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Intelligent Chatbot for College Enquiry System

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ABSTRACT
College Enquiry ChatBot is an online service that allows users to converse with humans using artificial intelligence principles. The system deals with helping streamline the process of the admissions across various institutes. The system communicates with students in real time, removing any lingering reservations they may have about the admissions process. It is not realistic for institutes to set up a real-time question-answering assistant to assist admission candidates. So it will help students discover the institutes which they desire to go to. The goal of this project is to create an intelligent chat-bot system that will handle academic activities like admissions, fees, scholarship information, departmental timetables, and details on the documents that must be attached, among other things.

Keywords: Pattern Matching A , Natural language processing (NLP), Naive Bayes Algorithm

INTRODUCTION

Chatbot is a computer programme that conducts an online chat conversation using text or text-to- speech technology. Inquiry to College ChatBot is an online application that converts with humans using artificial intelligence. "Eliza","Cleverbot," and other comparable web applications have been produced in the past. This system is an application which responds to a student's query. The Student's Question is usually a conversation. The chat can be done in any format; there is no set format for conversing with the bot. For this we have used NLP in our project. The system gives users access to information about college-related events. The system has a user-friendly graphical interface**.** For query resolution, the system employs A.I. and M.L. The user can inquire about college-related activities, such as the date and time of annual day, sports day, and other cultural events. Save kids' and teachers' time, as well as extra personnel. Students can access all college documents, such as notices, study materials, and question papers, at any time and from any location, whether they are at college or not. In addition, employee labour will be reduced. It is effective communication between faculty and students.The college chatbot's concept is based on Google Assistant, which will respond to student questions through a web application. It gives relevant links to the user's query. The user can get answers to their questions by clicking on the link. The chatbot uses a standard algorithm to extract data and display conversations between the human user and the bot. It answers questions about college activities such as results, timetables, significant notices, and placement notices, among other things. In most cases, the system finds the intents, or keywords.

MODULES

Research methodology refers to the methods or approaches used to locate, pick, process, and evaluate data related to a topic. A research article's methodology section gives the reader the opportunity to assess the study's overall reliability and validity. In the suggested methodology, both qualitative and uantitative perspectives are employed. The following modules will be included in the system:

A.USER / ADMIN LOGIN:

In order to access the different sections and use the bots to ask questions or voice complaints, users need to log in using their credentials (i.e. e. on the portal (password and user ID). Users will have the option to choose between Marathi, Hindi, or English during this process. Administrators (i.e. e. All query logs will be accessible to college authorities via their personal login. They will be able to modify or even add new responses to the questions the system asks.

B. INTERACTION WITH THE BOT: In order to ask questions or inquire about events related to college, users can speak with the bot instead of contacting the college helpdesk or staff. This system is a program that responds to a student's query. The student's question is usually followed by a discussion. You can converse with the bot in any way you choose because there is no set format. In order to accomplish this, our project used NLP. The user can inquire about the date, time, and other details of college-related events, such as annual day, sports day, and other cultural gatherings. Reduce the number of kids and teachers working to save time and money. It is the capacity of educators and learners to interact with each other in an efficient manner.

C. TEXT TO SPEECH:

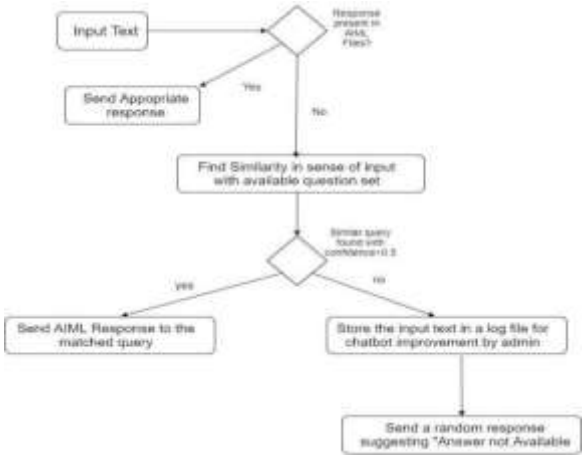
This module describes how text can be converted into speech to help with verbal response. Consequently, it is called a verbal dialogue. There are several Python APIs available for text-to-speech conversion. These APIs include the Google Text to Speech API, also referred to as the gTTS API. A straightforward program called gTTS converts inputted text to audio that can be stored as an mp3 file. The gTTS API is compatible with English, Hindi, Tamil, French, German, and numerous other languages.

SYSTEM ARCHITECTURE

The proposed System would be an application that provides answers to the queries provided by the scholar or the user.Users will simply ask questions using the chatbot that is currently in use. Students can chat in any manner they want; there is no requirement that the user adopt a specific format. The answers are applicable to what the user queries. If the answers are found to be invalid or not accessible, then those queries are held onto the unrequited table that is essentially created by the admin. Later those queries can be updated by the admin, just in case of urgency we are going to provide a message that “our representatives will get in touch with you shortly”.

To efficiently plan and develop the entire project, we used the spiral model in our project. The spiral approach is similar to incremental system development, except it focuses more on risk analysis. The spiral model aids in the effective planning and construction of the entire project. Planning, Design, Construct, and Evaluation are the four phases of the spiral model. Depending on the project's complexity and dangers, the project manager might adjust the number of stages required to complete the project.

The system flowchart of our project is shown in Fig.1 below.



.Fig:1 SYSTEM FLOWCHART

ALGORITHMS

A. NATURAL LANGUAGE PROCESSING (NLP)

Natural language processing (NLP) is a field of computer science, specifically a subfield of artificial intelligence (AI), that focuses on computers' capacity to comprehend spoken and written language similarly to how humans do. The NLTK Python library is used to implement NLP. Natural language processing is the process of teaching computers to understand natural language. Spreadsheets and database tables are examples of structured data that computers can interpret, but unstructured data—such as human languages, words, and voices—is hard for computers to understand and requires the use of natural language processing. NLP involves a few steps, such as tokenization, which is the process of dividing a complicated sentence into individual words. Additionally, each word's significance in relation to the sentence is understood. The process of normalizing words into their base or root form is known as stemming. Lemmatization is the process of combining various inflected word forms into one group. The result of lemmatization is a proper word, but it also roots multiple words into a single root. Some words that are useful for adding meaning to a sentence but are not useful for natural language processing are known as stop words. Parts of Speech: The different parts of speech are contained in an integrated library. Regarding e. G. 12 CD is the cardinal number; NN is the singular noun; NNS is the plural noun; and so on. Named Entity Recognition: It facilitates a specific person's identification.

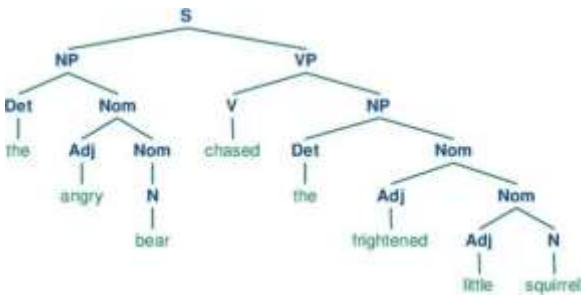


Fig. 2 : Syntax Tree – Natural Language Processing

B. PATTERN MATCHING ALOGORITHM

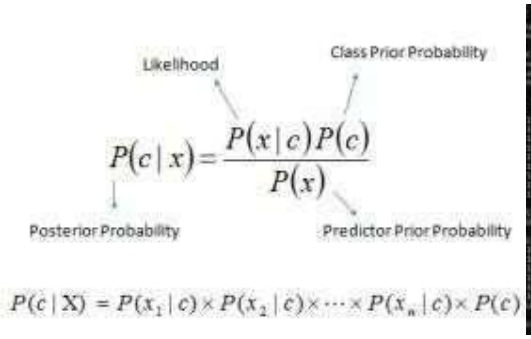
Pattern matching was a frequently used algorithm in chatbots. A database of questions and answers

makes up the Pattern Matching Algorithm. Questions are named using patterns, and responses are named using templates. The answer to this particular question consists of tags written in Artificial Intelligence MarkupLanguage (AIML).Templates and pattern s are stored in a tree structure. Every time a user asks a question, the query is first searched word by word for an answer, and then the specific answer is fetched from the node**.** This is because questions are on the branches and responses are at the nodes. This kind of framework is used by the ALICE chatbots. This approach has the benefit of enabling users to rapidly access previously stored answers to questions. It is widely used because of its simplicity. If the user asks a question that isn't on the list, the algorithm won't be able to reply because it only keeps certain kinds of questions. Consequently, it lacks the ability to learn on its own**.**

C. NAIVE BAYES ALGORITHM

Chatbots can be built using the Naive Bayes approach in which we just have to give each training question a corresponding label number of the answer and the classifier will predict the label of the user input. This label number is an index of a corresponding response in our answers' dataset. The Bayes' Theorem is used to generate the Naive Bayes classifiers, which are a collection of classification methods.It is a family of algorithms that share a similar idea, namely that each pair of features being classified is independent of the others.It's a classification method that uses Bayes' Theorem and assumes predictor independence. A Naive Bayes classifier, to put it simply, assumes that the presence of one feature in a class is unrelated to the presence of any other feature. For example, If a fruit is red, round, and roughly 3 inches in diameter, it is believed to be an apple. Even if these characteristics are reliant on one another or on the presence of other characteristics, each of them contributes to the likelihood that this fruit is an apple, which is why it is called 'Naive'. The Naive Bayes model is simple to construct and is especially good for huge data sets. Naive Bayes is renowned to outperform even the most advanced classification systems due to its simplicity. It is simple and quick to forecast the test data set's class. It's also good at multi-class prediction.When the assumption of independence is met, a Naive Bayes classifier outperforms alternative models such as logistic regression and requires less training data.

The Bayes theorem allows you to calculate posterior probability P(c|x) from P(c), P(x), and P(x|c) using P(c), P(x), and P(x|c).Look at the equation below:

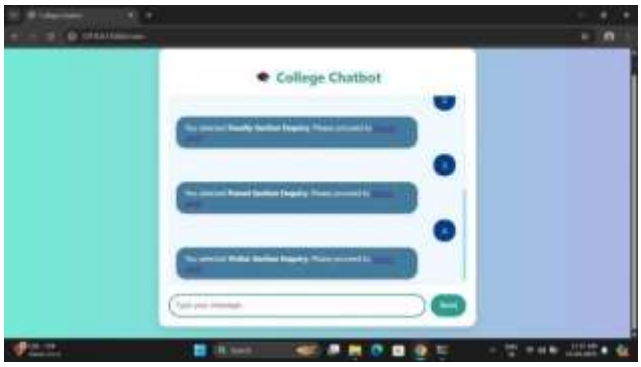


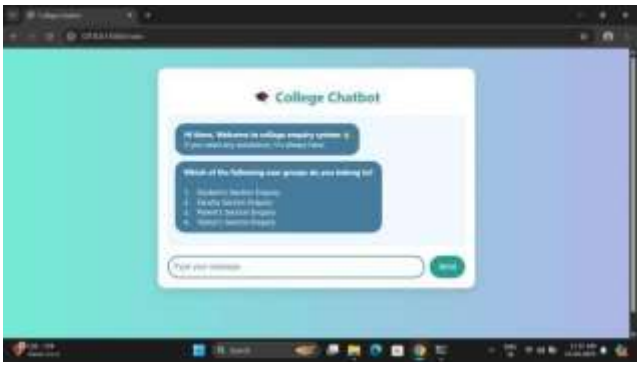
Above,

$P(c|x)$ is the posterior probability of *class* (c, *target*) given a predictor (x, *attributes*). $P(c)$ is the prior probability of the class.

$P(x|c)$ is the probability of the predictor given *class*. $P(x)$ is the prior probability of the predictor.

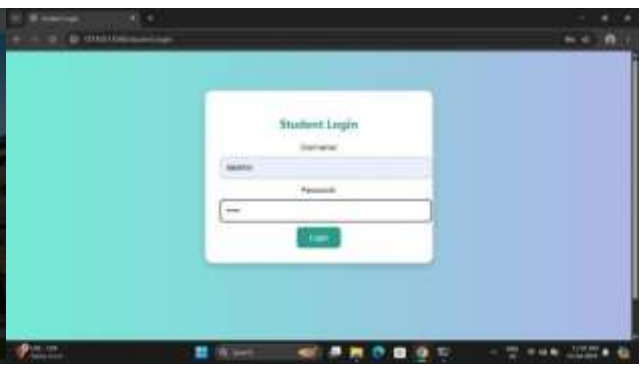
VI.CONCLUSION

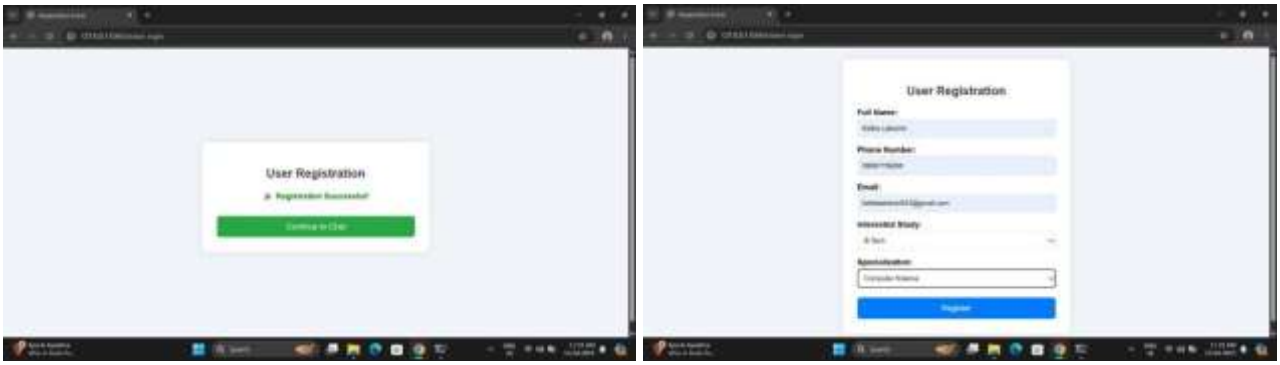




The system's purpose is to keep students informed about their college activities. With the use of Artificial Intelligence and Knowledgeable databases, Artificial Intelligence is the fastest developing technology on the planet. Pattern matching and virtualization are two areas where we can make changes. This system is creating a conversation bot based on the Android operating system, which combines Artificial Intelligence, Knowledgeable Databases, and Virtual Assistance. We can develop such a chat bot which will make a conversion between human and machine and will satisfy the question raised by the user. The project's major goal is to reduce the amount of work that the college's office staff has to do.

VII RESULTS





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