CHATBOT WHICH ENCOURAGE AND DIVERTS THE USER MINDSET WHEN UNHAPPY

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ABSTRACT:

There are more Chatbots which become trend to make advantage with the application. The Chatbot we have designed is to communicate with the user and to change the mindset of the user to a happier state, in simple words the Chatbot would divert the user's mindset who is interacting. It follows a keyword based searching strategy , it is programmed using Node js with express js , angular js as framework and MongoDb as a storage for the chat history. The purpose of creating with MEAN is it can be a response given from the server and whatever the frontend may be they can get the response and can render and shown to the user.

INTRODUCTION:

A chatbot (also known as a talkbot, chatterbot, Bot, IM bot, interactive agent, or Artificial Conversational Entity) is a computer program which conducts a conversation via auditory or textual methods. Such programs are often designed to convincingly simulate how a human would behave as a conversational partner, thereby passing the Turing test. Chatbots are typically used in dialog systems for various practical purposes including customer service or information acquisition. Some chatterbots use sophisticated natural language processing systems, but many simpler systems scan for keywords within the input, then pull a reply with the most matching keywords, or the most similar wording pattern, from a database.

The term "ChatterBot" was originally coined by Michael Mauldin (creator of the first Verbot, Julia) in 1994 to describe these conversational programs. Today, chatbots are part of virtual assistants such as Google Assistant, and are accessed via many organizations' apps, websites, and on instant messaging platforms. Non-assistant applications include chatbots used for entertainment purposes, for research, and social bots which promote a particular product, candidate, or issue.

Bots or Chatbots, a software that automates tasks for customers, interacts directly with the user providing service for everything from on-demand weather status to traffic updates to personalized assistance for an array of tasks.Bots are able to have human like interaction mainly because they are powered by two technologies – artificial intelligence and natural language processing that provides human-like intelligence to the bots. Bots today are revolutionizing the arena of customer interaction and making it more convenient for the users.

Artificial intelligence (AI) is the ability of a computer program or a machine to think and learn. It is also a field of study which tries to make computers "smart". John McCarthy came up with the name "artificial intelligence" in 1955.

Natural-language processing (NLP) is a field of computer science, artificial intelligence concerned with the interactions between computers and human (natural) languages, and, in particular, concerned with programming computers to fruitfully process large natural language data.Challenges in natural-language processing frequently involve

speech recognition, natural-language understanding, and natural-language generation.

Natural language understanding (NLU) is a subtopic of natural language processing in artificial intelligence that deals with machine reading comprehension. NLU is considered an AI-hard problem.The process of disassembling and parsing input is more complex than the reverse process of assembling output in natural language generation because of the occurrence of unknown and unexpected features in the input and the need to determine the appropriate syntactic and semantic schemes to apply to it, factors which are pre-determined when outputting language.There is considerable commercial interest in the field because of its application to news-gathering, text categorization, voice-activation, archiving, and large-scale content-analysis.

NATURAL LANGUAGE PROCESSING :

The development of NLP applications is challenging because computers traditionally require humans to "speak" to them in a programming language that is precise, unambiguous and highly structured, or through a limited number of clearly enunciated voice commands. Human speech, however, is not always precise -- it is often ambiguous and the linguistic structure can depend on many complex variables, including slang, regional dialects and social context. RBB-Bot measures six inches across, and like many robots of its type, uses a pair of motors and wheels for mobility. The two wheels are on opposite sides of the robot base. These wheels can be mounted center-line in the base, or offset to the front or back.

Most of the research being done on natural language processing revolves around search, especially enterprise search. This involves allowing users to query data sets in the form of a question that they might pose to another person. The machine interprets the important elements of the human language sentence, such as those that might correspond to specific features in a data set, and returns an answer.

NLP can be used to interpret free text and make it analyzable. There is a tremendous amount of information stored in free text files, like patients' medical records, for example. Prior to deep learning-based NLP models, this information was inaccessible to computer-assisted analysis and could not be analyzed in any kind of systematic way. But NLP allows analysts to sift through massive troves of free text to find relevant information in the files.

Sentiment analysis is another primary use case for NLP. Using sentiment analysis, data scientists can assess comments on social media to see how their business's brand is performing, for example, or review notes from customer service teams to identify areas where people want the business to perform better.

Google and other search engines base their machine translation technology on NLP deep learning models. This allows algorithms to read text on a webpage, interpret its meaning and translate it to another language.

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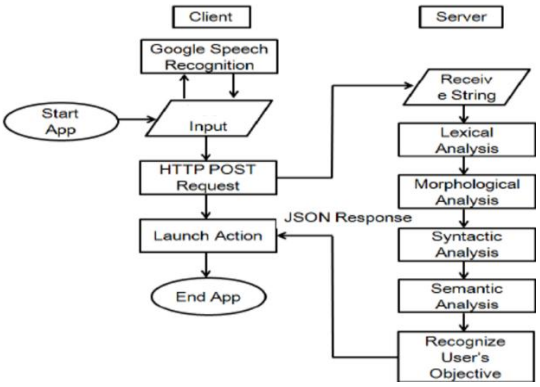
NATURAL LANGUAGE TRANSFORMATION :

Some of the most common tasks for NLP include tokenization (splitting text into words and terms), tagging various parts of speech, creating parse trees (which are like sentence diagrams), and classifying some terms as named entities (for example, grouping together names of people, days of the week, or cities). From these basic tasks, it's possible to create more sophisticated applications, like the ones we'll explore in the next section.

Before we look at NLP's more advanced applications, it's worth noting that there are a number of open-source libraries that support both basic and more advanced NLP tasks. For example, Pattern and NLTK are written in Python and provide a number of classes and modules that make it easy to work with text. NLTK is designed to be an intuitive, practical, and modular tool for NLP. It's well documented, with two books and an active community in both academia and industry. Pattern is billed as a web-mining module, and includes several tools that NLTK doesn't, like a web crawler, HTML parser, and a number of APIs for major web services. Pattern also provides modules for graphic data structures that show the relationship between nodes representing different words or concepts.



CRITICAL WORDS:

Word Recognition is the ability of a reader to recognize written words correctly and virtually effortlessly. It is sometimes referred to as "isolated Word Recognition" because it entails a reader's ability to recognize words individually—from a list, for example—without the benefit of surrounding words for contextual help.

Rapid and effortless Word Recognition is the main component of fluent reading. Words that beginning readers initially sound out through Word Analysis or phonics come to be recognized as whole units after readers encounter them repeatedly in connected text. This means that beginning readers need to read lots of connected text at an appropriate level to solidify their Word Analysis and Word Recognition abilities—to move from sounding out words to rapid Word Recognition. ABE learners need many encounters with a word in order to develop quick and accurate recognition of it. Practice with flash cards, lists, and word grids is needed to provide these repeated encounters.

DISCOVERY OF MINIMAL CONTEXT:

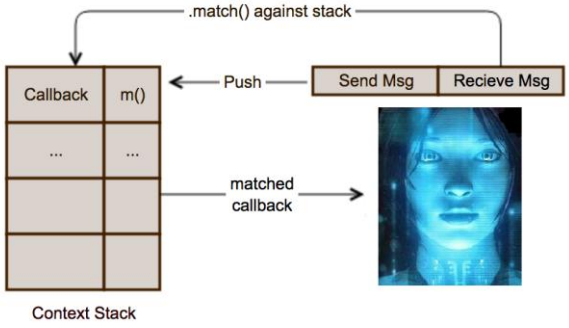
This can be summarised as:

- Whenever the bot send a message, set(push)
  <a matcher method m(), a context callback> on the stack.

- On receiving a message, match the message using the matcher methods in FIFO order. Call the matched context callback.

The elegance of this approach is that the pushed callback captures the state of variables as a part of its closure context. When the callback is called, this state is retained and we can time travel back to the state when the context was actually set.

This was a simple example where we used *context stack* to match the user intent. Things become more interesting when we are able to use the closure variables in the called callback. Bot-context is a simple yet powerful way to manage conversation context in your shiny smart chatbot. Its open source, you are just an npm installaway from using it. you need to handle all permutations and combinations of the answers the user may give.



CHOICE OF APPROPRIATE TRANSFORMATION:

Chatbot starts its process of responding to an input by a user by first examining the text input for a 'keyword'. A 'keyword' is a word designated as important by the acting Chatbot script, which assigns to each keyword a precedence number, or a RANK, designed by the programmer. If such words are found, they are put into a 'keystack', with the keyword of the highest RANK at the top. The input sentence is then manipulated and transformed as the rule associated with the keyword of the highest RANK directs. For example, when the DOCTOR script encounters words such as "alike" or "same", it would output a message pertaining to similarity, in this case "In what way?", as these words had high precedence number. This also demonstrates how certain words, as dictated by the script, can be manipulated regardless of contextual considerations, such as switching first-person pronouns and second-person pronouns and vice versa, as these too had high precedence numbers. Such words with high precedence numbers are deemed superior to conversational patterns, and are treated independently of contextual patterns.

Following the first examination, the next step of the process is to apply an appropriate transformation rule, which includes two parts, the "decomposition rule" and the "reassembly rule". First, the input is reviewed for syntactical patterns in order to establish the minimal context necessary to respond. Using the keywords and other nearby words from the input, different disassembly rules are tested until an appropriate pattern is found. Using the script's rules, the sentence is then 'dismantled' and arranged into sections of the component parts as the "decomposition rule for the highest ranking keyword" dictates. The example that gives is the input "I are very helpful" (remembering that "I" is "You" transformed), which is broken into (1) empty (2) I (3) are (4) very helpful. The decomposition rule has broken the phrase into four small segments, that contain both the keywords and the information in the sentence.

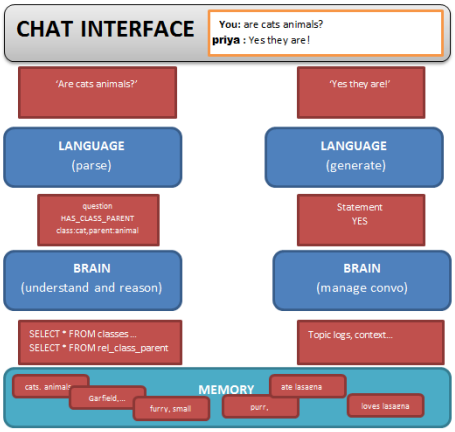
RESPONSE APPROPRIATE TO TRANSFORMATION WITH MLAB:

The decomposition rule then designates a particular reassembly rule, or set of reassembly rules, to follow when reconstructing the sentence. The reassembly rule then takes the fragments of the input that the decomposition rule had created, rearranges them, and adds in

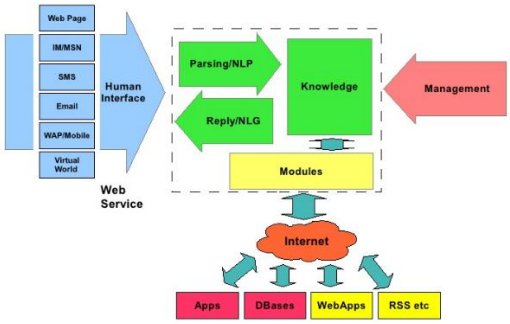
programmed words to create a response. Using example previously stated, such a reassembly rule would take the fragments and apply them to the phrase “What makes you think I am (4)” which would result in “What makes you think I am very helpful”. This example is rather simple, since depending upon the disassembly rule, the output could be significantly more complex and use more of the input from the user. However, from this reassembly, Chatbot then sends the constructed sentence to the user in the form of text on the screen.

These steps represent the bulk of the procedures which Chatbot follows in order to create a response from a typical input, though there are several specialized situations that Chatbot /DOCTOR can respond to. One specifically wrote about was when there is not a keyword. One solution was to have Chatbot respond with a remark that lacked content, such as “I see” or “Please go on.”. The second method was to use a “MEMORY” structure, which recorded prior recent inputs, and would use these inputs to create a response referencing a part of the earlier conversation when encountered with no keywords. This was possible due to Slip’s ability to tag words for other usage, which simultaneously allowed Chatbot to examine, store and repurpose words for usage in outputs.

While these functions were all framed in Chatbot programming, the exact manner by which the program dismantled, examined, and reassembled inputs is determined by the operating script. However, the script is not static, and can be edited, or a new one created, as is necessary for the operation in the context needed (thus how Chatbot can “learn” new information). This also allows the program to be applied in multiple situations, including the well-known DOCTOR script, which simulates a Rogerian psychotherapist, but also a script called “STUDENT”, which is capable of taking in logical analysis parameters and using it to give the answers to problems of related logic.



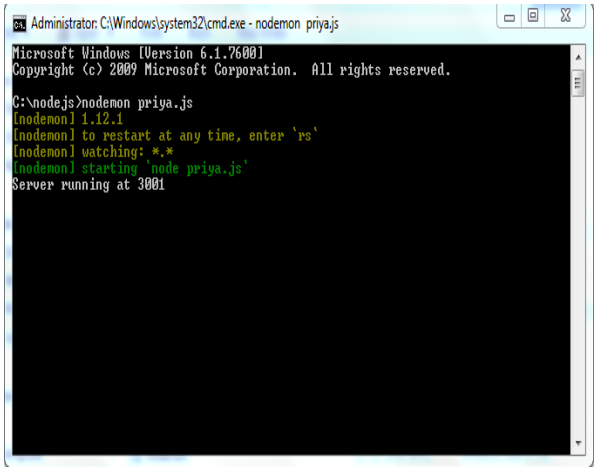
RESPONSE APPROPRIATE TO TRANSFORMATION



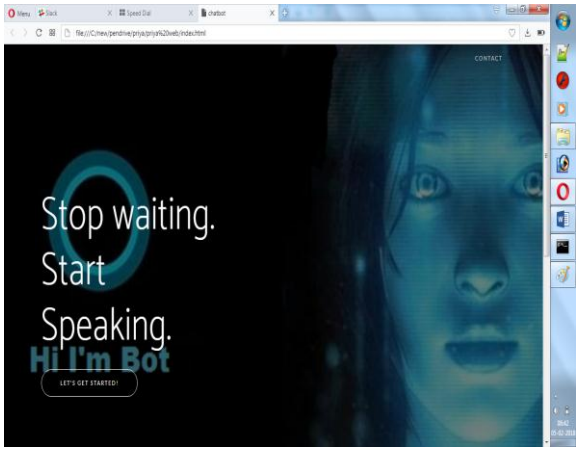
RESPONSE APPROPRIATE TO TRANSFORMATION WITH MLAB DATABASE

SCREEN SHOTS

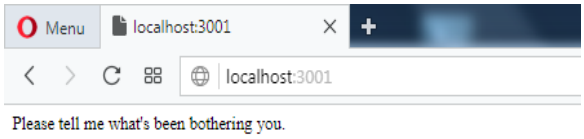
Snapshot is nothing but every moment of the application while running. It gives the clear elaborated of application. It will be useful for the new user to understand for the future steps**.**



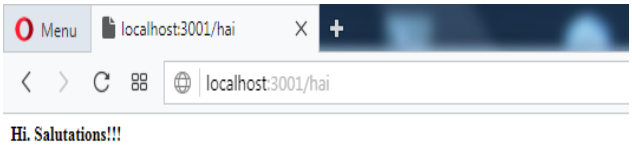
STARTING SERVER (LOCAL)



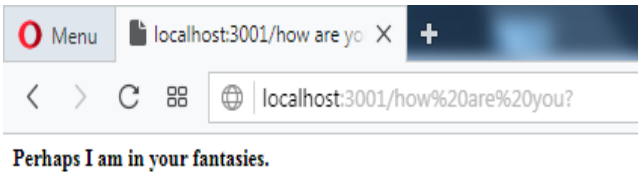
FRONT END IN BROWSER



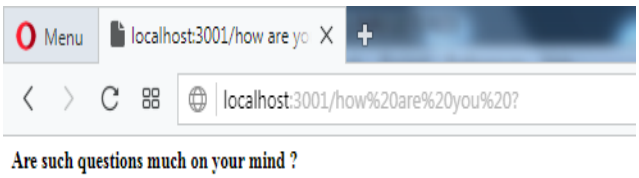
INITIAL STATEMENT OF CHAT



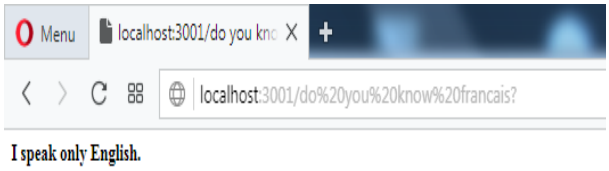
SAYING HAI



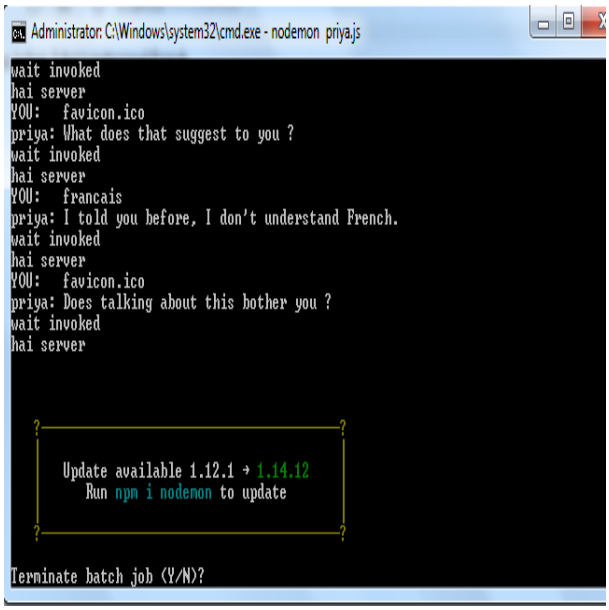
POLITENESS HOW ARE YOU ?



UNNECESSARY SPEECH DETECTION



DIFFERENT DETECTION



SERVER STORING CHATS IN MONGODB

CONCLUSION :

We have presented a Chatbot source code which would solve the user's stress , unhappiness and make the end user in a happier state when the user quit the chat process.

REFERENCES :

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3. Diane S Berry, Julie K Willingham, and Christine A Thayer. 2000. Affect and personality as predictors of conflict.