
IBM AICTE PROJECT

LIBRARY AI AGENT

Presented By:

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OUTLINE

- Problem Statement
- Technology used
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PROBLEM STATEMENT

Problem

In academic environments, students often struggle to find the right learning materials that align with their coursework, syllabus, and academic goals. Traditional library systems are time-consuming and lack personalized support, leading to underutilization of valuable resources.

Solution

The Library AI Agent is an intelligent assistant that helps students find the most relevant learning materials by analyzing their profiles, study topics, and syllabi. Using natural language processing, it interprets student queries and recommends suitable books from the library database. It checks real-time availability, prioritizes high-demand titles, and supports reservations or waitlists. By streamlining the search process and offering personalized suggestions, it improves access, engagement, and resource use in academic settings.

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 – Library AI Agent

-  1. **Smart Syllabus Matching** Automatically extracts key topics from uploaded syllabi or course outlines and matches them with relevant books—no manual searching required.
-  2. **Conversational NLP Interface** Students can ask natural questions like “What’s a good book for fluid mechanics?” and get instant, accurate recommendations.
-  3. **Real-Time Availability & Demand** Insights Shows which books are currently available, which are in high demand, and suggests alternatives or digital versions
-  4. **One-Click Reservation & Waitlist** Enables seamless book reservations and waitlist management with notifications when books become available.
-  5. **Personalized Academic Recommendations** Tailors suggestions based on student’s academic year, department, past borrowing history, and current subjects.
-  6. **Multilingual Support** Supports queries in multiple languages to ensure accessibility for diverse student populations.
-  7. **Usage Analytics for Librarians** Provides insights into borrowing trends, popular titles, and student engagement to help improve library services.
-  8. **Integration with LMS Platforms** Syncs with learning management systems to auto-fetch syllabus data and recommend resources accordingly.

End Users of the Library AI Agent

-  **Students**
 - Primary users seeking academic resources aligned with their syllabus.
 - Benefit from personalized book recommendations, real-time availability, and reservation support.
-  **Librarians**
 - Use the agent to manage demand, track usage trends, and optimize resource allocation.
 - Gain insights into borrowing patterns and student engagement.
-  **Faculty Members**
 - Can recommend the agent to students for guided reading.
 - May use it to align library resources with course content and assignments.
-  **Academic Institutions**
 - Improve library efficiency and student satisfaction.
 - Enhance digital transformation and resource utilization across departments.


RESULTS

Agent preview

[Upgrade](#)?🔔Anshuman Verma's Account ▾Dallas ▾AV

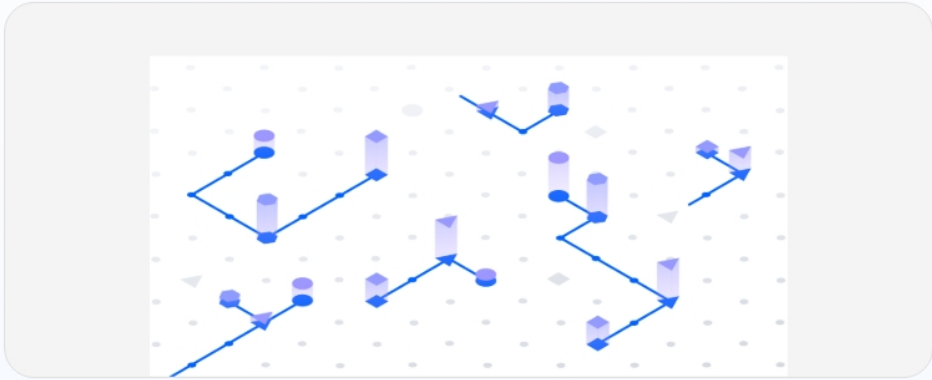
[Share feedback](#) β Unsaved 📁 ▾ [New agent +](#) [Deploy 🚀](#)

Agent preview

 watsonx Agent 10:25 PM

Welcome to watsonx Agent

Hi! I am an intelligent system designed to assist students in finding the right learning material.



📎 ➤ ➤

RESULTS

Agent preview

Upgrade



Anshuman Verma's Account

Dallas

AV

Share feedback



Unsaved



New agent +

Deploy



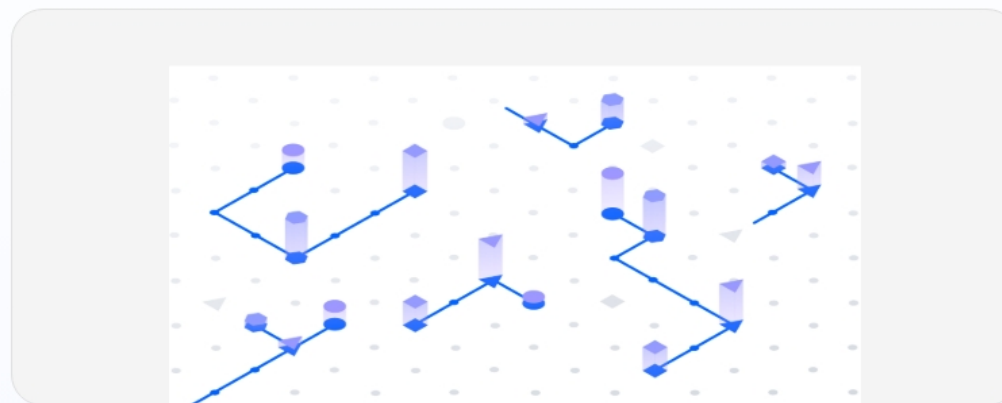
Agent preview



watsonx Agent 10:27 PM

Welcome to watsonx Agent

Hi! I am an intelligent system designed to assist students in finding the right learning material.






I want to start learning machine learning. could you recommend me some book for beginners ?





RESULTS


Agent preview



[Upgrade](#)  


Anshuman Verma's Account 


Dallas 

AV 


[Share feedback](#) 

Unsaved  

[New agent](#) 

[Deploy](#) 

Agent preview


 watsonx Agent 10:28 PM



Of course, I'd be happy to help you find a suitable book for beginners in machine learning. Based on your request, I recommend "Python Machine Learning: Machine Learning and Deep Learning with Python, scikit-learn, and TensorFlow 2" by Sebastian Raschka and Vahid Mirjalili. This book covers the basics of machine learning and deep learning using Python, which is a popular language in this field. It's beginner-friendly and includes practical examples.

Availability: Available

Would you like a more advanced recommendation or assistance with reserving this book?


► **How did I get this answer?**











 


RESULTS

Deployed AI Agent

 IBM watsonx


Upgrade ?  Anshuman Verma's Account ▾ Dallas ▾ 

Deployment spaces / library agent / watsonx Agent /      

watsonx Agent  Deployed Online

API reference Test **Preview**


New chat +

 watsonx Agent 11:03 PM







Great! You're interested in French cooking books. Here are a few highly-rated options available in our library database:

1. "Mastering the Art of French Cooking" by Julia Child - Available
2. "The French Chef Cookbook" by Julia Child - Available
3. "French Cooking for Beginners" by Karen Hess - Waitlist
4. "A Practical Guide to French Cooking" by Irma S. Rombauer - Available









Would you like more recommendations or assistance with reserving any of these books?

Type something... 

■ Conclusion – Key Points

-  Simplifies resource discovery by intelligently matching books to student needs.
-  Uses NLP to understand natural language queries and provide accurate recommendations.
-  Improves library engagement through personalized suggestions and real-time availability checks.
-  Streamlines reservations and waitlist management for high-demand titles.
-  Empowers students and faculty with faster access to relevant academic materials.
-  Enhances institutional efficiency by optimizing resource utilization and reducing manual effort.

■ **Future Scope – Library AI Agent**

-  **Integration with Learning Management Systems (LMS)** Seamless syncing with platforms like Moodle or Canvas to auto-fetch syllabi and recommend resources.
-  **Mobile App Interface** A dedicated app for students to access recommendations, reserve books, and receive notifications on the go.
-  **AI-Powered Learning Analytics** Use student interaction data to predict learning gaps and suggest targeted reading materials.
-  **Multilingual & Voice Support** Expand accessibility with voice-enabled queries and support for regional languages.
-  **Digital Resource Expansion** Include e-books, research papers, and open educational resources in recommendations.
-  **Faculty Dashboard** Provide faculty with insights into student reading patterns and resource usage to improve teaching strategies.
-  **Gamification & Engagement Tools** Introduce badges or rewards for reading milestones to boost student motivation.
-  **Privacy & Personalization Controls** Allow users to customize recommendation settings and manage data privacy preferences.

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Anshuman Verma

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 20, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/2323ba35-91e7-4b75-9dd1-b8e43d3b08b5>





This certificate is presented to

Anshuman Verma

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 20 Jul 2025 (GMT)

Learning hours: 20 mins

Git hub link :

<https://github.com/Universeemaster/Library-AI-Agent>



THANK YOU