CAPSTONE PROJECT

AGENTIC CAREER COUNSELLING COMPANION

Presented By:
Kodali Lohitha - Vignan's Institute of Management and Technology for Women - CSE(AI&ML)

edunet foundation

OUTLINE

- Problem Statement
- Proposed System
- System Approach
- Algorithm & Deployment
- Result
- Conclusion
- Future Scope
- References

PROBLEM STATEMENT

Students struggle with career decisions due to fragmented guidance, limited self-awareness of academic strengths, and rapidly changing industries. Traditional methods lack personalization and scalability, leading to missed opportunities and mismatches.

PROPOSED SOLUTION

- The proposed solution involves developing an intelligent, autonomous AI agent hosted on IBM Cloud. This agent will address the challenges of fragmented guidance, limited self-awareness of strengths, and rapidly evolving industry landscapes faced by students in making career decisions.
- **Agent Capabilities and Functionality:**
- The agent operates as a dynamic, self-directed mentor. Its core functionality revolves around:
  - **Data Synthesis:** Continuously gathering and analyzing data related to student performance, evolving interests, and real-time labor market trends.
  - **Tailored Recommendations:** Utilizing its analytical capabilities to generate highly personalized and actionable career pathway suggestions for individual students.
  - **Autonomous Operation:** Designed to operate with minimal manual intervention, adapting its guidance based on continuous monitoring and user interaction.

SYSTEM APPROACH

The "Agentic Career Counseling Companion" leverages IBM Watsonx.ai Agent Lab to host its core AI agent, "GuidanceGuru". This agent is powered by the mistral-large foundation model and integrates various tools like Google Search, Web crawler for information retrieval and processing. The system operates within IBM Cloud Lite services, including Cloud Object Storage and Watsonx.ai Runtime. The agent is deployed as an AI Service, accessible via a Public Endpoint URL and secured with a User API Key. User interaction currently occurs through the "Agent preview" interface in Watsonx.ai.

SYSTEM REQUIREMENTS

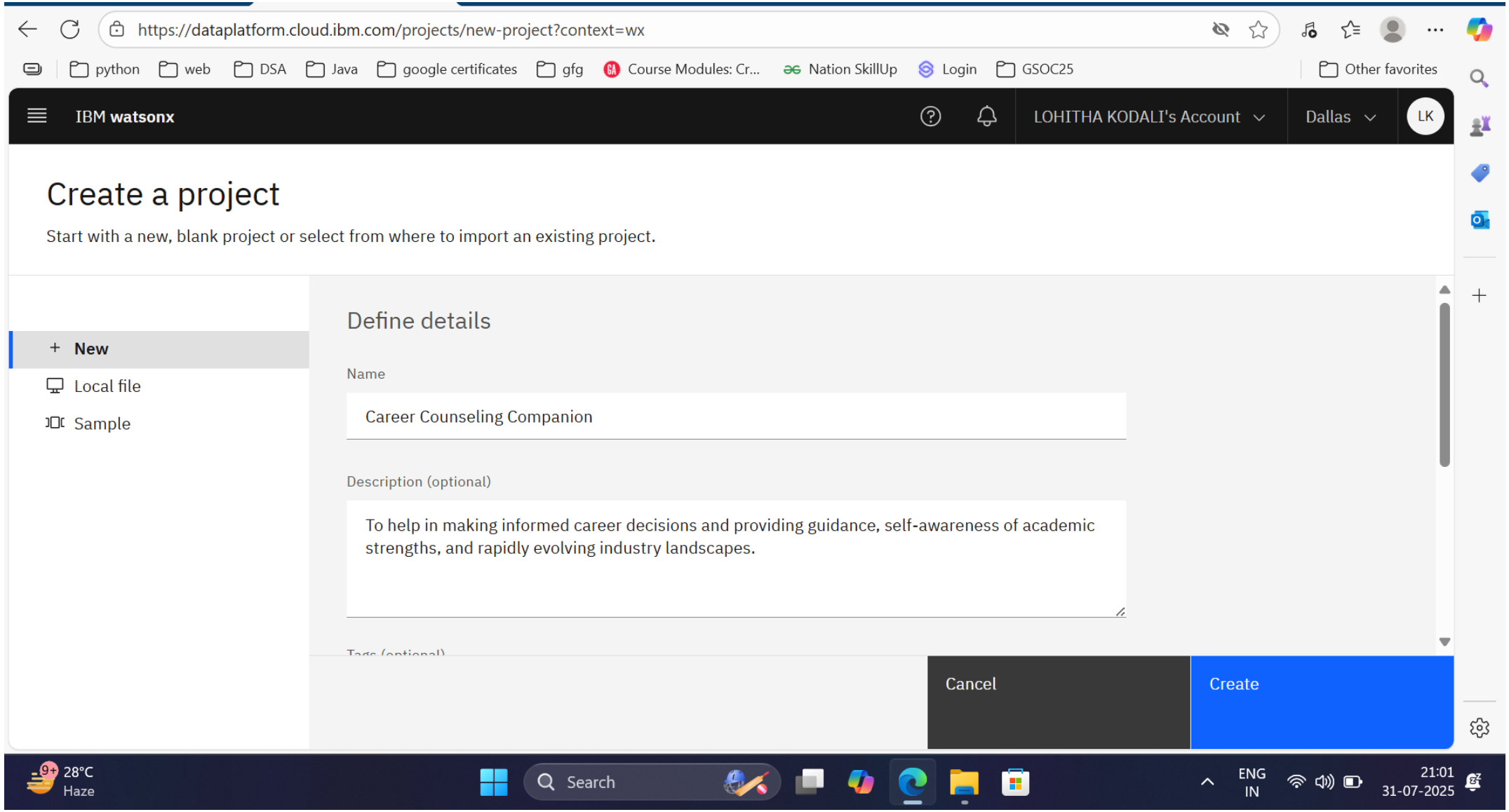
- **Software & Account:**
  - Web Browser
  - Active IBM Cloud Account (Lite Tier compatible)
- **IBM Cloud Services:**
  - IBM Watsonx.ai (Core platform for agent)
  - IBM Cloud Object Storage (Lite Plan)
  - IBM Watsonx.ai Studio Service
  - IBM Watsonx.ai Runtime Service
  - Deployment Space
- **Foundation Model:**
  - mistral-large (Configured within Watsonx.ai)
- **Integrated Tools:**
  - Google Search
  - DuckDuckGo Search
  - Wikipedia Search
  - Web crawler
- **Access & Authentication:**
  - User API Key
  - Public Endpoint URL (for agent access)

