Chapter 3
Aspect-Based Sentiment Analysis of Online Product Reviews

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ABSTRACT

Sentiment analysis is a part of computational linguistics concerned with extracting sentiment and emotion from text. It is also considered as a task of natural language processing and data mining. Sentiment analysis mainly concentrate on identifying whether a given text is subjective or objective and if it is subjective, then whether it is negative, positive or neutral. This chapter provide an overview of aspect based sentiment analysis with current and future trend of research on aspect based sentiment analysis. This chapter also provide a aspect based sentiment analysis of online customer reviews of Nokia 6600. To perform aspect based classification we are using lexical approach on eclipse platform which classify the review as a positive, negative or neutral on the basis of features of product. The Sentiwordnet is used as a lexical resource to calculate the overall sentiment score of each sentence, pos tagger is used for part of speech tagging, frequency based method is used for extraction of the aspects/features and used negation handling for improving the accuracy of the system.

INTRODUCTION

Sentiment analysis is an area of text classification that starts in early of the last decade and has recently been receiving a lot of attention from the researchers and academicians. Sentiment analysis includes an analysis of data sets, such as online review, social media, blogs, and discussion groups, which contain opinions and opinion can be classify as positive, negative, or neutral. Opinion plays an important role in our information-collection behavior before taking a decision with applications in many fields, including recommender, customer intelligence, advertising systems and information retrieval.

Sentiment analysis can be also considered as the computational study of human opinions and sentiments, likes/dislikes, good\bad toward an entity such as products, services, organization, individual, issues, event, topics and their attributes. It is basically combination of natural language and data mining process that aims to extract user opinion and sentiment, expressed in positive, negative and neutral comments, by analyzing a large amount of unstructured user generated data. It is a task of automatically extracting the user opinion and sentiment from a plain text over the web. Sentiment analysis or opinion mining refers to the application of natural language processing, computational linguistics and text analysis to identify and extract subjective information from large amount of data.

Sentiment analysis also refers to identification and extraction of subjective information from text sources. It aims to determine the opinion of a person with respect to something in particular or the overall contextual polarity of a document. Sentiment analysis and its application in various disciplines; in information extraction, it is used to discard subjective information, in question-answering, it identifies opinion-oriented questions. Sentiment analysis is also used in the business intelligent and politics. Application areas of sentiment analysis are very vast and challenging. Sentiment analysis has focused on a great deal of attention as its very wide application in opinions detection, customer review summary, and other systems which is required to extract public opinions and sentiments. Some application areas of sentiment analysis are given in the next sub section.

APPLICATIONS OF SENTIMENT ANALYSIS

Sentiment occurs in almost all human activity because they describe the human behaviors. Whenever the human want to take a decision they want to know about others opinion. In real words, all business organization and all politicians want another opinion about their product and political condition even individual consumer also wants to know the opinion of the other user before purchasing any new product. In the past, whenever we want to take any decision we discuss it with our family member and friends for personel decisions and for taking any decision for an organizing we conducted the surveys. These traditional method are very time consuming and always does not give a good result.Application as a sub-component technology:Sentiment analysis plays an important role for enabling one technology for other system e.g. it cannot recommend those systems to be acquired with other if the systems contain more negative review. Detection of flame in the email and other type of communication is another use of sentiment classification. An online system, it helpful to take only the positive material in their system avoids all negative ads and content to be added to the online system and also helpful to the improve the online system and also helpful in the citation analysis, resulted increases the human computer interaction.

Application in Business and Government

Sentiment analysis is well suited in various intelligence applications. Business intelligence is one of the main application of sentiment analysis e.g. for any organization it is important to know what is the current position of their organization and for a businessman it is important to know the current position of their product and material in the market and due to the rapidly increase of web uses it is easy to analyze it with the help of user generated review and sentiment analysis is the best tool for it. Government intel-

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