



CAPSTONE PROJECT

PERSONALIZED COURSE PATHWAYS – LEARNMATE AI AGENT

Presented By: PREETI

Student name : PREETI

**College Name & Department : PUNJABI UNIVERSITY PATIALA
(B.TECH CSE)**

OUTLINE

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

PROBLEM STATEMENT

- **Problem Statement:**

- Students often struggle to identify the right learning path aligned with their interests and long-term goals due to the overwhelming number of online courses and lack of personalized guidance.

- **Proposed Solution:**

- LearnMate is an Agentic AI coach that interacts with students, understands their interests (e.g., Frontend Development, Cybersecurity, UI/UX Design), assesses their current skills, and dynamically builds a personalized course roadmap that adapts over time based on progress and preferences.

TECHNOLOGY USED

- **Technologies Used:**

- - IBM Watsonx.ai Studio: For prompting and generating personalized roadmaps
- - IBM Granite Foundation Models: For understanding user goals and interests
- - IBM Watsonx.ai Runtime: To test and iterate AI logic
- - Python: For processing student input and managing data pipelines
- - JSON: For structuring and storing adaptive course pathways
- - Open API Integrations: To fetch real-time course data from platforms like Coursera, Udemy, etc.

IBM CLOUD SERVICES USED

- IBM Cloud Services Used:
 - - Watsonx.ai Studio (for training and evaluating prompts)
 - - Watsonx Prompt Lab (to design prompts for different learner types)
 - - IBM Granite Models (to drive personalized recommendations)
 - - IBM Cloud Object Storage (for storing user profiles and learning plans)