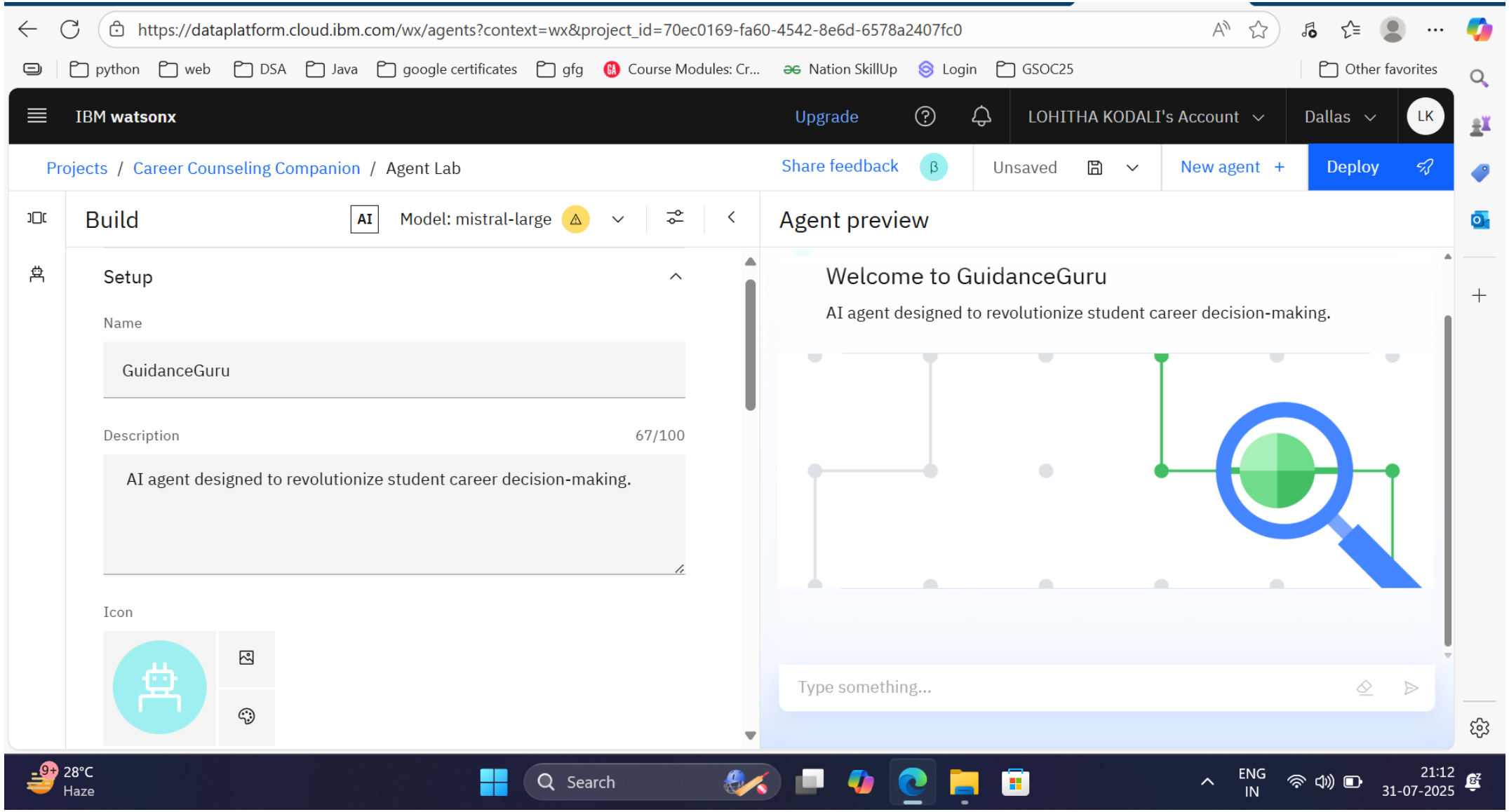
ALGORITHM & DEPLOYMENT

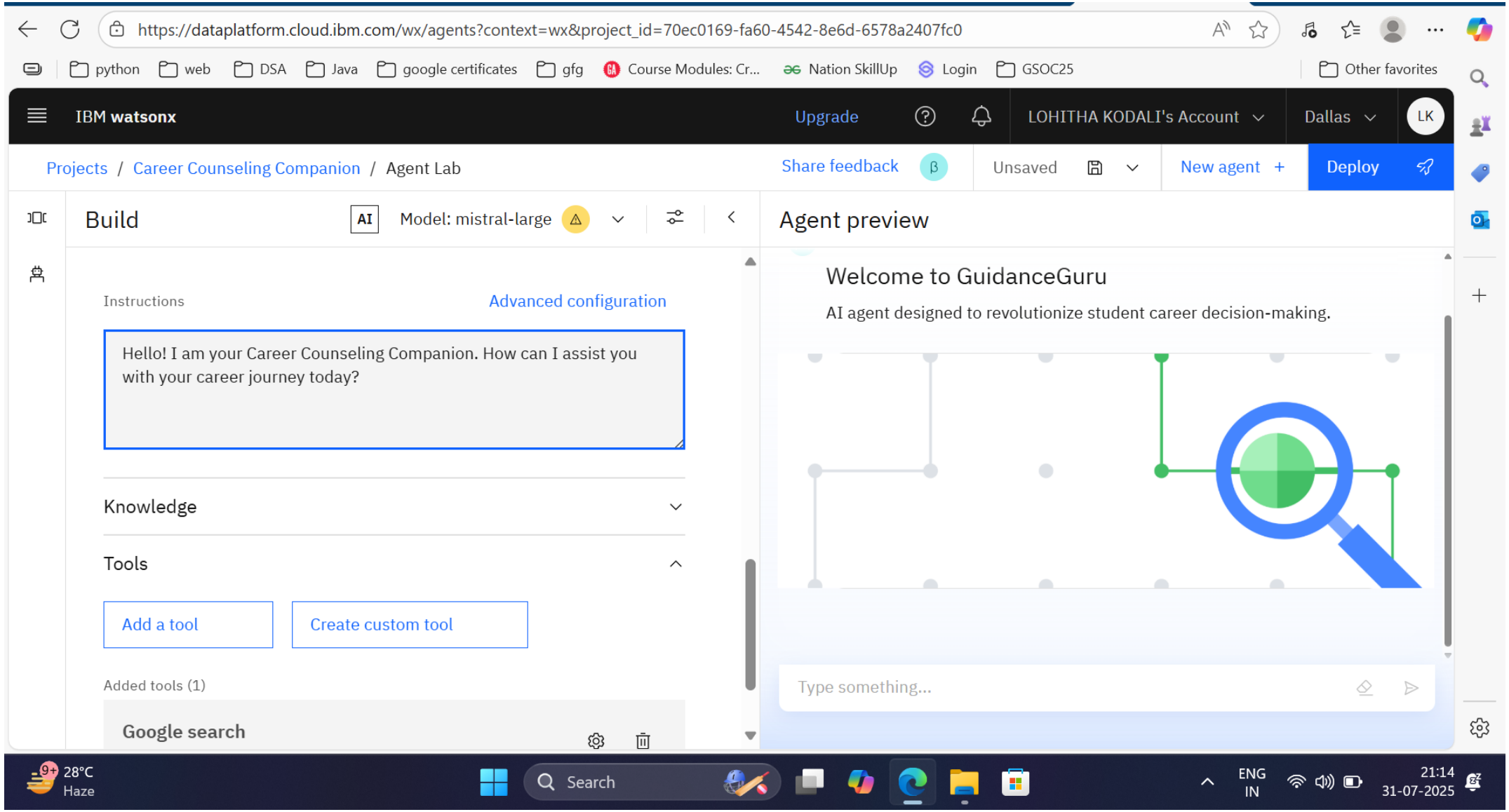
- **Algorithm: AI Agent Deployment**
- **Objective:** To make the "GuidanceGuru" AI agent accessible as an AI service in IBM Watsonx.ai.
- **Input:** Configured AI Agent (Model, Instructions, Tools), IBM Cloud Services.
- **Steps:**

