Chat-bot for college information system using AI

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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 are usually stateful services, remembering previous commands in order to provide functionality. The college information 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 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.*

Key Words: **AIML, NLP, Stemming, lemmatization.**

1. INTRODUCTION

Chat-bot is a computer program that mimics human conversations in its natural format including text using artificial intelligence techniques such as Natural Language Processing (NLP).Chat-bot for college information 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. 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. 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 admission process. The user can query about the college-related activities with the help of this web application. College admission related activities such as cutoff of departments, Intake and other cultural activities. It will help the students/user to be updated about the college activities.

2. LITERATURE SURVEY

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. QA system based on Semantic enhancement as well as the implementation of a domain-oriented based on a pattern-matching chat-bots technology. 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.

3. PROPOSED SYSTEM

A chat bot project is built using artificial algorithms that analyzes user's queries and understand user's message. This System is a web application which provides answer to the query of the student. User just have to query through the bot which is used for chatting. The System uses built in artificial intelligence to answer the query.

The answers are appropriate what the user queries. The User can query any college related activities through the system. The user does not have to personally go to the college for enquiry. The System analyzes the question and then answers to the user. The system answers to the query as if it is answered by the person. With the help of artificial intelligence, the system answers the query asked by the students. The system replies using an effective Graphical user interface which implies that as if a real person is talking to the user. The user can query about the college related activities through online with the help of this web application. This system helps the student to be updated about the college activities.

PROPOSED METHOD

1. Chat BOT Responding System

a. NLP Processing and Sentiment Analysis for query:

When user query is submitted to the system, the sense of the words is found using word net dictionary. By using the sentiment analysis negation level of a query is detected. And user queries are prioritized accordingly. NLP, is a branch of artificial intelligence that deals with the interaction between computers and humans using the natural language. The ultimate objective of NLP is to read, decipher, understand, and make sense of the human languages in a manner that is valuable.

b. Search Questions in knowledge database:

Once the negation level of the query is detected, furthermore, the exact question in the query is detected using Word Net.

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 useful in the field of information retrieval.

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

2. Word Net

It is a large lexical database of English. In Word Net nouns, verbs, adverbs and adjectives are organized by a variety of semantic relations into synonym sets which represent one concept. Examples of relations are synonymy, autonomy, hyponymy, member, similar, domain and cause and so on. In this paper, we are only concerned about the similarity measure based on nouns and synonym relation of Word Net. Word Net is sometimes called an ontology.

3. Rule Matcher

After specifying the scope of the conversation and getting the needed information from the previous module, Rule Matcher will try to find a matching rule given the normalized user input tokens as another input. Rule Matcher will perform some manipulation over both inputs to form the basis that it will depend on when searching

for appropriate rule. Such rules simply should be in the following form:

Question Format => Query Format [That = Value].

The right hand side of each rule represents the possible question's style users may ask. Questions that chat bot can handle will range from simple to complex one. Complexity degree reflects how deep or detailed the question is and then how complicated the corresponding query will be. User questions will be matched against questions in this right hand side of a rule. The left hand side represents the corresponding query that should be passed to Query Processor to execute if match is found while the last part:

[That = value] will be used as what it is already used for AIML in traditional chat bots to enable the bot of remembering what it said in the previous interaction so that conversations can become more meaningful and humanly.

4. Query Processor

This module will be responsible of the actual physical queries execution. It takes the right queries from the Rule Matcher, check their correctness before executing them against chat Bot knowledge base. Retrieved results are then passed in a suitable and readable way to the Answer Formalism Unit that will take care of displaying readable and understandable answers to the user.

5. Answer Formalism

Before displaying answers to users, its vital to ensure that they are readable, errors-free whether they are spelling and/or grammatical errors. The way results will be displayed to users should also be friendly and close to naïve user understan ding especially that these answers simply represent tables entries. We may need to specify the pluralization of a word. We can use JBoss DNA that is implemented in Python for finding the plural of a given word. Also . Verbix can be accessed from within code by sending HTTP requests and parsing the result. Finally, if we need to know the gender of a word, male or female so that we can form the answer, we can use Word Net tool for this purpose.

6. Norvig's algorithm-

We can make candidates(word) produce the first non-empty list of candidates in order of priority: The original word, if it is known; otherwise

The list of known words at edit distance one away, if there are any; otherwise

The list of known words at edit distance two away, if there are any; otherwise The original word, even though it is not known. Then we don't need to multiply by a $P(w|c)$

factor, because every candidate at the chosen priority will have the same probability (according to our flawed model).

That gives us:

{def correction(word): return max(candidates(word), key=P)

(def candidates(word):

return known([word]) or known(edits1(word)) or known(edits2(word)) or [word])}

4. CONCLUSION

A chat-bot is one of the simple way to communication between machine and human where users can easily type their query in natural language and retrieve information. In this paper, information about implementation of the chat-bot has been presented. The Development of this chat bot is done using Artificial intelligence, which is used to identify intent of the user and fetch an appropriate response. The user can ask the query and get appropriate response on basis of pattern matching algorithm in NLP.

5. REFERENCES

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