

College Enquiry chat-bot using NLP

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Abstract: Today's world has greater artificial intelligence (AI) technology, which everyone is embracing for personal growth and to reduce manual labour. One of the finest applications of AI/ML technology is chatbots. Chat bots are sophisticated software programs that can understand user-generated queries and answer to such queries in a very human-like manner. New students encounter several challenges during the admissions process. A chatbot is used so that students may ask questions and receive responses without having to be physically present. The accuracy of the response depends on how well the question was phrased. The specified chatbot allows users to access voice to text, and vice versa.

Keyword: Chat Bot, College bots, NLP, Text based bots.

I. Introduction

College campuses encompass enormous amounts of space. If a particular person has a question, he or she will need to visit many departments to acquire pieces of the answer to the inquiry they had. Every college employee does their utmost to help parents and students, to enroll their children in the courses they choose when admissions deadlines approach. The queue gets longer and everybody needs to be answered. By providing students with quick facts on entrance, courses, prices, and many other topics, the College Enquiry Chatbot will cut the labour in half. The defined chat bot helps to solve all these extra work load for the students as well as for the college staff. Students need not need to go to college and get in a queue standing and waiting for their turn to get all their questions answered. The process makes no sense and also wastes time and man power unnecessarily. It provides 24/7 services which raises productivity. Students can use a laptop or a smartphone to communicate with a chatbot online. Students ask various questions on admissions specifics in English language, and bot is able to provide them with the right replies. The chatbot makes the user feel like he/she is making a communication with a human, this is possible due to the NLP(Natural Language Processing) which for example works like if a user enters wrong spelling even then the bot answers correctly like a human could have by using its previous knowledge gathered and learned from others.

II. Related Work

The past 10 years have seen chat bots acquire popularity across virtually all online industries, including e-commerce, travel, government, higher education, business, and online ticketing. Authors Bayu Setiaji and Ferry Wahyu Wibowo[1] used relational databases to construct a chatbot based on pattern matching. To improve accuracy, the spell check was normalised once the spelling was checked.

In paper [2] authors H. Al-Zubaide and A. A. Issa created ontology based chatbot. OntBot converts ontologies and other information into relational databases using the proper mapping techniques, and then uses this knowledge to power its conversation. Matching rules are used to make the sentence match.

An artificial chatbot employing NLP (Natural Language Processing) has been proposed by [3]Nitesh Thakur, Akshay Hiwrale, Sourabh Selote, Abhijeet Shinde, and Prof. Namrata Mahakalkar. NLP may be used in two different ways: the first is through written text, and the second is through vocal or voice communication. Verbal communication is far more difficult than written communication. This study outlines an interest in certain newly developed comprehension and processing speed capabilities for virtual human discourse systems.

A chatbot system for college inquiries that was created using AI algorithms was proposed by [4]Prof. Ram Manoj Sharma. The bot interprets user communications and assesses user queries and returns suitable response

III. Architecture

Designing a chatbot determines how it will interact with users. The overall interface, chatbot personality, and the questions users will ask are all determined by the chatbot creator.

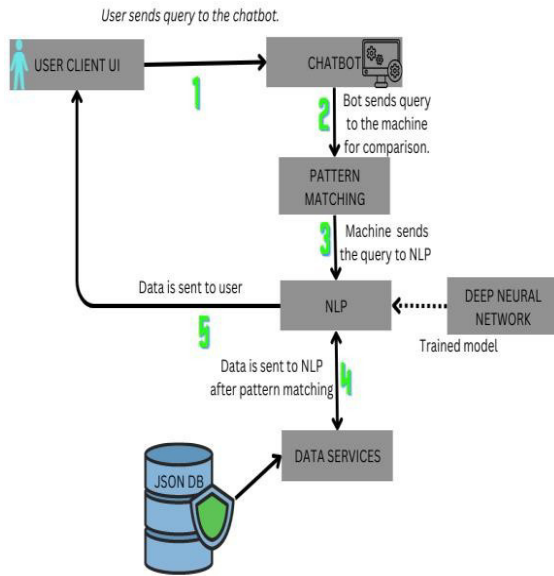


Figure 1: Architecture

User client UI

The GUI enables user interaction with the system. He or she will type the query into the available text field. Once the query has been sent, a bot-model will continue to handle that request.