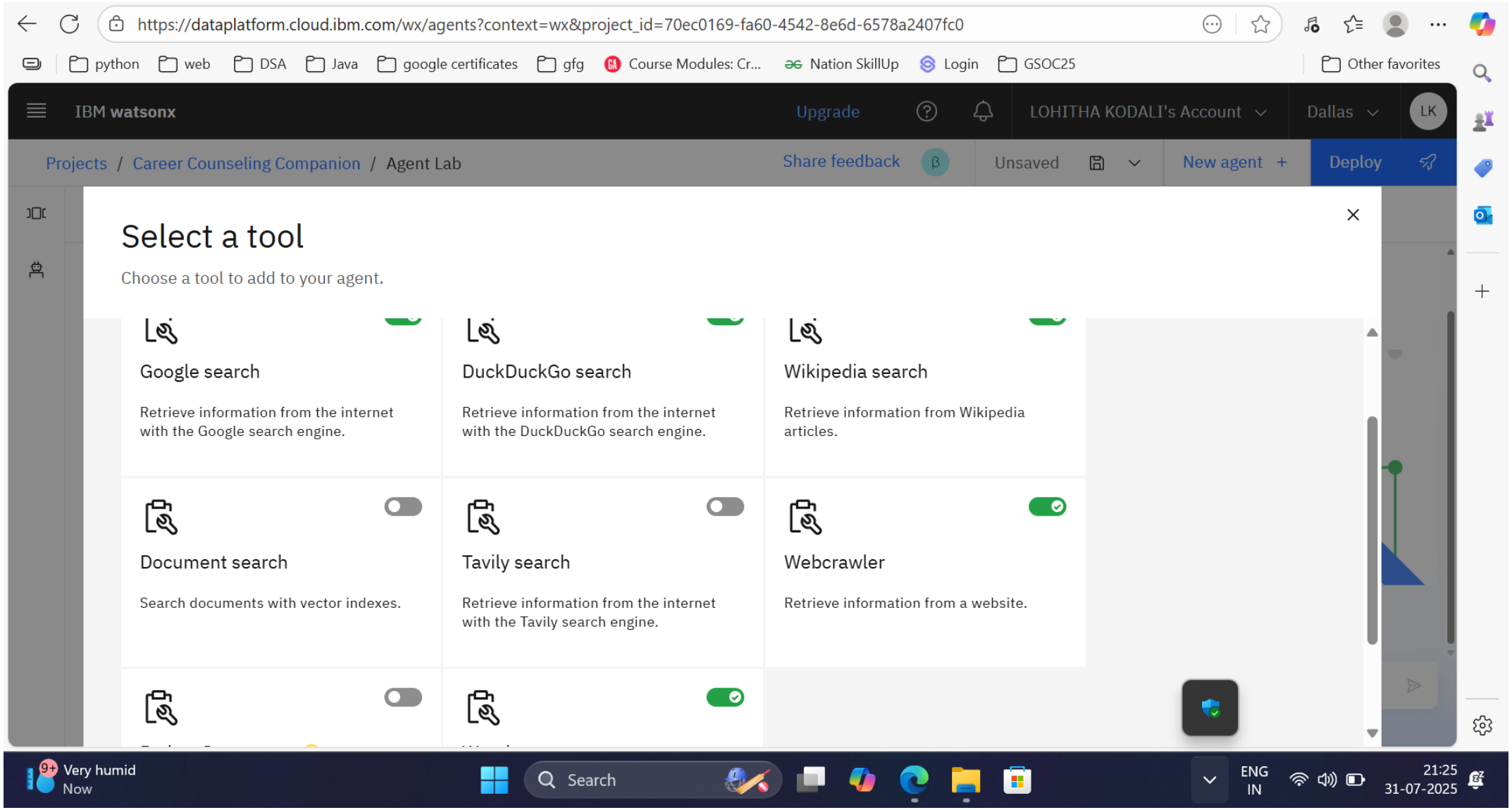
1. **Initiate Deployment:** Trigger "Deploy" from Agent Lab.
2. **API Key Management:** Generate a User API Key if needed, then reload interface for recognition.
3. **Deployment Space Selection:** Choose or create a dedicated Deployment Space (e.g., "Agentic_AI_01").
4. **Execute Deployment:** System packages the agent and provisions resources in the chosen space.
5. **Monitor Status:** Track deployment progress from "Initializing" to "Online/Deployed".
6. **Service Activation:** Public Endpoint URL and API Key become active for external access.

- **Output:** Deployed "GuidanceGuru" AI Agent Service with a Public Endpoint and User API Key.

