

CAPSTONE PROJECT

LearnMate

AI-POWERED PERSONALISED LEARNING COACH

Presented By-

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OUTLINE

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

PROBLEM STATEMENT

The Learning Pathway Challenge

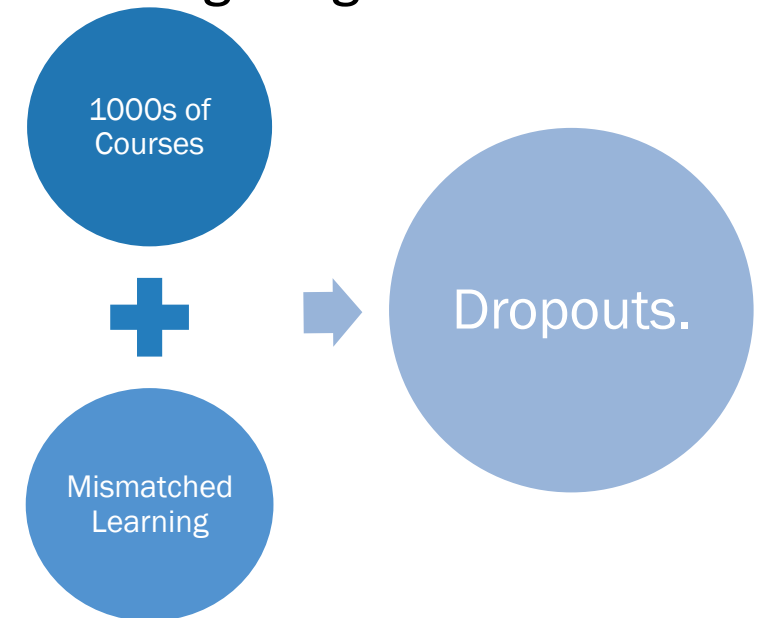
Students across all academic levels face significant challenges in navigating the complex landscape of online education.

The Current Issues include:

- An overwhelming volume of online courses.
- Lack of personalised guidance for students.
- Static learning paths that don't adapt to progress.

The Impact of it:

- 60% of learners drop out due to mismatched courses (cite source if available).
- Wasted time/resources on irrelevant content.



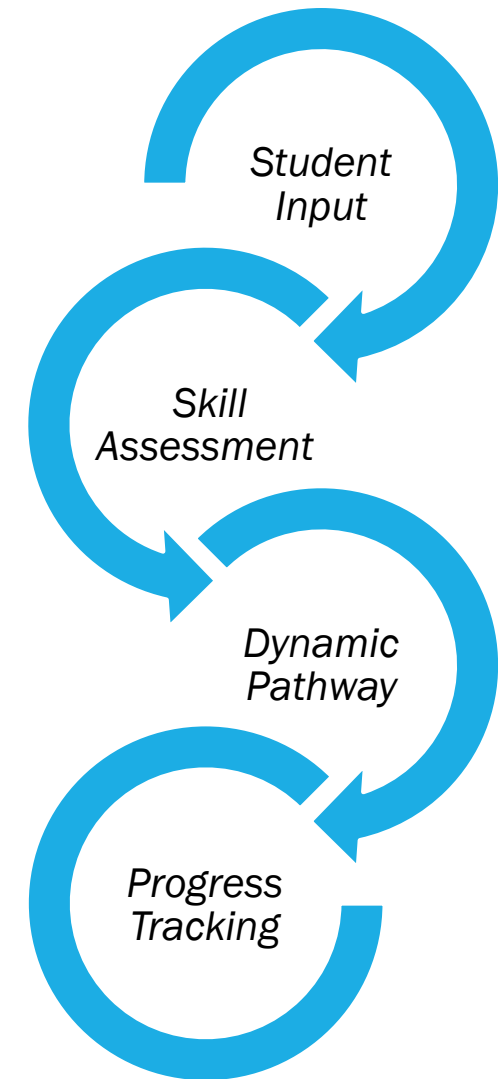
PROBLEM STATEMENT

PROPOSED SOLUTION

LearnMate AI Agent

- **Agentic AI Coach** that:
 1. Interview students to assess interests/skill levels.
 2. Dynamically generates **personalised course roadmaps**.
 3. Adapts recommendations based on progress (e.g., slows pace if struggling).
- **Key Differentiator:**

Real-time adaptation (vs. static MOOC platforms).