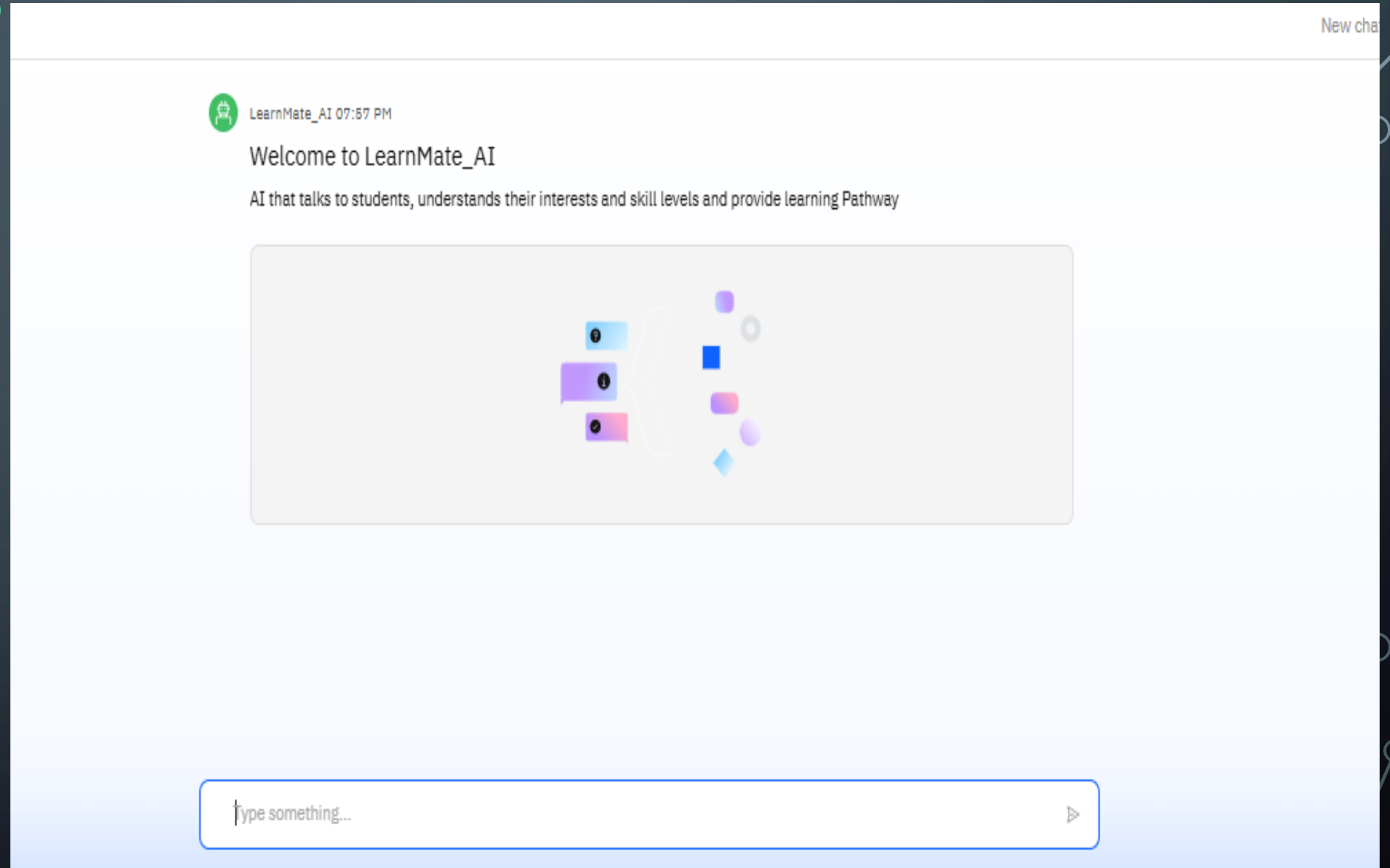
WOW FACTORS

- LearnMate offers dynamic, personalized course roadmaps that evolve with the student's learning pace and interests.
- Unique features:
 - - Interest-based adaptive learning paths
 - - Course recommendation from multiple platforms
 - - Visual progress tracking and milestones
 - - Smart reminders and motivation prompts
 - - Career-aligned roadmap suggestions
 - - Real-time roadmap updates based on performance

END USERS

- Primary End Users:
 - - High school and college students
 - - Educators and Academic Mentors
 - - Career Counselors
 - - EdTech platforms and training institutions

RESULTS



RESULTS

Preview



You 08:03 PM

I'm a beginner and want to become a Data Scientist.



LearnMate_AI 08:03 PM

Hello there! It's great to hear that you're interested in becoming a Data Scientist. That's an exciting and rewarding career path. As a beginner, we'll focus on building a solid foundation before moving onto more advanced topics.

To create your personalized course roadmap, I need to understand your current skill level and preferred learning resources. Since you mentioned being a beginner, let's assume you're comfortable with basic math and have some exposure to programming concepts.

For trusted resources, platforms like Coursera and IBM SkillsBuild offer excellent courses for aspiring data scientists.

Now, could you tell me more about what specifically interests you in Data Science? Are there any particular skills or areas (like Machine Learning, Statistics, Data Visualization) that catch your eye?

► How did I get this answer?



Type something...



RESULTS

Agent preview



You: 08:01 AM

provide me a weekly roadmap to become data scientist



LearnMate_AI 08:01 AM

Absolutely, here's a comprehensive weekly roadmap designed for your journey towards becoming a data scientist, keeping in mind your intermediate skill level:

Week 1-2: Statistics and Python Refresher

- **Monday & Tuesday:** "Statistics and Probability with Applications for Computer Science" on Coursera. Focus on fundamental concepts like probability distributions, hypothesis testing, confidence intervals.
- **Wednesday & Thursday:** "Python for Data Science Handbook." Work through chapters covering basic to intermediate Python programming using Pandas, NumPy, and Matplotlib/Seaborn.
- **Friday:** Revise key points from both courses; practice coding problems related to statistics and Python on platforms like LeetCode or HackerRank; engage with data science blogs/podcasts briefly to stay updated.

Week 3-4: Data Manipulation & Visualization

Type something...



