

IBM HACKATHON PROJECT

LEARNMATE AI AGENT

Presented By:

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OUTLINE

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

PROBLEM STATEMENT NO 12

In today's digital world, students have access to thousands of online courses across platforms like Coursera, Udemy, edX, and more. Many students, especially beginners, lack the experience or mentorship to build structured learning paths tailored to:

- Their interests (e.g., Frontend Development, Cybersecurity, UI/UX)
- Current skill level
- Learning pace and preferences
- Future career goals

Proposed Solution:

LearnMate is an intelligent AI agent, powered by **IBM Granite models**, hosted on **IBM Cloud Lite**, that helps students design and follow personalized, adaptive learning paths for their career goals.

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

Using this Agentic AI, LearnMate, provides students with a highly personalized, dynamic, and adaptive learning experience that goes far beyond static course recommendations. It acts like a virtual mentor, intelligently understanding each student's interests, goals, and current skill level to build a tailored roadmap that evolves with their progress and feedback.

Unique features:

- **Personalized Learning Paths** tailored to user interests, goals, and skill level
- **Agentic Reasoning** using IBM Granite to plan, adapt, and justify course roadmaps
- **Dynamic Adaptation** based on progress, feedback, and changing interests
- **Multi-Track Learning** including both technical skills and soft skills
- **Modular Course Suggestions** from multiple platforms (Coursera, Udemy, etc.)
- **Autonomous Planning Loop** (observe, think, act, reflect) for ongoing mentorship

END USERS

- Students and Learners
- Educational Institutions (Secondary Users)
- Career Counselors
- Mentors (Facilitators)

RESULTS

IBM watsonx

Projects / LearnPath_AI / LearnPath AI

Share feedback

Autosave on

New agent +

Deploy

Upgrade

Deepak Kumar Verma's ...

Dallas

DV

Build

Model: llama-3-3-70b-instruct

Agent preview

Setup

Configuration

Framework

LangGraph

Architecture

ReAct

Instructions

Advanced configuration

You are LearnPath, an intelligent Agentic AI designed to serve as a personalized learning and career guide.

Your core purpose is to help learners identify their interests, assess their current knowledge, and generate a dynamic and adaptive learning roadmap tailored to their goals. You must plan learning

Knowledge

Tools

Add a tool

Create custom tool

Added tools (1)


Google search

Retrieve information from the internet with the Google search engine.

LearnPath AI 10:48 AM

Welcome to LearnPath AI

LearnPath is an advanced Agentic AI system designed to serve as a personalized learning strategist.



Sample questions

I am interested in Android app development what will be the right path for me to become an android developer.

Website Development Roadmap for Beginner.

Backend Developer Roadmap and suggest me courses for me

I am interested in Cyber Security and want to become a cyber security expert, what will be the best path for me.

Type something...

RESULTS

Upgrade

?

🔔

Deepak Kumar Verma's ...

Dallas

DV

feedback

Autosaved 10:51 AM

New agent +

Deploy

Agent preview

DV

You: 10:51 AM

I am interested in Android app development what will be the right path for me to become an android developer.

LearnPath AI 10:51 AM

To become an Android developer, you can follow these steps:

1. Learn the basics of programming: Start by learning the basics of programming using languages like Java or Kotlin.

2. Get familiar with Android development tools: Learn about the different tools and software used for Android development, such as Android Studio, Gradle, and the Android SDK.

3. Develop your skills: Practice developing Android apps by building small projects and experimenting with different features and functionalities.

4. Learn about design patterns and principles: Study design patterns and principles to improve your coding skills and make your apps more efficient and scalable.

5. Join online communities: Participate in online communities, such as Reddit's r/androiddev, to connect with other developers, learn from their experiences, and stay updated on the latest trends and best practices.

6. Consider taking online courses or certification programs: Enroll in online courses or certification programs, such as those offered by Coursera or Udacity, to gain a more structured learning experience and improve your chances of getting hired.