Pattern Matching

This category mostly includes chatbots that are rule-based, scripted, and structured. These chatbots employ a knowledge base of papers, each of which includes a certain "pattern" and "template." The bot responds with the message from the template when it gets an input that meets the "pattern." The sentence that serves as the pattern might either be "What's your name?" or a pattern that reads "My name is * " where the "*" stands for a regular expression. Here, the same procedure has been followed by the bot to answer the queries of the user by finding the appropriate answer form the database

3.3 NLP

NLP, a component of AI and machine learning, which is at the core of a hybrid chatbot's structure, aids in its ability to comprehend natural language. A chatbot with

artificial intelligence (AI) decodes and interprets language in its spoken context.

It recognizes that orders or inquiries from users don't need to be as detailed because it is sensitive to the subtleties of human communication. NLP-enhanced chatbots replicate human-like interaction and interpret user intent to produce insightful-responses.

3.4. Data services

The most important component for the chatbot to function on user-bot interactions is data. The bot communicates with users using pre-defined data. The built chatbot makes use of the JSON database format. Semi-structured data is best stored in JSON databases, which are document-type NoSQL databases. When compared to the row-columns format, it is significantly more adaptable. It is an assortment of strings and arrays consisting of "Tags", "Questions", "Answers".

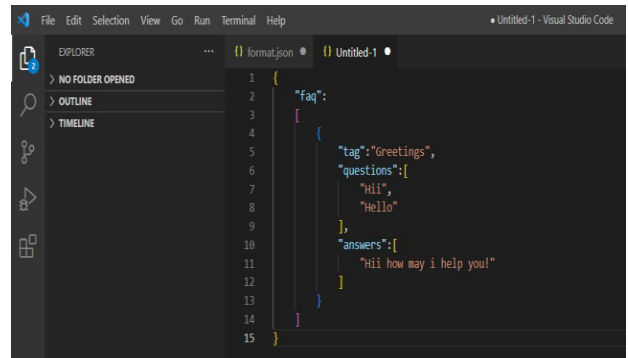


Figure 2: JSON data format

IV. Proposed System

A. Classification of Questions

There are two types of questions that users submit through web applications: Transactional questions and FAQ-questions.

Frequently Asked Questions [FAQ] are the often-cited inquiries and responses, each asked in a certain setting. These queries may be answered by BOT without any more inquiry. What is the cost of computer engineering, for instance? The answer to this query is "fee of computer engineering," thus no further explanation/questions.

Transactional questions are described as "Based on your most recent experience" questions, which refer to how well a machine learning model can respond to a relevant topic.

B. Voice commands

There is a manual voice button available to speak orders to the bot. For each voice command in manual mode, the user will need to engage with the BOT. A user will enter a command, and the bot will respond and then stop. The user must once more push the voice command button if

he wishes to ask another inquiry.

Speech recognition: Speech recognition enables BOT to understand spoken words and sentences and translate them into a machine-readable format. When a user provides input through the system's microphone, such as voice commands (such as "What is the address of the college"), speech recognition is employed.

C. Read Aloud

The read aloud feature allows the user to listen to the answer provided by the bot in text form. In terms of accessibility, this capability is extremely beneficial.

V. Conclusion

To demonstrate the usefulness and viability of the suggested method, tests were successfully completed. For everyone, it essentially cuts down on paperwork, labor, and time. Any institution or university will frequently use chat bots on its website to improve the accessibility. The intended model was correctly built, producing the anticipated results. The idea of pattern matching was the key to getting the model to predict outcomes as intended. The bot also provides and receives replies in audio format, which increases user accessibility. Work on the data is necessary for the model to be stable. The outcome is directly visible on the model the more stable the data that is supplied is. Therefore, the data is essential for creating a reliable chatbot. Administrators may access this data in the backend to analyze the kind of queries asked and, if necessary, enhance the answers.

VI. Future Scope

In the world of computer science, chatbot research is a constantly growing topic of study. If there are any input errors brought on by human spoken language, such as a grammatical or context issue, bots nevertheless occasionally struggle to grasp what is being requested. The chatbot that is now being used has all the necessary functions, but it may still be enhanced in the future by adding other features, such as time-based greetings from the bot. Support for multi-language queries would be an extremely useful and game-changing addition.

VII. References

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