Chapter 3
Sentiment Analysis Techniques, Tools, Applications, and Challenge

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ABSTRACT

Sentiment (opinion) refers to the feelings of a human being, which are generally reflected through speech and writing in a particular natural language. The analysis of these sentiments are therefore carried with the help of natural language processing, text analysis, and computational linguistics to identify and extract subjective information in source materials. Generally speaking, sentiment analysis aims to determine the attitude of a speaker or a writer with respect to some topic or the overall contextual polarity of a document. Sentiment analysis is widely applied to reviews and social media for a variety of applications, ranging from marketing research, political reviews, policy making, decision making, customer service, etc. In this chapter the authors include the introduction to sentiment analysis, various approaches for classification of sentiment analysis, various tools used, the application areas, challenges, and future research direction in this most demanding area.

INTRODUCTION

It is a general human tendency that whenever we want to take important decision, we seek the opinion from our friends or relatives and after thinking or analyzing the feedback or opinion of other people, we can reach the conclusion for taking final decision. Before the invention of Internet i.e World Wide Web, many of us asked our friends for which vehicle to purchase, whom they were planning to vote in elections, which washing machine to go for, which tourist place to visit, which doctor to concern, which bank to deposit money, which shopping place the best one, where to stay in city and which hotel to prefer

etc etc……But the limitation was ; we could have to take decision based on limited number of people's opinion/feedback but the invention of World Wide Web made it possible to collect the feedback from large number of people and not limited to our friends or relatives, As a stranger we can get nonbiased and authenticate feedback.

The people can give the opinion or feedback on websites or blogs, given opinion or review may be in terms of text and it's possible for us to filter or mine the text data. Here the opinion mining comes in role. Sentiment analysis or opinion mining is the study of people's opinion, attitude or emotion towards anything. It is the process of finding users opinion about a particular topic or product. The topic can be anything like, news, event, movie, etc. There is a slightly different perception between sentiment analysis and opinion mining. Sentiment analysis identifies the sentiment expressed in a text form and then analyzes it whereas opinion mining extracts and analyzes people's opinion about an entity. But at most many researchers uses opinion mining and sentiment analysis interchangeably. Here also we use opinion mining and sentiment analysis interchangeably.

During vacations, many people plans for holidays. While planning the holidays they have to think lots of things related to destination to make their holiday more enjoyable which includes whether it's a peak season or off season over there?, what kind food they can get there?, availability of accommodation according to budget?, the local transport facility, how is the locality over there?, is there medical facility available if require?, etc. And here is a requirement of a good tool which answers all these questions.

For planning enjoyable holidays the planner needs to get all this information easily. The one choice for him to get all this information is that, he has to talk in person with different peoples already visited over there. But of course this is very tedious and hectic way. The better choice is to make use of Internet. As we know vast information is available over the Internet which includes many reviews and opinions of many different peoples regarding the different things. Many different applications related to tourism information are also available on the Internet which provides a huge amount of personal reviews for traveling related information. These reviews can appear in different forms like blogs, Wiki or forum websites, social networking website etc. The information in these reviews is useful to both tourist and traveling manager for understanding and planning the trip. But as we see there is lots of reviews are available related to particular place and it is not possible for the person to go through all, because the given reviews are not in specific format, they depend on the writer. So there must be some tool which filters the useful reviews according to the people's expectation and provide good results.

BASICS OF SENTIMENT ANALYSIS

Sentiment analysis is the study of computing sentiments, opinions and emotions from the text. The primary goal of sentiment analysis is to detect the subjective information from text and define the mind set of author about point

Data Source

The data is obtained from following sources-

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