7. Build a portfolio: Create a portfolio of your work to showcase your skills and experience to potential employers.

8. Network and make connections: Attend industry events, meetups, and conferences to network with other professionals and make connections that can help you advance in your career.

Type something...

RESULTS

Upgrade?

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Share feedback

Saving

New agent +

Deploy

Agent preview

DV

You: 10:53 AM

Website Development Roadmap for Beginner.

LearnPath AI

LearnPath AI 10:53 AM

Here's a suggested learning roadmap for a beginner in web development:

1. Start with the basics of HTML, CSS, and JavaScript. You can find tutorials and guides on websites like FreeCodeCamp, W3Schools, and Mozilla Developer Network.
2. Once you have a good grasp of the basics, you can move on to more advanced topics like responsive web design, CSS frameworks like Bootstrap, and JavaScript libraries like React or Angular.
3. Next, you can learn about backend development using languages like PHP, Python, or Ruby, and frameworks like Laravel, Django, or Ruby on Rails.
4. You can also learn about databases, including relational databases like MySQL and NoSQL databases like MongoDB.
5. Finally, you can learn about deployment and hosting, including options like GitHub Pages, Heroku, and AWS.

Remember, learning web development takes time and practice, so be patient and don't be afraid to ask for help when you need it. Good luck!

► How did I get this answer?

Type something...

RESULTS

Deployed AI Agent

×

Deploy as an AI service

Create an online deployment. If you want to edit code in notebook format before deploying, save as a deployment notebook. [Learn more.](#)

Define details

Deployment name

LearnPath AI

Target deployment space

LearnPath Agentic AI

Why don't I see all of my deployment spaces?

Description (optional)

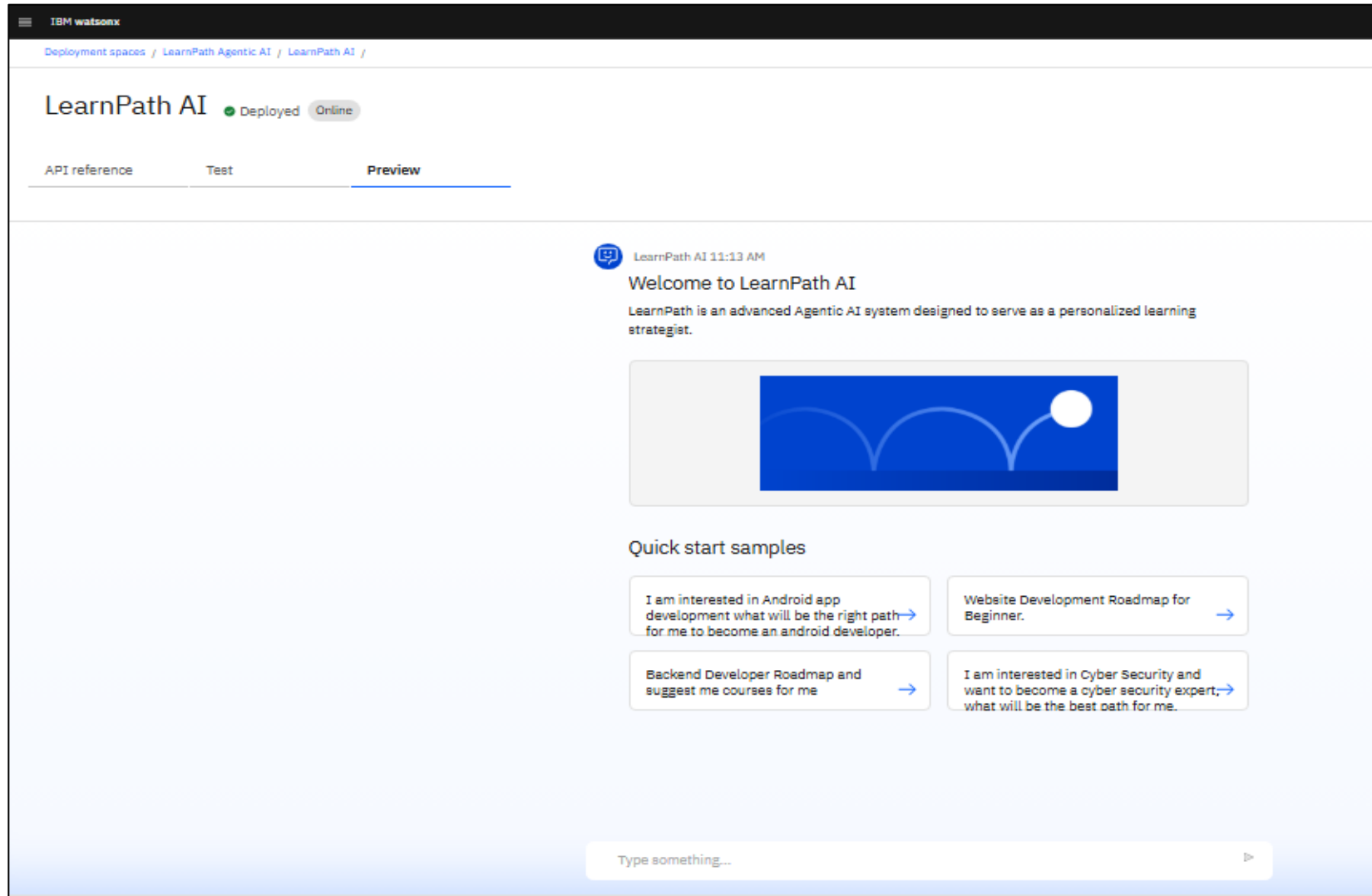
LearnPath is an advanced Agentic AI system designed to serve as a personalized learning strategist.

