
CAPSTONE PROJECT

“EduMate”

Your Personal Admission Assistant & Guide

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OUTLINE

- **Problem Statement**
- **Proposed System/Solution**
- **System Development Approach**
- **Algorithm & Deployment**
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

PROBLEM STATEMENT

College Admission Agent (RAG Based)

- College admissions can be confusing for many students. There's a lot of information spread across different college websites, brochures, and PDFs, and it's not always easy to find exactly what you need. Whether it's course details, fees, eligibility, or deadlines, students often feel lost and unsure where to begin. I felt this gap myself, so I wanted to create a solution that makes the admission process simpler, faster, and more accessible using Agentic AI.

PROPOSED SOLUTION

- The proposed system – EduMate is an AI-powered admission assistant (chatbot) designed to help students get accurate, instant responses to college-related queries. It uses Agentic AI and a Retrieval-Augmented Generation (RAG) approach to provide reliable, human-like answers. The solution consists of:
- **Data Collection:**
Collect official brochures, FAQs, and college website content covering courses, fees, eligibility, and deadlines.
- **Data Preprocessing:**
Clean and structure the data for efficient search. Convert PDFs and web content into readable formats.
- **RAG Pipeline:**
Use a retrieval system to fetch relevant info and IBM Granite to generate natural-language responses.
- **Agent Design:**
Build a context-aware agent that can reason through queries and handle follow-ups effectively.
- **Frontend & Deployment:**
Create a simple chatbot interface. Host the system on IBM Cloud for reliability and scalability.
- **Evaluation:**
Measure response accuracy and speed. Refine based on user feedback and real-world testing.

SYSTEM APPROACH

The "System Approach" outlines the methodology and tools used to build the AI-based college admission assistant. It focuses on data handling, AI integration, and user interaction.

- **System Requirements:**

“IBM Cloud” for a cloud hosting environment

IBM Granite LLM via the “SkillsBuild” platform

A web browser and a Stable Internet

- **Libraries & Tools Required:**

Python: Primary programming language

IBM Watsonx or IBM Cloud: For model deployment and hosting

Watsonx.ai assistant: Associated with the runtime model

ALGORITHM & DEPLOYMENT

- This section describes the AI architecture and logic that powers the admission assistant, focusing on how the system retrieves and generates answers using Agentic AI principles.
- **Algorithm Selection:**
 - We use a Retrieval-Augmented Generation (RAG) approach combined with IBM's Granite language model. RAG is ideal for tasks where answers must be accurate, grounded in real documents, and conversational.
- **Data Input:**
 - Student input queries in natural language, admission PDFs, FAQs, and website content and pre-processed text chunks stored in a vector database.
- **Training Process:**
 - Since Watsonx.ai assistant is a pre-trained model, no fine-tuning is required. However, we process and embed the documents using a sentence transformer and also design effective prompts, steps and agent workflows to improve interaction quality.
- **Prediction Process:**
 - When a student asks a question:

The system retrieves relevant chunks of admission data from the vector database. These chunks are passed to the Granite model, which generates a natural, accurate answer. Hence, the agent may maintain conversation context to answer follow-up questions smoothly.

RESULT



11:48 PM

Greet customer [default]

Welcome, how can I assist you?

You 11:49 PM

Hi



11:49 PM

Admission recognized

Hi, I'm EduMate Asritha. I'm here to help you with your queries regarding Admissions in BMSCE.

Please provide your name and contact information.

Please select your respective branch.

ISE

CSE

ECE



11:49 PM

Fee per year: Rs. 1,70,300
Placement Percentage: 100%
No. of seats available: 250

Are you satisfied?

Yes

No



11:49 PM

Great! I'm here if you need me!



There are no additional steps for this action. Add a new step or end the action.

You 11:49 PM

ISE



11:54 PM

Greet customer [default]

Welcome, how can I assist you?

You 11:54 PM

admission



11:54 PM

Admission recognized

Hi, I'm EduMate Asritha. I'm here to help you with your queries regarding Admissions in BMSCE.

Please provide your name and contact information.

Please select your respective branch.

ISE

CSE

ECE

You 11:49 PM

Yes

You 11:54 PM

CSE



11:54 PM

Fee per year: 2,00,380
Placement Percentage: 98%
No. of seats available: 360

Are you satisfied?

Yes

No

You 11:54 PM

No



11:54 PM

Oh! Please type your query manually. Our team will get to you shortly.

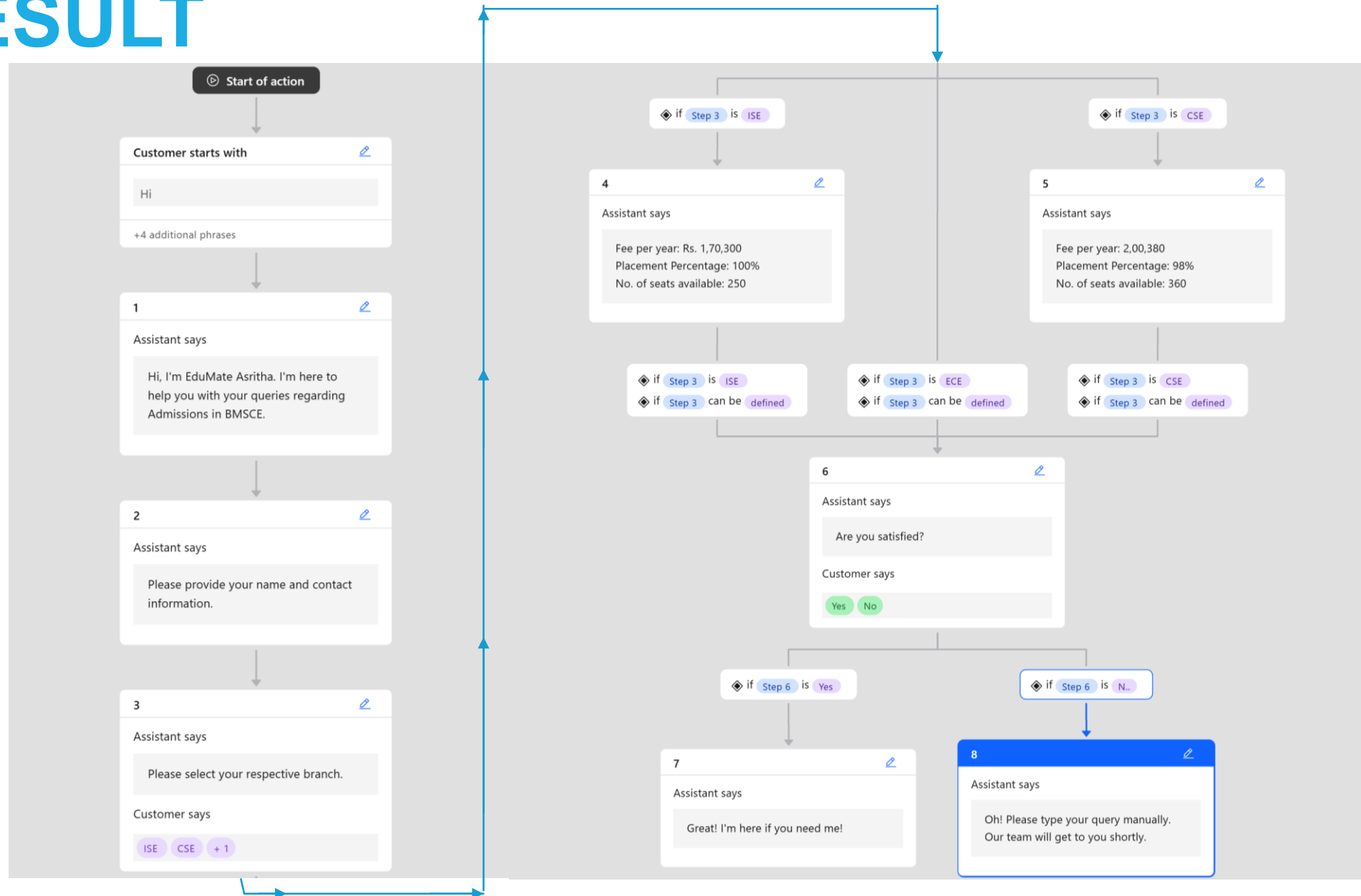


There are no additional steps for this action. Add a new step or end the action.

Type something...



RESULT



CONCLUSION

- This Project – “EduMate“, an Agentic AI-based admission assistant, effectively simplifies the college admission process by providing accurate, instant responses to student queries. By using a Retrieval-Augmented Generation (RAG) approach with Watsonx.ai assistant, IBM Granite LLM, the system ensures that responses are both informative and grounded in official sources.
- During implementation, challenges such as data extraction from inconsistent PDF formats and designing effective prompt structures were encountered. These were addressed through preprocessing techniques and prompt engineering.
- The solution demonstrates high potential in reducing student confusion, saving time, and improving access to reliable admission-related information. Future improvements may include multilingual support, voice interaction, and integration with live admission help desks.
- This system highlights how AI can play a transformative role in improving the admission experience, making it more transparent, accessible, and stress-free for students.

FUTURE SCOPE

There's a lot of room to make this assistant even more helpful in the future. Some ideas include:

- Adding more colleges so students can get info from multiple institutions in one place.
- Support for local languages, so it's easier for everyone to use.
- Voice interaction, so students can talk to it like they would with a real counsellor.
- Live updates by connecting directly to college websites or admission portals.
- Making it mobile-friendly so students can use it on the go.
- These upgrades can make the system more accessible, personalised, and useful, especially during busy admission seasons.

REFERENCES

- IBM SkillsBuild Platform - Used for learning and accessing IBM's Granite language models and tools.

<https://skillsbuild.org>

- IBM Cloud – To use the Watsonx Studio, Granite LLM APIs

<https://cloud.ibm.com>

- GitHub Link

<https://github.com/Asritha-Sriram>

- LangChain Documentation

Helped design the agentic workflow and manage retrieval-augmented generation.

<https://docs.langchain.com>

- ChromaDB Documentation

Used for creating and querying our vector database to store document embeddings.

<https://docs.trychroma.com>

- RAG: Retrieval-Augmented Generation for Knowledge-Intensive NLP Tasks

<https://sb4a.edunetworld.com/>

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Asritha Sriram

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This certificate is presented to

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for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 23 Jul 2025 (GMT)

Learning hours: 20 mins

THANK YOU