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Talk-Bot for College Management System Using A.I.

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ABSTRACT:

Facilitating communication between humans and robots is the aim of a talkbot. The system has been programmed to recognize sentences and decide how to respond to a query on its own. The user interface of Talk-Bots will be entirely text-based, enabling the user to write commands and get text responses as well as text-to-speech responses. In order to work, talkbots typically have stateful services, which remember past commands. When Talk-Bot's technology is connected with well-known web services, an even wider audience can safely use it. Artificial algorithms that assess user queries and comprehend user messages will be used to build the college inquiry talkbots. The reply premise is comparable to the user's input sentence. Through the Talk-Bot, the user can ask questions about any college-related event without having to visit the campus in person. After analysing the query, the system provides the user with an answer. The system responds to the pupils' question with the aid of artificial intelligence. As though a human were conversing with the user, the system responds with an up-to-date Graphical User Interface. Simply registering and logging in are the only requirements for the user. The Talk-Bots are made up of an interface and core that retrieves the core from MySQL. The complaint's content is parsed, tokenized, stemmed, and filtered using natural language processing tools.

KEYWORDS: *NLP (Natural language processing), Sentiment Analysis, synsets, Word Net.*

INTRODUCTION:

A chatbot, sometimes referred to as a talkbot, chatterbox, bot, instant messaging bot, or artificial conversational entity, is a computer program that uses artificial intelligence techniques like audio analysis, image and video processing, and natural language processing (NLP) to simulate human conversations in their natural format, including text or spoken language.

Artificial intelligence techniques will be used to evaluate customer inquiries in order to create a talkbot for the college management system project. This system will be a web application that

responds to the user's assessed questions. All users will need to do is choose the query category before posing the question to the bot, which will then respond. The user's questions will be addressed by artificial intelligence. The user will receive the appropriate responses to their questions. The artificial intelligence algorithms will be used to provide the answers. Users won't need to visit the college in person to make inquiries.

In order to access the system, users must first register and then log in. The user can contact the different assisting sites after logging in. There will be a number of support sections where the user can chat and ask questions about college-related activities. The active graphical user interface (GUI) will assist the system in responding to the user. With the use of this web application, the user can ask questions regarding college-related activities. yearly day, sports day, intake, and other cultural events that are connected to the college. Keeping users/students informed about college activities will be beneficial.

1. RELATED WORK:

[1] Information accessing systems that attempt to respond to natural language inquiries by offering answers rather than just a list of document links is known as question answering (QA) systems. The QA system must use the linguistic traits found in natural language approaches to choose the best responses. The primary distinction between them and knowledge bases is that Dialog Systems (NLDS) offer a suitable and convenient means of information access. QA system that uses both semantic augmentation and a domain-oriented approach based on pattern-matching. The technology known as Talk-Bot was created as part of an industrial initiative (FRASI). The suggested method streamlines the implementation of the Talk-Bot, which employs two solutions. The first is the ontology, which must be used in two ways: first, to actively construct answers through a process of deduction about the domain; and second, to automatically populate the Talk-Bot's knowledge base offline with sentences that can be derived from the ontology, describing the properties and relationships between the concepts involved in the dialogue. The second step is to pre-process user-provided sentences so they can be condensed into a more straightforward format that can be used to answer the Talk-Bots' current requests. The goal is to give consumers relevant information on products that will help them achieve their goals. The decision was made to use Talk-Bot's pattern-matching technology to construct a QA system. [2] This work outlines a method for structuring an informal agent by finding the most crucial facts in texts that depict the life of a historical figure. It might be applied to CSCL scenarios in middle schools. This paper provides a framework for building a talkbot that must mimic a historical person. They can take a plain text or a webpage about a historical figure as "input" and produce a trained conversational agent as "output" that can respond to any type of query regarding that person's life experiences. The goal is not to mimic the life and

activity of Talk-Bots; rather, the goal is to offer a general solution to this issue. Talk-Bots are primarily employed to facilitate human-machine communication. The administrator provides the computer with information so that it can recognize sentences and decide how to respond to a query. The database utilized in this project is MySQL, and the chat is truly in the Indonesian conversational pattern. When connecting the chat application to the database, it may fail to define a sentence and how to respond to it. Therefore, it is necessary to implement SQL and represent knowledge in the pattern-matching operation. A set of scenarios would be used to test data that had been represented using the conversation's pattern. The basic pattern would be used to cross-check the chat with the Talk-Bots. Since it has never been modelled previously, it is done in order to provide some knowledge to the database. The database will undergo remodelling if the input sentences do not match.

1. PROPOSED SYSTEM:

1. User Login and Complaint:

When a user files a complaint, the system uses natural language processing (NLP) to identify the nature of the issue. The WordNet dictionary and part-of-speech tagging must be used to determine the words' sense. Sentiment analysis is used to identify the negation degree of a complaint. Additionally, user complaints are arranged in that order.

2. Chat BOT Responding System:

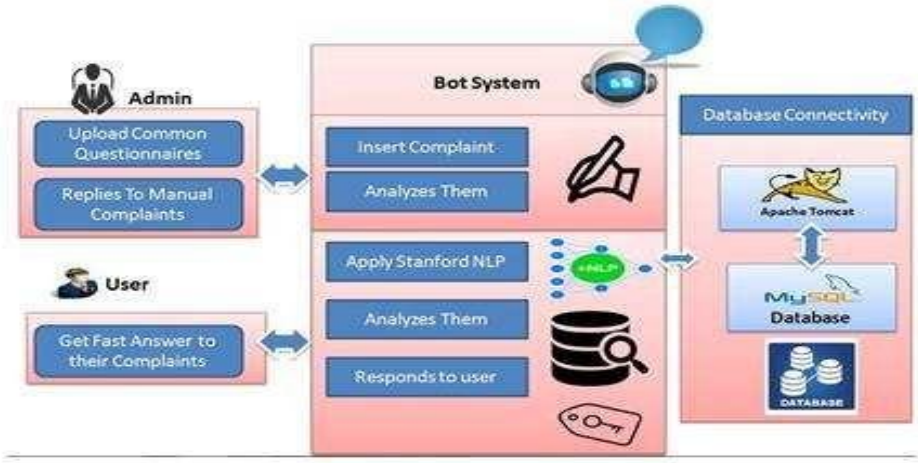
NLP Processing and Sentiment Analysis for Complaint:

When a user files a complaint, the system uses natural language processing (NLP) to identify the nature of the issue. The WordNet dictionary and part-of-speech tagging must be used to determine the words' sense. Sentiment analysis is used to identify the negation degree of a complaint. Additionally, user complaints are arranged in that order.

b. Search Questions in knowledge database:

After the complaint's negation level has been identified, WorldNet must be used to identify the precise question in the complaint.

Since each person's complaint report is unique. Several users may pose the same question in different ways. One user poses a question in a straightforward and understandable manner, while another user can pose the identical query in a more negative manner. Therefore, in order to provide an appropriate remedy, it is required to identify the precise technical problem with the specific product.



3. Answer the Complaints:

As previously mentioned, the level of negation and the specific problem or query are identified each time a user is required to file a complaint. The question's presence in the database is then checked. The answer is delivered to that user if it is to be initiated. If a certain question cannot be found in the database, an administrator will respond to it. The user receives the response when he responds to the query. Additionally, the question and its response are saved in a database so that they can be retrieved straight from the database anytime the inquiry is posed. As a result, the administrator no longer has to physically respond to the same query.

A lexical and semantic database for English is available on WorldNet. It records several relationships between these alternative sets or their members, offers brief definitions and use examples, and groups English words into a collection of synonyms known as synsets.

1. PROPOSED METHOD:

Algorithm Used:

1. Porter Stemmer Algorithm:

'Porter stemmer' or the Porter stemming algorithm is a method for eliminating suffixes from English words. Automatically eliminating suffixes is a process that is very helpful when it comes to knowledge retrieval. The steps in this algorithm are as follows:

[1] Removes the suffixes -ed or -ing and plurals.

[2] When the stem contains another vowel, it changes the terminal y to an i.

[3] Converts double suffixes, such as -ization and -ational, to single ones.

[4] Discusses suffixes, such as -full and -ness. removes -ant, -ence, and so forth. eliminates the last -e.

2. Word Order Similarity Between Sentences:

Let's look at a specific example to highlight the significance of word order. For instance, two sentences:

T1: The indolent fox is jumped over by a dog. T2: The indolent dog is jumped over by a fox.

The majority of the words in these two identical sentences appear in the same sequence. The only distinction is that in T 1, the dog appears before the fox, but in T 2, the dog emerges after the fox. Since the terms in the two sentences above are identical, any "bag of words"-based technique concludes that T1 and T2 are same. The fact that T 1 and T 2 are only somewhat comparable should be evident to a human interpretation, though. The sole difference between T 1 and T 2 is word order. Consequently, the influence of word order must be considered in any effective computer approach for sentence similarity. Sentences with identical wording but a different order might have quite distinct meanings. Word order information is simple for humans to process. Nevertheless, it is a challenging task to integrate order information into computer techniques for natural language comprehension. This could be the cause of the majority of current approaches' failure to address this kind of data. This section presents a technique that considers word order information while calculating sentence similarity. Assume that the combined word set for the two sentences provided is T. T= {A dog jumps over the sleepy fox} is the united word set of the two phrases T1 and T2 that were previously mentioned. Each word in sentences T1 and T2 has been given a distinct index number. Simply said, the index number is the word's placement within the phrase. For instance, in T 1, the index numbers are 4 for dog and 6 for over. Based on the joint word set T, a word order vector r is created for T 1 and T 2, respectively, in order to calculate word order similarity. We look for the same or a related word in T 1 for every term wi in T, as follows: 1. We fill the entry for this word in r 1 with the matching index number in T 1 if the same word appears in T 1. If not, we look for the term that is most similar in T 1 and T 2. In the event when wi and i w ~ are more similar than a predetermined threshold, the index number of i w ~ in T 1 3 is filled in with the entry of wi in r 1. The entry of wi in r 1 is null if the first two searches are unsuccessful. The word order vectors for phrases T 1 and T 2 are r 1 and r 2, respectively, using the above process.

We have r 1 = {1 2 3 4 5 6 7 }, r 2 = {1 7 3 4 5 6 2} for the sample sentence pair. Therefore, the fundamental structural information that a phrase conveys is known as a word order vector. The next step in dealing with word order is to gauge how similar two phrases' word orders are. The following is the suggested metric for comparing the word order similarity of two sentences:

$$S_r = 1 - \frac{\|\mathbf{r}_1 - \mathbf{r}_2\|}{\|\mathbf{r}_1 + \mathbf{r}_2\|}$$

CONCLUSION:

We develop a software solution that any business may utilize to enable users to freely contribute their questions. Automatic tokens are created and sent to the customer by email and text message for additional complaint monitoring after the complaint has been entered into the database.

The complaint's content must be parsed, tokenized, stemmed, and filtered using natural language processing tools. The algorithm that determines the sentence's strength receives the output. The calculation of denial intensity aids in automatically prioritizing the complaint so that the service provider can address it.

With fewer human resources, the suggested technique would assist several firms in guaranteeing high-quality service delivery and client delight.

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