Stakeholders:

* College Administration (POC – Mr. Vivek Yadav, Email – [vivek.yadav@iiitb.ac.in](mailto:vivek.yadav@iiitb.ac.in)): Deciding the Scope of the chatbot and Information on which the chatbot must run and generate queries related to subject. (Main Goal – A FAQ answering Chatbot to enhance user experience and help user to seamlessly get answer to the queries).

Required Knowledge:

* NLP: techniques like tokenisation, part-of-speech tagging, named entity recognition and sentiment analysis.
* ML: training a model using techniques like supervised learning or unsupervised learning and reinforcement learning.
* Deep Learning: Deep Learning Using RNN’s and Transformers techniques like BERT.
* Intent Recognition
* Dialogue management
* Continuous Learning

Technologies:

* Rasa Opensource
* Haystack

Different Works in the Field:

* Georgia State Universities created their chatbot, “**Pounce**”**,** for helping student with queries for a seamless enrolment procedure. They analysed the obstacle met in admission process using text messages.
* Loyola University of Chicago’s digital assistant/chatbot, LUie, provide students with questions that otherwise require a phone call or research. LUie also helps advisors by taking a 15-minute recommending process and automating it down to less than 30 seconds by instantly looking up a student’s GPA and consulting different pages in the student system.
* Loyola also created chatbot with their school mascot voice to enable a sense of community and school identity, “**Iggy**”**,** it kept parents and students on issues that they may learn on campus visit such as orientation process and course registrations.
* Arizona State University created the chatbot “**Sunny**”**,** during the period of Covid’19 to keep the students updated about the pandemic. It was later transformed to answer various queries about classes as well as remote access to university services.
* Like the above stated examples other colleges like Stanford University with their “**Chipper**”**,** University with their “**SIA**” and University of Wisconsin-Madison with their **“Ask Bucky**” and various Universities have implemented Chatbots to mainly focus on FAQ’s related to admissions, Scholarships. Housing and other student services.

Functional Requirements:

* Natural Language Understanding (NLU): The chatbot should be capable of understanding and interpreting user queries accurately, even when phrased differently or with variations.
* FAQ Knowledge Base Management: The chatbot should have a mechanism to store, update, and manage the FAQ knowledge base effectively. It should support easy retrieval of relevant answers based on user queries.
* Context Awareness: The chatbot should maintain context throughout the conversation, understanding previous interactions to provide coherent and relevant responses.
* Intent Recognition: The chatbot should be able to identify the intent behind user queries to provide accurate and appropriate responses. It should be trained to recognize various intents related to FAQs.
* Response Generation: The chatbot should generate clear and concise responses in natural language that effectively address the user's query. It should be able to handle different response formats such as text, links, or multimedia.
* Multi-turn Dialogue: The chatbot should handle multi-turn conversations, remembering the previous context and maintaining coherence throughout the dialogue.
* Error Handling: The chatbot should be able to handle situations where user queries are ambiguous or cannot be understood. It should provide informative error messages or ask clarifying questions to assist the user better.

Non-functional Requirements:

* Performance and Scalability: The chatbot should be able to handle many concurrent users and respond promptly without significant delays.
* Reliability and Availability: The chatbot should be highly reliable, available 24/7, and capable of handling high traffic without system failures or downtime.
* Security and Privacy: The chatbot should ensure the security and privacy of user data and adhere to relevant data protection regulations.
* Adaptability and Learning: The chatbot should continuously learn from user interactions and improve its responses over time. It should adapt to new FAQ entries or changes in the website's content.
* Integration Capability: The chatbot should be easily integratable with the website's existing systems and APIs, enabling seamless data retrieval and updates.
* User Experience: The chatbot should provide a user-friendly and intuitive interface, guiding users through the conversation and making it easy to obtain the desired information.
* Maintenance and Support: The chatbot should be easy to maintain and update, with the ability to monitor performance, find issues, and provide support as needed.

Use case:

* Students: Uses to stay up to date with courses and project going on in the college and course work as well as course requirements.
* New Admissions: Uses to view past records as well as the other information like fees, placements, further studies, research opportunities etc. on the website.
* Parents: Fee structure and prospects (can be clubbed with new admissions due to searching same information.)
* Interns: Students not from our college can visit and search for research as well as internships like SRIP etc.
* Job Applicants: People looking opportunities for joining as professors or assistant professors etc.
* Exchange Students: Students from different colleges in search for more information about the curriculum as well as other interests (Similar to new admissions but for a shorter span so opportunities than can be completed in 3 to 6 months.)
* Admin: Looking to update as well to refer to the old information posted on the website.
* Companies: Companies searching to verify the courses as well as the depth of courses to a particular field and if the course work completed by the students throughout the degree is sufficient.
* College and Universities: Can search for opportunities as well internships that are open for outside students and as well as send their students for internships as well promote student exchange as well as offering students’ further studies.
* Hackathon participants: IIITB students as well as outside students searching for hackathons or other tech competitions organised by our college.