

CAPSTONE PROJECT

LEARN_MATE - AGENT

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OUTLINE

- Problem Statement Proposed System/Solution
- System Development Approach
- Algorithm & Deployment
- Result
- Conclusion
- Future Scope
- References

PROBLEM STATEMENT

- Problem Statement No.12 - Agentic AI for Personalized Course Pathways.
- **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.

PROPOSED SOLUTION

- The proposed system aims to address the challenge of Making it easy for the students to choose which is the best suited course for them as we know sometimes students get confused upon their own interests. So, This Agentic Ai Agent will help those students.
- Data Collection:
- Data Collection here is very easy as we need to just attach the search engines like google search etc. and on the basis of that data it will give us the results and try to answer in detail to make the user satisfy.
- Data Preprocessing:
 - Clean and preprocess the collected data to handle.
 - Feature engineering to extract relevant features from the data .
- Deployment:
 - Develop a user-friendly interface or application that provides real-time information about the courses in detail.
- Evaluation:.
 - This agent is based on continuous monitoring of prediction accuracy.
 - Result:
 - When you will ask it a question it will try to provide you the answer with all the information.

SYSTEM APPROACH

The "System Approach" section outlines the overall strategy and methodology for developing an agent which provides you the information you need from the data of all the platforms associated to it and with accuracy.:

- We need watsonx ai. Studio.
- We need watsonx ai. Runtime.
- Google . search etc.

ALGORITHM & DEPLOYMENT

- **Data Input:**
 - Data input is very easy as you just need to put a question to it and it will provide you the answer.
- **Training Process:**
 - It trains itself of its own we just need to associate it to the search engines.
- **Prediction Process:**
 - It also predicts but with the maximum accuracy.

RESULT

Agent Lab (beta) — Docs | IBM

Agent Lab — Learn_Mate | IBM

Learn_Mate — Projects | IBM

Learn_Mate — Projects | IBM

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dataplatfom.cloud.ibm.com/wx/agents?context=wx&project_id=73807f26-8040-402d-be63-11a97137e393

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Incognito

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IBM watsonx

Upgrade ?

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Ambika Thakur's Account

Dallas

AT

Projects / Learn_Mate / Agent Lab

Share feedback

Unsaved

New agent +

Deploy

Build

AI Model: mistral-large

Architecture

LangGraph

ReAct

Instructions

Advanced configuration

You are a helpful assistant that uses tools to answer questions in detail.
When greeted, say "Hi, I am watsonx.ai agent. How can I help you?"

Knowledge

Tools

Add a tool

Create custom tool

Added tools (5)

Google search

Retrieve information from the internet with the Google search engine.

DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

Remove

Agent preview

AT You: 10:35 AM

Hi , can you suggest me some courses in which I can enroll , related to information Technology.

watsonx Agent 10:35 AM

Here are some courses related to information technology:

1. [Information Technology Online Courses | Coursera](#)

Information Technology · Cloud Computing · Security · Data Management · Networking · Support and Operations · Earn Your Degree · Bachelor of Applied Arts and Sciences.

2. [Computer Information Technology | TCAT Jacksboro](#)

The Computer Information Technology (CIT) program encompasses related courses in Information Technology, Computer software and hardware maintenance.

3. [Best IT Courses & Certificates \[2025\] | Coursera Learn Online](#)

In summary, here are 10 of our most popular true courses · Microsoft IT Support Specialist: Microsoft · Google IT Support: Google · Information Technology (IT) ...

4. [Master's Programs - School of Information Sciences](#)

... courses, or see the course ... technology administration, data acquisition and institutional

Type something...

Type here to search

31°C Mostly cloudy

10:36 AM 02-08-2025

Agent Lab (beta) — Docs | IBM

watsonx Agent — Agentic_AI_1

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← → ↺

dataplatfom.cloud.ibm.com/ml-runtime/deployments/9ecd3f8a-cea4-4146-8c27-722fe1e0056d/chat?space_id=dc5ab826-4b46-471a-b2a0-5ca5c7b6bed7&context=wx&flush=true

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Deployment spaces / Agentic_AI_1 / watsonx Agent /

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watsonx Agent ✔️ Deployed Online

API reference Test Preview

New chat +

Aug 24, 2025 ... Best IT Courses for Tech Professionals in 2025: 9 upvotes · 0 ... Related discussions: Best Online Courses · Best Free Courses Online · Best ...

A You 01:31 PM

Which of these above courses is the best

🤖 watsonx Agent 01:31 PM

To determine the best course, I need to know your specific needs and preferences. Could you please provide more details about what you are looking for in an IT course? For example, are you interested in a particular topic within IT, such as cybersecurity, data analysis, or software development? Do you prefer a course from a specific platform or institution? Are you looking for a free or paid course? Any additional information you can provide will help me recommend the best course for you.


▶ How did I get this answer?


↺

Type something...

▶

🪟 🔍 Type here to search



 Air quality forecast

⬆️ 🔊 ENG 01:32 PM 03-08-2025

🗨️

watsonx Agent 🟢 Deployed Online

API reference Test **Preview**

New chat +

A You 01:34 PM
Actually I am interested in cybersecurity and software development.

🤖 watsonx Agent 01:34 PM
Here are some of the best online courses for cybersecurity and software development:

1. [Best Cybersecurity Courses & Certificates Online \[2025\] | Coursera](#)
 - Skills you'll gain: Threat Modeling, Intrusion Detection and Prevention, Network Security, Open Web Application Security Project (OWASP), Event Monitoring, ...
2. [What Cybersecurity course to do to become an expert for a career ...](#)
 - As a software engineer, secure coding and building secure development might be an interesting path. Secure DevOps. I would recommend reading the ...
3. [What Is a Security Software Developer? | Skills and Career Paths](#)

type something...

CONCLUSION

- This Learn_Mate1 Agentic AI will make it easy for the students to understand their interests and will guide them to choose a right course to enhance their skills and will provide all the necessary details of that course.

FUTURE SCOPE

- The future scope is that as we know researches are been done on a parallel end so in future these agentic AI techniques or these agents will become more accurate providing us the right information and a person could get as much as knowledge he wants to take from the agent.

REFERENCES

- We just need watsonx.ai studio , watsonx.ai Runtime , search engines like google.search etc. from where the agent could gather the data analys it and answer as per the question.

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Ambika Thakur

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



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IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Ambika Thakur

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