CAPSTONE PROJECT

LIBRARY AI AGENT

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OUTLINE

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- Wow factor
- End users
- Result
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- Git-hub Link
- Future scope
- IBM Certifications

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PROBLEM STATEMENT

Students often face challenges in quickly locating the most relevant learning materials within large and complex library systems. Manually searching through catalogs, understanding availability, and identifying resources aligned with their academic needs such as course topics, syllabus, or ongoing assignments can be time consuming and inefficient. There is a need for an intelligent solution that can understand student queries in natural language, analyze academic context, and deliver personalized book and resource recommendations. Additionally, the system should support real-time book availability checks, prioritize high-demand materials, and streamline reservation or waitlisting processes. Addressing this challenge would significantly improve access to educational resources, enhance student engagement, and optimize library usage in academic institutions.

TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

Retrieval Augmented Generation (RAG)

IBM Granite model

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model

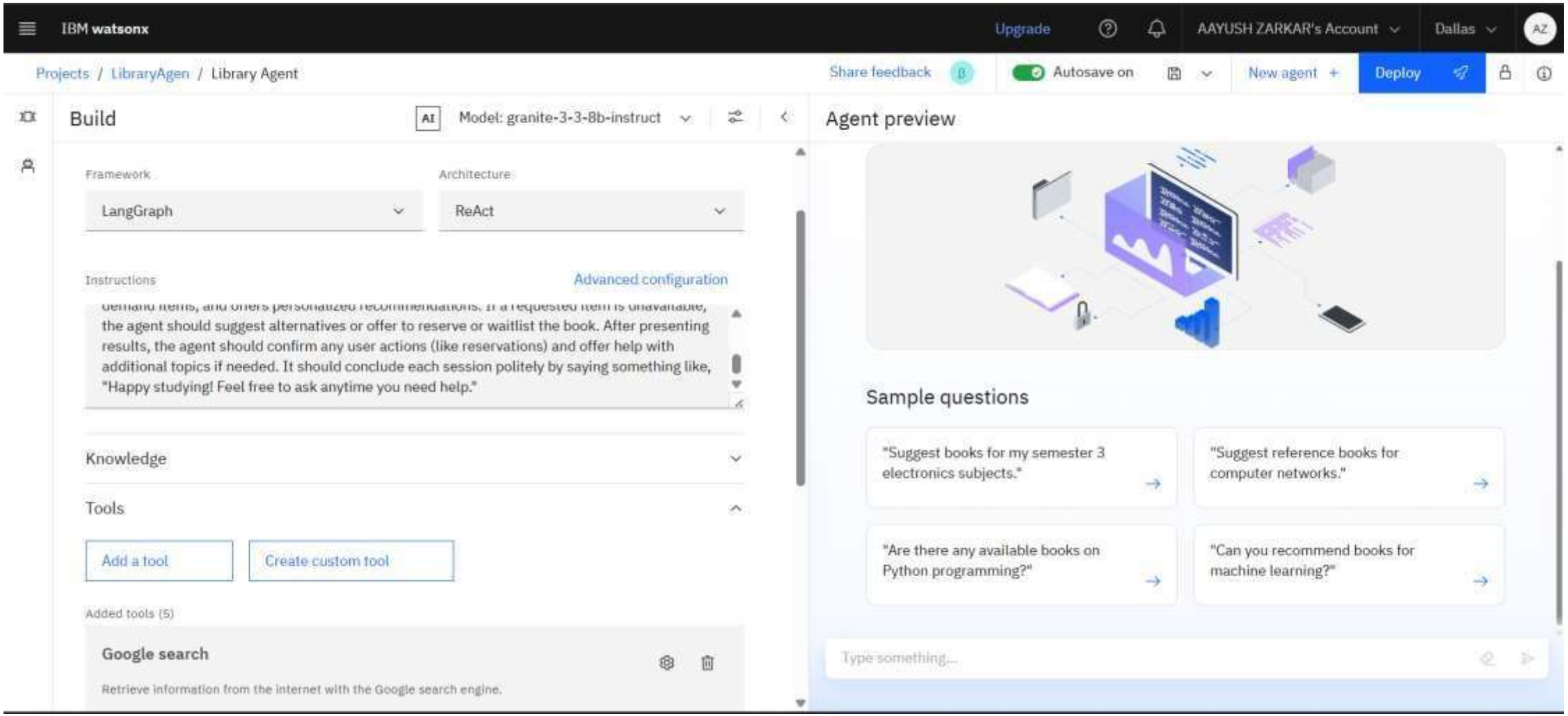
WOW FACTORS

- Personalized recommendations based on student profiles, study topics, and course syllabus.
- Understands natural language queries for a smooth and intuitive user experience.
- Real-time checking of book availability, with suggestions for alternate titles if needed.
- Prioritizes high-demand books and assists with reservations or waitlisting.
- Automatically analyzes academic context to provide relevant learning resources.
- Streamlines the search process, saving students valuable time.
- Enhances engagement with academic content through tailored suggestions.
- Continuously improves recommendations by learning from user interactions.

END USERS

- Academic Researchers
- Research Institutions and Universities
- Industry R&D Teams
- Educators