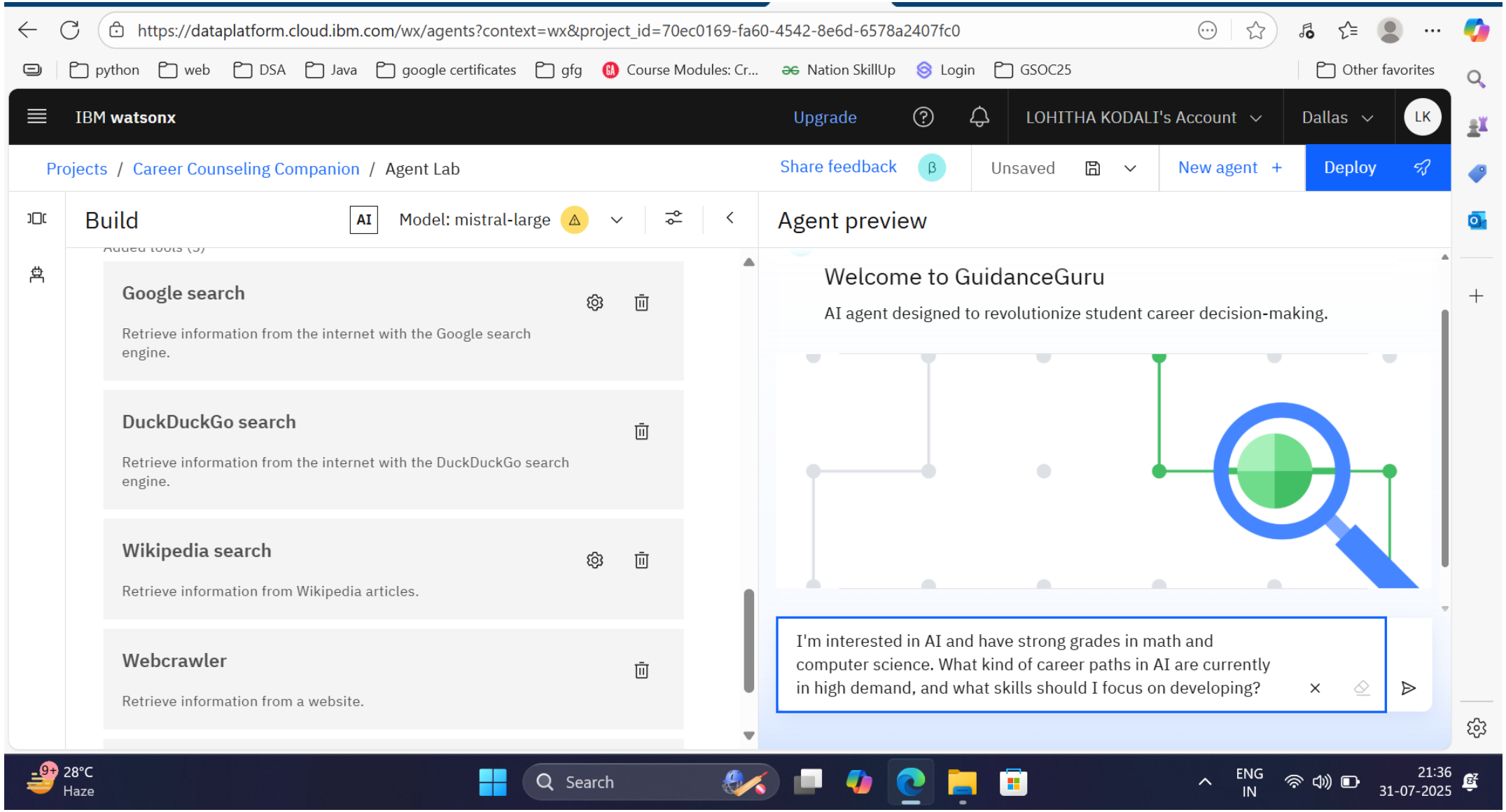


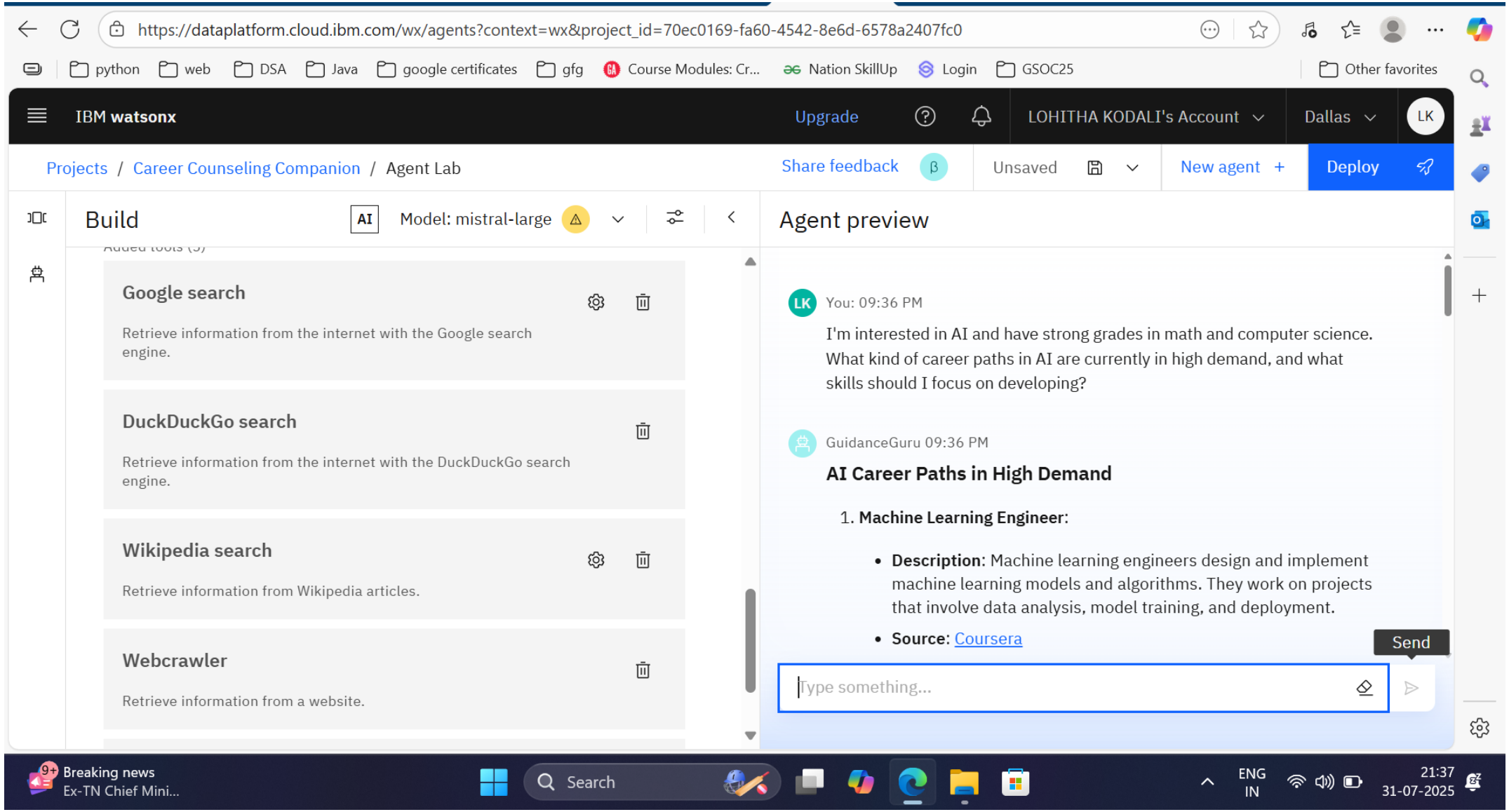


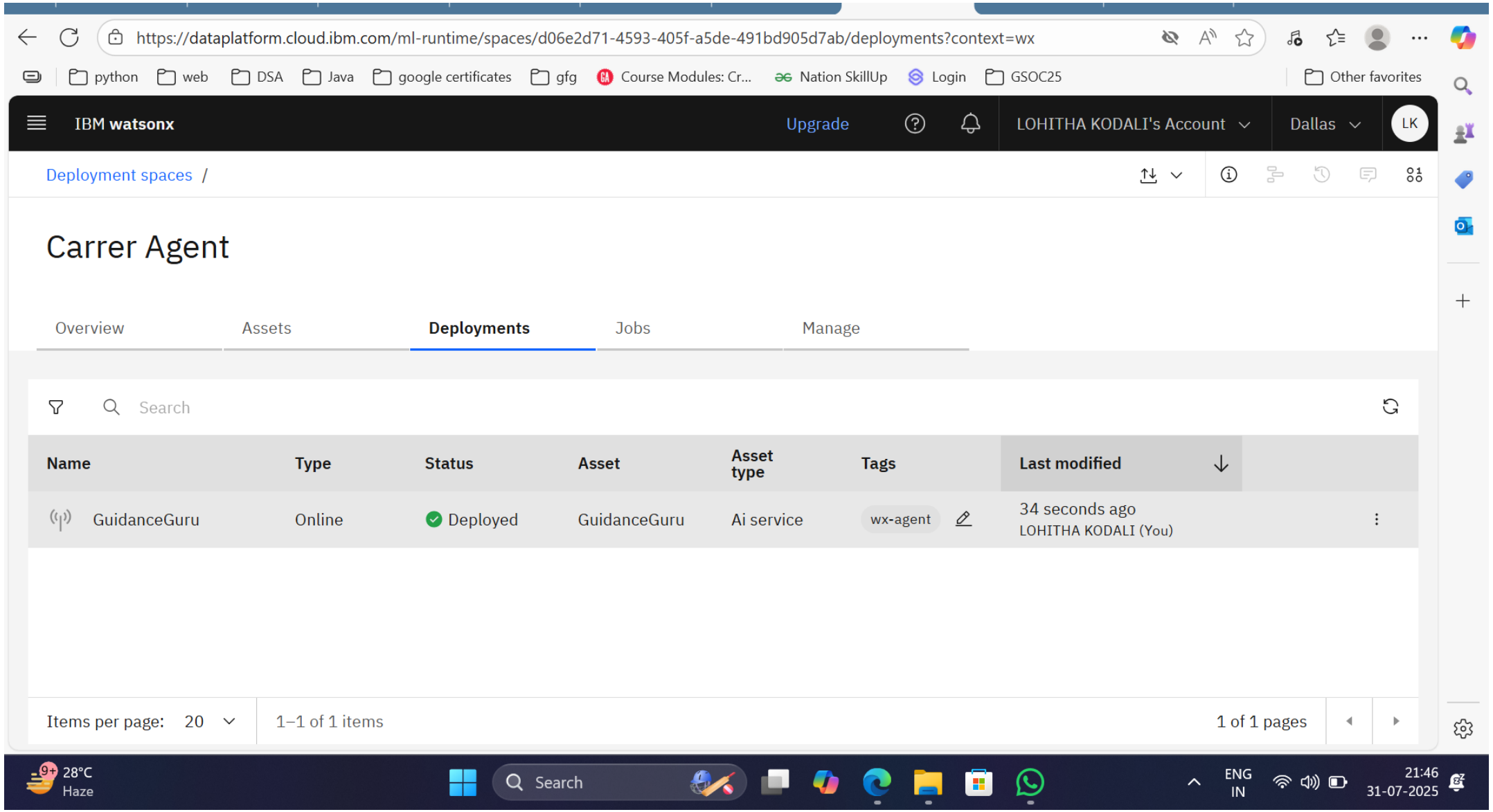




edunet foundation







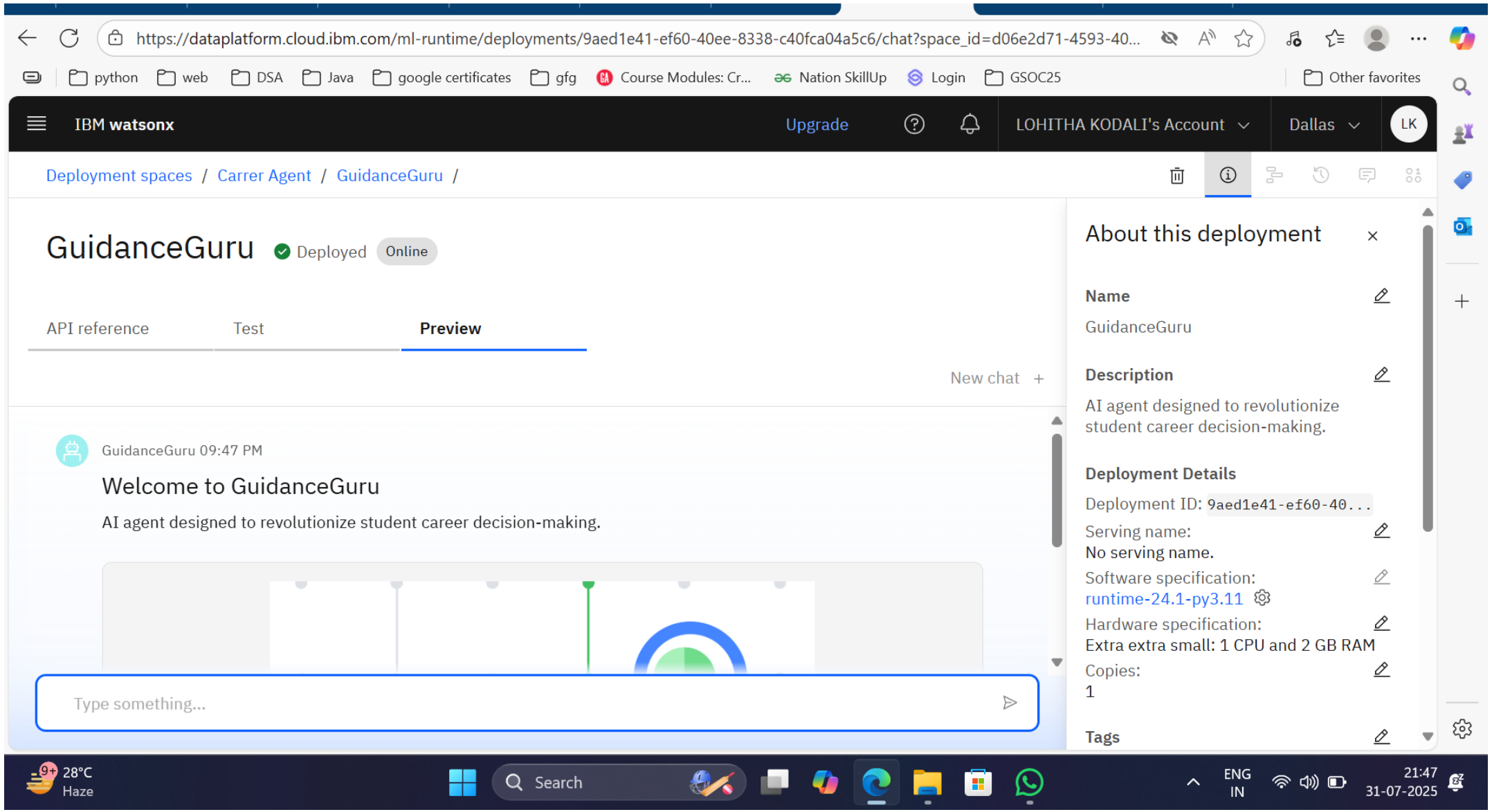
RESULT

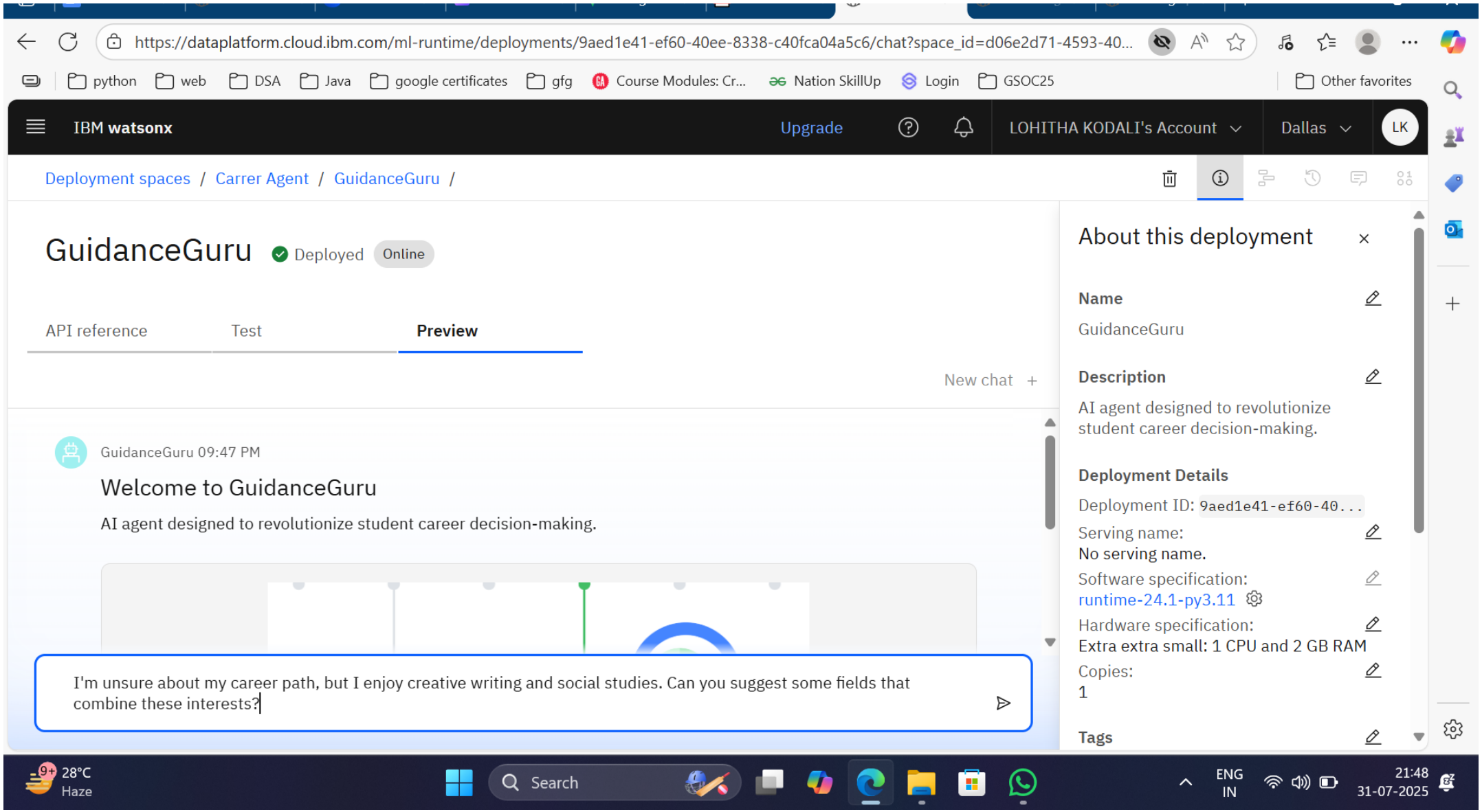
After successfully deploying your "GuidanceGuru" AI agent as an AI Service, you can interact with it to see its output.

