# IBM HACKATHON PROJECT

# COLLEGE ADMISSION AGENT

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## OUTLINE

- Problem Statement

- Technology used

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- Result

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- Git-hub Link

- Future scope

- IBM Certifications

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# PROBLEM STATEMENT

■ Students seeking college admission are often overwhelmed with a vast amount of scattered and complex information regarding admission processes, eligibility criteria, application deadlines, required documents, entrance exams, and college-specific regulations. Manually browsing multiple college websites or portals is time-consuming and can lead to missed opportunities or errors in application.

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# PROBLEM STATEMENT

- We created a College Admission Agent— a smart virtual assistant that acts like your Step-by-Step Workflow It:

- User Query Input: Student types a question (e.g., "What is the cutoff for B.Tech in PES University?").

- Semantic Understanding:The system converts the query into a vector (embedding) to understand its meaning.

- Document Retrieval:The retriever searches a vector database (e.g., FAISS, Pinecone, or Chroma) to find the most relevant chunks of admission data.

# TECHNOLOGY **USED**

■    We built the agent using the various technology provided by IBM Cloud Service with the Lite version.

■    **IBM Watsonx AI Studio** — to develop and train the AI

■    **Natural Language Processing (NLP)** — so it understands your queries naturally

■    **Retrieval-Augmented Generation (RAG)** — to find the best answers from trusted nutrition data

■    The **IBM Granite Language Model** — for smart, human-like responses

■    APIs to connect with health trackers or wearable devices

■    **Tools** - Google search, duckduckgo, Wikipedia search, webcrawler.

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# IBM CLOUD SERVICES USED

■ **IBM Cloud Watsonx AI Runtime :**

It provides a **secure, scalable environment** to **deploy and run AI models in production**. It makes sure your AI models run reliably and deliver fast, accurate responses to real users — whether you have 10 or 10 million requests.

■ **IBM Cloud Watsonx AI Studio :**

It is a collaborative environment where you can **build, train, and fine-tune AI models** with powerful tools and ready-made datasets. It lets developers and data scientists work together to turn ideas into AI-powered solutions — all in the cloud, with minimal setup.

■ **IBM Cloud Agent Lab :**

It is an interactive sandbox where you can **design, test, and manage AI-powered agents** — like your Nutrition Assistant! It helps you connect different AI services, fine-tune conversations, and see how your agent responds in real time before launching it live.

■ **IBM Granite Foundation Model :**

It is a **large, pre-trained language model** that understands natural language and generates human-like responses. It's AI Agent's ability to understand questions, retrieve relevant nutrition info, and give clear, conversational answers.

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# IBM CLOUD SERVICES USED

■ Lets see how the flow takes place:

**Step 1:** You chat with the agent — Student asks a question

**Step 2:** Query goes to backend -— Sent via API (hosted on IBM Code Engine).

**Step 3:** Query is converted to vector---Using embedding models (e.g., Watsonx Embeddings ).

**Step 4:** Generate answer- Sent to IBM Watsonx.ai (Granite or open model). Model gives a clear answer.

**Step 5:** Show answer to student --Chatbot displays reply + source link (optional).

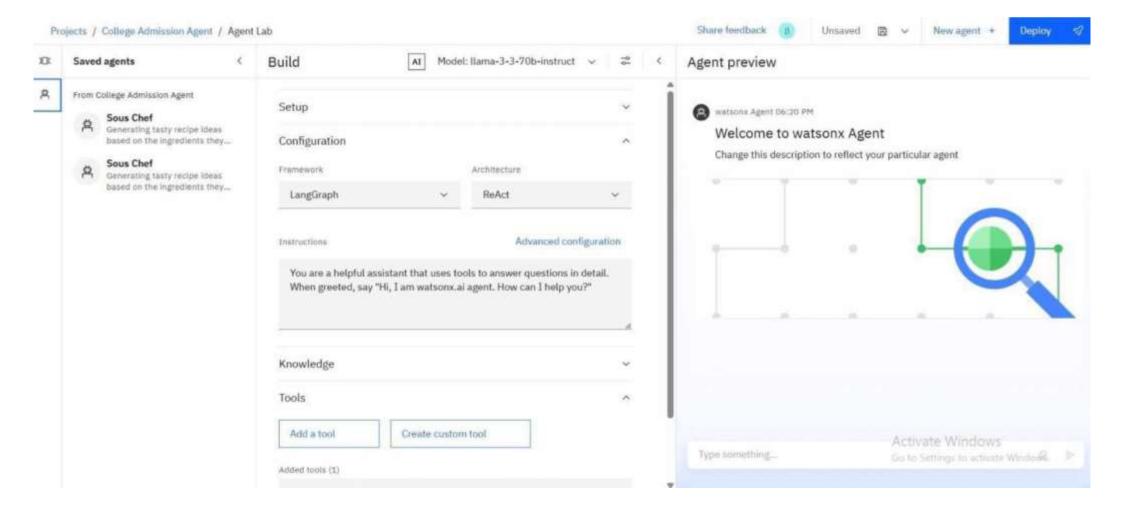Step 6: Log and update --Logs saved in IBM Cloud Databases.New data fetched using IBM Cloud Functions.

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## WOW FACTORS

- ► **Students can ask questions like they talk—no need for exact keywords.**

- ► **Combines document search with smart AI-generated answers.**

- ► **Pulls information from official college websites and PDFs only.**

- ► **Adjusts answers based on course, category, marks, and location.**

- ► **Gives info for many colleges in one place—no need to search separately.**

- ► **Remembers the conversation and gives follow-up answers.**

- ► **Regularly refreshes college info using IBM Cloud Functions.**

- ► **Secure, scalable, and uses Watsonx, Code Engine, and Object Storage.**

- ► **Works with PDFs, webpages, and scraped documents.**

- ► **Can be expanded to support speech and regional languages**

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## END USERS

■ **Anyone who cares about eating right — from individuals and families to dietitians and wellness coaches. Empowering everyday people and professionals with smarter, tailored nutrition guidance,**

> **Students (Class 12 & UG Aspirants)**

> **Main users looking for college admission details, eligibility, cutoffs, etc.Want quick and reliable information to guide their children's career path.**

> **College Admission Seekers (Lateral Entry, PG, etc.)**

> **Students seeking admission to 2nd-year programs or postgraduate courses.**

> **School/College CounselorsUse the tool to assist multiple students during career guidance sessions.**

> **Coaching Institutes & Career CentersIntegrate the chatbot to help students choose and apply to colleges.**

> **College Admission Offices (as internal use) Use the bot to handle repetitive queries from students and reduce workload.**

> **Developers / Startups in EdTech Use this project as a base for building commercial EdTech tools.**

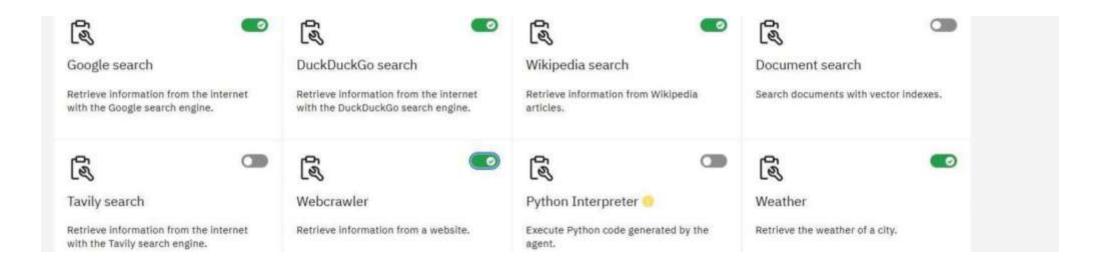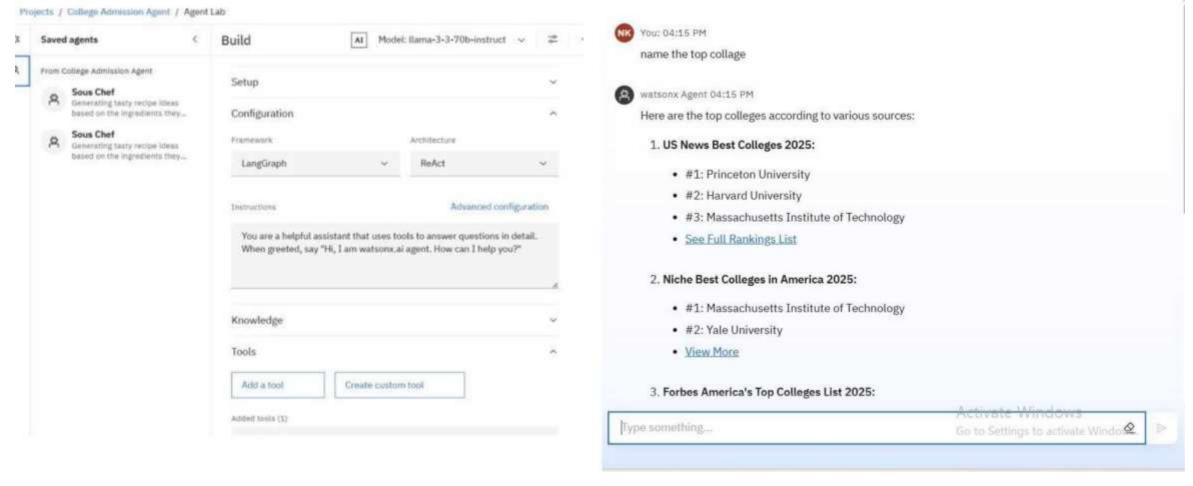> **Government Education Portals (optional integration)**

