
IBM PROJECT

PATHPILOT : PERSONALIZED LEARNING ROADMAP ADVISOR

Presented By:

Student name : SRUSHTI KUMAR

College Name : K. S. INSTITUTE OF TECHNOLOGY

Department : COMPUTER SCIENCE AND DESIGN

OUTLINE

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

PROBLEM STATEMENT

Many learners—students, job-switchers, and working professionals—struggle to decide what to learn, how to learn, and which resources to trust. The internet offers too many course options, but lacks personalized guidance.

Proposed Solution:

“PathPilot” is an AI-powered agent that acts as a personalized learning advisor. It interacts with users to understand their interests, skills, time availability, and goals, and dynamically builds and updates a custom learning roadmap using real-time web search and user feedback.

TECHNOLOGY USED

IBM Cloud Lite Services

IBM Granite LLM Model

Watson Assistant

Natural Language Processing (NLP)

Retrieval via Web Search APIs

Python (for backend logic and web scraping) – Downloaded a jupyter notebook to add to GitHub

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model

WOW FACTORS

PathPilot is a conversational agentic AI that serves as a personalized learning advisor, guiding users through their upskilling journey with minimal input and maximum adaptability. By asking one question at a time and dynamically adjusting its recommendations using live web search and user feedback, it delivers a smart, motivating, and domain-agnostic learning experience.

Unique features:

Conversational agent that asks one question at a time to reduce cognitive overload.

Dynamically adapts course suggestions based on user feedback.

Uses live web search to pull the latest free and paid courses.

Automatically tracks user progress and reshapes roadmap accordingly.

Can create personalized roadmaps even with minimal input.

Offers encouragement, reminders, and motivational prompts.

Supports domain-agnostic learning – not just tech fields

END USERS

- High School & College Students
- Career Switchers
- Working Professionals
- Upskillers & Lifelong Learners
- Educational Institutions offering mentorship tools

RESULTS

The screenshot displays the IBM watsonx Agent Lab interface. The top navigation bar includes the 'IBM watsonx' logo, an 'Upgrade' button, and user account information for 'Srushti Kumar's Account' in 'Dallas'. The main interface is divided into three panels:

- Left Panel (Saved agents):** Lists the agent 'PathPilot' :an Agentic AI-powered advisor that builds dynamic, personalized learning roadmaps using IBM Cloud.
- Middle Panel (Build):** Shows the configuration for the agent. The 'Setup' section includes:
 - Name:** 'PathPilot' :an Agentic AI-powered personalized learning advisor.
 - Description:** 'PathPilot is AI-powered advisor that builds dynamic, personalized learning roadmaps using IBM Cloud.'
 - Icon:** A blue circular icon with a white geometric design.
 - Placeholder image:** A blue rectangular image with a white geometric design.
- Right Panel (Agent preview):** Shows a preview of the agent's interface. It includes a welcome message: 'Welcome to "PathPilot" :an Agentic AI-powered personalized learning advisor. PathPilot is AI-powered advisor that builds dynamic, personalized learning roadmaps using IBM Cloud.' Below this is a section titled 'Sample questions' with two example questions: 'Can you help me figure out what I should learn based on my interests?' and 'I'm confused about my career path. Can you guide me?'. At the bottom, there is a text input field with the placeholder 'Type something...'. An 'Activate Windows' watermark is visible in the bottom right corner of the preview area.

The bottom of the screenshot shows a Windows taskbar with the search bar, task view button, and several application icons. The system tray on the right indicates the language is 'ENG US' and the time is '4:52 PM' on '04-Aug-25'.

RESULTS

The screenshot displays the IBM Watsonx Agent Lab interface. The top navigation bar includes the IBM Watsonx logo, a user profile for 'Srushti Kumar', and a 'Deploy' button. The main interface is divided into two panels: 'Build' on the left and 'Agent preview' on the right.

Build Panel:

- Model:** granite-3-3-8b-instruct
- Configuration:**
 - Framework:** LangGraph
 - Architecture:** ReAct
- Instructions:** You are PathPilot, an Agentic AI built using IBM Cloud and Granite LLM. You act as a smart, friendly learning advisor that helps users design a personalized learning roadmap based on their interests, skill levels, goals, and time availability. You adapt your suggestions dynamically, use web search to recommend up-to-date resources, and help the user stay motivated.
- Knowledge:** (Empty section)
- Tools:** (Empty section)

Agent preview Panel:

The preview shows a conversation with the agent. The user asks: "I'm confused about my career path. Can you guide me?" and "Suggest a personalized learning plan to improve my skills." The agent responds with a detailed 4-week plan for learning about space exploration, covering topics like the solar system, stars, galaxies, and the history of space exploration. The plan includes specific resources like NASA's Space Place, Khan Academy's Astronomy course, and NASA's Solar System Exploration site.

