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OPINION MINING AND SENTIMENT ANALYSIS FOR USER GENERATED TEXT IN SOCIAL NETWORKING WEBSITES

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ABSTRACT

The main aim of this paper is to build a Fuzzy Lexicon based tool and apply fuzzy sets for Opining mining which can analyze and summarize the opinions expressed which more in unstructured format is. It also emphasizes the concepts of Sentiment Analysis for mining attitudes, opinions and emotions from text. Concepts and procedures discussed in this paper were applied in Medical domain for opinion mining of user generated content on drugs or medication.
Keywords: opinion Mining, Sentiment Classification, Fuzzy Interface System, Genetic algorithm, Farey Fractions, ANN, support Vector Machines

INTRODUCTION

In the recent past, social networking sites like Face book, Twitter, WebMD, Blogs, Wikis and Forums became a platform to share their views or opinions about a product, Movie, politics or about any user interested topic in the form of posting comments, pictures and get feedback from other users. This kind of user generated text on social web about any products, people, and events is very useful in business, government and individual. Opinion mining is a Text mining problem which is a sub domain of Data Mining, Information Retrieval &Extraction and Computational Linguistics. Opinion mining deals with extracting, classifying, understanding and assessing the opinions in various online news sources, social media comments and other user generated content. Sentiment Analysis is often used in opinion mining to identify sentiment, affect, subjectivity and other emotional states in online text.

Opinion mining models evolve with good analysis. Good research is in the forefront on mining the opinions and identifying semantic operations. Genetic algorithms are playing very vital role in the process of learning of an ANN.

LITERATURE REVIEW

Sentiment Analysis classifies opinions in text into categories like positive, negative or neutral and it is also referred as Subjectivity Analysis.

Sentiment classification is done by three different levels Document level, Sentence level and Aspect level or Feature level. Document level classify whether whole opinion document expresses a positive or negative sentiment. Sentence level determines whether sentence expressed is positive, negative or neutral opinion. This level of analysis is closer to Subjectivity classification which determines whether a sentence expressed is subjective or objective. Feature level or Aspect level discover sentiments on entities or aspects.

A number of machine learning techniques have been adopted to classify the online reviews. Machine learning techniques like Naive Bayes (NB), maximum entropy (ME), and support vector machines (SVM) were used in text categorization.

GAPS IN EXISTING RESEARCH

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Statistical data mining techniques can perform only binary classification of text and does not allow non-numerical values. The user generated text is not crispy and more fuzzy in nature, hence fuzzy inference system (FIS) is integrated with the SVM classification technique.

PROPOSED WORK

Opinions are very essential to many human activities because they are vital influencers of our behaviors. Whenever we need to make a decision, we want to know other's ideas/opinions. In the real world, businesses and organizations always want to find consumer or public opinions about their products and services. Individual consumers also want to know the opinions of existing users of a product before purchasing it, and other's opinions about politicians before making a voting decision in a political election. In the past, when an individual needed opinions, he/she asked friends and family. When an organization or a business needed public or consumer opinions, it conducted surveys, opinion polls, and focus groups. Acquiring public and consumer opinions has long been a huge business itself for marketing, public relations, and political campaign companies.

Figure 1: Opinion Analysis

To carry out the proposed research work fuzzy logic toolbox in MATLAB software will be used. Sentiment words are also called opinion words, polar words, or opinion bearing words. Positive sentiment words are used to express few desired states or qualities while negative sentiment words are used to express fewundesired states or qualities. Examples of positive sentiment words are beautiful, wonderful, and amazing. Examples of negative sentiment words are bad, awful, and poor. Apart from individual words, there are also sentiment phrases and idioms, e.g., cost someone an arm and a leg. Collectively, they are called sentiment lexicon (or opinion lexicon).

Sentiment classification can be done by building Fuzzy lexicon and fuzzy sets are used in deciding the degree of sentiment with the help of linguistic terms and variables. Fuzzy sets along with common sense will be applied to calculate the overall sentiment in a review. and using the rule based Genetic Algorithm by improving the fitness function the classifier is improved. It also compares the results with the Farey Fractions approach ,which is always gives better results and very efficient and more accuracy in case there is no attribute dependency.

EXPECTED OUTCOMES

The proposed research will lead to the development of automatic system which can analyze user opinions and reviews posted on social media websites.

Classifiers	Classification without Proposed Processing Algorithm	Classification with Proposed Processing Algorithm
Naïve Bayes	53.67	56
Random Forest	57.66	58
LVQ	54.33	55.65
Elman Neural Network	72.33	75.34

Table : Result Comparison with Pre processing

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