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# RESULTS

# RESULTS

## Select a tool

**Choose a tool to add to your agent.**

**Q** Search for a tool



| Google search | DuckDuckGo search | Wikipedia search | Document search |
|---|---|---|---|
| Retrieve information from the internet with the Google search engine. | Retrieve information from the internet with the DuckDuckGo search engine. | Retrieve information from Wikipedia articles. | Search documents with vector indexes. |

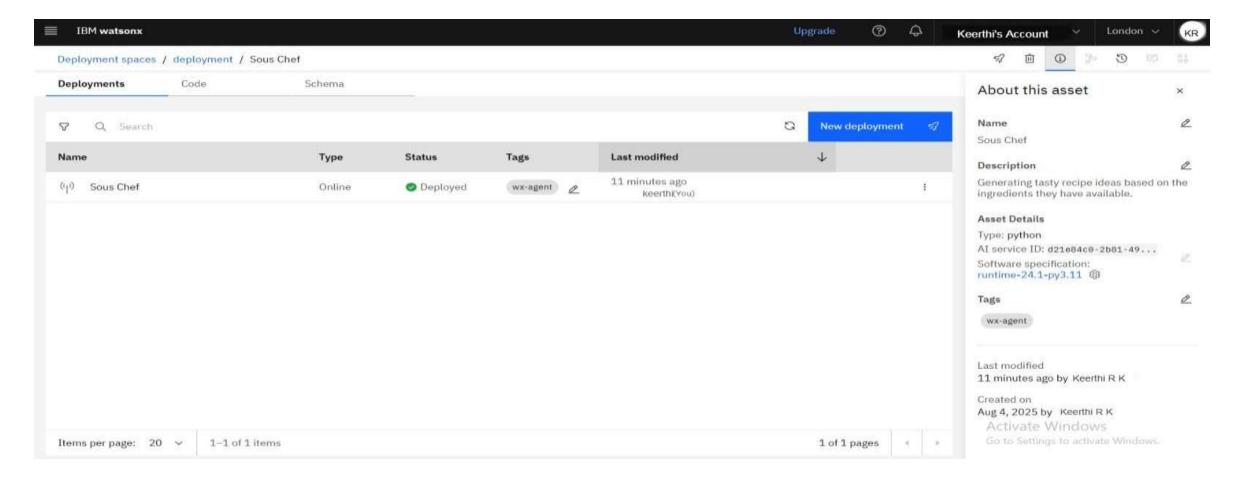| Tavily search | Webcrawler | Python Interpreter | Weather |
|---|---|---|---|
| Retrieve information from the internet with the Tavily search engine. | Retrieve information from a website. | Execute Python code generated by the agent. | Retrieve the weather of a city. |

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**Go to Se**

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# RESULTS : Final preview of my college admission Agent

## RESULTS

Deployed AI Agent

## CONCLUSION

■   The College Admission Agent powered by Retrieval-Augmented Generation (RAG) offers an intelligent, scalable, and user-friendly solution to simplify the college admission process for students. By integrating document retrieval with powerful language models, the system delivers accurate, personalized, and up-to-date responses based on verified data sources.

■   It reduces the time and effort required to navigate multiple college websites, eliminates confusion caused by scattered information, and empowers students with clear guidance in their decision-making journey.

■   With its future-ready architecture, support for multilingual queries, and integration with IBM Cloud services, this agent sets a strong foundation for building advanced EdTech applications that can benefit students, parents, and institutions at scale.

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# FUTURE SCOPE

■ Voice and Multilingual Support

  ► Enable students to ask questions in regional languages or via voice input.

■ Mobile App Integration

  ► Develop an Android/iOS app for easy access on smartphones.

■ Personalized College Recommendations

  ► Suggest suitable colleges based on user profile, marks, and preferences.

■ Admission Alerts & Reminders

  ► Notify users about deadlines, entrance exams, and result dates.

■ WhatsApp/Telegram Bot

  ► Allow students to chat with the agent through popular messaging apps.

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## GITHUB LINK

■    I have completed and uploaded my project details in my Github account.

■    Github link : https://github.com/Keerthi20740/Admission-Agent-.git

■    Admission Agent imagesI have attached few snapshots of my Agent development, preview and deployment stages, ppt of my project, as well as the readmd file.

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# IBM CERTIFICATIONS

**Here is my Getting Started with Artificial Intelligence of Credly.**



In recognition of the commitment to achieve professional excellence

Getting Started with Artificial Intelligence

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Has successfully satisfied the requirements for:

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## IBM CERTIFICATIONS

**Here is my IBM Certificate of Retrieval Augmented Generation with LangChain**

# THANK YOU

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