TECHNOLOGY USED

- IBM Watsonx.ai Granite foundation model (13B parameters)
- Retrieval-Augmented Generation (RAG) for course recommendations
- Natural Language Processing for student interaction analysis

IBM CLOUD SERVICES USED

- IBM Watsonx AI Studio - For model training and deployment
- IBM Watsonx AI Runtime - For scalable inference
- IBM Cloud Agent Lab - For conversational AI development
- IBM Cloudant Database - For student profile storage

WOW FACTORS

Why LearnMate Stands Out?

1. **Adaptive Pathways:** Adjusts weekly based on quiz scores/time spent.
2. **Multimodal Recommendations:** Videos, articles, projects tailored to learning style.
3. **Career-Aware:** Suggests courses aligned with job market trends (e.g., AI prompt engineering).
4. **Progress Analytics:** Visual dashboards for students/mentors.

WOW FACTORS


Build >

Agent preview


N.

You: 10:48 PM

Show me mockup of concise version of your personalised dashboard.



LearnMate - Course Pathway Agent 10:48 PM

 Hello there! While I can't create visual mockups directly, I can certainly describe a concise version of a personalized dashboard tailored for your learning experience:

LearnMate Dashboard Mockup

1. Welcome Section

- Greeting: "Hi [User's Name]! Ready to level up?"
- Progress Overview: Quick summary of completed modules and upcoming topics.
- Recent Achievements: Badges or markers for milestones reached.



2. Learning Plan

- Current Goal: Clearly stated learning objective (e.g., "Master JavaScript Functions").
- Schedule: Daily/weekly breakdown of tasks with estimated completion times.
- Resources Tab: Links to recommended articles, videos, and tools relevant to the current module.

3. Interactive Tracker

- Confidence Level Indicator (scale 1-5): Visual gauge reflecting your understanding of the topic.
- Last Checked Date: Reminder of when you last reviewed this section, prompting revisits if it's been a while.

type something...



WOW FACTORS

Build >

Agent preview

4. Stress Management Zone

- Mood Checker Button (with emojis ranging from smiling face to sad face) allowing you to signal if feeling overwhelmed or stuck.
- Personalized Tips Box (appears upon clicking the mood checker) offering strategies tailored to your history and current progress, like short breaks, alternative explanations, or community forum links for peer support.

5. Communication Corner

- Chat Icon for instant access to ask questions or share thoughts directly with me (LearnMate).
- Weekly Reminder Button for setting up notifications about upcoming check-ins and goal reviews.

6. Resources & Tools Section

- Access links to additional resources like ebooks, practice platforms, and relevant industry blogs curated based on your learning path and interests shown so far.

7. Feedback Loop

- Simple rating scale (1-5 stars) after each session or module completion to rate clarity and usefulness of the provided guidance, helping me adapt future lessons accordingly.

This dashboard aims to keep learners informed, motivated, and supported throughout their journey by integrating progress tracking, personalized advice, resource curation, and stress management features all in one place! 🌟

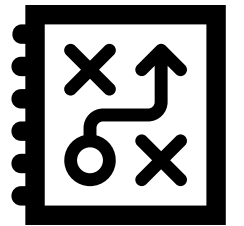
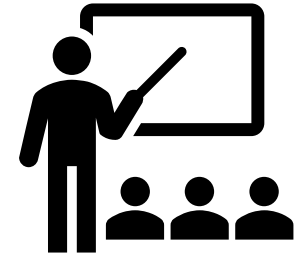
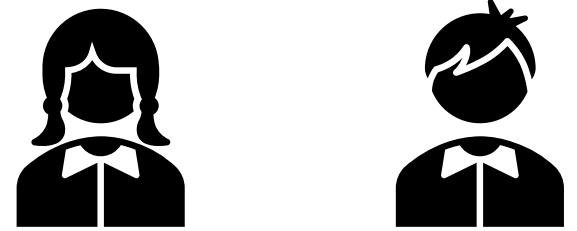
▶ How did I get this answer?

