An Efficient and Intelligent Chat Bots Using Natural Language Processing

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Abstract

The main objective of this paper is to develop an intelligent chat bot for Medical primarily based support. Later this code can be reformed into any application. The major classifications of this application are Offline mode and Online mode. The chat bot can work in both modes. The online mode is that where a real person will be available in another side to the user queries. No automation is required. The user can ask even for untrained data and will get a prompt reply. This process is more like a basic chat application. The main disadvantage of this process is real should always be available. The offline mode is totally automated process and is the real chat bot. This process requires data set and trained data. The user questions will be answered automatically. There is no need for a real person to be present always. The chat bots will become more evolved while having a lot of data training. This application works in various sorts of browsers and also in varied networks. Basically, there is an Admin in this application which has all the rights to access it and also data training. Data training is the most vital part in this project. All the trained data will be emulated in this application for chat bots’ queries. This trained data is most probably used for automatic i.e. offline mode solely. These chat bots can be utilized by several users at the same time. IP address plays main role in this application. Here users can post their corresponding queries. The chat bot will provide relevant information to the users. Modern chat bots are intermittently used in situations when simple interactions with only a limited range of responses are needed. This can include customer service and marketing applications, where the chat bots can provide answers to questions on topics such as products, services or company policies. If a customer's questions exceed the capability of the chat bots then that particular customer is usually escalated to a human operator.

Keywords: Intelligent Chat, Offline Mode, Automation, Data Training, IP Address.

1. Introduction

A chat bot is an artificial intelligence (AI) software which simulates a communication or a conversation basically a chat with the user in natural language through messaging applications through mobile phones, websites, etc. or through the telephone. It is often described as one of the most advanced and promising expressions of interaction between a machine and a human (user). On the other hand, from a technological point of view, a chat bot just represents the natural evolution of a Question and Answering system leveraging Natural Language Processing.
Processing (NLP). One of the most typical examples of Natural Language Processing (NLP) is formulating responses to questions in natural language which is being applied in various enterprise’s end-use applications. The first condition and the most relevant step at the core of a chat bot is the ability to identify the user’s intent and extract data and relevant entities contained in the user’s request. If we are not able to correctly understand the user’s request, you won’t be able to provide the correct answer. Returning the response once the user’s intent has been identified, the Chatbot must provide the most appropriate response for the user’s request. Chat bot applications standardize interactions between people and services, enhancing the customer experience. Simultaneously they afford companies new possibility to upgrade the customer’s appointment process and working efficiency by reducing the regular cost of customer service. To be successful, an interactive agent solution should be able to successfully perform both of these tasks. Human support plays a key role here: Anyhow the kind of approach and the plan, human interruption is critical in arranging, training and development the artificial interactive agent system. The rise of conversation media such as blogs and chat networks has charged interest in opinion analysis. With the expansion of reviews, ratings, recommendations and other forms of online expression, online opinion has turned into a kind of virtual currency for businesses looking to market their products, identify new opportunities and manage their influence. As businesses look to automate the process of filtering out the noise, understanding the conversations, identifying relevant content and marketing it properly, many people now look at the field of concept analysis. Kasich project is aiming to provide a free search engine tool looking at different web media sources. Further complicating the matter is the rise of anonymous chat media platforms such as 4chan and study. If web 2.0 was all about popular publishing, then the next stage of the web may well be based on level the knowledge discovery in data base of all the content that is getting broadcast. Step forward to this aim is to achieve in research. Several research teams in universities around the world currently focus on understanding the advance of Conceptualization between communities through concept analysis. The Cyber Emotions project, for example, recently Chat networks have identified the role of negative emotions in directing discussions .The problem is that most conceptual analysis algorithms use simple words to convey the idea of a product or service. However, cultural factors, grammatical implication and diverse contexts make it very difficult to convert a string of written text into a simple bias concept. The fact that humans often disagree with the concept of speech illustrates just how big a task it is for computers to get this right. The shorter the string of text, the harder it becomes. Although short text strings are a problem, the concept analysis in micro blogging shows that Twitter can be seen as a perfect offline indicator of political opinion. The political opinion of the tweets reveal a close similarity with the political positions of the parties and politicians, which indicates that the content of the Twitter messages reflects the offline native landscape.

2. Related Work

B.Pangand L. Lee et al. an important part of statistics reckoning behavior has always been to figure out what other people thinks. With the enl oaring possibility and reputation of opinion-rich resources such as operative analyzing sites and personal records, new probabilities and provocation arise as people now can, and do, actively use data processing to look for and understand the opinions of others. The sudden outburst activity in the area of opinion tapping and bias inquiry .This relates to the
computational treatment of the concept, sentiment, and abstract in text, this is part of a direct substitute for interest in new systems that directly address ideas as first-class material. This survey includes techniques and way that promise to directly permit opinion-oriented information pursuing systems. Our focus is on methods that seek to address new challenges hoisted by sentiment aware applications, as compared to those that are already present in more traditional fact-based analysis. We include material on confession of evaluative text and on immense issues regarding seclusion, administration, and the economic impact of the development of conceptual information access services. A discussion of available resources, benchmark datasets and assessment campaigns is also provided to facilitate future work. Y.Lu, C.Zhai et al. focus on general and robust methods which require minimal human administration so as to make the computerized methods applicable to a wide range of topics and as to make the computerized methods applicable to a wide range of topics and ascendable to large amounts of opinion. This focus distinguishes this thesis from the work, which is well-designed or well-trained for specific domains, but not easily adapted to new domains. Our main scheme is to exploit many naturally available resources, such as structured ideas and chat networks, which provide as incidental signals and guidance for bringing out opinion symmetries. Along this line, our prospective techniques have been exhibited to be effective and general enough to be applied for potentially many interesting applications in multiple domains, such as marketing intelligence and legislative science. The difficulty in explaining online comments is that they are usually expressed as unstructured text containing complicated definition using the iPhone example, we can see people discuss on different condition of iPhone (e.g., screen quality or phone reception) and express different bias toward the condition (e.g. negative as in “reception is unbearable” or positive as in “screen is absolutely crystal clear”). Also, the quality or credibility of online comments can vary a lot. Some comments are thorough and reliable, others are not helpful or even spam. An important novelty of this thesis is the importance of developing common and robust techniques to effectively create such an integrated summary for random topics, such as political figures, events, products, services, companies, or brands. One of the significant advantages of generic techniques over particular domains or special techniques for conceptual problems is that a common method can be easily applied to many interesting applications in different domains. Thus has wider impact. M.Hu et al. Proposes several new techniques for performing these tasks. Our test results demonstrate the effectiveness of the techniques using reviews of several products sold online. With the accelerated extension of e-commerce, more and more products are sold on the Web, and more and more people are also buying products online. To enhance customer satisfaction and shopping experience, it has become a general practice for online merchants to enable their customers to review or to express views on the products that they have purchased. With progressively increasing common users becoming more comfortable with the Web, an increasing number of people are writing reviews. Ultimately, the number of reviews that a product receives grows rapidly. Some popular products can get hundreds of reviews on some big business sites. Also, many reviews are long and there are only a few sentences that comment on the product. This makes it difficult for a potential customer to study the product to make an informed decision. If he / she reads only a few reviews, he / she may get a biased view. A large number of reviews make it difficult for product manufacturers to monitor customer feedback on their products. For a product manufacturer, there are additional problems, as many business sites may sell
its products, and the manufacturer may (almost always) produce a wide variety of products. In this research, we study the problem of creating feature-based symmetries of customer reviews of products sold online. Here, feature generally refers product features (or attributes) and functions. With a set of customer reviews of a particular product, the task involves three sub-tasks: (1) identifying the features of the product that customers have expressed their opinions on (called product features); (2) for each feature, identify review phrases that provide positive or negative feedback; (3) creating a summary using the perceived information. In the existing system normal chat application has been used. The normal chat application is used in the current system. Modern chat usage began to gain importance in the early and mid-1990s, following the current and old chat methods. The distinguish between chat and SMS short service messaging allows mobile users to send SMS to each other without internet connection, while chat applications enable identical performance over the Internet. The chat message was sent over the internet in the United Kingdom on December 3, 1992, with the words “Merry Christmas.” Israeli firm Mirabilis released the first widely used online messenger in 1996, ICQ (short for “I Seek You”). ICQ’s predecessors existed until 1961 when MIT’s Computing Centre built a compatible time-sharing system (CDSS), which allowed 30 users to log in and share text messages concurrently. CompuServe’s CB Simulator, published in 1980, is generally recognized as the first dedicated online chat service; Users are required to pay a monthly fee for the membership. In 1985, Commodore introduced Quantum Link (or “Q-Link”), an online service for 64 and 128, which enabled multiple people to chat, file sharing, electronic mail, games and messages via modem connection. Quantum Link has changed its name to America Online (AOL) in 1991, and by the mid-90s was the leading U.S. Internet service provider and gateway to the web. The company launched AOL Instant Messenger (AIM) in 1997 and purchased competitor ICQ in 1998 to stabilize its primacy over instant messaging. Along with a few competitors, it also begins chat robots like Study menu and Smarter Child that provided information and played games with users. In 2006, AIM controlled 52 percent of the instant messaging market, but it struggled to construct and went into speedy decline in the face of competition from services like Google Talk, Yahoo! Chat, MSN Messenger, and Skype. The developing popularity of BlackBerry Messenger in the late 2000s also pointed to a bright future for mobile messaging. At the time, mobile chat applications like WhatsApp and Kik arrived in 2009, SMS was king. Mobile texting has become an important tool for global, personal communication, earning billions of dollars for telecommunications companies. But time and technology have not been kind to telephone service companies. As smart phones began to reproduce, messaging applications were an increasingly accessible solution to a simple problem: SMS is expensive in most countries, so in the old days chat use was popular. Due to the increase in technology chat applications claimed for business use and customer service. But there are various shortcomings in the normal chat system when used for business and service industries.

3. Proposed Framework

Chat bot analysis is increasingly viewed as a vital task both from an academic and a commercial standpoint. More than half of current approaches, however, attempt to detect the overall polarity of a sentence, paragraph, or text span, regardless of the entities mentioned (e.g., laptops, restaurants) and their aspects (e.g., battery, screen; food, service). By contrast, this task is concerned with aspect-based opinion analysis (ABSA), where the goal is to
identify the aspects of given target entities and the opinion expressed towards each aspect. Datasets consisting of customer reviews with human-authored annotations identifying the mentioned aspects of the target entities and the opinion polarity of each aspect will be provided. A chat bot is artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through web application applications. Auto Bot has been used in the proposed system with text categorization technique.

Fig.1. CHATBOT PROCESS- LEVEL 0

Fig.2. CHATBOT PROCESS- LEVEL 1

Often, a chat bot is described as one of the most advanced and promising expressions of interaction between humans and machines. On the other hand, from a technological point of view, a chat bot just represents the natural evolution of a Question and Answering system leveraging Natural Language Processing (NLP). One of the most typical examples of Natural Language Processing (NLP) is formulating responses to questions in natural language which is being applied in various enterprise’s end-use applications. Text categorization technique has been used for text-based categorization purpose. Rather than an individual, system projects that are to be shared by a number of departments and users are usually approved by a committee. A proposal by a project is submitted to a committee that determines the merits of the proposal and decides to approve it or not. The committee is made up of people from various functional areas of the organization that have an interest in the operation and information of the proposed system.

4. Artificial Neural Network

This training process enclose bag of words which can be renovate by admin using Artificial Neural Network this process in called as Data training. This is the basic input for the text data training purpose. Also, here all data will be uploaded
in to a centralized server for data analysis purpose. Consolidate data sharing systems prescribe here as systems that allow distributed end-user applications, databases and data providers to be combined with dedicated data sources. Even thou this program will be implemented using ASP.NET, which basically complements all web-based practices and applications. In case there may be more than two branches in different locations during the setup (i.e.) in a different state. In intelligent retrieval or machine learning, the training set consists of an input vector and response vector, and is used with a supervised learning system to train the knowledge database used by an AI machine (e.g. a neural web or a naive Bayes classifier). Affirmation sets can be used for regulating by early stopping: stop training when the misstep on the validation set increases, this is a sign of fit over the training set. This simple form of practice is complicated by the fact that validation error can fluctuate during training, which produces many local minima. This complexity has led to the creation of many temporary rules for determining when excessive fit really began. In numerical pattern, a training lay is used to fit a model that can be used to predict a "response value" from one or more "predictors". You can add both variable selection and parameter estimation in the fitting. Numerical models used for forecast are much called reverting models, two examples of linear reverting and logistic reverting. In these areas, an important emphasis is placed on avoidance of fitting, so that the best performance can be achieved in an independent test set that follows the same anticipation supply of the training set.

5. Chatbot Strategies

There is a need to build a dialogue system (programme) called a Chat Bot (Chatter-Bot), to give suitable answers to keywords or phrases extracted from speech and to keep conversation continuous. Chat bots can assist in human computer interaction and they have the ability to examine and influence the behaviour of the user by asking questions and responding to the user's questions. Chat bot is a computer program that mimics intelligent conversation. The input to this program is natural language text, and the application should give an answer that is the best intelligent response to the input sentence. This process is repeated as the conversation continues and the response is either text or speech. Highly professional programming skills and experienced developers are needed to build a chat bot to achieve even a basic level of realism. There is a complicated development platform behind any chat bot which will only be as good as its knowledge base which maps user’s words into the most appropriate response. Knowledge base is built usually by the chat bot developer as well. However, there are some platforms which provide a learning environment. Writing a perfect chat bot is very difficult because it needs a very large database and must give reasonable answers to all interactions. There are a lot of approaches to create a knowledge base for a chat bot and include writing by hand and learning from a corpus. Here, learning is referred to saving new phrases and then using them later to give appropriate answers for similar phrases. Designing a chat bot software package requires the identification of the constituent parts.

6. Result
7. Conclusion

It is concluded that the Chat Bot application works well and satisfy the users. All the master pages are working well with all assigned operations. The errors are properly debugged and the application is tested very well. Simultaneously, the site is accessed from more than one system. Simultaneous login from more than one place is tested. In added with admin and employee can login as a separate user. The training data set supports the user queries well and generates relevant answers. According to the restrictions provided in their
respective browsers, the site works. Due to the further enhancements made to the application, the website functions very attractive and useful manner than the present one. Now, the speed of the transactions has become more enough. So I conclude that this project has been effectively done. Every application has its own merits and demerits. This chat bot application has covered almost all the requirements. Since the coding is mainly structured or modular in nature, further requirements and improvements can easily be done. Improvements can be appended by changing the existing modules or adding new modules.

References