Footer: The bottom of the screen shows a Windows taskbar with the search bar, taskbar icons, and system tray information (28°C, Mostly cloudy, 4:53 PM, 04-Aug-25).

RESULTS

The screenshot displays the IBM watsonx Data Platform interface. The browser address bar shows the URL: `dataplatfom.cloud.ibm.com/projects/40881836-ab2e-47c5-a3e9-18789d79546/assets?context=wx`. The page title is "PersonalizedLearningAgent". The "Assets" tab is selected, showing a list of assets. The left sidebar indicates "2 assets" and lists "All assets", "Notebooks", and "Agents". The main content area shows a table of assets:

Name	Last modified
"PathPilot" :an Agentic AI-powered personalized learning advisor. Agent	2 minutes ago Modified by you
PersonalizedLearningAgent Notebook	17 minutes ago Modified by you

An "Activate Windows" watermark is visible in the bottom right corner of the interface.

RESULTS

Deployed AI Agent

The screenshot displays the IBM watsonx Deployments interface. The browser address bar shows the URL `datapatform.cloud.ibm.com/ml-runtime/spaces?context=wx`. The page title is "Deployments" with a subtitle "1 space". A blue button labeled "New deployment space" is in the top right. Below the title, there are tabs for "Activity" and "Spaces", with "Spaces" being the active tab. A filter bar shows "Filter by: All spaces" and a search input. A table lists the deployment spaces:

Name	Last modified	Your role	Collaborators	Tags	Type	Online deployments	Jobs
PathPilot	Aug 4, 2025, 4:37 PM	Admin	SK		Testing	1	0

At the bottom of the table, it says "Items per page: 20" and "1-1 of 1 items". A Windows taskbar is visible at the very bottom with the date "04-Aug-25" and time "4:55 PM".

RESULTS

Deployed AI Agent

The screenshot displays the IBM Watsonx web interface. At the top, the browser address bar shows the URL: `datapatform.cloud.ibm.com/ml-runtime/deployments/4b0e595a-54a8-40fd-874d-a6bb20fb52b5/chat?space_id=a6fd22f8-8419-40...`. The page title is "PathPilot" :an Agentic AI-powered personalized learning advisor. Below the title, there are tabs for "API reference", "Test", and "Preview", with "Preview" being the active tab. The main content area shows a chat interface with a welcome message: "Welcome to 'PathPilot' :an Agentic AI-powered personalized learning advisor. PathPilot is AI-powered advisor that builds dynamic, personalized learning roadmaps using IBM Cloud." Below the message is a large blue graphic with white curved lines. Underneath, there are "Quick start samples" with two example prompts: "Can you help me figure out what I should learn based" and "I'm confused about my career path. Can you guide". At the bottom, there is a text input field with the placeholder "Type something...". The bottom of the screenshot shows the Windows taskbar with various application icons and the system clock indicating 4:49 PM on 04-Aug-25.

RESULTS

Deployed AI Agent

The screenshot shows a web browser window displaying the IBM Watsonx deployment page for an AI agent named "PathPilot". The browser's address bar shows the URL: `dataplatfrom.cloud.ibm.com/ml-runtime/deployments/4b0e595a-54a8-40fd-874d-a6bb20fb52b5/chat?space_id=a6fd22f8-8419-40...`. The page header includes the IBM Watsonx logo, an "Upgrade" button, and user account information for "Srushti Kumar's Account" in the "Dallas" region. The main heading is "PathPilot" :an Agentic AI-powered personalized learning advisor. Below this, there are tabs for "API reference", "Test", and "Preview", with the "Preview" tab selected. The chat interface shows a user message: "generate a learning path to become a data analyst". The AI agent's response is a suggested roadmap with four steps: 1. Mathematics Basics, 2. Programming, 3. Data Manipulation with Python, and 4. Data Visualization. The Windows taskbar at the bottom shows the time as 4:50 PM on 04-Aug-25.

Deployment spaces / PathPilot / "PathPilot" :an Agentic AI-powered personalized learning advisor. /

"PathPilot" :an Agentic AI-powered personalized learning advisor. Deployed Online

API reference Test **Preview** New chat +

S You 04:50 PM
generate a learning path to become a data analyst

"PathPilot" :an Agentic AI-powered personalized learning advisor. 04:50 PM
Sure, I'd be happy to help you create a learning path to become a data analyst. Here's a suggested roadmap:

- 1. Mathematics Basics:** Start with a refresher on algebra, statistics, and probability. Khan Academy offers a great free course on this.
- 2. Programming:** Learn Python, as it's widely used in data analysis. Codecademy and Coursera have excellent Python courses for beginners.
- 3. Data Manipulation with Python:** Once you're comfortable with Python, learn to use libraries like Pandas and NumPy for data manipulation. DataCamp offers a specialization in Data Manipulation with Python.
- 4. Data Visualization:** Learn to present data effectively using libraries like Matplotlib, Seaborn, and Plotly. DataCamp and Coursera offer courses on data visualization with Python.

Type something...

Activate Windows
Go to Settings to activate Windows.

Type here to search Desktop Earnings upcoming ENG US 4:50 PM 04-Aug-25

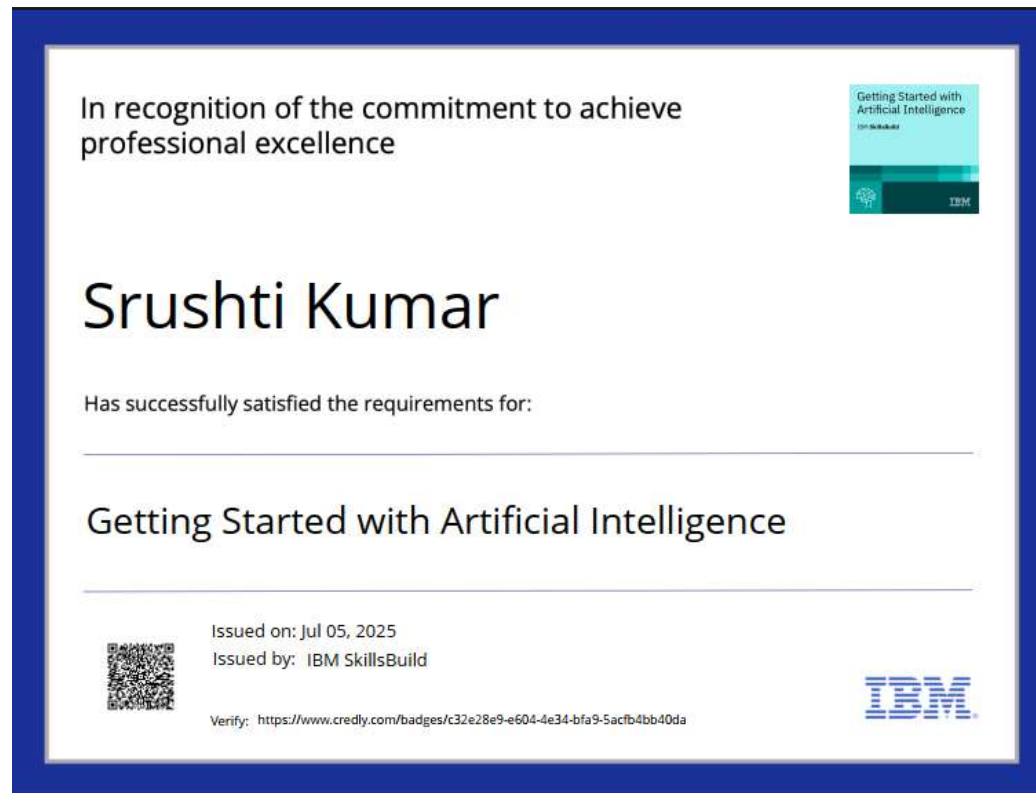
CONCLUSION

- PathPilot bridges the gap between overwhelming online learning options and individual learner clarity.
- By acting as a dynamic, responsive, and motivating AI mentor, it enables personalized upskilling at scale.
- Its flexibility, domain neutrality, and real-time adaptability make it a valuable tool in modern education.

