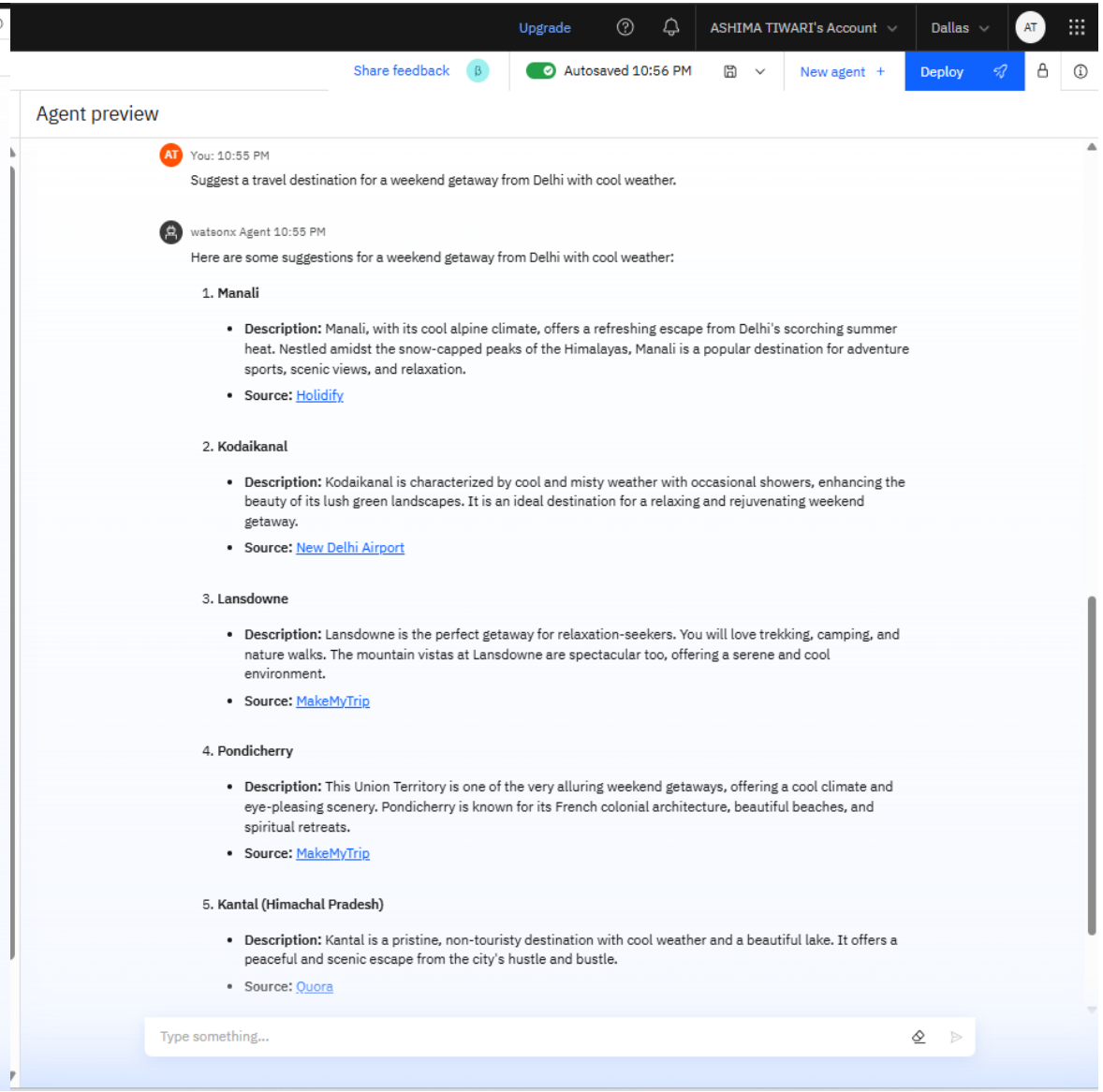