RESULTS



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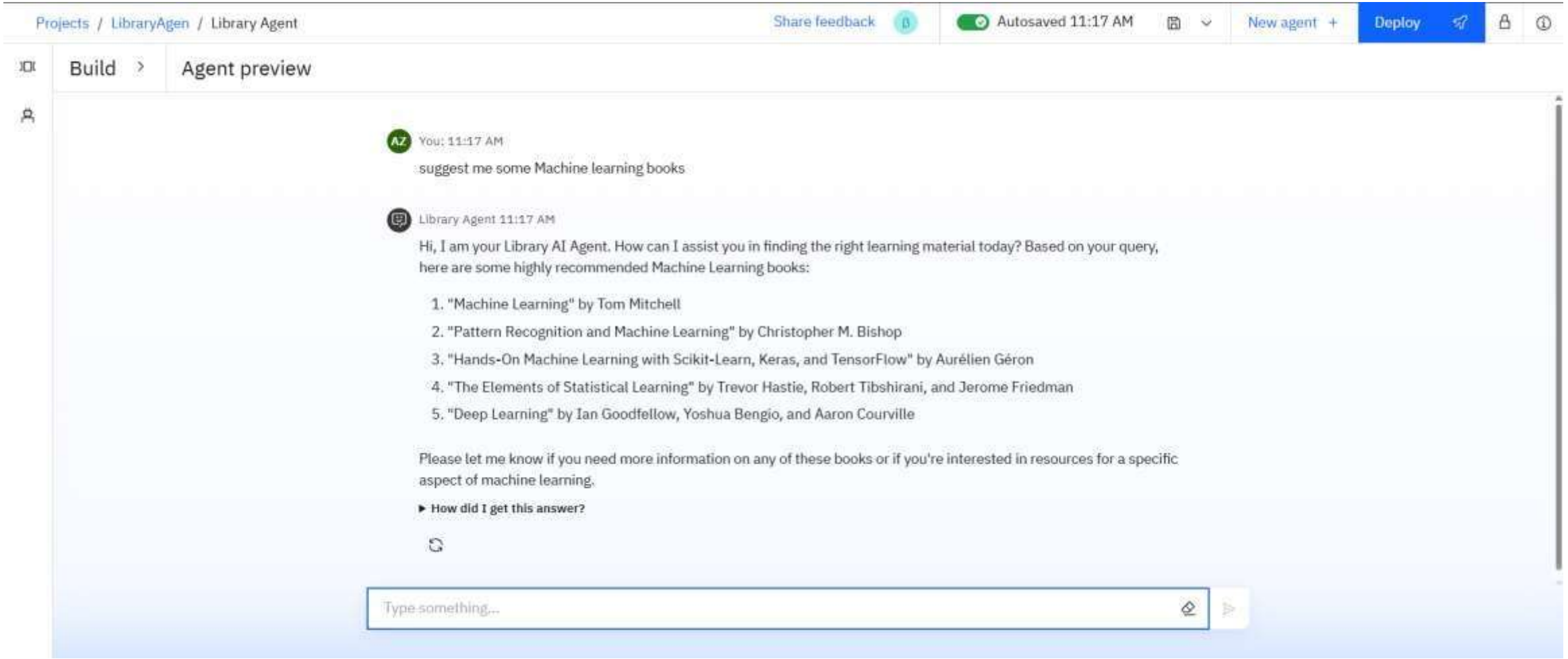
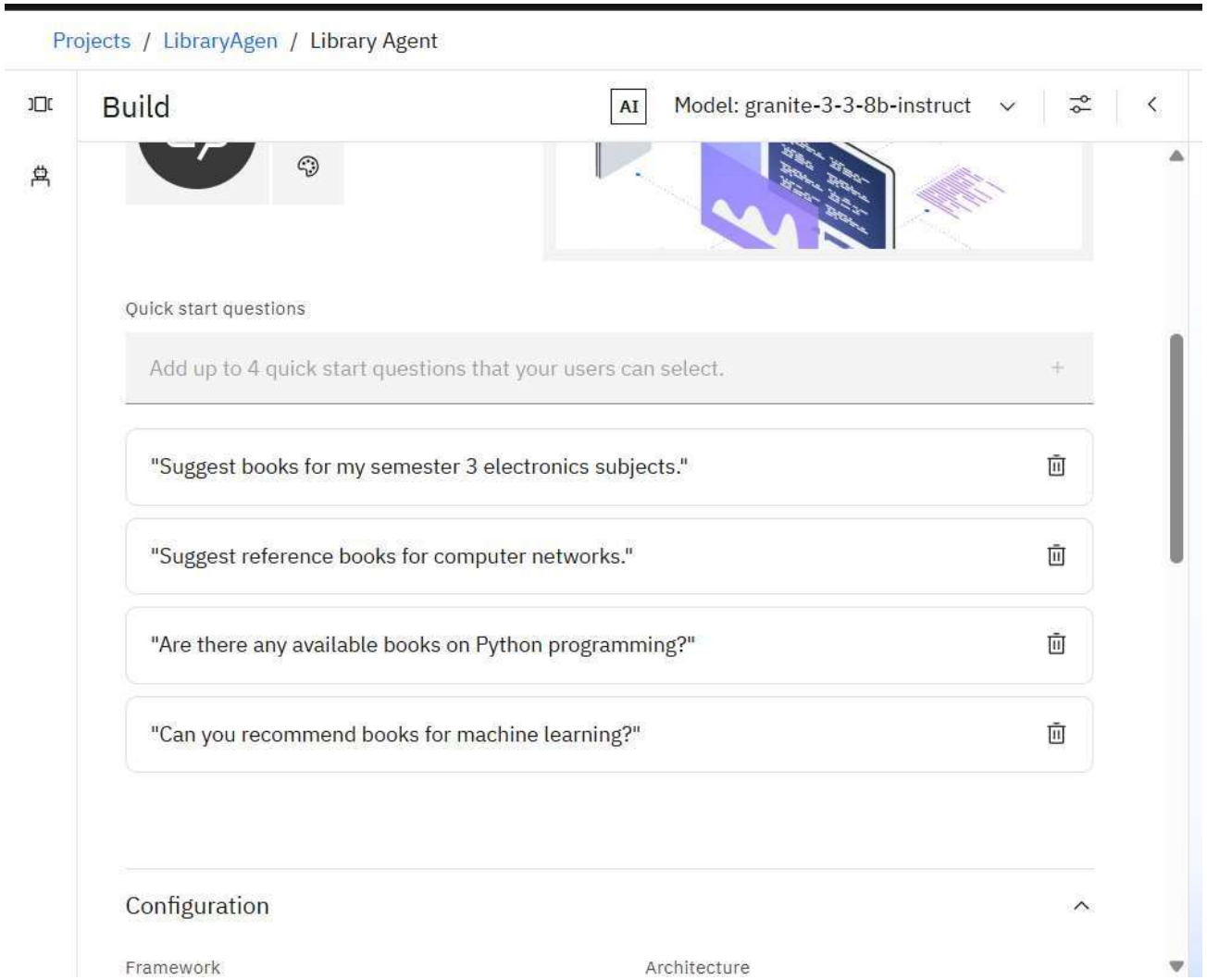
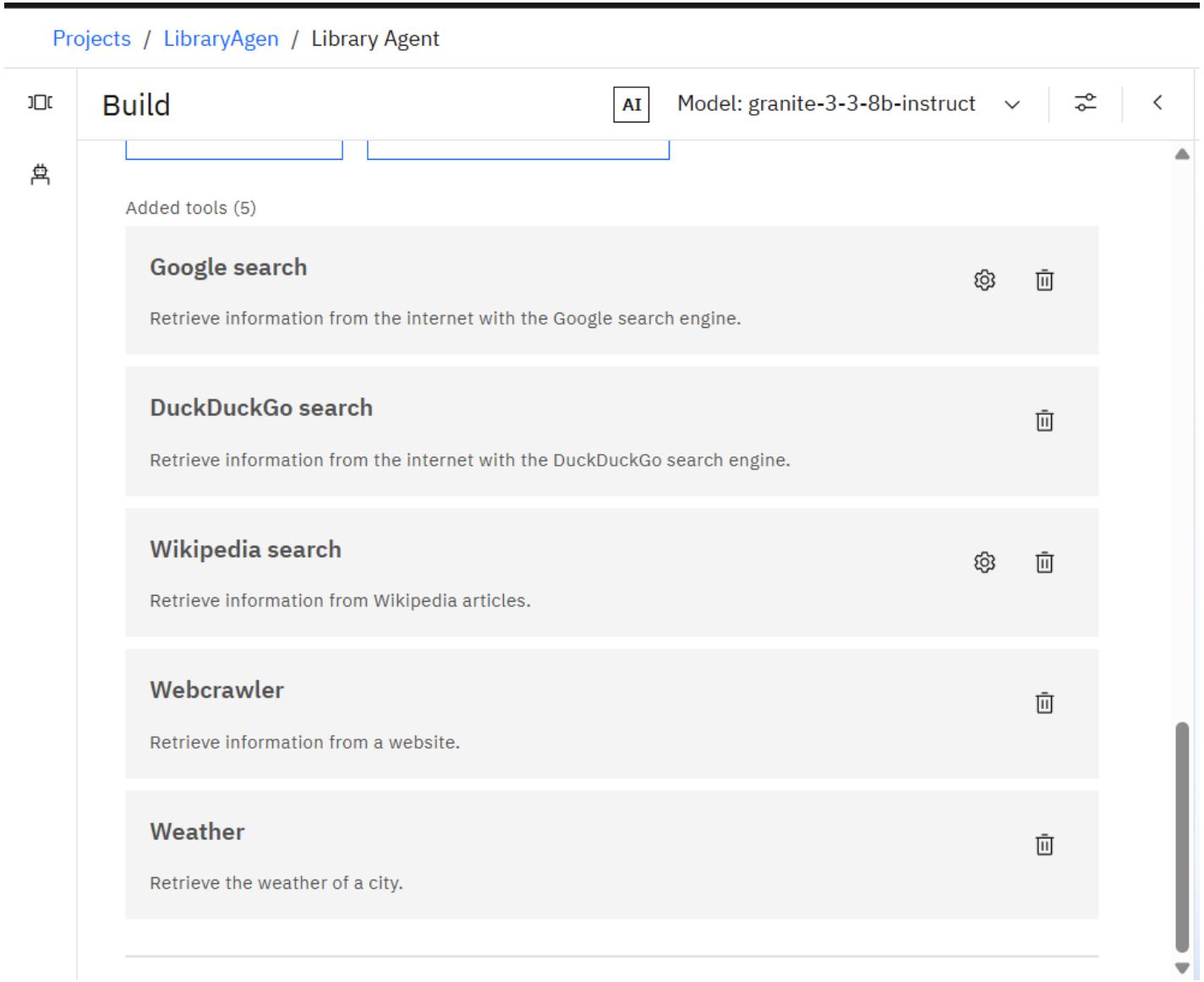
RESULTS


