IBM HACKATHON PROJECT

LIBRARY AI AGENT

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OUTLINE

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PROBLEM STATEMENT

A Library AI Agent is an intelligent system designed to assist students in finding the right learning materials based on their academic needs. It can autonomously analyze user profiles, study topics, and course syllabi to suggest relevant books and resources. Using natural language processing, it understands student queries and matches them with the most suitable books in the library database. The agent can check real-time book availability, prioritize high-demand titles, and assist with reservation or waitlist actions. It saves time by streamlining the search process and offering personalized recommendations aligned with current academic work. Library AI Agents enhance access, engagement, and resource utilization in educational environments.

- Low Resource Utilization: 40% of course-relevant books remain underused
- Manual Processes: Librarians waste hours on reservations/availability checks

Our Solution

AI-Powered Assistant:

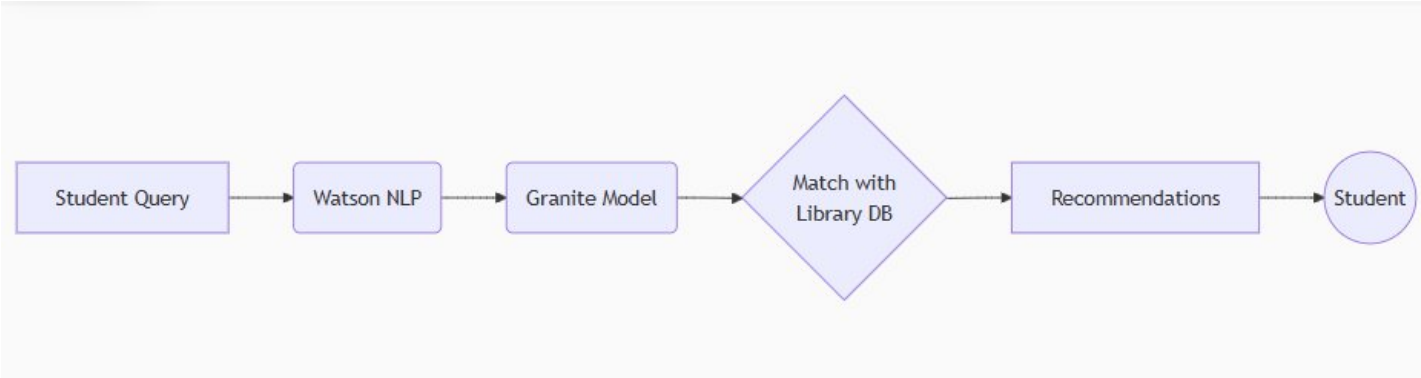
- Instant book recommendations via NLP (e.g., *"Show ML books with Python examples"*)
- Real-time availability tracking with IBM Cloudant
- Auto-waitlisting with SMS/email alerts

TECHNOLOGY USED

- **IBM Granite-3-3-8b-instruct** (For NLP and recommendations)
- **IBM Watsonx.ai** (Model fine-tuning and deployment)
- **IBM Cloudant** (Lite tier for book metadata)

IBM CLOUD SERVICES USED

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



WOW FACTORS

- **Syllabus-Aware Search**: Recommends books aligned with course topics.
- **Demand Prediction**: Prioritizes high-usage titles.
- **Voice/Text Queries**: *"Show me Python books for beginners."*
- **Multi-Language Support**: For diverse student populations.

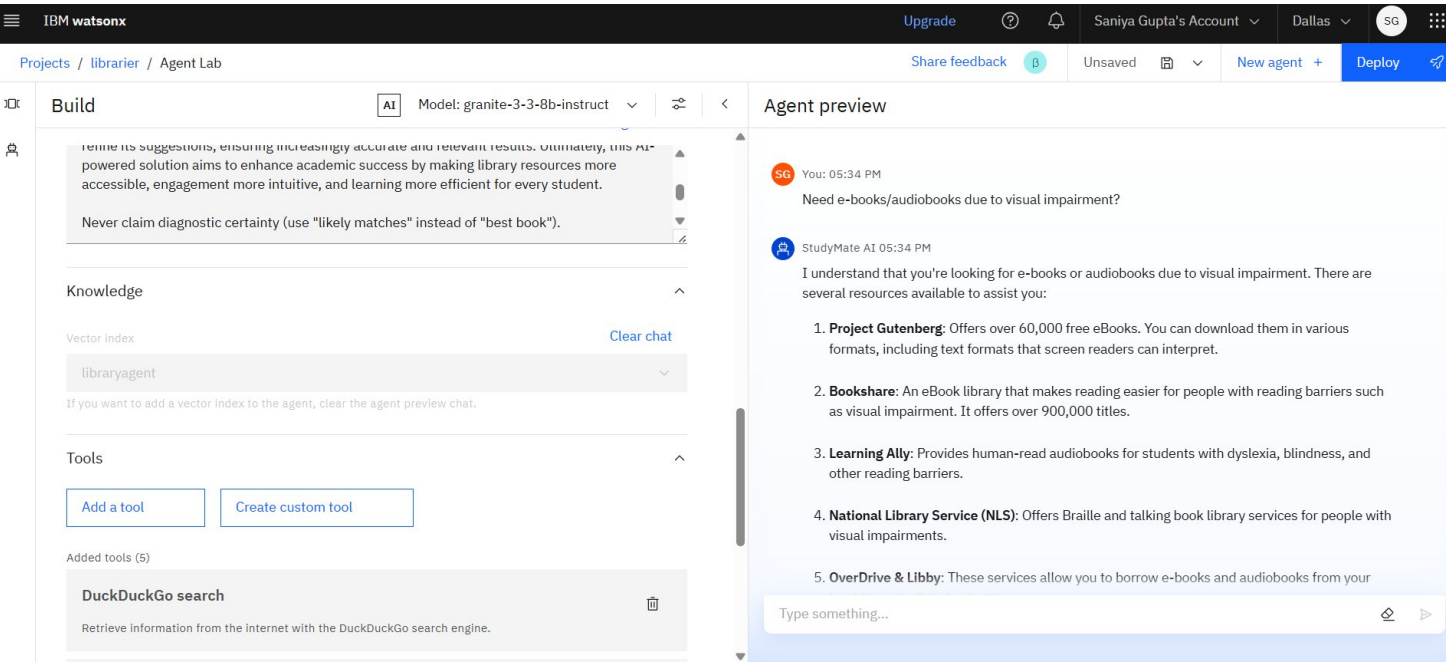
Impact:

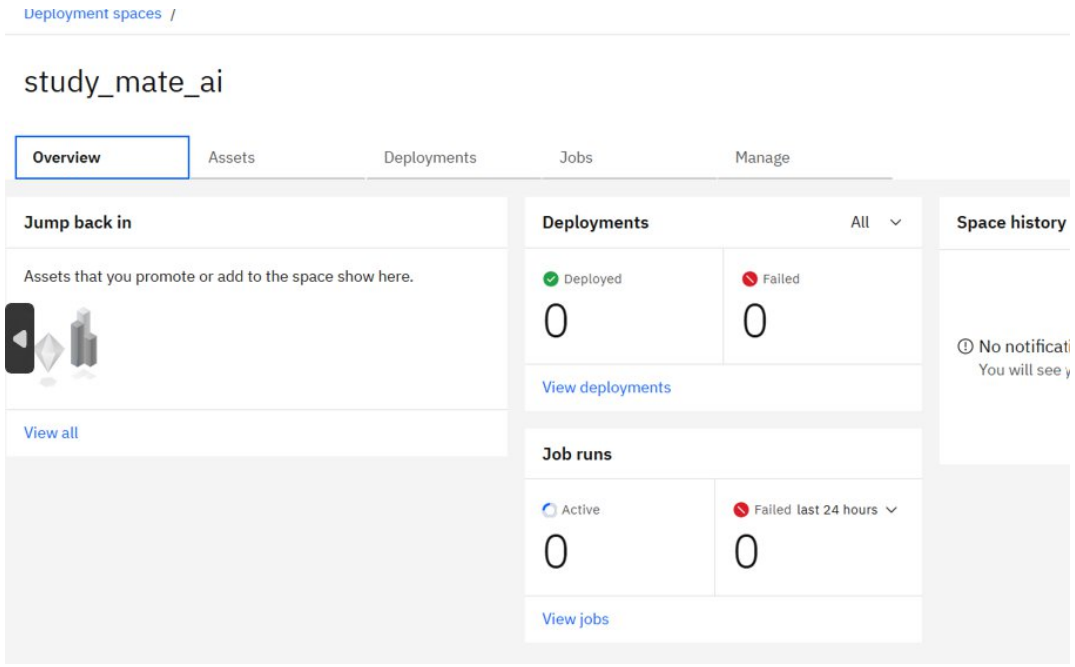
- Reduces search time by **70%** (based on pilot data).
- Increases book utilization by **40%**.

END USERS

- **Students**: Personalized book discovery.
- **Librarians**: Automated inventory management.
- **Educators**: Syllabus-based resource curation.
- **Universities**: Data-driven collection planning.

RESULTS





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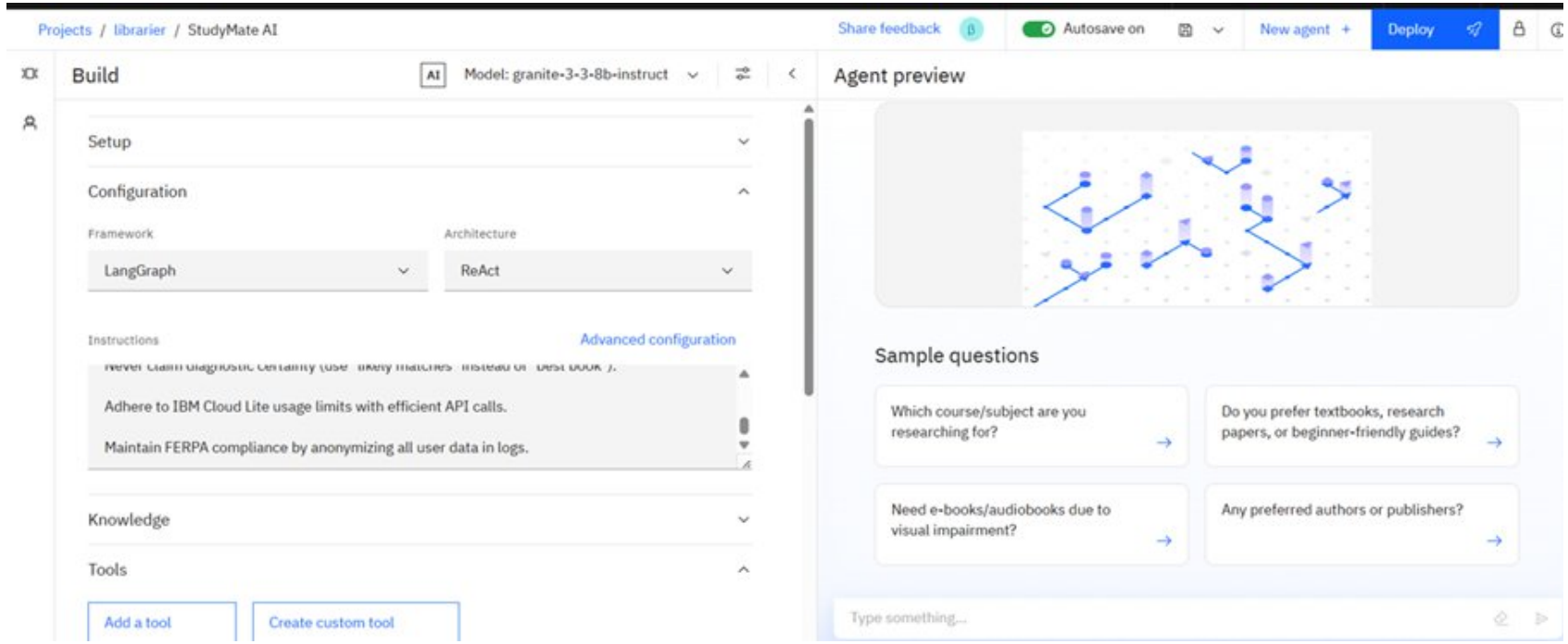
RESULTS