Learnmate_AI

Overview

Assets

Deployments

Jobs

Manage

🔍 Search



Name	Type	Status	Asset	Asset type	Tags	Last modified	
🔗 LearnMate_AI	Online	✅ Deployed	LearnMate_AI	Ai service	wx-agent ✎	11 seconds ago Preeti Preeti (You)	⋮

CONCLUSION

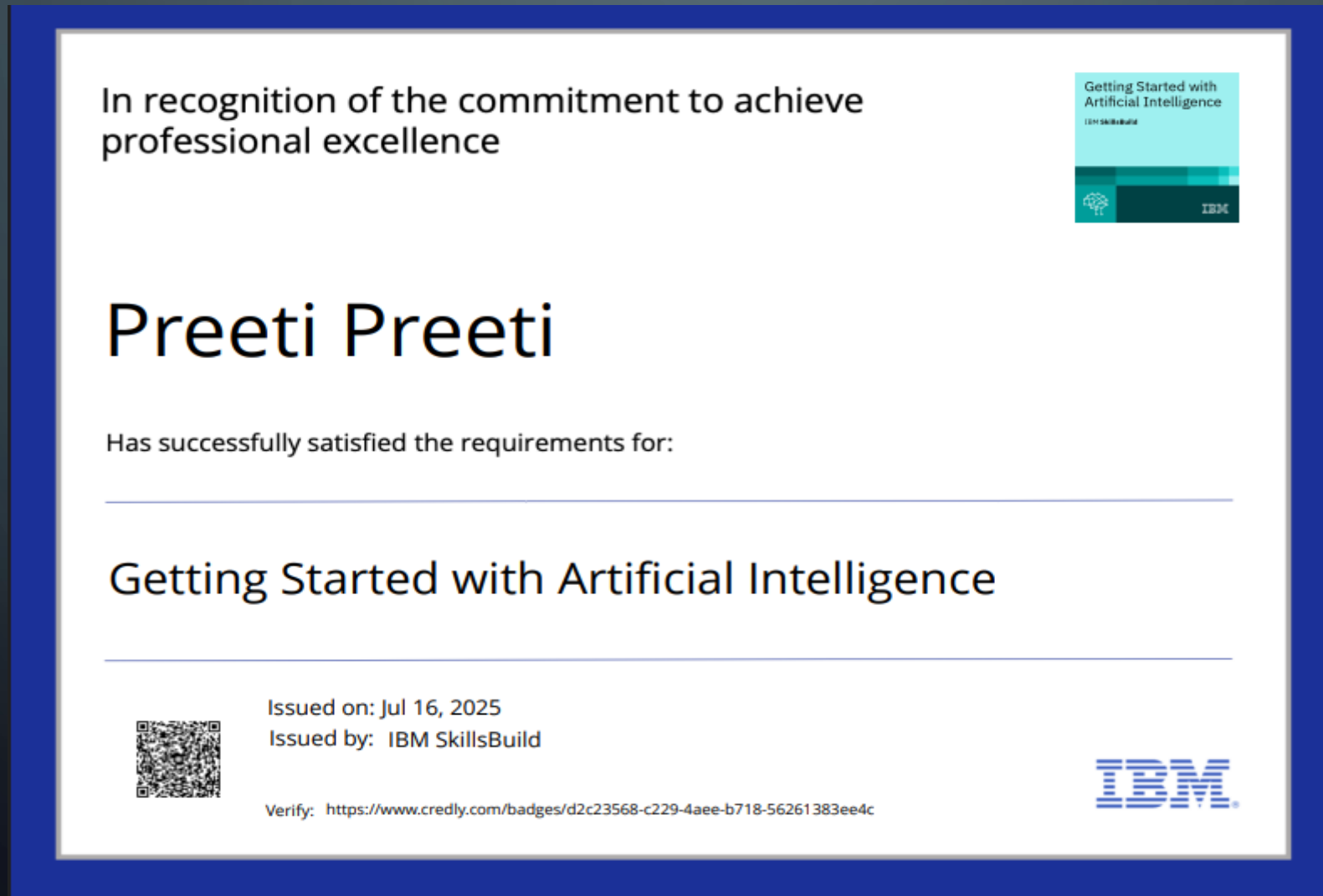
- The agent can generate reports, suggest hypotheses, and even draft sections of research papers.
- It saves time by automating repetitive tasks like citation management and data extraction.
- Research Agents enhance efficiency, accuracy, and innovation in both academic and industrial R&D.