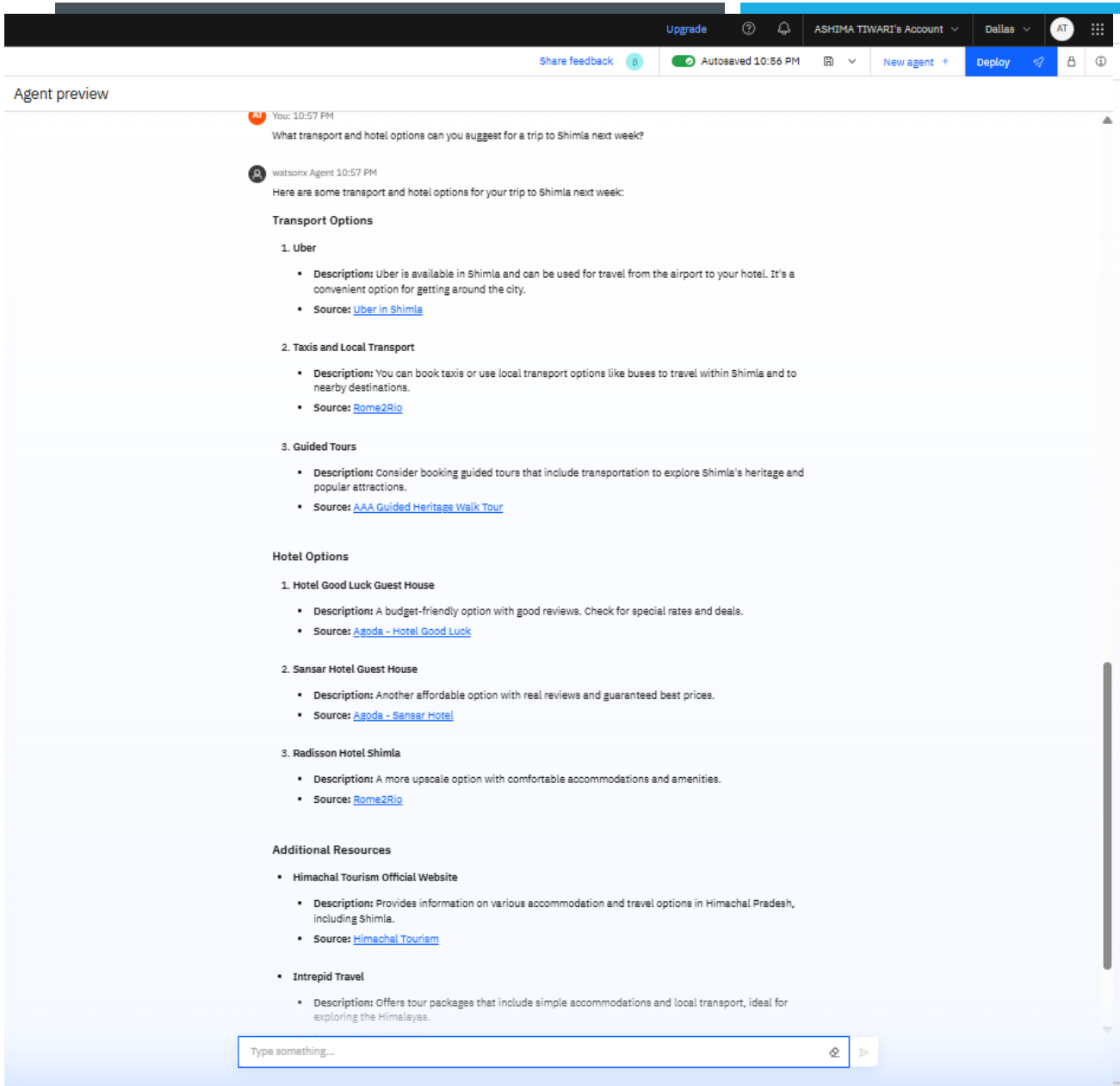
