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Chat-Bot For College Management System Using A.I

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Abstract- *A chat-bots aims to make a conversation between both human and machine. The machine has been embedded knowledge to identify the sentences and making a decision itself as a response to answer a question. Chat-bots will be completely based on a text-based user interface, allowing the user to type commands and receive text as well as text to speech response. Chat-bots are usually stateful services, remembering previous commands in order to provide functionality. It can be utilized securely by an even larger audience when chat-bots technology is integrated with popular web services. The college inquiry chat-bots will be built using artificial algorithms that analyze user's queries and understand user's message. The response principle is matching the input sentence from a user. The User can ask the question any college-related activities through the chat-bot without physically available to the college for inquiry. The System analyses the question and then answers to the user. With the help of artificial intelligence, the system answers the query asked by the students. The system replies using an effective Graphical User Interface as if a real person is talking to the user. The user just has to register himself to the system and has to login to the system. The chat-bots consists of core and interface that is accessing the core in (MySQL).Natural language processing technologies are used for parsing, tokenizing, stemming and filtering the content of the complaint.*

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

1. INTRODUCTION

Chatbot (also known as a talkbot, chatterbox, Bot, IM bot or Artificial Conversational Entity) is a computer program that mimics human conversations in its natural format including text or spoken language using artificial intelligence techniques such as Natural Language Processing (NLP), image and video processing, and audio analysis.

Chat-bot for college management system project will be developed using artificial intelligence algorithms that will analyze users queries. This system will be a web application which will provide answers to the analyzed queries of the user. Users will just have to select the category for queries and then ask the query to the bot that will be used for answering it. Artificial intelligence will be used to answer the user's queries. The user will get the appropriate answers to

their queries. The answers will be given using the artificial intelligence algorithms. Users won't have to go personally to the college for inquiry.

The Users has to register to the system and has to login to the system. After login user can access the various helping pages. There will be various helping pages through which the user can chat by asking queries related to college activities. The system will reply to the user with the help of effective graphical user interface (GUI). The user can query about the college-related activities with the help of this web application. College-related activities such as annual day, sports day, Intake and other cultural activities. It will help the students/user to be updated about the college activities.

2. RELATED WORK

[1]Question Answering (QA) systems can be identified as information accessing systems which try to answer to natural language queries by providing answers instead of providing the simple list of document links. QA system selects the most appropriate answers by using linguistic features available in natural language techniques. They differ mainly from the knowledge sources, the broadness of Dialog Systems (NLDS) is an appropriate and easy way to access information. QA system based on Semantic enhancement as well as the implementation of a domain-oriented based on a pattern-matching chat-bots technology developed within an industrial project (FRASI). The proposed approach simplifies the chat-bots realization which uses two solutions. First one is the ontology, which is exploited in a twofold manner: to construct answers very actively as a result of an deduction process about the domain, and to automatically populate, off-line, the chat-bots KB with sentences that can be derived from the ontology, describing properties and relations between concepts involved in the dialogue. Second is to pre-process of sentences given by the user so that it can be reduced to a simpler structure that can be directed to existing queries of the chat-bots. The aim is to provide useful information regarding products of interest supporting consumers to get what they want exactly. The choice was to implement a QA system using a pattern-matching chat-bots technology.

[2]This paper describes an approach to the idea of identifying the most important facts in texts describing the life of a historical figure for building a conversational agent

that could be used in middle-school CSCL scenarios. This paper presents a method for building a chat-bot that can simulate a historical figure. The can receive as "input" a plain text or a web page about the historical figure and has as "output" a trained conversational agent which is able to answer all kind of questions about the life experience of that specific person. the purpose is to provide a generic solution to this problem, so the goal is not to simulate the life and behavior of

[3]Chat-bots are mainly to used to provide conversation between both human and machine. Admin feeds some knowledge to the machine so that machine can identify the sentences and taking a decision itself as a response to answer a question. The chat used is actually Indonesian conversational pattern and the database used in this project is MySQL. It can miss in defining a sentence and how to the response it while connecting chat application to the database. So knowledge representation and implementation of SQL in the pattern-matching operation are needed. A data that has been modeled based on the pattern of the conversation would be tested by the help of a series of scenarios. The conversation with the chat-bots would be crosschecked back to the basic pattern. It is done so that it can add some knowledge to the database as it has not been modeled before. If in case the input sentences in the database did not match then it will be remodeled.

3. PROPOSED SYSTEM

1.   User Login and Complaint:

User registers himself/herself on Chat-Bot application. Then submits his/her complaints and queries regarding the electronic and home appliances purchased.

2. Chat BOT Responding System:

a.   NLP Processing and Sentiment Analysis for Complaint:

When user complaint is submitted to the system, NLP is applied and sense of the complaint is detected. The sense of the words is found using part of speech tagging and wordnet dictionary.By Using the sentiment analysis negation level of a complaint is detected. And user complaints are prioritized accordingly.

b.   Search Questions in knowledge database:

Once the negation level of the complaint is detected, furthermore, the exact question in the complaint is detected using WorldNet.

As the complaint description can change from person to person. The same question may be asked differently from multiple users. One user ask a question so simply and clearly while another user may ask the same question with more negatively. So it is necessary to find what is the exact technical issue with the particular product to give a correct solution
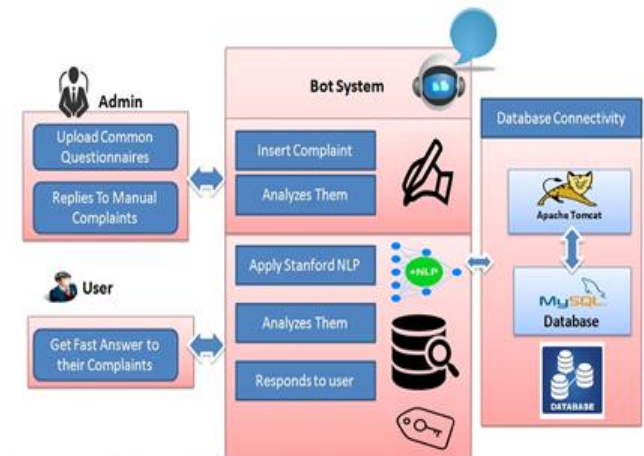

Fig -1: Architecture Diagram For ChatBot

3.   Answer the Complaints

As described above whenever user submits a complaint, the negation level and exact issue/question of the complaint are detected. Then it is checked that is there such question registered in database. If the answer is found then that answer is sent to that User. If a particular question is not found in the database such questions are answered by admin person. Once he answered the question the answer is sent to that user. And that question along with answer is stored in database so that whenever such questions will be asked so that they get answered directly from the database. Due to this admin doesn't need to answer same question manually anymore

Interface. WorldNet is a lexical and semantic database for the English language. It is used to group English words into the set of synonyms called synsets, it provides short definitions and usage examples, and records a number of relations among these synonym sets or their members.

4. PROPOSED METHOD

Algorithm Used:

1.   Porter Stemmer Algorithm

Porter stemming algorithm (or 'Porter stemmer') is a process for removing suffixes from words in English. Removing suffixes automatically is an operation which is

especially useful in the field of information retrieval. Following are the steps of this algorithm:-

[1]Gets rid of plurals and -ed or -ing suffixes

[2]Turns terminal y to i when there is another vowel in the stem

[3]Maps double suffixes to single ones: -ization, -ational, etc.

[4]Deals with suffixes, -full, -ness etc. Takes off -ant, -ence, etc. Removes a final –e.

2. Word Order Similarity Between Sentences

Let's consider a particular case to illustrate the importance of word order. For example, for two sentences:

> T1: A dog jumps over the lazy fox.
> T2: A fox jumps over the lazy dog.

These two sentences containing words are exactly same and most words appear in the same order. The only difference is that dog appears before fox in T 1 and dog appears after fox in T 2. As above given two sentences contain the same words, any methods based on "bag of word" give a decision that T 1 and T 2 are exactly the same. However it is clear for a human interpreter that T 1 and T 2 are only similar to some extent. T 1 and T 2 are dissimilar only in word order. Therefore any efficient computational method for sentence similarity must take into account the impact of word order. Sentences consisting of exactly the same words but in different orders may result in very different meanings. It is easy for humans to process word order information. However the incorporation of order information in to computational methods for understanding natural language is a difficult challenge. This may be the reason why most existing methods do not tackle this type of information. In this section we introduce a method that stores the information of word order into account when computing sentence similarity. Let's assume that for the given two sentences, the joint word set is T. Recall the above mentioned two sentences T 1 & T 2, their joint word set is: T = {A dog jumps over the lazy fox} . A unique index number has been assigned to each word in sentences T1 & T2 respectively. The index number is simply the order number that the word appears in the sentence. For example, the index number is 4 for dog and 6 for over in T 1 . In computing word order similarity, a word order vector r is formed for T 1 and T 2 respectively based on the joint word set T . For each word wi in T, we try to find the same or a similar word in T 1 as follows: 1. If T 1 contains an occurrence of the same word, we fill the entry for this word in r 1 with the corresponding index number in T 1 . Otherwise we try to find the most similar word i w ∼ in T 1 . 2. If the similarity between wi and i w ∼ is greater than a

pre-set threshold, the entry of wi in r 1 is filled with the index number of i w ∼ in T 1 3. If the above two searches fail, the entry of wi in r 1 is null. After applying the above procedure for given sentences T 1 and T 2 , the word order vectors are r 1 and r 2 respectively. For the example sentence pair, we have: r 1 = {1 2 3 4 5 6 7 }, r 2 = {1 7 3 4 5 6 2} Thus a word order vector is the basic structural information carried by a sentence. The task of dealing with word order is then to measure how similar the word order in two sentences is. For measuring word order similarity of two sentences the proposed measure is as follows:

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

5.CONCLUSION

We create a software tool which will be used by any company to help the users to freely upload their queries. Once the complaint is registered in the database, automatic tokens are generated and conveyed to the customer through a text message and email for further tracking of the complaint. Natural language processing technologies are used for parsing, tokenizing, stemming and filtering the content of the complaint. The output is fed to the algorithm where the strength of the sentence is calculated. The intensity of negation is calculated, which helps prioritize the complaint automatically for the service provider to resolve the complaint.

In this way, the proposed system will help many organizations to ensure quality service provision and customer satisfaction with less human efforts.

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