

IBM SKILLBUILD PROJECT

LEARNMATE – AGENTIC AI FOR PERSONALIZED COURSE PATHWAYS

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OUTLINE

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PROBLEM STATEMENT

The Challenge - Students often struggle to identify the right learning path that aligns with their interests and long-term goals due to the overwhelming number of online courses and a lack of personalized guidance. LearnMate aims to solve this by acting as an Agentic AI coach that interacts with students, understands their interests (like Frontend Development, Cybersecurity, UI/UX Design, etc.), assesses their current skill level, and dynamically builds a personalized course roadmap that adapts over time based on progress and preferences.

TECHNOLOGY USED

- IBM Cloud Lite Services
- IBM Watsonx.ai Studio
- IBM Granite LLM
- Watsonx Agent Lab (LangGraph + ReAct)
- Vector Indexing for document grounding
- Prompt-based conversational AI (No-code)

WOW FACTORS

- Dynamic, interest-based learning paths
- Auto-adaptive roadmaps through conversation
- Grounded recommendations using real docs (TXT/PDF)
- Easy-to-use interface powered by Watsonx
- No-code deployment using Agent Lab
- Helps learners make better, faster education decisions

END USERS

- Students exploring tech career paths
- Educators or academic advisors
- EdTech platforms & training institutes
- Beginners in Frontend, Cybersecurity, Cloud, UI/UX

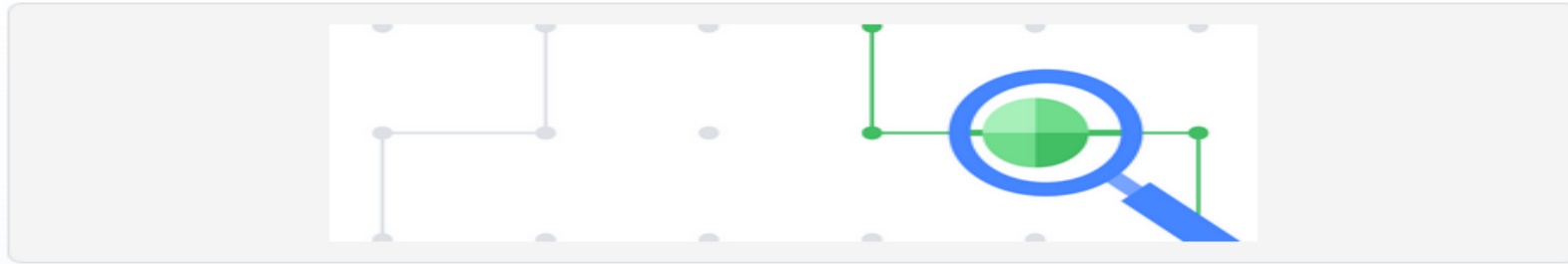
RESULTS



LearnMate Agent 07:36 PM

Welcome to LearnMate Agent

Agentic AI coach that builds personalized learning roadmaps from student interests and goals.



Quick start samples

I'm new to Frontend Development. Can you build me a beginner roadmap?



I want to become a Cybersecurity expert. What should I learn first?



Can you help me switch to a career in UI/UX Design with no prior experience?



What's the best course path to master cloud computing and land a job?



Type something...



RESULTS



You 10:05 PM

I'm new to Cloud Computing, can you build me a beginner roadmap.



LearnMate Agent 10:05 PM

Cloud Computing Beginner Roadmap

Areas of Interest: Cloud Computing

Current Skill Level: Beginner

Primary Learning Goal: Gain foundational knowledge and prepare for entry-level cloud certifications.

Key Topics & Subtopics:

1. Cloud Fundamentals:

- Understanding the basics of cloud computing (IaaS, PaaS, SaaS)
- Benefits and challenges of moving to the cloud
- Major players in the market (AWS, Azure, Google Cloud)

2. Choose a Primary Platform:

For beginners, it's advisable to start with one major platform before diversifying later on due to its extensive resources and community support. AWS is often recommended as a starting point because of its wide range of services and comprehensive documentation.

Subtopics:

- Familiarize yourself with [Amazon Web Services](#) interface through their free tier offerings or introductory courses like "AWS Reinvent 2023: What's New" on YouTube by AWS itself for an overview without immediate financial commitment.*

3. Core Services Overview:

Learn about core services offered by your chosen platform including compute (EC2/Azure VMs/GCP Compute Engine), storage solutions (S3/Blob Storage/Persistent Disk), networking components (VPCs / VNETs / Subnets).

Type something...



RESULTS



You 10:10 PM

can i also go for DevOps



LearnMate Agent 10:10 PM

Cloud Computing & DevOps Intermediate Roadmap

Areas of Interest: Cloud Computing and DevOps

Current Skill Level: Beginner advancing to intermediate

Primary Learning Goal: Deepen understanding, gain practical experience in cloud services, and prepare for an associate-level cloud certification while integrating essential DevOps practices.

Key Topics & Subtopics:

1. Advanced Core Services (as previously outlined)

- Continue mastering compute, storage, networking fundamentals across chosen primary platform(s).

2. Serverless Architectures (as previously outlined)

- Maintain focus on serverless computing concepts using offerings from AWS Lambda/Azure Functions/Google Cloud Functions.