FUTURE SCOPE

- Integrate learning APIs like LinkedIn Learning, Skillshare, etc.
- Add calendar sync/reminders for user-set goals
- Use speech input for accessibility
- Multilingual support and local course recommendations
- Visual progress dashboard with gamification
- Mobile App Deployment
- Real-time chat with learning communities

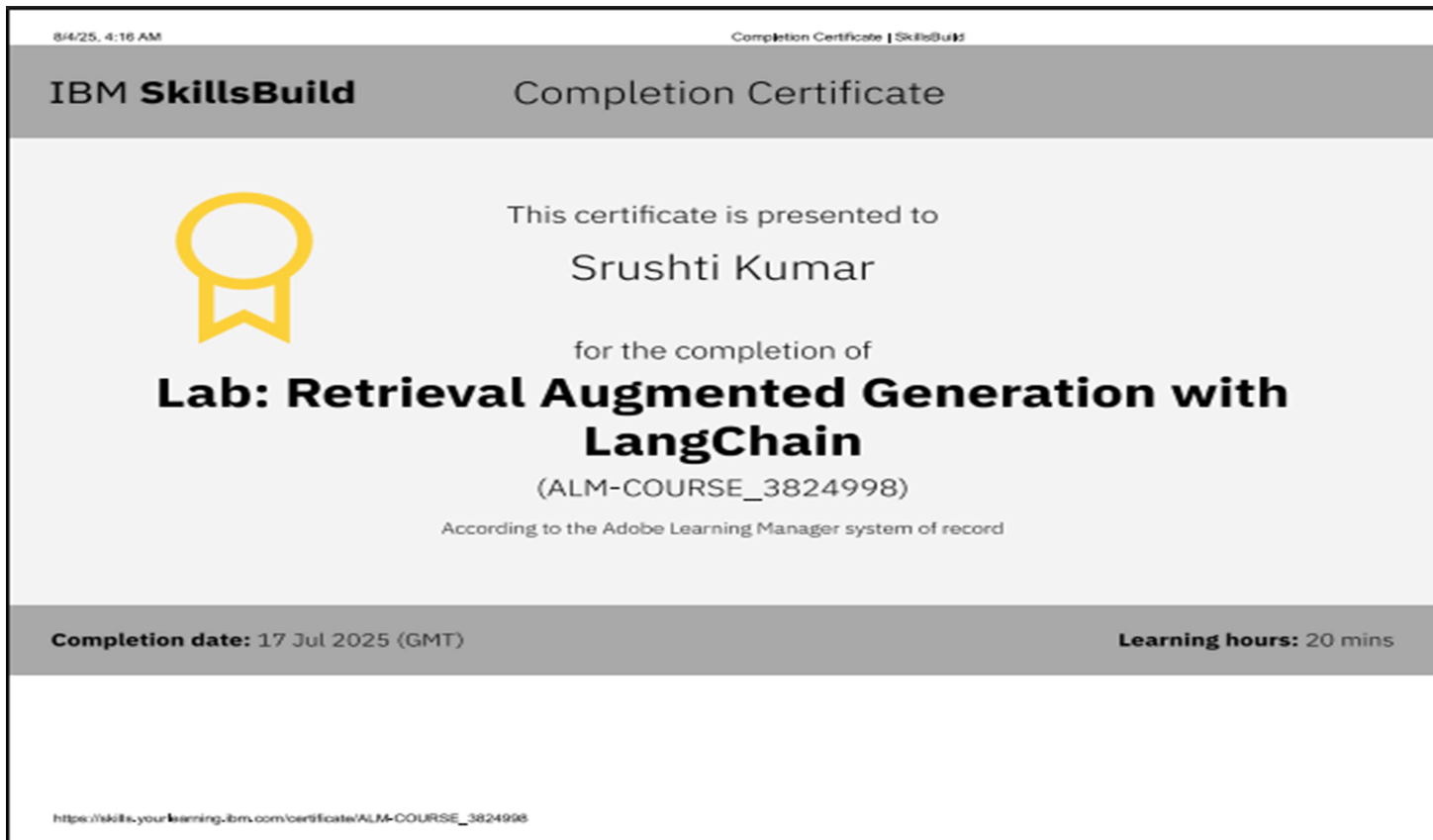
IBM CERTIFICATIONS



IBM CERTIFICATIONS



IBM CERTIFICATIONS



GITHUB LINK

- <https://github.com/SrushtiKumar/PathPilot>

Contains:

- Agent overview
- Jupyter file
- Certificate PDFs
- Screenshots

THANK YOU