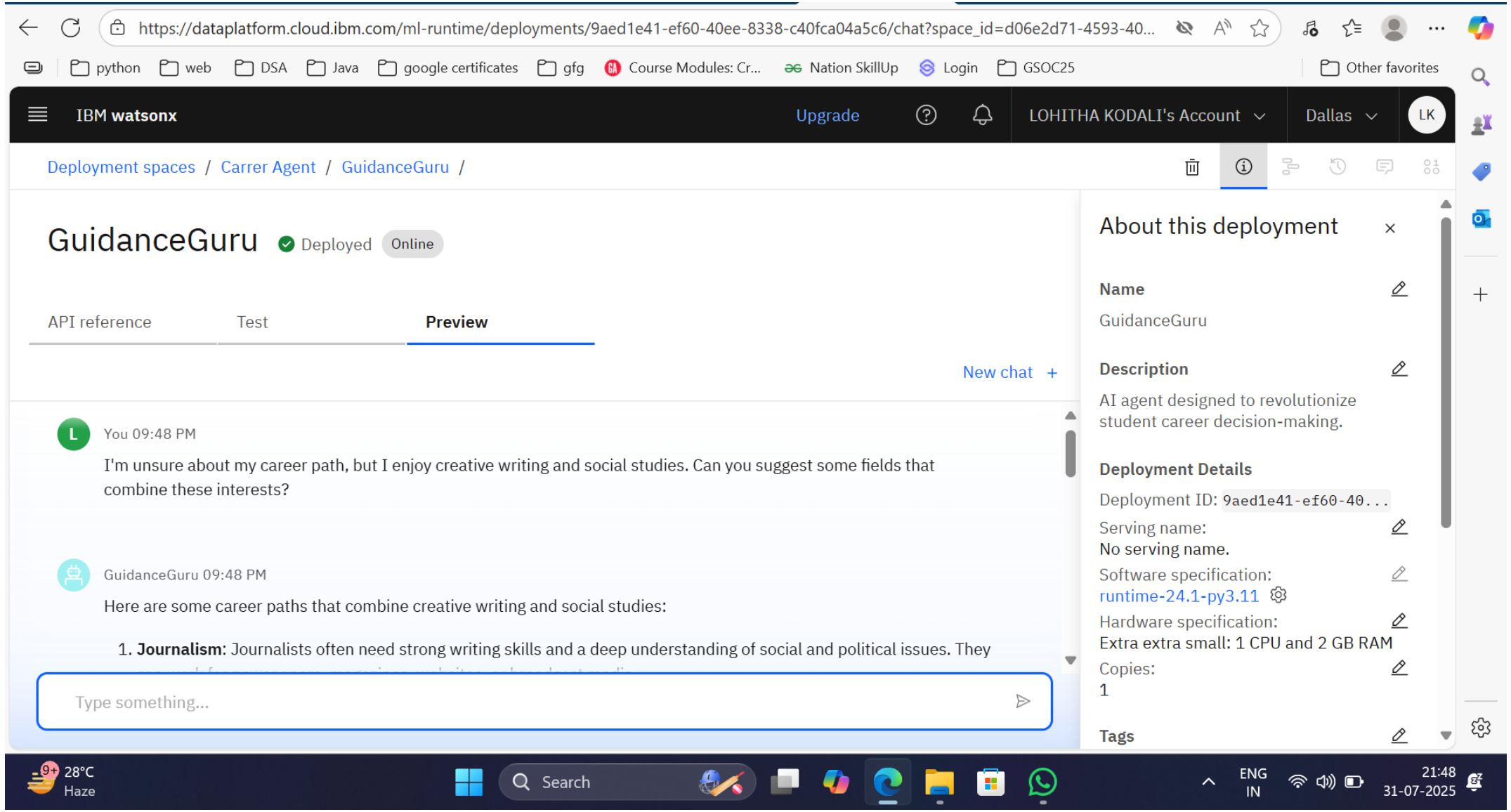
Access the Preview Interface: Navigate to your deployed agent's page in IBM Watsonx.ai and click on the "Preview" tab.

Input a Query: Type a question or prompt into the input field provided in the "Agent preview".

Receive the Result: The agent will process your query, utilize its configured tools, and then generate a response, which will be displayed in the chat interface.







CONCLUSION

The "Agentic Career Counseling Companion" project successfully leverages IBM Cloud Lite services and Watsonx.ai to deliver an intelligent, autonomous agent named "GuidanceGuru". It provides tailored career guidance, addressing critical student challenges and empowering students with future-ready career decisions.

