
IBM CAPSTONE PROJECT

AGENTIC AI FOR PERSONALIZED COURSE PATHWAYS

Student name : Dhruvika Verma

**College Name & Department : Indraprastha College for Women –
University of Delhi (B.Sc. Computer Science)**

OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
- Result
- Conclusion
- Git-hub Link
- Future scope
- IBM Certifications

PROBLEM STATEMENT

- **Title:** The Learning Path Dilemma & Our Agentic Solution
- **The Challenge:** Students are overwhelmed by the sheer volume of online courses and lack personalized guidance, leading to frustration and abandoned learning goals.
- **The Solution (LearnMate):** An Agentic AI coach that provides dynamic, personalized course roadmaps. It interacts with students to understand their unique interests, assesses their current skill level, and builds a clear, adaptable learning path.

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

- **Agentic AI:** LearnMate isn't a static chatbot; it's an intelligent agent that actively interacts with students to understand their needs.
- **Dynamic Roadmaps:** It doesn't just recommend a list of courses. It builds a visual, step-by-step roadmap that adapts in real-time as the student's progress and preferences evolve.
- **Holistic Guidance:** LearnMate assesses skills, understands long-term goals, and connects the dots between a student's interests (e.g., UI/UX Design) and the specific courses required to achieve them.

END USERS

- **The Career Explorer:** High school and college students who are unsure of their career path and need a starting point.
- **The Upskilling Professional:** Individuals already in a field who want to learn new skills (e.g., a backend developer wanting to learn Frontend).
- **The Self-Taught Learner:** Passionate individuals who need a structured, guided curriculum to formalize their knowledge.
- **The Project Manager:** Can use LearnMate to find and recommend courses for their team to stay up-to-date with the latest technologies.

RESULTS

Agent preview



You: 07:26 PM

what are the beginner friendly cybersecurity courses?



watsonx Agent 07:26 PM

Here are some beginner-friendly cybersecurity courses:

1. Google Cybersecurity Certificate - Grow with Google

- **Description:** Explore flexible online training programs and discover advanced courses to accelerate your career. Learn new skills in 10 hours or less.
- **URL:** [Google Cybersecurity Certificate](#)

2. Introduction to Cybersecurity - Codecademy

- **Description:** Learn how to protect your professional and personal life from dangerous cyber threats. Includes 5 courses with a certificate. Beginner-friendly.
- **URL:** [Introduction to Cybersecurity](#)

3. **Cybersecurity

Type something...



CONCLUSION

- **Bridging the Gap:** LearnMate successfully bridges the gap between the overwhelming world of online courses and a student's individual learning needs.
- **Technology as a Partner:** We have demonstrated how IBM Cloud Lite services and watsonx.ai can be used to build a sophisticated and impactful Agentic AI solution.
- **A New Era of Learning:** LearnMate is not just a tool; it's a new approach to education, making personalized guidance scalable and accessible to all.

GITHUB LINK

- <https://github.com/dvcyberspace/LearnMate.git>

FUTURE SCOPE

- **Skill Assessment Integration:** Add interactive quizzes and projects to more accurately assess a student's skill level.
- **Mobile Application:** Develop a mobile version of LearnMate to make the AI coach accessible anytime, anywhere.
- **Collaboration Features:** Allow users to share their roadmaps and collaborate with mentors or friends.
- **Dynamic Course Search:** Integrate with popular online learning platforms (e.g., Coursera, Udemy) to pull real-time course information and ratings.
- **Feedback Loop:** Implement a feedback mechanism where students can rate course recommendations, helping the AI coach to learn and improve its suggestions over time.

IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



Dhruvika Verma

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



Issued on: Jul 18, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/50b652ec-44bd-419a-9ffa-29602dd0505e>



In recognition of the commitment to achieve professional excellence



Dhruvika Verma

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 15, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/c1e8e6a7-2d1b-4124-8815-0fa370b9005d>





This certificate is presented to

Dhruvika 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: 18 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU