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Customer Review Classification based on Sentiment Analysis using Data Mining Techniques

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ABSTRACT

In recent years, with the growing volume of online reviews available on the inter-net, sentiment analysis and opinion mining as a special text mining task for determining the subjective attitude (i.e. sentiment) expressed by the text, is becoming a hotspot in the field of data mining and natural language processing. Sentiment classification is a basic task in sentiment analysis, with its aim to classify the sentiment (e.g. positive or negative) of a given text. The general practice in sentiment classification follows the techniques in traditional topic-based text classify, where the Bag-of-words (BOW) model is typically used for text representation. In the BOW model, a review text is represented by a vector of independent words. By using natural language processing techniques become easy to analysis sentence in positive and negative class from this we can using through sentiment analysis is possible to recognize positive and negative sentences. Mining opinion targets and opinion words from online reviews of products(Custom portal)are important tasks for fine-grained opinion mining, the key component of which involves detecting opinion relations among words (target words). In this system user can add their reviews about the product and the system can extract the target words and opinion relation. By using the opinion words and targets the system finds out the sentiment analysis about the reviews. The sentiment can be Negative, Positive, Neutral, Very Negative and Very Positive. Then all the sentiment analysis, targets and the opinions about the product are represented using the graphical format. Main scope of this proposed system, in the recommendation of products which is helpful for other user before buying some product and also to product owner to categorize his product or identify product.

Keywords: Classification, Clustering, Sentiment analysis algorithms, WAM model NLP Libraries, Naïve Bayes, Association rules, Sorting, Dataset.

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I. INTRODUCTION

Mining opinion targets and opinion words from online reviews are important tasks for fine-grained opinion mining, the key component of which involves detecting opinion relations among words with the rapid development of Web 2.0, a huge number of product reviews are springing up on the Web. From these reviews, customers can obtain firsthand assessments of product information and direct supervision of their purchase actions. Means, manufacturers can obtain immediate feedback and opportunities to improve the quality of their products. Thus, mining opinions from online reviews has become an increasingly urgent activity and has attracted a great deal of attention from researchers .To extract and analyze opinions from online reviews, it is unsatisfactory to merely obtain the overall sentiment about a product. In most cases, customers expect to find fine-grained sentiments about an aspect or feature of a product that is reviewed.

Generally, data mining is the search for hidden patterns present in huge databases. Data mining scans via a huge volume of data to find out the patterns and correlations between patterns. Data mining requires the

use of data analysis tool to determine previously unknown, valid patterns and relationships from the data. Such kind of tool can enclose statistical model, mathematical algorithms and machine learning methods. Thus, data mining technique is the way of getting analysis and prediction results more than gathering and running data. Data mining can be executed on data signified in quantitative, textual or multimedia forms. Data mining application could use several parameters to inspect the data. They contain the concepts such as association, sequence analysis, classification, clustering and forecasting. Opinion mining is an important factor in the domain of data mining and it is also called as Sentiment analysis. The opinion mining is used to analyze the people's opinions, emotions, assessments and attitudes. Along with the explosive growth of user created messages, web sites and social networks has become a significant media for where millions of users can communicate their opinions.

An opinion target is defined as the object about which users express their opinions. As a result, opinion targets usually are product features or attributes.

Opinion words are the words that are used to express users' opinions.

Goal and Objective:

The goal of this system is the user can add their reviews about the product and the system can extract the opinion targets and opinion words. By using the opinion targets and opinion words system and out the sentiment analysis about the reviews. Reviews contains the compound sentence then it will split it into the separate sentence and the targets and opinion and also sentiment from reviews. Then all the sentiments, targets and the opinion about the product are represented using graph score.

II. LITERATURE REVIEW

[1] Co-Extracting Opinion Targets and Opinion Words from Online Reviews Based on the Word Alignment Model.

This paper proposes a novel approach based on the partially-supervised alignment model, which regards identifying opinion relations as an alignment process.

Then, a graph-based co-ranking algorithm is exploited to estimate the confidence of each candidate.

[2] Opinion mining from student feedback data using supervised learning algorithms.

This paper explores opinion mining using supervised learning algorithms to and the polarity of student feedback based on predefined features of teaching and learning. The study conducted involves the combination of machine learning and NLP techniques on student feedback data gathered from module evaluation survey.

[3] Teacher's performance evaluation tool using opinion mining with sentiment analysis.

This paper provides the sentiment score from the qualitative data and numerical response rating from the quantitative data of teachers evaluation (based on student feedback). It will also graphically represent the evaluation result including the percentage of positive and negative feedback of the students.

III. PROPOSED SYSTEM

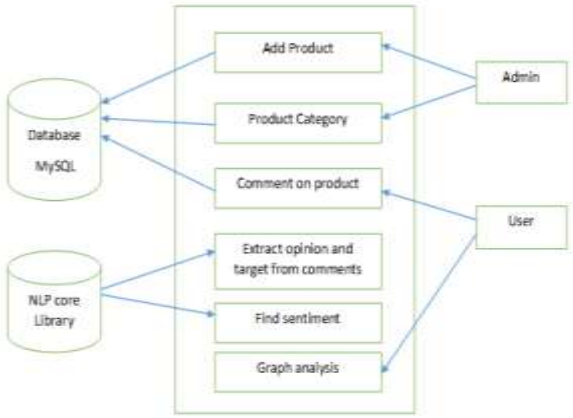

Fig 1. System architecture

The Prediction system architecture consists of 4 stages

- Admin
- User
- Database
- Output

Online reviews : The data entered by the user about his/her opinion information about product is called as the 'online reviews'. This reviews is supposed to be pre-processed and then classified further.

Pre-Processing : This unit consists of data pre-processing steps and methods use to filtrate and validate the inconsistent data.

Classification : The classifier models or the algorithms running at the back-end are used to classify the unseen data-tuple according to its properties and with respect to its class labels.

Sentiment Analysis: Extracting user reviews in the positive, negative, neutral, very positive and very negative form.

Output: The representation of sentiment in graphical format.

This system gives attention on user comment and separates them on the basis of positive and negative score and generate graph on user comment. This is going to make possible by using natural language processing and sentiment analysis algorithm through we can classify user sentences into sentence category and make it opinion into positive by using sentiment analysis algorithm. The sentiment can be negative, positive, neutral, very negative and very positive. Main scope of this proposed system, in the recommendation of products which is helpful for other user before buying some product and also to product owner to categorize his product or identify product.

IV. CONCLUSION

From this it can conclude that system gives help to owner of product to make the product quality changes as per user requirements. Our main contribution is focusing on detecting opinion relations between opinion targets and opinion words from on-line review. System is also able to generate graphical representation of users reviews. System successfully implements sentiment analysis on users review.

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