

CAPSTONE PROJECT

PATHCRAFT - AIDA

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OUTLINE

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PROBLEM STATEMENT

Students and early-career professionals often face difficulty navigating the vast and unstructured landscape of online learning resources. With no personalized guidance or real-time support, they struggle to identify the right learning paths aligned with their goals, current skills, and interests, leading to confusion and inefficiency in skill development.

Proposed Solution:

An agentic AI learning assistant named AIDA, built using IBM watsonx.ai and powered by a Granite foundation model, interacts with users to understand their interests, goals, and current skill levels. It dynamically constructs and refines personalized learning paths by recommending relevant courses, resources, and skill-building strategies. Through ongoing dialogue, AIDA adapts its guidance in real time, offering tailored support and motivation to help learners progress effectively.

TECHNOLOGY USED

- IBM cloud lite services - Free-tier access for building and deploying AI agents
- IBM Granite Foundation Model - Large language model for generating intelligent responses
- Natural Language Processing (NLP) - Allows the agent to understand and respond in natural language

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio – Build and Configure AI agent
- IBM Cloud Watsonx AI runtime – Deploy and test agents in real time
- IBM Cloud Agent Lab – Interface to manage agent behavior and tools
- IBM Granite foundation model – Powers natural and intelligent conversations

WOW FACTORS

This agent helps learners cut through overwhelming course options, stay motivated, and follow a structured, goal-aligned path. It empowers students with personalized guidance, adapting continuously based on interaction.

■ Unique Features:

- Dynamic course recommendations based on interests and current skills
- Personalized learning paths generated through conversation
- Real-time adaptation and progress-aware suggestions
- Skill-based tool recommendations and portfolio-building tips
- Instruction-driven behavior with no coding required
- Motivational tone designed to guide and support learning

END USERS

- High School & College Students

Looking for guidance on which courses and skills to pursue based on their interests.

- Early-Career Professionals

Exploring ways to upskill or transition into new tech domains through structured learning.

- Self-Learners & Career Changers

In need of personalized roadmaps instead of generic course lists.

- Academic Institutions & EdTech Platforms

Can integrate the agent to provide smart, adaptive learning support.

RESULTS

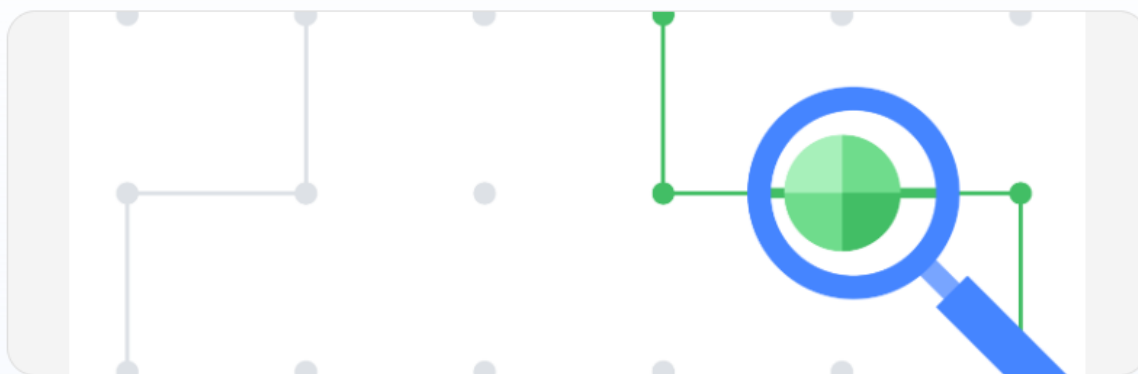
Agent preview



AIDA 04:36 PM

Welcome to AIDA

AIDA is an agentic AI coach that guides students by creating adaptive, goal-driven learning roadmaps



Sample questions

What's the best learning path for becoming a frontend developer?



How do I switch from UI/UX design to cybersecurity?



Type something...



RESULTS

Agent preview



You: 04:37 PM

I'm interested in frontend development. Where should I start?