Cancel

Deploy

RESULTS

Deployed AI Agent



The screenshot displays the IBM Watsonx interface for a deployed AI agent named 'LearnPath AI'. The top navigation bar shows the path 'Deployment spaces / LearnPath Agentic AI / LearnPath AI'. Below the agent name, there are status indicators: 'Deployed' (green dot) and 'Online' (grey dot). Three tabs are visible: 'API reference', 'Test', and 'Preview' (which is selected). The main content area shows a chat interface with a message from 'LearnPath AI' at 11:13 AM. The message says: 'Welcome to LearnPath AI. LearnPath is an advanced Agentic AI system designed to serve as a personalized learning strategist.' Below the message is a blue graphic with white curved lines and a white circle. Underneath, there is a section titled 'Quick start samples' with four sample prompts, each with a right arrow button:

- I am interested in Android app development what will be the right path→ for me to become an android developer.
- Website Development Roadmap for Beginner. →
- Backend Developer Roadmap and suggest me courses for me →
- I am interested in Cyber Security and want to become a cyber security expert,→ what will be the best path for me.

At the bottom, there is a text input field with the placeholder 'Type something...' and a right arrow button.

CONCLUSION

- **Personalized Learning Paths** tailored to user interests, goals, and skill level
- **Personalized Planning:** Dynamically creates structured, multi-week learning roadmaps with recommended courses and milestones.
- **Skill Gap Assessment:** Quickly identifies a student's strengths/weaknesses and selects optimal starting points.
- **Primary Beneficiary:** Individual learners seeking **structured, personalized, and adaptive course pathways** to meet their educational and career goals.

GITHUB LINK

- [Deepak-droid9/LearnPath-ai](#)

FUTURE SCOPE

- Integration with Learning Management Systems (LMS)
- Mobile App Deployment
- Multi-Agent Collaboration
- Multi-language & Regional Expansion
- Career Mapping & Certification Guidance
- Partner Ecosystem for Courses
- Enterprise Upskilling

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Deepak Kumar Verma

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



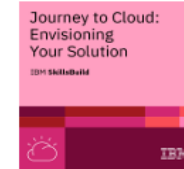
Issued on: Jul 17, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/ae399db5-a2dc-45fb-adf6-52e5f78bfa24>



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IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to
Deepak Kumar Verma

for the completion of

**Lab: Retrieval Augmented Generation
with LangChain**

Completion date: 20 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU