
IBM AICTE PROJECT

LIBRARY AI AGENT

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OUTLINE

- Problem Statement
- Problem Solution
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- End users
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- Git-hub Link
- Future scope
- IBM Certifications

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 syllabus 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.

PROPOSED SOLUTION

Intelligent Search and Retrieval: Utilizes natural language processing (NLP) to understand student queries and match them with the most suitable resources in the library database.

Personalized Recommendations: Analyzes user profiles, study topics, and course syllabus to suggest relevant books and resources, catering to individual learning needs.

Real-time Availability and Demand Prioritization: Checks real-time book availability and prioritizes high-demand titles to ensure students can access critical resources.

Streamlined Reservation and Waitlist Management: Assists with reserving books and managing waitlists, providing a more efficient and user-friendly experience.

Improved Resource Discovery and Engagement: By offering tailored recommendations and simplifying the search process, the agent aims to enhance access and engagement with library resources, potentially leading to better academic outcomes.

In essence, the Library AI Agent seeks to transform the traditional library experience into a more intelligent, personalized, and efficient system that empowers students to access the right learning materials at the right time, ultimately enhancing their learning experience and supporting their academic success

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 mode

WOW FACTORS

- Personalized learning pathways
- Unlike traditional systems offering generic recommendations, this agent analyzes user profiles, academic needs, and even course syllabus to create truly personalized learning pathways. It can suggest not just individual books but also entire sequences of resources, including articles, journals, multimedia content, and even relevant online courses. Imagine a student struggling with a particular concept – the agent proactively suggests resources tailored to their learning style and provides alternative perspectives, ensuring a truly adaptive and supportive learning journey.
- Intelligent research assistance
- The agent's conversational AI, built on IBM Granite, goes beyond simple keyword searches. Students can ask natural language questions like, "Find research papers on the socio-economic impact of AI in developing nations," and the agent will intelligently retrieve and summarize relevant findings, saving hours of manual research. Granite's ability for insight extraction and Retrieval Augmented Generation (RAG) ensures the information is not only relevant but also grounded in the library's trusted knowledge base. This eliminates the guesswork and frustration often associated with academic research.
- Real-time resource management
- :-The Library AI Agent offers a dynamic and responsive system, providing real-time information on resource availability and demand. This means no more wasted trips to the library for unavailable books or lengthy waits on reservation lists. Students can instantly see if a book is available, its location, or estimated wait times, allowing them to make informed decisions and manage their time efficiently.
- Multilingual and accessible experience
- Utilizing IBM Granite's language translation capabilities, the agent can cater to a diverse user base, providing descriptions, summaries, and search results in multiple languages. This inclusive approach ensures that all students, regardless of their linguistic background, can effectively access and engage with the library's resources. Furthermore, it can incorporate features like voice commands and text-to-speech to enhance accessibility for students with disabilities.

These innovative features, powered by IBM Granite's robust AI capabilities and leveraging the scalability of IBM Cloud Lite, elevate the library experience from a static repository to a dynamic and interactive learning hub.

END USERS

- Academic Researchers
- Research Institutions and Universities
- Educators

RESULT

IBM watsonx

Upgrade ? Bell DEBANKUR SEN's Account Dallas DS

Projects / Library AI Agent / Library AI Agent

Share feedback β Autosaved 2:59 PM New agent + Deploy Lock Info

Build

AI Model: granite-3-3-8b-instruct

Setup

Name

Library AI Agent

Description 95/100


Aim to assist students in finding the right learning materials based on their academic needs.

Icon Placeholder image

Quick start questions

Add up to 4 quick start questions that your users can select.

Agent preview



Sample questions

help me find book college related syllabus books →

can you suggest me good books →

I want you provide me information syllabus related books →


i want books name cover my syllabus chapter →

Type something... →


RESULT

[are feedback](#) β Autosaved 3:02 PM New agent + Deploy

Agent preview


 You: 03:01 PM

help me find book college related syllabus books

 Library AI Agent 03:01 PM

Hi, I am Library AI Agent. How can I help you with college-related syllabus books? Could you please specify the subject or course you're interested in? This will help me provide the most relevant recommendations.