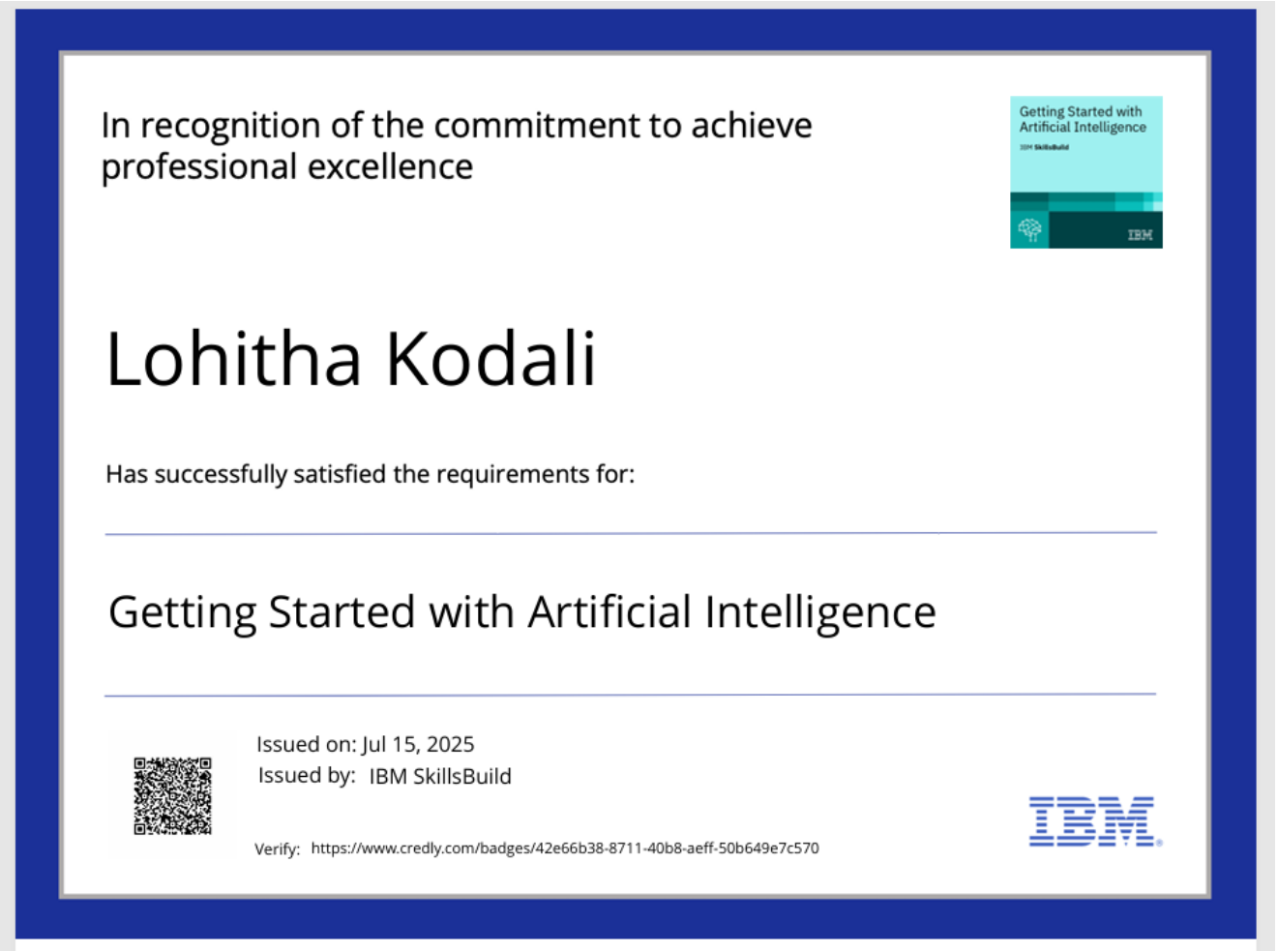
FUTURE SCOPE

The future scope for the "Agentic Career Counseling Companion" involves advanced data integration for continuous student monitoring, leading to enhanced personalization and proactive guidance. Key advancements will focus on interactive user experiences, scalability, and ensuring ethical AI principles, to empower students more comprehensively.

REFERENCES

1. **Nair et al. (2022)**
   Title: *AI-Based Career Counselling with Chatbots*
   Source: Springer Lecture Notes in Networks and Systems (Peer-reviewed conference proceeding)
2. **Leung (2022)**
   Title: *New Frontiers in Computer-Assisted Career Guidance Systems (CACGS)*
   Source: *Frontiers in Psychology* (Scopus-indexed, Q1 journal)
3. **McCrory (2022)**
   Title: *Theorising Agency for Socially Just Career Guidance*
   Source: *British Journal of Guidance & Counselling* (Taylor & Francis)
4. **Rahman et al. (2023)**
   Title: *Artificial Intelligence in Career Counseling: A Test Case with ResumAI*
   Source: Preprint published on DergiPark (academic portal in Turkey)
5. **Faqihi & Miah (2022)**
   Title: *Designing an AI-Driven Talent Intelligence Solution*
   Source: Preprint on arXiv. Useful for organizational/career systems

IBM CERTIFICATIONS



IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence

Journey to Cloud: Envisioning Your Solution

IBM

Lohitha Kodali

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution

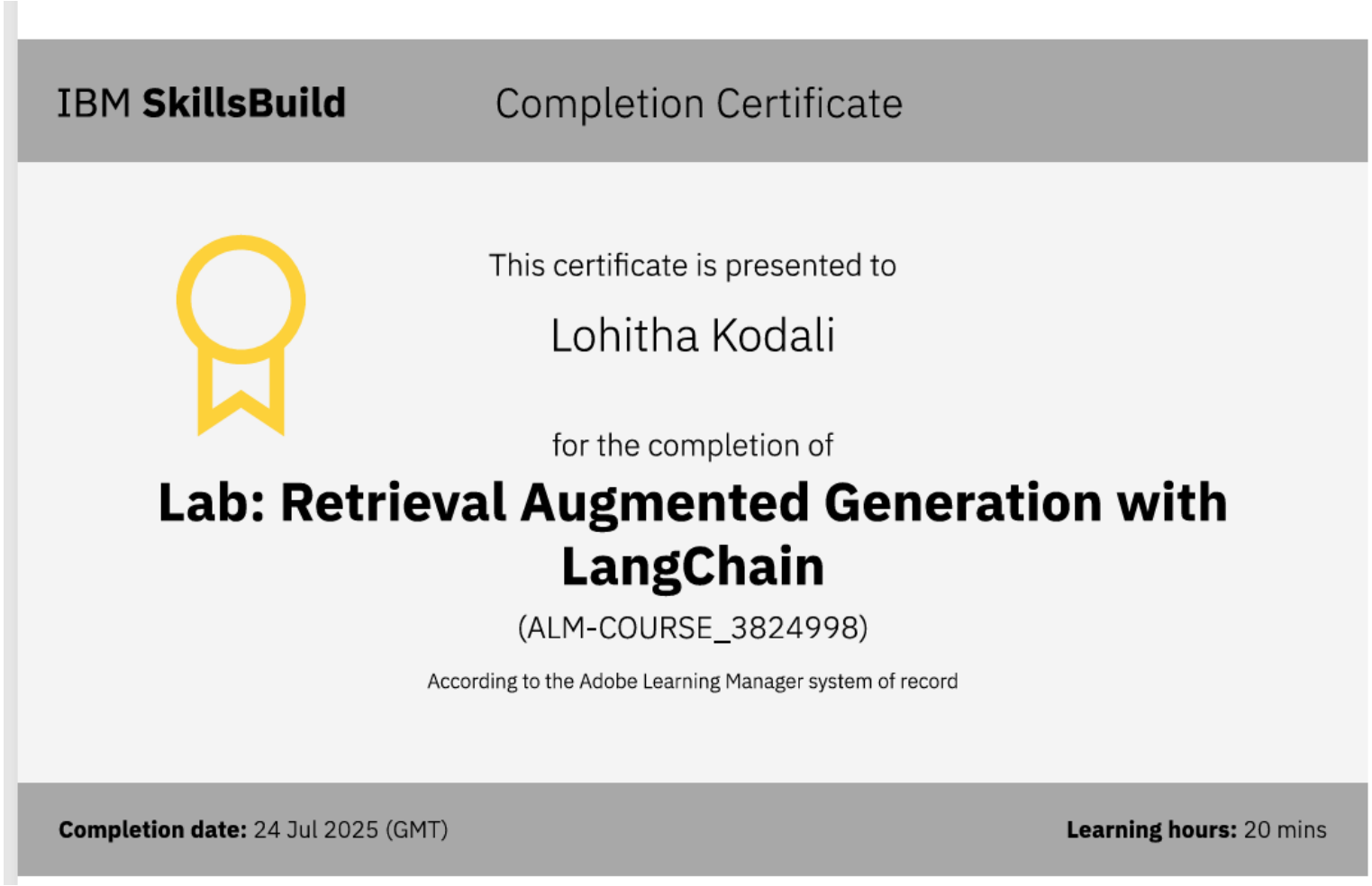
Issued on: Jul 19, 2025

Issued by: IBM SkillsBuild

Verify: https://www.credly.com/badges/2acf7d33-897b-440a-be41-e13c73180cdf

IBM

IBM CERTIFICATIONS



IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Lohitha Kodali

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

edunet foundation

THANK YOU

edunet foundation