CAPSTONE PROJECT

PROJECT TITLE :
COLLEGE ADMISSION AGENT (RAG BASED)

Presented By:
Asim Ahamed M
B.Tech – Information Technology
Krishnasamy College of Engineering and Technology

edunet foundation

OUTLINE

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

edunet foundation

PROBLEM STATEMENT

Today's college admission process is often time-consuming and complex for prospective students. Applicants frequently face challenges accessing accurate information about eligibility criteria, fee structures, course options, and important deadlines. Traditional admission help desks can't scale efficiently, leading to delays and inconsistencies. There's a need for an intelligent, real-time assistant that streamlines this process and enhances applicant experience.

PROPOSED SOLUTION

- We propose an AI-driven College Admission Agent powered by Retrieval-Augmented Generation (RAG), which retrieves real-time data from official sources and answers student queries in natural language.
- Key Features:
- Summarizes eligibility, policies, FAQs
- Provides course selection, fee structure, deadlines
- Reduces manual queries
- Ensures transparency and quick responses
- Built using IBM Watsonx, Granite Models & IBM Cloud Lite Services

edunet foundation

SYSTEM APPROACH

- **Technologies Used:**

1) IBM Watsonx.ai (for AI model deployment)

2) IBM Granite Model (Large Language Model)

3) IBM Cloud Lite (for hosting)

4) Python, Node.js (backend integration)

5) RAG (Retrieval-Augmented Generation) framework

6) MongoDB / Cloudant for storage

ALGORITHM & DEPLOYMENT

- **RAG Workflow:**

1. **Retrieval:** Fetch relevant content from institutional databases (FAQs, policy docs)

2. **Augmentation:** Context is provided to Granite model

3. **Generation:** AI generates precise natural language responses

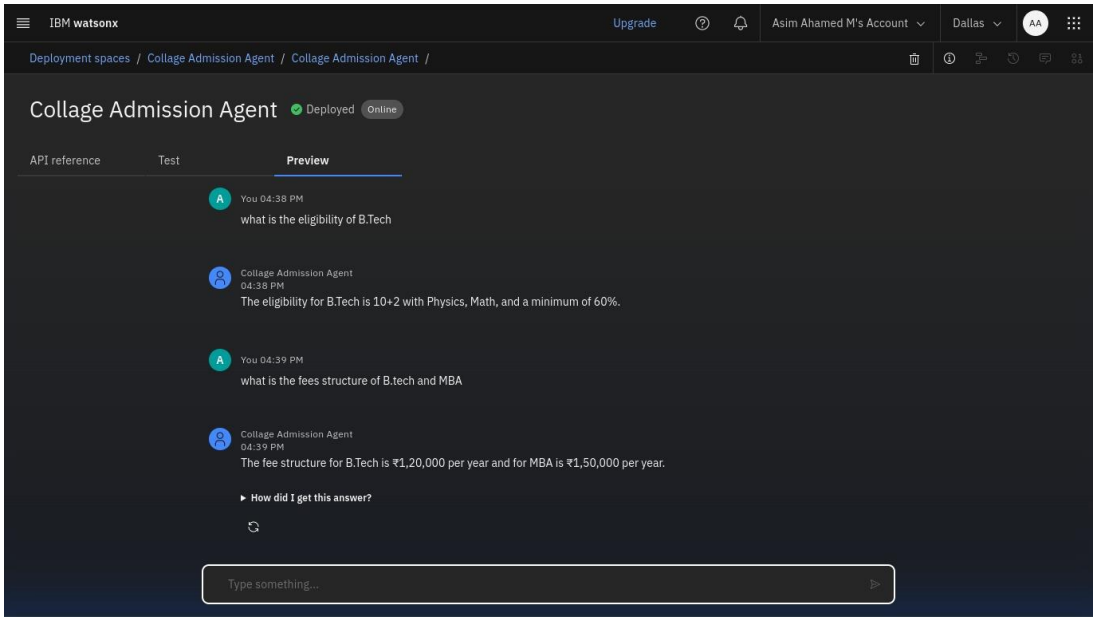
- **Deployment:**

1)Integrated with IBM Watson services

2)Deployed on IBM Cloud Lite

3)Frontend for user interaction via web/app interface

RESULT



Example Query: "What is the eligibility for B.Tech

Response: Collage Admission Agent

The eligibility criteria for B.Tech is 10+2 examination with a minimum of 60% aggregate marks in Physics, Chemistry, and Mathematics

Qualification in JEE (Main) or other entrance exams

(Show conversation image or response accuracy)

edunet foundation

CONCLUSION

- The College Admission Agent represents a significant step towards modernizing and streamlining the student admission process using advanced AI techniques. By leveraging Retrieval-Augmented Generation (RAG), the system retrieves accurate, up-to-date data from official sources and delivers natural language responses in real time. This eliminates the need for manual data handling, reduces applicant confusion, and provides a seamless experience for students seeking admission-related information.
- Additionally, by using IBM Watsonx.ai, Granite Foundation Models, and IBM Cloud Lite services, the project ensures scalable, secure, and efficient deployment of AI services. This solution not only improves transparency and accessibility but also enhances institutional efficiency by reducing the load on helpdesk staff. Ultimately, the project showcases the potential of AI to transform education services and enrich user interaction with institutional systems.

edunet foundation

FUTURE SCOPE

- Multilingual and Voice Support: Expand the agent's capabilities to handle queries in multiple languages and voice commands for better accessibility, especially in diverse regions.
- Mobile Application Integration: Develop a dedicated mobile app to allow students to access the assistant anytime, anywhere, with push notifications for deadlines and updates.
- Predictive Analytics: Use AI to predict course popularity, student interest trends, and admission load for better institutional planning.
- Personalized Recommendations: Integrate AI models to suggest personalized course and college recommendations based on student profiles and interests.
- Expansion to Placement Guidance: Extend the system to support career counseling, internship support, and placement assistance for enrolled students.
- Real-time Feedback and Adaptation: Implement continuous learning where the AI improves based on real-time feedback from users, ensuring evolving relevance and accuracy.

REFERENCES

1. IBM Watsonx.ai Official Documentation:
https://www.ibm.com/cloud/watsonx
2. IBM Granite Foundation Models Overview:
https://www.ibm.com/blog/foundation-models
3. RAG (Retrieval-Augmented Generation) Research Paper:
https://arxiv.org/abs/2005.11401
4. IBM Cloud Lite Services:
https://cloud.ibm.com
5. Official College Admission Policies (Institution-Specific Sources)
6. Additional AI/ML Resources from IBM Developer Network:
https://developer.ibm.com/technologies/artificial-intelligence

edunet foundation

IBM CERTIFICATIONS

- Screenshot/ credly certificate(getting started with AI) :

edunet foundation

IBM CERTIFICATIONS

- Screenshot/ credly certificate(Journey to Cloud) :

edunet foundation

IBM CERTIFICATIONS

- Screenshot/ credly certificate(RAG Lab) :

edunet foundation

THANK YOU

edunet
foundation