Chapter 17
Sentimental Analysis of Online Reviews Using Fuzzy Sets and Rough Sets

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ABSTRACT

With the increased interest of online users in E-commerce, the web has become an excellent source for buying and selling of products online. Customer reviews on the web help potential customers to make purchase decisions, and for manufacturers to incorporate improvements in their product or develop new marketing strategies. The increase in customer reviews of a product influence the popularity and the sale rate of the product. This lead to a very important question about the analysis of the sentiments (opinions) expressed in the reviews. As such internet does not have any quality control over customer reviews and it could vary in terms of its quality. Also the trustworthiness of the online reviews is debatable. Sentiment Analysis (SA) or Opinion Mining is the computational analysis of opinions, sentiments, emotions and subjectivity of text. In this chapter, we take a look at the various research challenges and a new dimension involved in sentiment analysis using fuzzy sets and rough sets.

INTRODUCTION

Today shopping online has become more popular than ever. Online shoppers use Customer's reviews to make informed buying decisions. Consumer actively seeks out and reads customer reviews prior to making a purchase decision. According to "social shopping study" by Power Reviews 70% of online shoppers, accepted customer reviews and ratings on a retailer's website were extremely important when they are selecting or purchasing product.

Manufactures use these reviews to know consumer preferences and interests, to maximize the profit. It is important to know others thoughts before we make purchase decision. As online purchasing in-

creases, number of reviews the web site receives also increases. Hence, the number of customer reviews being posted at review site is growing at faster rates (in hundreds or thousands). Maintaining such huge amount of reviews is not only a problem for the manufacturers but makes the process of decision making complicated, causing customer either to read all the reviews on that product or to select reviews and read. It is time consuming to read all the reviews and to select the reviews and read; the customer does not know which reviews to choose and read since the quality of the reviews vary greatly. Figure 1 shows the summary of Social shopping study by power reviews.

As text messages express the state of minds of individual; mining such messages from a large population in different context. Discovering user preferences through social media is a challenging task. Opinion mining, SA and subjectivity analysis are related fields sharing common goals of developing and applying computational techniques to process collections of opinionated texts or reviews. Opinion mining (OM) is a new field of data mining concerned with the opinion that can be induced from documents. OM is divided into three major tasks: development of linguistic resources, sentiment classification, and opinion summarization (Elawady, Barakat, & Elrashidy,2014).

Sentiment Analysis (SA) is a task that finds the opinion (e.g .positive or negative) from the text document like product reviews/movie reviews. As user generated data is increasing day by day on the web. It is needed to analyze those contents to know the opinion of the users, and hence it increases the demand of sentiment analysis research. People express their opinions about movies and products etc.

Figure 1. Social study chart on customer feedback
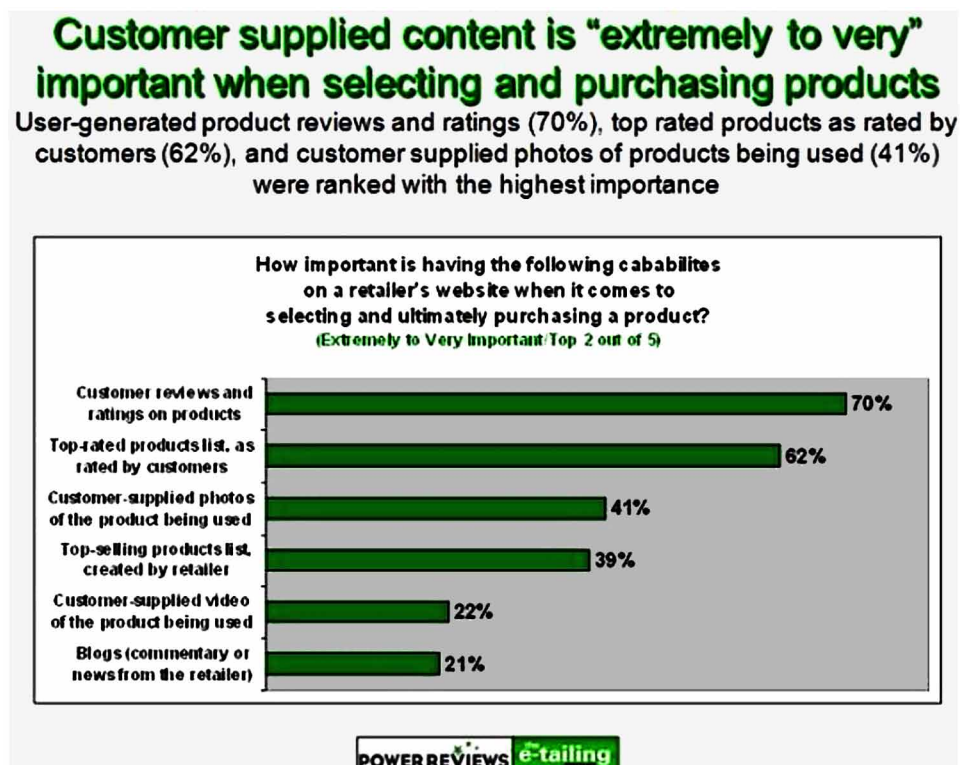
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