
CAPSTONE PROJECT

AI-POWERED COLLEGE ADMISSION AGENT

Presented By:
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OUTLINE

- **Problem Statement** (Should not include solution)
- **Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Algorithm & Deployment**
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

PROBLEM STATEMENT

- A College Admission Agent, powered by RAG (Retrieval-Augmented Generation), streamlines the student admission process. It retrieves and summarizes admission policies, eligibility criteria, and FAQs from institutional databases and official sources. Prospective students can ask natural language questions and receive accurate, up-to-date responses instantly. The agent helps with course selection, application guidance, fee structure, and important deadlines. Using trusted, real-time data, it reduces manual inquiries and enhances applicant experience. This AI-driven assistant boosts transparency, accessibility, and efficiency in college admissions.

PROPOSED SOLUTION

- A virtual agent that helps students with the admission process.
- Uses Retrieval-Augmented Generation (RAG) to fetch real-time data from official college sources.
- Provides accurate answers to queries related to courses, eligibility, fees, deadlines, etc.
- Reduces manual efforts and ensures faster access to relevant college information.

SYSTEM APPROACH

- Frontend:** IBM watsonx Agent Lab (LangGraph + ReAct)
- Backend:** Retrieval-Augmented Generation (RAG)
- Model:** Mistral-large or other foundation models
- Tools:** Google Search API, Custom Knowledge Base (optional)
- Architecture:** ReAct (Reasoning + Acting)
- Deployment:** IBM Cloud, watsonx platform

ALGORITHM & DEPLOYMENT

- Collect user input (course, duration, eligibility, fees, deadlines).
- Use RAG to search and retrieve relevant data.
- Summarize retrieved content using foundation models.
- Generate a natural language response for the user.
- Display college options with relevant info (fees, duration, eligibility, etc.)

RESULT

- Successfully fetched college data matching user preferences.
- Real-time, accurate responses to various admission-related queries.
- Improved user satisfaction by reducing search time.
- Agent can handle multiple user queries effectively and consistently.

The screenshot displays the IBM Watsonx Agent Lab interface. The top navigation bar includes the IBM Watsonx logo, an 'Upgrade' button, a user profile for 'Abhimanyu Kumar Singh's ...', and location settings for 'Dallas'. The main header shows the project path 'Projects / COLLEGE Admission Agent / Agent Lab' and buttons for 'Share feedback', 'Unsaved', 'New agent +', and 'Deploy'.

The left sidebar contains a 'Build' section with the following components:

- Setup**: A dropdown menu.
- Configuration**: A section with two dropdowns: 'Framework' set to 'LangGraph' and 'Architecture' set to 'ReAct'.
- Instructions**: A text box containing the prompt: 'YOU ARE A COLLEGE ADMISSION AGENT.THE AGENT HELPS WITH COURSE SELECTION,APPLICATION GUIDANCE,FEE STRUCTURE AND IMPORTANT DEADLINES.IT ASKS STUDENT ABOUT THEIR PREFERRED COURSE,ELIGIBILITY,FEE.suggest all indian private and govt colleges.' A link for 'Advanced configuration' is visible.
- Knowledge**: A dropdown menu.
- Tools**: A section with buttons for 'Add a tool' and 'Create custom tool'.
- Added tools (4)**: A list of tools, including 'Google search'.

The right sidebar shows the 'Agent preview' window, which displays a chat history:

- User (6S)**: 'You: 01:19 PM' sends 'hii'.
- Agent (watsonx Agent 01:19 PM)**: Responds with 'Hello! How can I assist you today?' and a link 'How did I get this answer?'.
- User (6S)**: 'You: 01:19 PM' sends 'college admission'.
- Agent (watsonx Agent 01:19 PM)**: Responds with 'Sure, I can help with that! To get started, could you please tell me:' followed by a numbered list:
 1. What course or program are you interested in?
 2. Do you have any specific eligibility criteria or requirements?
 3. What is your budget for tuition fees?
 4. Are you looking for private colleges, government colleges, or both?It then states: 'Once I have this information, I can provide you with a list of suitable colleges in India.' and a link 'How did I get this answer?'.

The bottom of the preview window shows a text input field with the placeholder 'Type something...' and a 'Send' button.

RESULT

Agent Lab (beta) — Docs | IBM

Agent Lab — COLLEGE Admissi

IBM Cloud project instructions

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IBM watsonx

Upgrade ? 🔔

Abhimanyu Kumar Singh's ... ▾

Dallas ▾

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Projects / COLLEGE Admission Agent / Agent Lab

Share feedback ⬆

Unsaved 📁 ▾

New agent +

Deploy 🚀

Build

AI Model: mistral-large ⚠ ▾

⚙ <

Setup ▾

Configuration ▴

Framework Architecture

LangGraph ▾ ReAct ▾

Instructions [Advanced configuration](#)

YOU ARE A COLLEGE ADMISSION AGENT.THE AGENT HELPS WITH COURSE SELECTION,APPLICATION GUIDANCE,FEE STRUCTURE AND IMPORTANT DEADLINES.IT ASKS STUDENT ABOUT THEIR PREFERRED COURSE,ELIGIBILITY,FEE.suggest all indian private and govt colleges.

Knowledge ▾

Tools ▴

Add a tool Create custom tool

Added tools (4)

Google search ⚙ 🗑

Retrieve information from the internet with the Google search engine.

Agent preview

Once I have this information, I can provide you with a list of suitable colleges in India.

► How did I get this answer?

6S You: 01:20 PM

bca, 12passed,60000,both

👤 watsonx Agent 01:20 PM

Here are some of the top BCA colleges in India:

1. Christ University, Bangalore

- **Description:** Christ University is one of the top universities in India offering a BCA program. It is known for its excellent faculty, infrastructure, and placement opportunities.
- **URL:** [Christ University](#)

2. Loyola College, Chennai

- **Description:** Loyola College is another premier institution offering a BCA program. It has a strong reputation for academic excellence and a robust placement cell.
- **URL:** [Loyola College](#)

3. Symbiosis Institute of Computer Studies and Research, Pune

- **Description:** Symbiosis Institute of Computer Studies and Research is a part of the

Type something... 🗑 📄 🗑 ▶

RESULT

Agent Lab (beta) — Docs | IBM

Agent Lab — COLLEGE Admissi

IBM Cloud project instructions

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IBM watsonx

Upgrade ? 🔔

Abhimanyu Kumar Singh's ...

Dallas

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Projects / COLLEGE Admission Agent / Agent Lab

Share feedback β

Unsaved 📄

New agent +

Deploy 🚀

Build

AI Model: mistral-large ⚠️

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⏪

Setup

Configuration

Framework Architecture

LangGraph ReAct

Instructions [Advanced configuration](#)

YOU ARE A COLLEGE ADMISSION AGENT.THE AGENT HELPS WITH COURSE SELECTION,APPLICATION GUIDANCE,FEE STRUCTURE AND IMPORTANT DEADLINES.IT ASKS STUDENT ABOUT THEIR PREFERRED COURSE,ELIGIBILITY,FEE.suggest all indian private and govt colleges.

Knowledge

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Google search ⚙️ 🗑️

Retrieve information from the internet with the Google search engine.

Agent preview

These colleges are known for their quality education, experienced faculty, and good placement records. You can visit their websites for more detailed information on the admission process, fee structure, and other important details.

▶ How did I get this answer?

6S You: 01:21 PM

i wanted in kolkata.can you suggest me in kolkata

🤖 watsonx Agent 01:21 PM

Sure, here are some of the top BCA colleges in Kolkata:

1. St. Xavier's College, Kolkata

- **Description:** St. Xavier's College is one of the most prestigious colleges in Kolkata, offering a BCA program with a strong focus on academics and extracurricular activities.
- **URL:** [St. Xavier's College](#)

2. Heritage Institute of Technology, Kolkata

- **Description:** Heritage Institute of Technology is known for its quality education and excellent infrastructure. The BCA program here is highly sought after.
- **URL:** [Heritage Institute of Technology](#)

3. Institute of Engineering and Management, Kolkata

type something... 🗑️ 📄 🔍 ▶

CONCLUSION

- The AI-powered agent simplifies the admission process.
- Makes information accessible, fast, and reliable.
- Can be extended to support more courses, states, or countries.
- Useful for students, parents, and college administrators.

FUTURE SCOPE

- Add multilingual support (e.g., Hindi, Telugu, etc.)
- Integrate with college portals for direct application submission.
- Add voice-based interaction.
- Use chatbot interface for better user experience.
- Train on specific institutional datasets for higher accuracy.

REFERENCES

- IBM watsonx documentation: <https://dataplatform.cloud.ibm.com>
- RAG concept papers (Facebook AI / Meta)
- Google Search API documentation
- IBM SkillsBuild for Academia resources

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Abhimanyu Kumar Singh

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/bdb2364d-71b7-42ab-bcf0-212a501bfca0>



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Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



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IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to
Abhimanyu Kumar Singh

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