
IBM AGENTIC_AI PROJECT

AGENTIC AI FOR PERSONALIZED COURSE PATHWAYS

Presented By:

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Electronics & Communication Engineering**

OUTLINE

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PROBLEM STATEMENT

Students often struggle to identify the right learning path that aligns with their interests and long-term goals due to the overwhelming number of online courses and a lack of personalized guidance. LearnMate aims to solve this by acting as an Agentic AI coach that interacts with students, understands their interests (like Frontend Development, Cybersecurity, UI/UX Design, etc.), assesses their current skill level, and dynamically builds a personalized course roadmap that adapts over time based on progress and preferences.

Proposed Solution:

An intelligent agentic AI-powered system designed to guide students in discovering, validating, and achieving their learning and career aspirations. It tackles the overload of online course options and lack of personalized direction by offering a continuously evolving, student-centric coaching experience.

TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

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


- **Conversational, Adaptive Mentorship** – Feels like chatting with a mentor who learns about you in real-time and evolves alongside your journey.
- **Live Labor Market Sync** – Recommends courses based on trending skills and job roles backed by up-to-date market intelligence.
- **Dynamic Learning Roadmaps** – Your path updates automatically based on progress, feedback, and changing interests—no manual reshuffling.
- **Scenario-Based Skill Validation** – Students complete challenges tied to real-world tasks, giving LearnMate deeper insight into actual capabilities.
- **Gamified Career Exploration** – Unlock badges, preview future roles, and build momentum with immersive, milestone-driven experiences.
- **Micro-Persona Recognition** - Learns how each student thinks, works, and learns—whether they're visual, logical, fast-trackers, or slow burners.

END USERS

- High School & College Students
- Career Switchers
- Online Learners & Self-Starters
- Vocational & Technical Learners
- EdTech Institutions & Learning Platforms

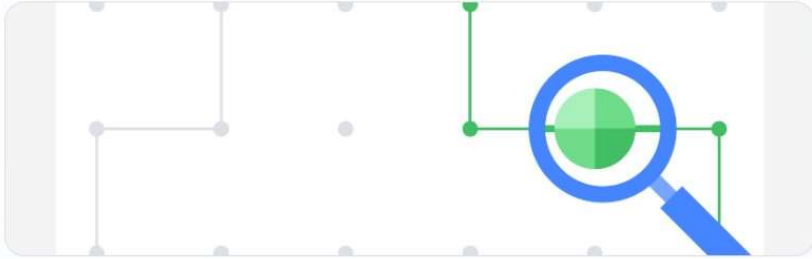
RESULTS

Agent preview


 LearnMate 07:53 PM


Welcome to LearnMate


Smart AI coach that crafts dynamic, interest-based course paths for every learner






Sample questions

 I'm exploring options—can you suggest a career path? →

 Assess my current skills and suggest a learning path →

 Suggest a mix of video tutorials and hands-on projects for me →

 Can you create a flexible learning schedule for me? →

RESULTS

Agent preview



You: 07:18 PM

Assess my current skills and suggest a learning path



PathPilot 07:18 PM

Based on your current skills and interests, I recommend the following learning path:

🌟 Course Name: Artificial Intelligence (AI) Fundamentals

🧠 Why it's a good fit: This course will provide you with a comprehensive understanding of AI concepts, including machine learning, deep learning, and natural language processing. It will also cover the latest advancements in AI and its applications in various industries.

🌱 Skill level / prerequisites: Beginner-friendly, no prior knowledge of AI required

🕒 Estimated time: 12 weeks, 4-6 hours/week

📖 Learning style compatibility: This course is designed for self-paced learning, with interactive quizzes, assignments, and projects to help you apply your knowledge.

Here's a suggested learning path:

Weeks 1-4: Introduction to AI, Machine Learning, and Deep Learning

- Learn the basics of AI, including its history, types, and applications
- Understand the concepts of machine learning, including supervised and unsupervised learning
- Learn about deep learning, including neural networks and convolutional neural networks

Weeks 5-8: Natural Language Processing (NLP) and Computer Vision

Type something...




RESULTS

Agent preview

AB

You: 07:57 PM

What courses should I pursue to become a Frontend Developer



LearnMate 07:57 PM

Based on the Wikipedia page on Frontend and Backend, it seems that to become a Frontend Developer, you should focus on learning the following:

- 🌟 Course Name: Frontend Development Fundamentals
- 🧠 Why it's a good fit: This course covers the basics of frontend development, including HTML, CSS, and JavaScript. It's a great starting point for beginners who want to learn the fundamentals of building user interfaces.
- 🌱 Skill level / prerequisites: Beginner-friendly, no prior experience required.
- 🕒 Estimated time: 6-8 weeks, 2-3 hours/week.
- 🔗 Learning style compatibility: This course is suitable for self-paced learning, and it includes interactive exercises and quizzes to help you practice your skills.