Projects / LibraryAgen / Library Agent
Share feedback
Autosaved 11:17 AM
New agent +
Deploy
Build
Agent preview
AZ
You: 11:17 AM
suggest me some Machine learning books
Library Agent 11:17 AM
Hi, I am your Library AI Agent. How can I assist you in finding the right learning material today? Based on your query, here are some highly recommended Machine Learning books:
1. "Machine Learning" by Tom Mitchell
2. "Pattern Recognition and Machine Learning" by Christopher M. Bishop
3. "Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow" by Aurélien Géron
4. "The Elements of Statistical Learning" by Trevor Hastie, Robert Tibshirani, and Jerome Friedman
5. "Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville
Please let me know if you need more information on any of these books or if you're interested in resources for a specific aspect of machine learning.
▸ How did I get this answer?
Type something...

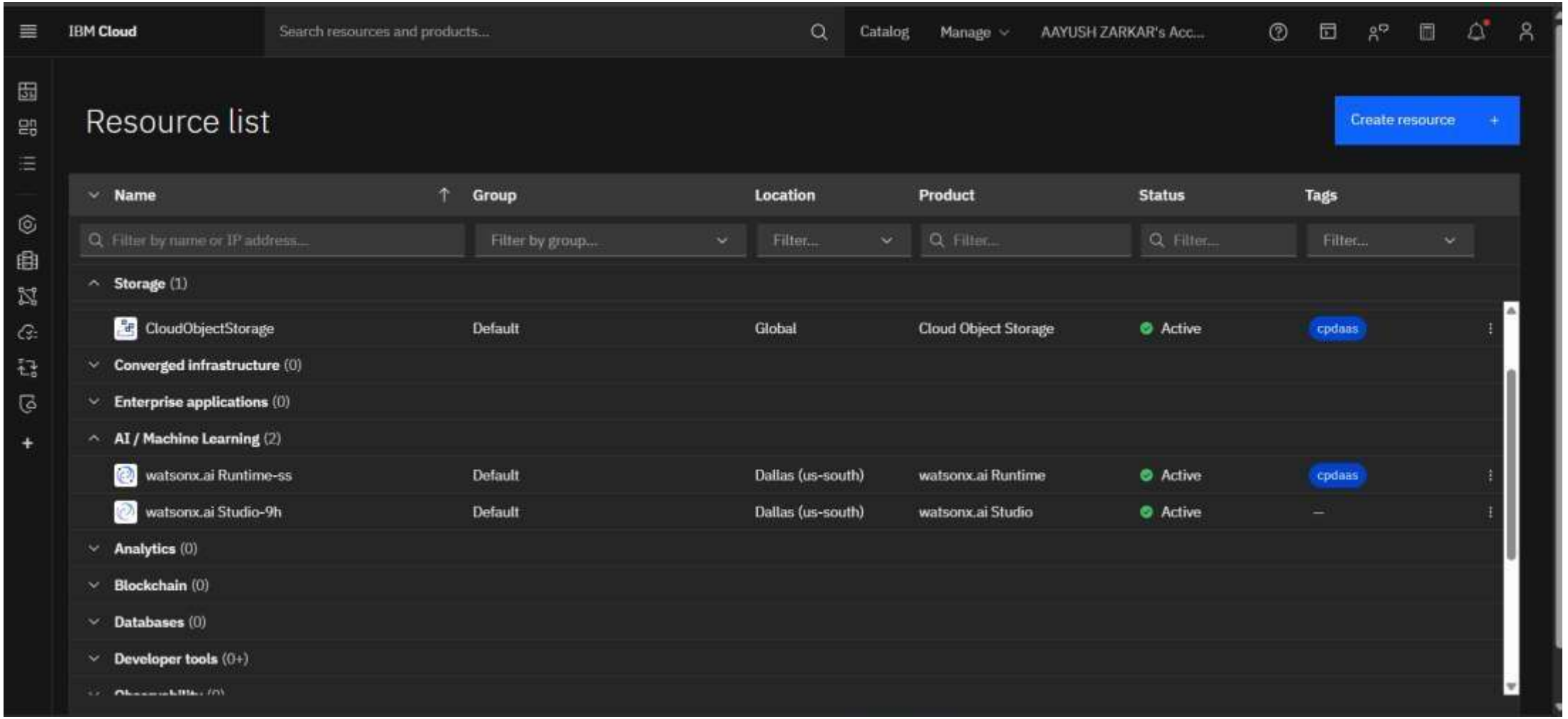
QUICK START QUESTION PREVIEW



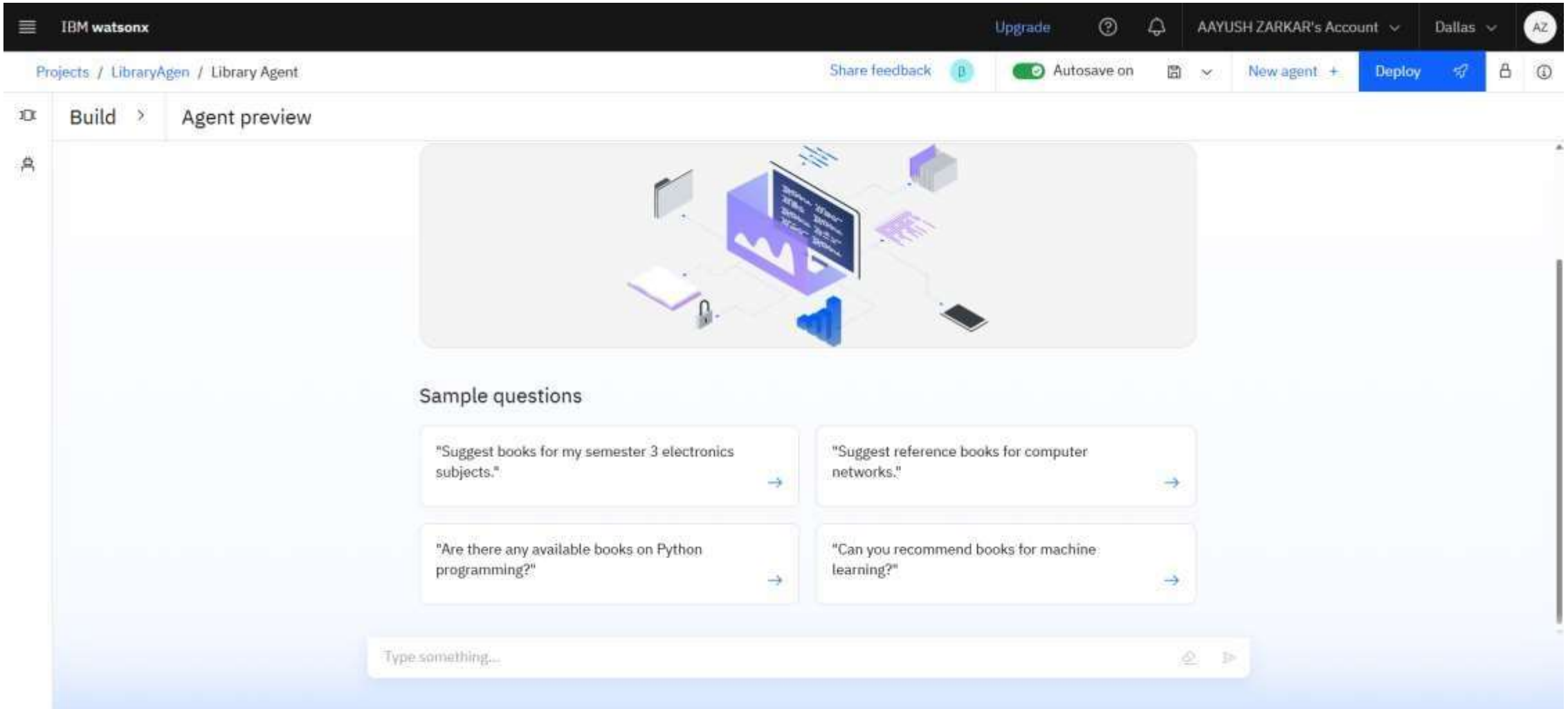
TOOLS USED AND TESTING



RESOURCES LIST



RESULTS


IBM watsonx
Upgrade
AAYUSH ZARKAR's Account
Dallas
AZ
Projects / LibraryAgen / Library Agent
Share feedback
Autosave on
New agent +
Deploy
Build
Agent preview
Sample questions
"Suggest books for my semester 3 electronics subjects."
"Suggest reference books for computer networks."
"Are there any available books on Python programming?"
"Can you recommend books for machine learning?"
Type something...

CONCLUSION

- Enhances the traditional library experience using AI-powered assistance
- Understands academic needs through natural language processing
- Delivers personalized and relevant learning material recommendations
- Checks real-time book availability and assists with reservations
- Streamlines the search process, saving time for students and faculty
- Increases engagement and efficient utilization of library resources
- Supports academic success through smarter access to study materials

FUTURE SCOPE

- Integration with voice assistants for hands-free book searches
- Multilingual support using language translation models for diverse users
- Integration with external digital libraries and academic databases
- Personalized learning paths based on student behavior and progress
- Mobile app version for easy access on the go
- AI-based notifications for new arrivals or books related to ongoing courses
- Offline access to saved reading lists and summaries
- Feedback-driven improvement of recommendations using machine learning

IBM CERTIFICATIONS

IBM CERTIFICATIONS

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

AAYUSH ZARKAR

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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GITHUB LINK

- Github Link :- https://github.com/AAYUSH1612/Project-Ai

THANK YOU

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