

Research Article

Creating and Testing of Math Bot

Ali Almabrouk Abualgasem Ahmad^{†*} and Archana Singh[‡]

[†]Dept of CSE, SHIATS-Allahabad, India

[‡]Dept of Computer Science & IT, SHIATS-Allahabad, India

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Abstract

For a software developer, the starting step is to properly understand the overall problem. Every individual has different needs and it is very difficult to develop common software to solve general problems. So we need to develop various software to meet their individual needs so as to provide exactly what they want. In this era of evolution, there are good software's which are easy to use and work with, and they do not need much learning. This software is a step forward to attain this goal. It aims of providing the accurate and complete information about solving the mathematical problem in the natural language as per the defined rules.

Keywords: Natural Language Processing, Chat Bot, Windows Application

1. Introduction

All social animals communicate with each other, from bees and ants to whales and apes, but only humans have developed a language which is more than a set of prearranged signals.

Our speech even differs in a physical way from the communication of other animals. It comes from a cortical speech centre which does not respond instinctively, but organizes sound and meaning on a rational basis. This section of the brain is unique to humans.

When and how the special talent of language developed is impossible to say. But it is generally assumed that its evolution must have been a long process.

Our ancestors were probably speaking a million years ago, but with a slower delivery, a smaller vocabulary and above all a simpler grammar than we are accustomed to.

2. Proposed Work

A chatter robot, chatterbox, Chabot, or chat bot is a computer program designed to simulate an intelligent conversation with one or more human users via auditory or textual methods, primarily for engaging in small talk. The primary aim of such simulation has been to fool the user into thinking that the program's output has been produced by a human. See the Turing test. Programs playing this role are sometimes referred to as Artificial Conversational Entities, talk bots or

chatterboxes. In addition, however, chatter bots are often integrated into dialog systems for various practical purposes such as offline help, personalized service, or information acquisition. Some chatter bots use sophisticated natural language processing systems, but many simply scan for keywords within the input and pull a reply with the most matching keywords, or the most similar wording pattern, from a textual database.

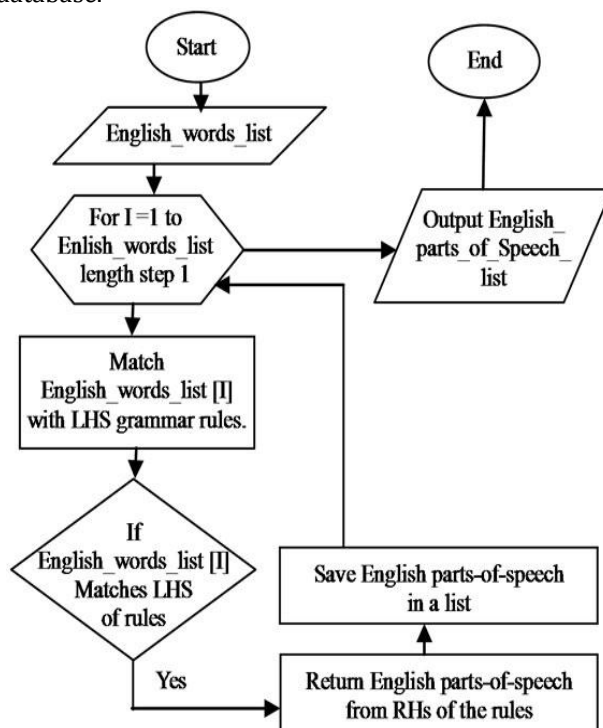


Fig 1 Turing test

*Correspondin author Ali Almabrouk Abualgasem Ahmad is a M.Tech Scholar and Archana Singh is working as Associate Professor

A. Material and Methods

The following modules are introduced in to our application.

Client Module – This module assist for reading input through the client end.

Regex Module – This module extracts the symbols and characters from the input string.

3. Concepts used

Chat Bot

- 1) A chat bot is a conversational agent that interacts with users using natural language.
- 2) It can't be touched and can only be felt. It makes human work easy and it is a thought or a concept.
- 3) Accepts human commands in natural language and makes interaction with computer easily.
- 4) Ever since computers came into existence it only understands the language of bits. Humans started to interact with computers firstly using machine language then for easier use and understandability he use assembly language further taking this to a higher level he stated using or developing higher level languages like C,C++,JAVA etc.

3.1 Natural Language Processing

Basically a chatterbot is a computer program that when you provide it with some inputs in Natural Language (English, French ...) responds with something meaningful in that same language. Which means that the strength of a chatterbot could be directly measured by the quality of the output selected by the Bot in response to the user.

In early ages human beings started learning from sign language then slowly he started using the sign language like shown below:

Then after some time he started using charters and stone to count.

3.2 Features

Can handle user commands in natural language Expressions can be given in both natural language and BODMAS Infix notation

The system can handle more statements and queries if the data base is increased with more predicate rules. The code need not to be changed

The predicate logics are stored in the form of

Add [\$1] and [\$2] => [\$1] + [\$2]

Where [\$1] and [\$2] are the placeholders and which have the information of the digits used and their positions

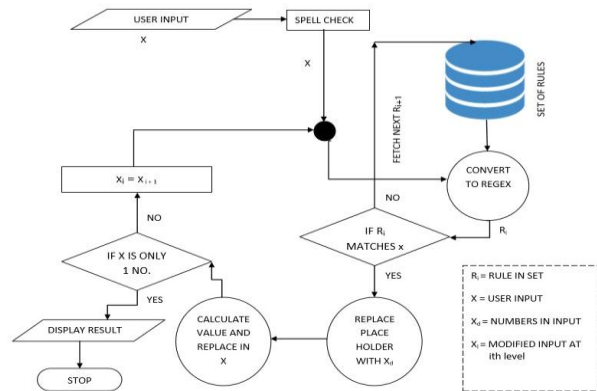
The above rule can recognize strings like the following:

Add 1 and 2
Add 15.5 and 56.5

The database can be fabricated in any natural spoken language

So the scope of using such a module in calculations where translation s also required is bright.

3.3 Work Process



Software Requirement

- Language: C#
- IDE Microsoft Visual Studio 2010
- Back End: MS-Access.

4. Results and Discussion

Ever since computers came into existence it only understands the language of bits. Humans started to interact with computers firstly using machine language then for easier use and understandability he use assembly language further taking this to a higher level he stated using or developing higher level languages like C,C++,JAVA etc.

But every person who uses computer do not know or learn these languages and if he want to give some command to the computer he may have to learn some pay formatted codes or hit/click the mouse several times for graphic user interface.

In today's fast growing world and in the near future natural language processing are emerging very useful for human beings in their informatics world and intelligent systems.

Conclusion

In this dissertation, I implemented a math based Chabot& my application is able to solve the mathematical expressions and also responds to user inputs according to stored grammar.

It is a viable alternative way of Google and it could be used as a tool to solve the mathematical expression. My goal is to create the illusion that my Chabot understands the user. This means trying to minimize

those awkward moments where your bot says something completely unrelated to what the user said and maximize the rewarding moments when the bot responds completely appropriately.

Future Scope

Due to shortage of time and some of my technical limitation some future work I can suggest like here I did not implement the voice input inside my system but in future I will try to input the commands through voice.

Second and important thing is the Chabot response must be in voice form and not in the text form only. In future I will try to work on the sound APIs and try to implement into the system.

The most problematic task is to define the grammar. In future I will try to implement the concept of deductive knowledge means the system will automatically set the grammar as per our past experiences while it is a tough AI based operation but I will try my best to implement this.

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