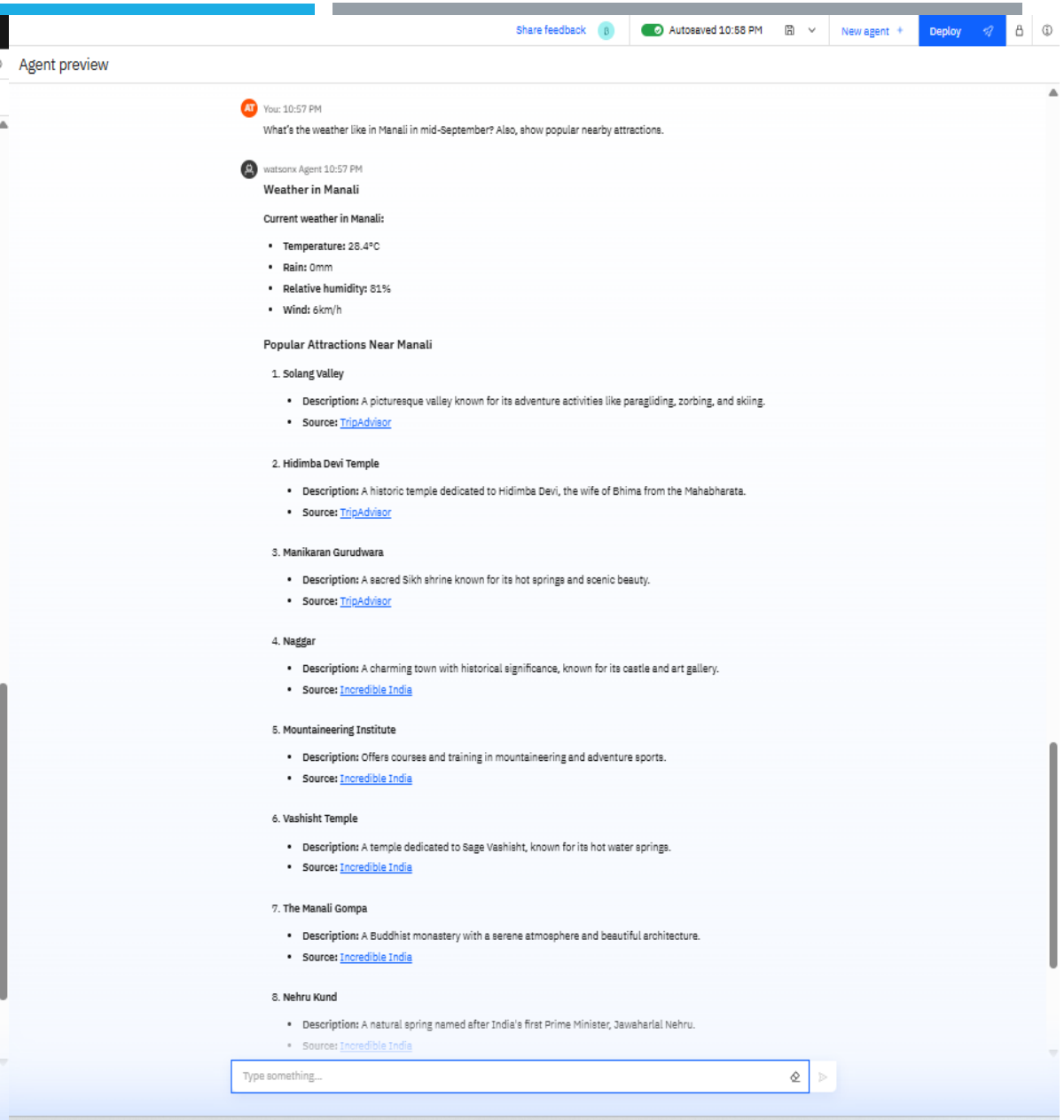