3. Containerization with Docker + Orchestration via Kubernetes (as previously outlined)

Ensure robust proficiency in containerizing applications then deploying at scale utilizing Kubernetes clusters irrespective of underlying infrastructure provider choice.

4. Infrastructure as Code (IaC) Tools Enhancement:

Solidify expertise with IaC tools like Terraform expanding usage beyond simple deployments towards managing complex multi-environment setups including blue-green or canary deployment strategies

5. Continuous Integration / Continuous Deployment Pipelines:

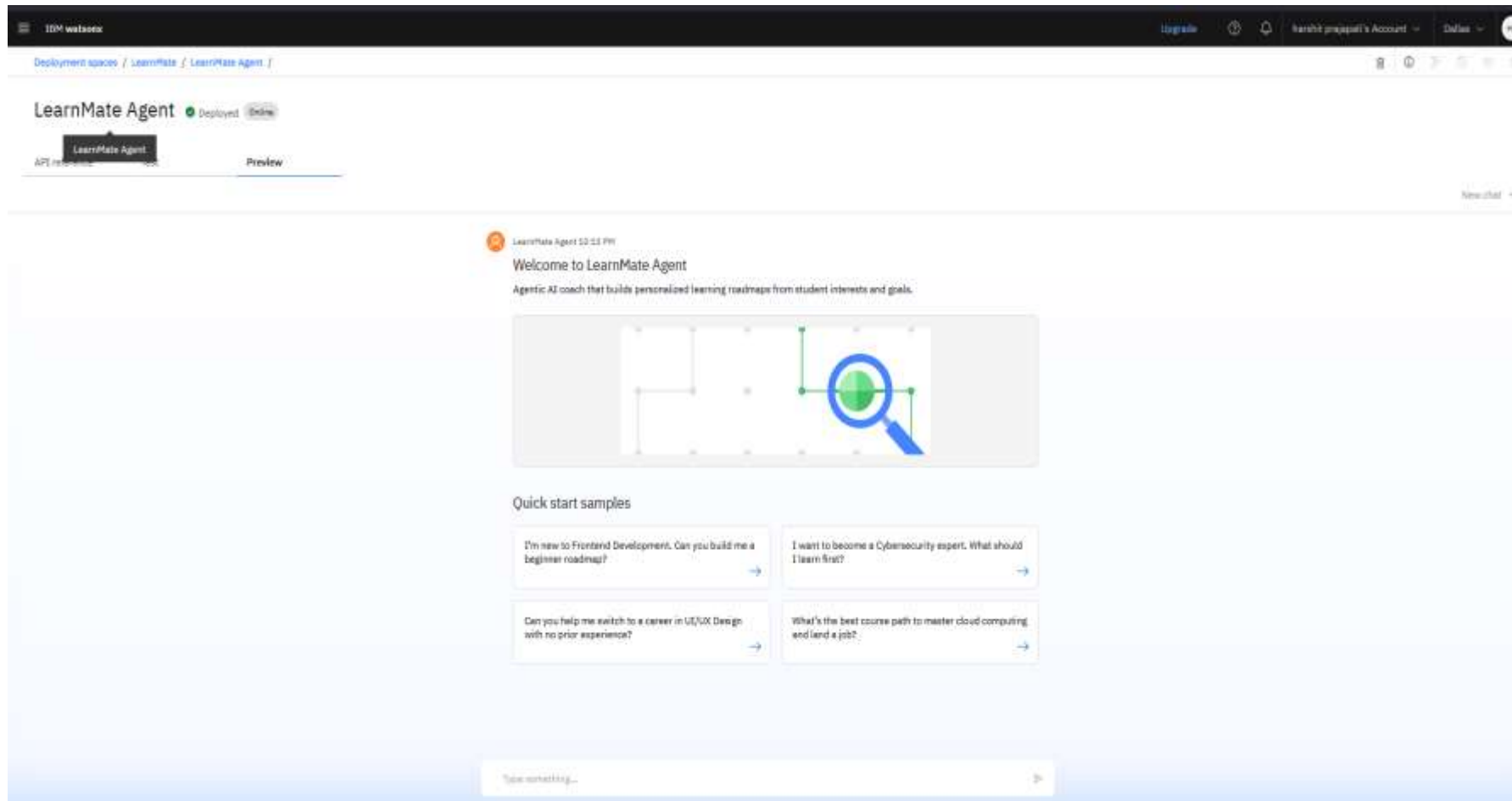
Learn about CI/CD methodologies employing Jenkins X for cross-platform support; GitHub Actions specifically tailored toward Git repositories hosted by GitHub; CircleCI offering versatile configurations etc., setting up automated build triggers upon code commits leading seamlessly into production releases

Type something...



RESULTS

Deployed AI Agent







CONCLUSION

- LearnMate provides accessible career guidance using Agentic AI.
- Leverages IBM Granite + Watsonx Studio for personalized planning.
- Enables no-code deployment, making it ideal for students and institutions.
- Reduces confusion in self-paced learning with adaptive AI-generated plans.

GITHUB LINK

- GitHub Link: github.com/harshit27p/LearnMate-Agentic-AI

FUTURE SCOPE

-  Progress tracking via database or session history
-  Multilingual and regional learning support
-  Voice input for accessibility
-  Dynamic course updates via APIs
- ☐ Agent deployment on web and mobile platforms

IBM CERTIFICATIONS



IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Harshit Prajapati

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



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THANK YOU