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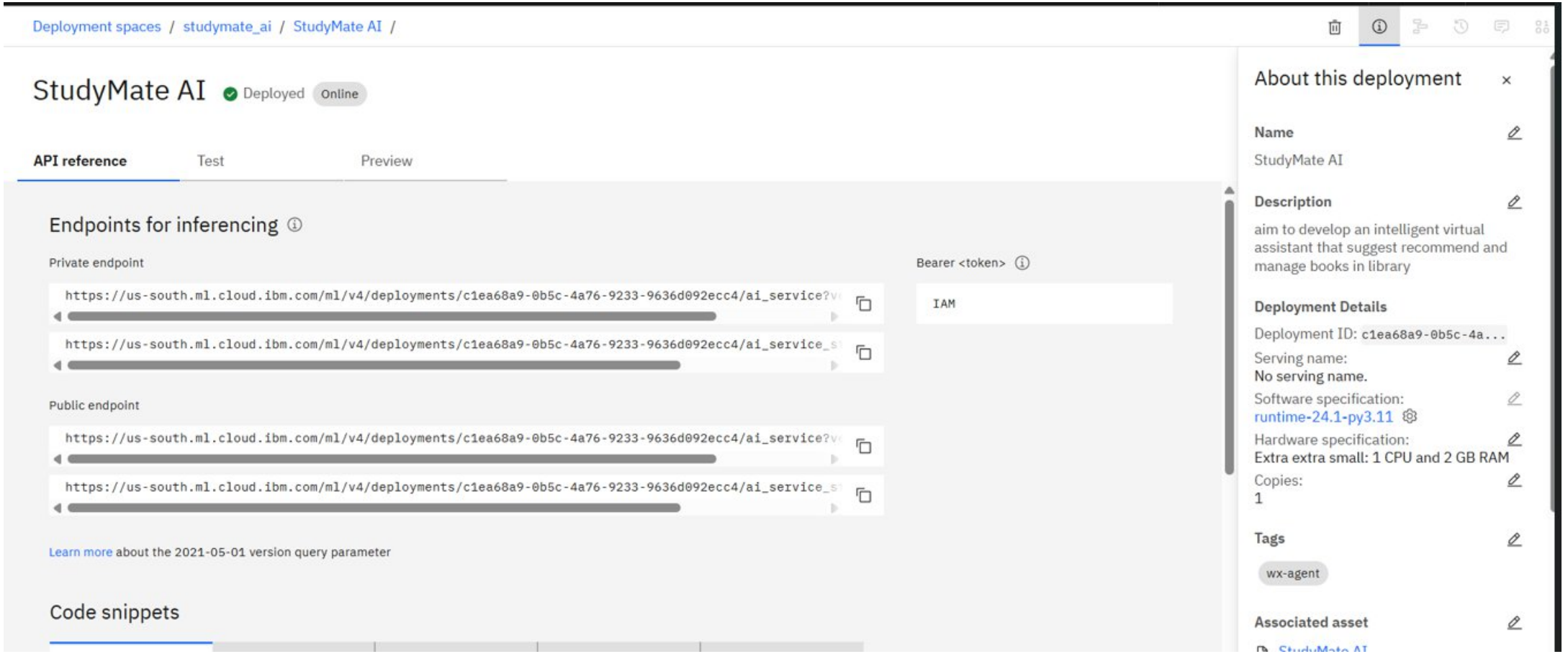
RESULTS



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CONCLUSION

- **Efficiency**: Cuts search time by automating recommendations.
- **Accessibility**: 24/7 support via chat/voice.
- **Scalability**: Handles 500+ concurrent users on IBM Lite tier.
- **Democratizes Access**: Helps non-English speakers
- **Future-Ready**: Integrates with AR campus navigation
- **Scalable**: Costs <$10/month on IBM Lite tier

GITHUB LINK

- Github - https://github.com/saniya2812/Library-AI-Agent.git

FUTURE SCOPE

- **Integration**: With LMS (Moodle/Blackboard).
- **AR Navigation**: Guided shelf locator via mobile app.
- **AI Tutoring**: Link books to related lecture videos.
- **Dynamic Pricing**: Suggest rentals for costly textbooks.

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IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Saniya Gupta

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

THANK YOU

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