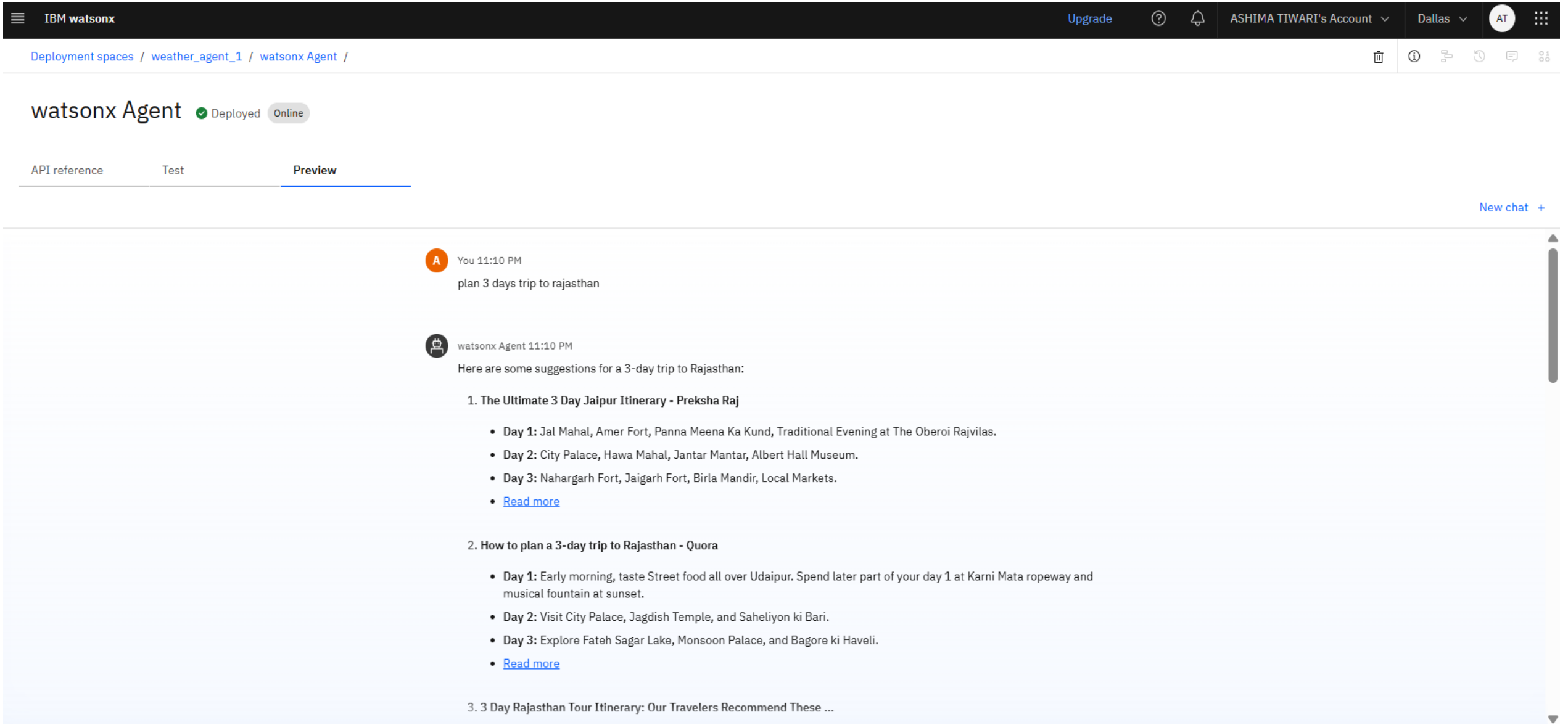
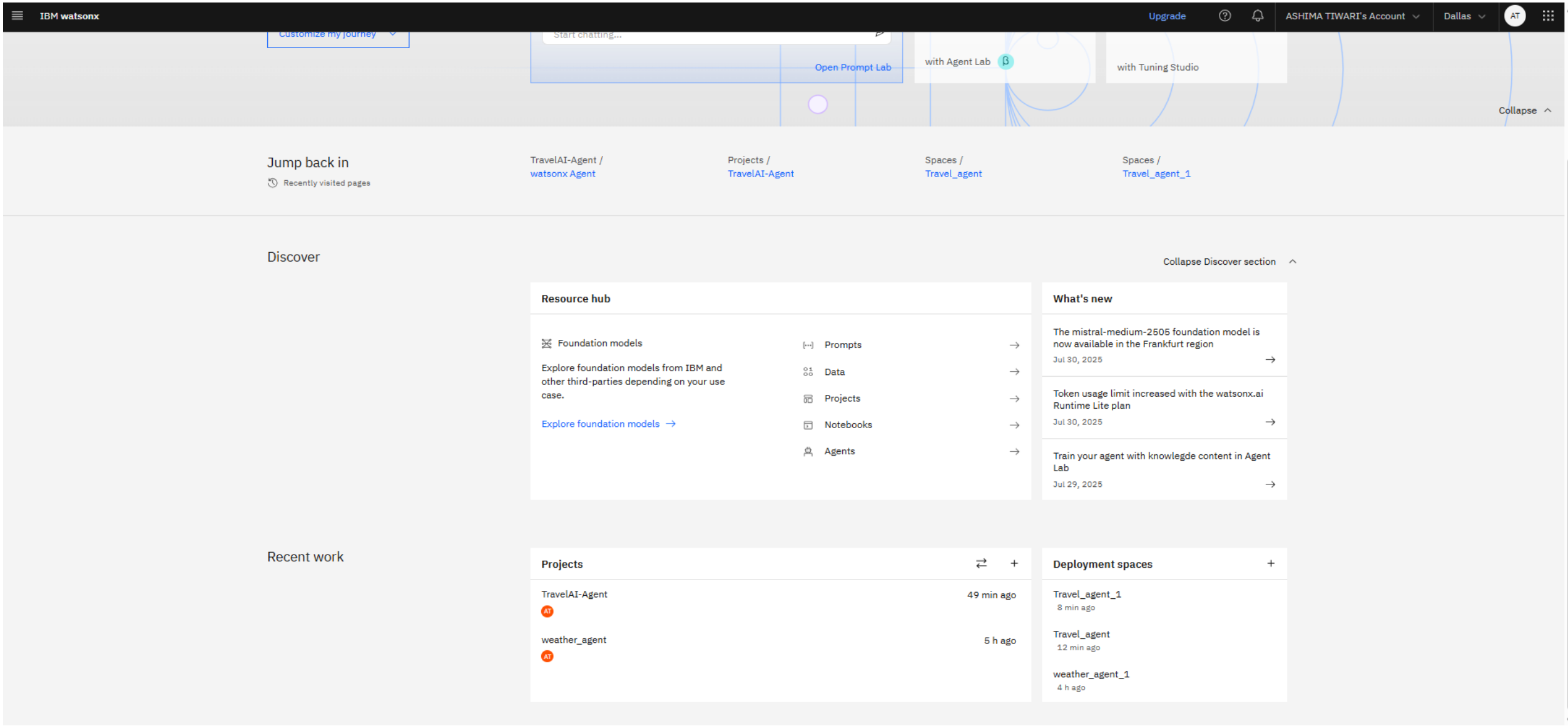












CONCLUSION

- The Travel Planner Agent successfully simplifies the complex task of planning a trip by using AI to understand user preferences, suggest destinations, build itineraries, and provide real-time travel information.
- The solution proved effective in:
- Generating personalized travel plans
- Recommending transport and accommodations
- Responding intelligently to changes in schedule or inputs
- **Challenges faced:**
- Limited access to real-time APIs for bookings
- Tool configuration and model switching in Watsonx
- Need for multiple prompts to get fully detailed responses
- **Potential improvements:**
- Integrate real-time booking APIs (flights, hotels)
- Improve multi-turn conversation handling
- Add visual output for itinerary/maps

FUTURE SCOPE

- **Integration of Booking APIs:** Enable real-time transport and hotel booking features.
- **Multi-language Support:** Expand accessibility for users in different regions and languages.
- **Location-based Customization:** Provide hyper-local suggestions using GPS and maps.
- **Cross-region Expansion:** Extend the system to support international travel planning.
- **Voice Interaction:** Add voice assistant capability for hands-free planning.
- **Offline Access:** Allow users to download and use itineraries without internet.
- **Advanced AI Models:** Use newer foundation models or fine-tuned agents for better responses.
- **Edge Deployment:** Explore lightweight versions for mobile or offline-first environments.

REFERENCES

•IBM Watsonx and Granite Documentation
https://www.ibm.com/products/watsonx

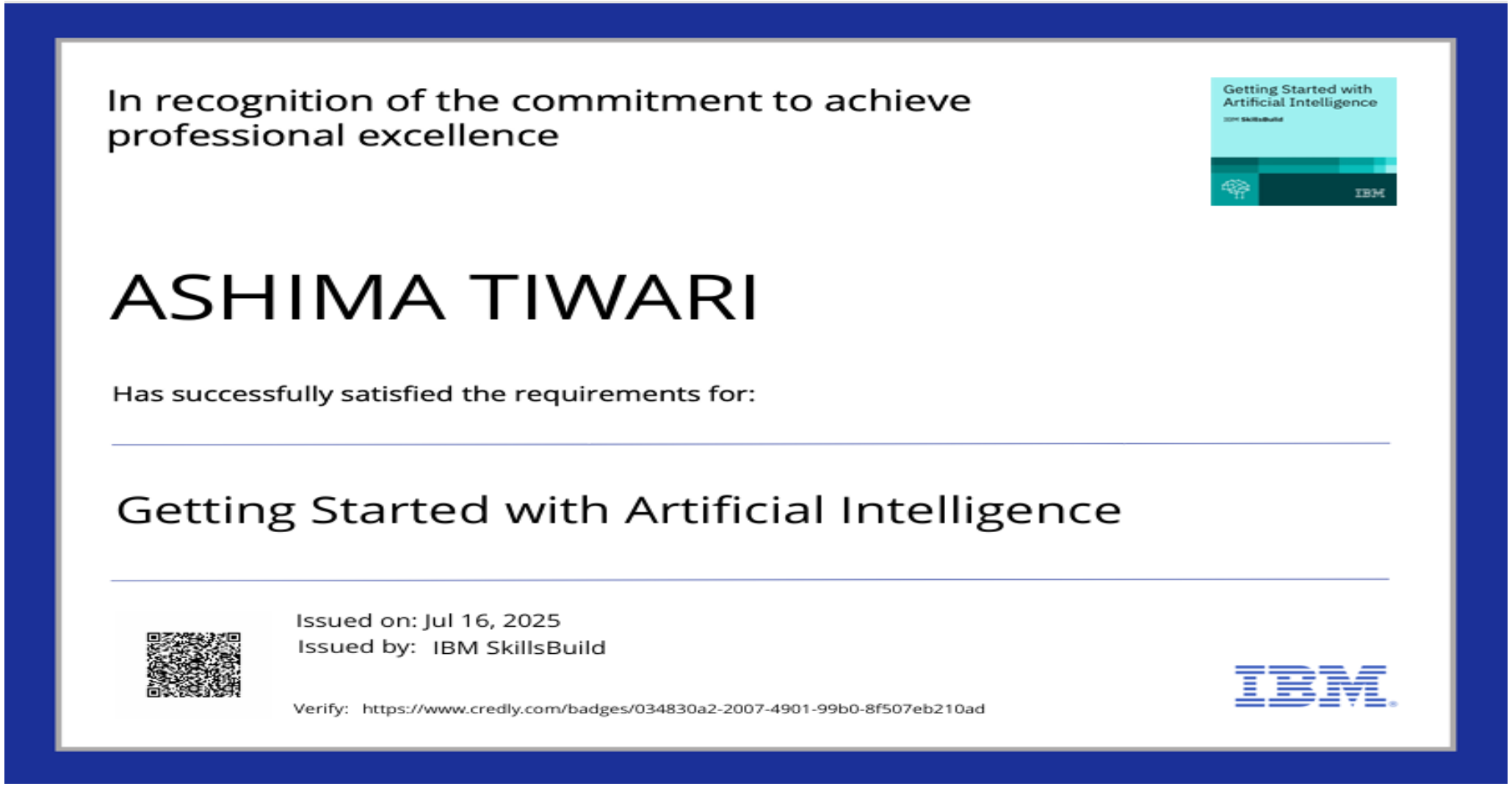
•IBM Cloud Documentation
https://cloud.ibm.com/docs

•OpenWeatherMap API for weather data
https://openweathermap.org/api

•Google Maps Platform for location services
https://developers.google.com/maps

•Agentic AI Lab – IBM Edunet Demo Guide

IBM CERTIFICATIONS



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IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence

Journey to Cloud: Envisioning Your Solution

IBM SkillsBuild

IBM

ASHIMA TIWARI

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution

Issued on: Jul 17, 2025

Issued by: IBM SkillsBuild

Verify: https://www.credly.com/badges/486994ca-a6b6-4ba9-9f55-c9c883fef0fd

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IBM CERTIFICATIONS

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

ASHIMA TIWARI

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT) **Learning hours:** 20 mins

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THANK YOU

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