FUTURE SCOPE

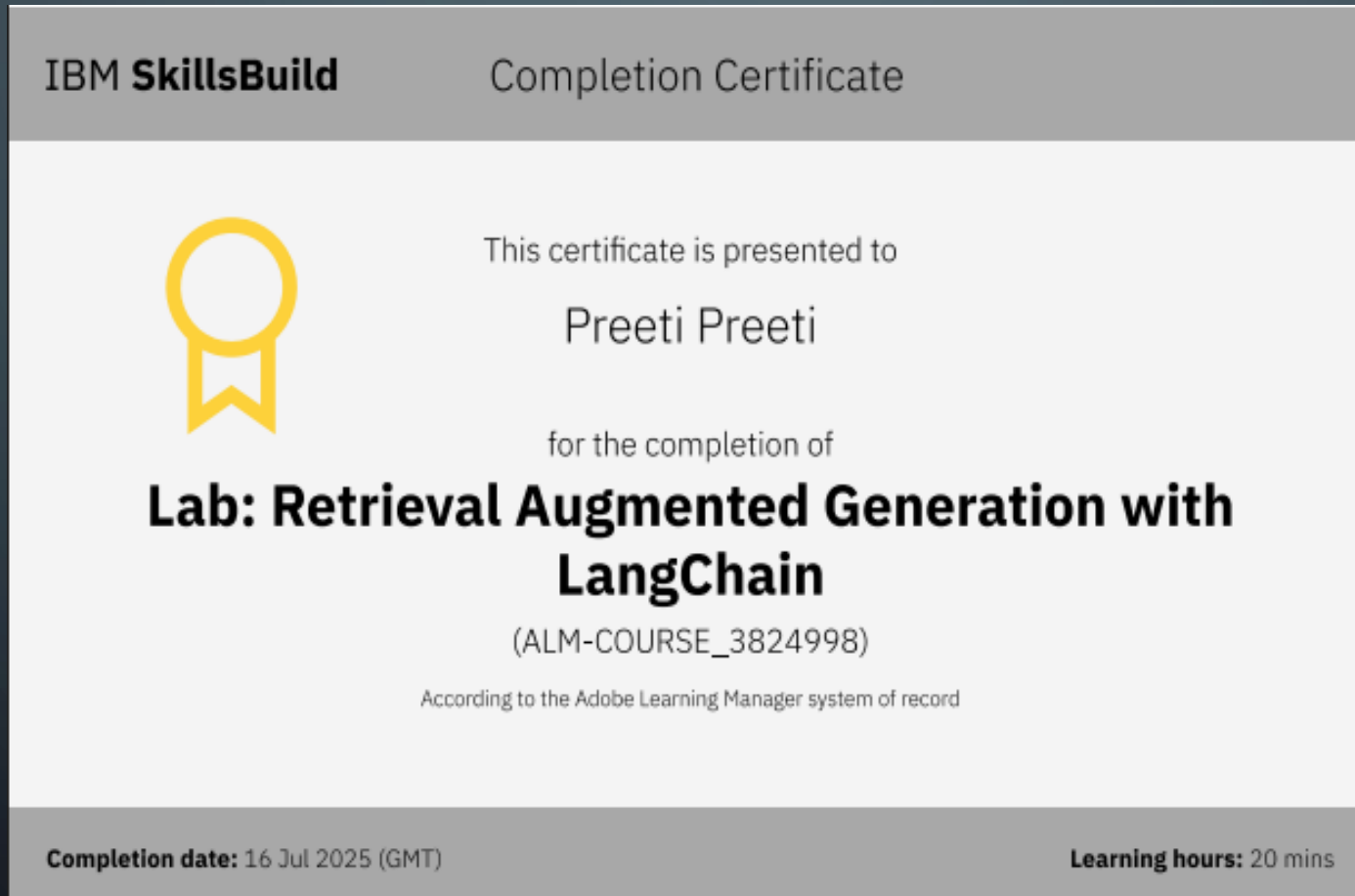
- Multilingual Research Support
- Voice-Activated Research Assistant
- Real-Time Collaboration Features
- Research Gap and Novel Topic Identification
- Integration with Publishing Platforms
- AI-Assisted Paper Drafting

IBM CERTIFICATIONS

- Screenshot/ credly certificate(getting started with AI)



RAG LAB certificate



GITHUB LINK

- **Github link** : https://github.com/Preeti28-git/LearnMate_AI

THANK YOU