Type something...

END USERS

Target Beneficiaries

- **University Students** - For supplemental skill development.
- **Educators:** Track class-wide progress gaps.
- **Career Transitioners** - For targeted reskilling.
- **Corporate Departments** - For employee upskilling programs.
- **Self-Learners** - For structured autodidactic education.



RESULTS

Proof of Concept

The screenshot displays the IBM watsonx interface, specifically the 'Assets' tab. The top navigation bar includes the 'IBM watsonx' logo, an 'Upgrade' button, a help icon, a notification bell, and user account information for 'Niyati 's Account' in 'Dallas'. The main navigation bar shows 'Overview', 'Assets' (selected), 'Deployments', 'Jobs', and 'Manage'. A search bar labeled 'Find assets' is present, along with 'Import assets' and a 'New asset' button. The left sidebar shows '4 assets' and a list of 'Asset types': Data access (1), Data (1), Notebooks (1), and Agents (1). The main content area, titled 'All assets', contains a table with the following data:

<input type="checkbox"/>	Name	Last modified	
<input type="checkbox"/>	LearnMate - Course Pathway Agent Agent	Now Modified by you	⋮
<input type="checkbox"/>	LearnMate_Agent Notebook	14 hours ago Modified by you	⋮
<input type="checkbox"/>	LearnMate Vector index	16 hours ago Modified by you	⋮
<input type="checkbox"/>	LearnMate.txt Text file	16 hours ago Modified by you	⋮

RESULTS

The screenshot displays the IBM Watsonx interface for the 'LearnMate - Course Pathway Agent'. The top navigation bar includes the IBM Watsonx logo, an 'Upgrade' button, and user account information for 'Niyati.'s Account' in 'Dallas'. The breadcrumb trail shows the path: 'Projects / Agentic AI for Personalized Course Pathways / LearnMate - Course Pathway Agent'. The main interface is divided into three sections: 'Saved agents', 'Build', and 'Agent preview'. The 'Agent preview' section shows a chat window with the agent's name 'LearnMate - Course Pathway Agent' and a timestamp '04:21 PM'. The chat content includes a welcome message: 'Welcome to LearnMate - Course Pathway Agent' and 'Find the right learning path here that aligns with your interest.' Below the chat window, there are four sample questions with arrows indicating they can be clicked: 'Recommend free UI/UX courses for beginners with certificates', 'I only have 1 hour/week to learn. Adjust my Cybersecurity path', 'Update my progress: Completed 'JavaScript Basics' (Score: 82%)', and 'I'm interested in tech but don't know where to start. Can you help?'. At the bottom, there is a text input field with the placeholder 'Type something...' and a send button.

IBM watsonx

Upgrade

Projects / Agentic AI for Personalized Course Pathways / LearnMate - Course Pathway Agent

Share feedback

Autosave on

New agent +

Deploy

Saved agents

Build

Agent preview

From Agentic AI for Personalized Course ...

LearnMate - Course Path...

Find the right learning path ...

LearnMate - Course Pathway Agent 04:21 PM

Welcome to LearnMate - Course Pathway Agent

Find the right learning path here that aligns with your interest.

Sample questions

Recommend free UI/UX courses for beginners with certificates

I only have 1 hour/week to learn. Adjust my Cybersecurity path

Update my progress: Completed 'JavaScript Basics' (Score: 82%)

I'm interested in tech but don't know where to start. Can you help?

Type something...

RESULTS

IBM watsonx

Upgrade

?

🔔

Niyati .'s Account

Dallas

N.

Proje... / Agentic AI for Personalized Course Pathw... / LearnMate - Course Pathway Ag...

Share feedback

Autosaved 5:17 PM

New agent +

Deploy

🔒

ℹ️

Build >

Agent preview

N.

You: 05:13 PM

i would like to learn about datascience

LearnMate - Course Pathway Agent 05:13 PM

Great choice! Data science is a fascinating and in-demand field. Here's a structured learning path for you:

Goal: Understand and apply data science principles to solve real-world problems.

Resources:

1. Online Course: "Data Science A-Z": Real-Life Data Science Exercises Included" on Udemy (link)

2. Tool: Jupyter Notebook for coding and visualization (link)

Timeline: 6 months, dedicating 3 hours per week.

Module Breakdown:

1. Month 1-2: Python Fundamentals

Learn Python syntax, data structures, and control flow.

Practice with Codecademy's Python course (link).

2. Month 3: Data Manipulation with Pandas

Master data manipulation using Pandas library in Python.

Work through the Pandas Cookbook (link).

type something...

🗑️

➤

RESULTS

IBM watsonx

Upgrade

?

🔔

Niyati .'s Account

Dallas

N.

Proje... / Agentic AI for Personalized Course Pathw... / LearnMate - Course Pathway Ag...

Share feedback

Autosaved 5:17 PM

New agent +

Deploy

🔒

📄

Build >

Agent preview

N.

You: 05:17 PM

provide me a proper list of links too

LearnMate - Course Pathway Agent 05:17 PM

Absolutely! Here's your learning kit with all the necessary links:

1. "Python for Data Science Handbook" by Jake VanderPlas (Free online book):

[Python for Data Science Handbook](#)

2. Codecademy's Python Course:

[Codecademy Python Course](#)

3. Jupyter Notebook:

[Jupyter Notebook](#) (No installation needed; use through an online platform like Google Colab)

4. Microsoft's "Data Science Essentials" on edX:

[Data Science Essentials](#) (Note: This course is free to audit, but has a fee for certification)

Remember, learning is a step-by-step process, so take it one day at a time and don't hesitate to reach out if you encounter any roadblocks or need encouragement! I'll be here cheering you on every step of the way 🏆👏

► How did I get this answer?

N.

You: 05:17 PM

perfect!!! thanks learnmate

Type something...

🗨️

📤

IBM watsonx

Upgrade

?

🔔

Niyati .'s Account ▾

Dallas ▾

N.

Proje... / Agentic AI for Personalized Course Pathw... / LearnMate - Course Pathway Ag...

Share feedback β

🟢 Autosaved 5:11 PM

📄 ▾

New agent +

Deploy 🚀

🔒

ℹ️

Build >


Agent preview

🤖

LearnMate - Course Pathway Agent 05:11 PM

Welcome to LearnMate - Course Pathway Agent

Find the right learning path here that aligns with your interest.



Sample questions

Recommend free UI/UX courses for beginners with certificates →

I only have 1 hour/week to learn. Adjust my Cybersecurity path →

Update my progress: Completed 'JavaScript Basics' (Score: 82%) →

I'm interested in tech but don't know where to start. Can you help? →

type something... I

🗨️ ▶️

RESULTS


Deployed AI Agent

[Projects](#) / [Agentic AI for Personalized Course Pathways](#) / Agent Lab

[Share feedback](#) β Unsaved 📄 ▼ New agent + Deploy


Build >

Agent preview

 LearnMate - Course Pathway Agent 02:43 AM

Welcome to LearnMate - Course Pathway Agent

Find the right learning path here that aligns with your interest.



Sample questions

Recommend free UI/UX courses for beginners with certificates →

I only have 1 hour/week to learn. Adjust my Cybersecurity path →

Update my progress: Completed 'JavaScript Basics' (Score: 82%) →

I'm interested in tech but don't know where to start. Can you help? →

🗨️ ▶️

CONCLUSION

Transforming Education with AI

LearnMate bridges the gap between **learner intent** and **effective upskilling** by:

1. Eliminating the "paradox of choice" in online learning
2. Providing truly adaptive learning experiences
3. Delivering measurable improvements in educational outcomes
4. Scaling personalised guidance cost-effectively

The system demonstrates that AI can complement human educators by handling personalisation at scale, enabling teachers to focus on higher-value interactions.

FUTURE SCOPE



AI Tutor Integration:
Real-time coding
assistance.

Scholarship Matching:
Recommends funding
opportunities.

VR Labs: Hands-on
practice for fields like
cybersecurity.

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Niyati .

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 19, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/0bb15c00-1b7f-4cbc-a466-b7e06e5f57aa>



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Niyati .

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

Github link :

https://github.com/niyati666/LearnMate_Agent



THANK YOU