Some recommended courses that cover frontend development include:

- Frontend Development Fundamentals on FreeCodeCamp
- HTML, CSS, and JavaScript on Codecademy
- Frontend Web Development on Udemy

Additionally, you can also consider learning about:

- Responsive web design

RESULTS

Deployed AI Agent

Deployment spaces / Deployed Agent / LearnMate /

LearnMate ✓ Deployed Online


API reference Test **Preview**

New chat +


LearnMate 08:02 AM


Welcome to LearnMate

Smart AI coach that crafts dynamic, interest-based course paths for every learner




Quick start samples


 I'm exploring options—can you suggest a career path? →

 Assess my current skills and suggest a learning path →






Type something... →


About this deployment ×



Name 
LearnMate

Description 
Smart AI coach that crafts dynamic, interest-based course paths for every learner

Deployment Details

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No serving name.
Software specification: 
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Hardware specification: 
Extra extra small: 1 CPU and 2 GB RAM
Copies: 
1

Tags 
wx-agent

Associated asset 
 LearnMate
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Last modified
44 seconds ago

Created on
Aug 1, 2025

RESULTS

Deployed AI Agent

Deployment spaces / Deployed Agent / LearnMate /

LearnMate ✓ Deployed Online

API reference

Test

Preview

New chat +

A

You 08:07 AM

Can you build a career path for me in AI engineering

LearnMate 08:09 AM

🌟 AI Engineering Career Path

🔗 Why it's a good fit: AI engineering is a rapidly growing field that combines computer science, mathematics, and engineering to develop intelligent systems. It's a great fit for those interested in machine learning, natural language processing, and computer vision.

🌱 Skill level / prerequisites: Bachelor's degree in computer science, mathematics, or a related field. Proficiency in programming languages such as Python, Java, or C++. Knowledge of machine learning algorithms and deep learning frameworks.

🕒 Estimated time: 2-5 years to gain expertise in AI engineering, depending on the individual's background and dedication.

🧠 Learning style compatibility: AI engineering requires a strong foundation in mathematics and computer science. It's best suited for those who enjoy problem-solving, critical thinking, and hands-on experimentation.

Here's a suggested career path for AI engineering:

1. **Junior AI Engineer:** 0-2 years of experience. Focus on developing skills in machine learning, deep learning, and computer vision. Work on small projects and contribute to open-source initiatives.

Type something...

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🔗 LearnMate

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edunet
foundation

CONCLUSION

LearnMate addresses a critical gap in student guidance by combining intelligent agentic AI systems with real-time adaptation and labour market relevance. It transforms fragmented learning into a meaningful, personalized journey—boosting motivation, clarity, and future readiness. By simulating mentorship, validating skills through real-world challenges, and adapting to evolving user interests, LearnMate becomes more than just a course recommender—it's a lifelong learning coach.

FUTURE SCOPE

- **Multi-Platform Expansion:** Integrate with mobile apps, learning management systems (LMS), and messaging platforms for seamless on-the-go guidance.
- **Peer-Led Learning Pods:** Enable group-based mentorship, peer validation, and collaborative challenges, fostering a community-driven model.
- **Global Skills Mapping:** Tailor learning paths to regional job markets by localizing industry demands, certifications, and language preferences.
- **Institution Integration:** Offer analytics-driven dashboards to schools, colleges, and EdTech platforms to optimize curriculum and learner support.
- **AI-Agent Personality Customization:** Let users choose coaching personas (e.g., motivational, analytical, friendly) to enhance emotional engagement and retention.

IBM CERTIFICATIONS



IBM CERTIFICATIONS

IBM SkillsBuild	Completion Certificate
	<p>This certificate is presented to</p> <p>Animesh Bhakat</p> <p>for the completion of</p> <p>Lab: Retrieval Augmented Generation with LangChain</p> <p>(ALM-COURSE_3824998)</p> <p>According to the Adobe Learning Manager system of record</p>
Completion date: 17 Jul 2025 (GMT)	Learning hours: 20 mins

GITHUB LINK

- GitHub Project Link :- [Ani465/LearnMate-Agent-ic-AI](https://github.com/Ani465/LearnMate-Agent-ic-AI)

THANK YOU