► How did I get this answer?

 You: 03:02 PM

Name of the Course: Diploma in Civil Engineering Subject: Surveying Course code: CE Course
Duration: 6 semester Subject offered in Semester: Third
Subject Code:
Question Code:
Teaching Scheme Marks :100 Examination Scheme Theory : 3 lecture per week Tutorial: Nil CT- 20
Attendance, Assignment & Quiz -10 Practical: Nil Credit :- 3 End Semester Exam(ESE) - 70 Total
Marks
100 Aim:-


1. Developing the surveying skill required for civil engineering. Objective :-Students will be

RESULT

Share feedback β Autosaved 3:02 PM New agent + Deploy

Agent preview

...ing, levelling, centering, orientation by trough compass and by back sighting 7.4
Different methods of plane tabling work: a. radiation, b. intersection, c. traversing and d.
resection – three point problem
7.5 Advantage and disadvantage of plane table survey, errors in plane table survey –
instrumental, in plotting and due to manipulation and sighting.



 Library AI Agent 03:02 PM







Based on the syllabus you've provided for the Surveying course in a Diploma in Civil Engineering,
here are some recommended books that align with the topics covered:

1. **"Surveying" by Brian H. Hodgson** - This book covers a wide range of topics in surveying,
including types of survey, measurement of horizontal distances, compass survey, levelling,
contouring, area measurements, and plane table surveying. It's a comprehensive resource
that should cover all the topics in your syllabus.
2. **"Engineering Surveying" by A. K. Ghosh** - This book is another great resource for civil
engineering students studying surveying. It covers similar topics to Hodgson's book but might
provide a more engineering-focused perspective.
3. **"Surveying and Mapping" by B. S. Grewal** - This book is known for its clear explanations and
practical approach. It covers all the essential topics in surveying, including those in your
syllabus.

Type something...

RESULT

[Upgrade](#)   DEBANKUR SEN's Account [Dallas](#) [DS](#)

[feedback](#)   Autosaved 3:02 PM  [New agent](#) [Deploy](#)   


Agent preview



engineering students studying surveying. It covers similar topics to Hodgson's book but might provide a more engineering-focused perspective.

3. **"Surveying and Mapping" by B. S. Grewal** - This book is known for its clear explanations and practical approach. It covers all the essential topics in surveying, including those in your syllabus.
4. **"Surveying Theory and Practice" by Oscar A. Bullock, et al.** - This is a classic text in the field of surveying. It provides a solid theoretical foundation along with practical applications, making it a valuable resource for your studies.
5. **"Plane Surveying" by V. N. Mishra** - This book specifically focuses on plane surveying, which is a part of your syllabus. It's a good resource for understanding the principles and practical aspects of plane table surveying.

Remember, these books are suggestions based on the syllabus you provided. The availability of these books may vary, so I recommend checking with your local library or bookstore.

► How did I get this answer?



CONCLUSION

The Library AI Agent, leveraging IBM Cloud Lite services and the enterprise-grade capabilities of IBM Granite, represents a significant step towards modernizing libraries. This solution combines advanced AI for understanding student needs and recommending resources with the cost-effectiveness and flexibility of a cloud platform. By focusing on NLP, recommendation engines, and real-time data analysis, it streamlines access to learning materials and offers personalized services. The use of IBM Granite ensures high performance, security, and the ability to customize for specific library requirements. The Library AI Agent transforms libraries into intelligent hubs, enhancing both resource management and the student learning experience.

GITHUB LINK

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

FUTURE SCOPE

highly personalized, adaptive learning environments. Beyond resource recommendations, it will offer multimodal engagement, understanding user needs through text, voice, and even video. Fine-tuned IBM Granite models will provide advanced research support, including citation analysis and literature reviews. The agent will become proactive, anticipating needs and suggesting personalized learning pathways, potentially integrating with adaptive learning platforms. It will also enhance accessibility through real-time translation and features for users with disabilities. This evolution transforms libraries into intelligent, inclusive hubs for learning and research

IBM CERTIFICATIONS



IBM CERTIFICATIONS



IBM LAB CERTIFICATE



THANK YOU