AIDA 04:37 PM

That's great! Frontend development is a fantastic field with lots of opportunities. Here's a personalized learning pathway to get you started:

1. **HTML & CSS Basics:** Start with understanding the structure of web pages using HTML (HyperText Markup Language) and styling them with CSS (Cascading Style Sheets).

- **Resources:**

- [freeCodeCamp's Responsive Web Design Certification](#)
- [Codecademy's Learn HTML course](#)

2. **JavaScript Fundamentals:** Learn JavaScript, the programming language that makes web pages interactive.

- **Resources:**

- [freeCodeCamp's JavaScript Algorithms and Data Structures Certification](#)
- [Mozilla Developer Network \(MDN\) JavaScript Guide](#)

Type something...



RESULTS

Agent preview

TO ASK.

► How did I get this answer?



You: 04:43 PM

Can you recommend some good tools or platforms to practice?



AIDA 04:43 PM

Absolutely! Here are some popular platforms and tools that can help you practice and enhance your frontend development skills:

1. **freeCodeCamp**: A completely free, interactive learning web platform that covers a wide range of topics in web development, including HTML, CSS, JavaScript, and more. It also includes a collaborative coding environment where you can work on projects with others. [freeCodeCamp](#)
2. **Codecademy**: An interactive platform that offers courses in various programming languages and technologies, including frontend development. It provides an in-browser coding environment for practice. [Codecademy](#)
3. **Udemy**: An online learning marketplace with a vast array of courses on frontend development, taught by industry experts. Many courses offer lifetime access, making it a great investment. [Udemy](#)
4. **Coursera**: Offers courses from top universities and institutions worldwide, including specializations in frontend web development. Some courses are free to audit, while others

Type something...



RESULTS

Deployed AI Agent

IBM watsonx Upgrade ? ? Parimal Ahire's Account Dallas PA

Deployment spaces / Deploy1 / AIDA /

AIDA ✓ Deployed Online

API reference Test **Preview**

New chat +

P You 04:45 PM
I'm aiming for a career in UI/UX — how do I build a strong portfolio?

AIDA 04:45 PM
To build a strong UI/UX portfolio, follow these steps:

- 1. Identify Your Niche:** Decide on the area of UI/UX you're most interested in, such as mobile app design, web design, or UX research. This focus will help you tailor your projects to showcase specific skills.
- 2. Complete Relevant Projects:** Start by working on personal projects or contribute to open-source projects. This hands-on experience is crucial. You can find project ideas on platforms like GitHub, Behance, or Dribbble.
- 3. Document Your Process:** Don't just show the final product. Document your design process, including sketches, wireframes, prototypes, and user testing. This demonstrates your problem-solving skills and design thinking.
- 4. Include Case Studies:** For each project, create a case study that outlines the problem, your solution, and the results. This

Type something...

dataplatfom.cloud.ibm.com/ml-runtime/deployments/.../chat?space_id=eb997564-09e3-4c9...

CONCLUSION

- The solution highlights how agentic AI can transform the way learners receive guidance by delivering personalized, adaptive, and conversational support.
- Through natural interactions, the assistant understands user goals, recommends relevant learning paths, and continuously adapts to individual progress.
- Built on IBM Cloud Lite services with Granite foundation models, it offers a low-code, scalable approach to empower users with clear, goal-driven learning experiences.

GITHUB LINK

GitHub link : <https://github.com/ParimalAhire/PathCraft-AIDA>

FUTURE SCOPE

- **Persistent User Profiles:**
Implement login and user account functionality to retain learning history, preferences, and past conversations, enabling long-term personalized support.
- **Academic Data Integration:**
Include additional inputs like academic performance, certifications, and resume details to further enhance the relevance and accuracy of learning path recommendations.
- **Dynamic Learning Path Updates:**
Integrate external APIs (e.g., Coursera, edX, job market data) to allow AIDA to adapt roadmaps based on trending skills, course availability, and market demand.
- **Scalable Deployment:**
Move beyond web preview and integrate AIDA into learning platforms, institutional portals, or mobile apps for broader adoption.

IBM CERTIFICATIONS



IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Parimal Ahire

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/1df0fd6e-2bf0-4b25-9193-16881caa461c>



IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Parimal Ahire

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU