

# Chapter 39

## Social Media Mining for Assessing Brand Popularity

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### ABSTRACT

*Businesses seek to analyse their customer feedback to compare their brand's popularity with the popularity of competing brands. The increasing use of social media in recent years is producing large amounts of textual content, which has become rich source of data for brand popularity analysis. In this article, a novel hybrid approach of classification and lexicon based methods is proposed to assess brand popularity based on the sentiments expressed in social media posts. Two different classification models using Naïve Bayes (NB) and SVM are built based on Twitter messages for 9 different brands of 3 cosmetic products. In addition, sentiment quantification have been performed using a lexicon-based approach. Based on the overall comparison of the proposed models, the SVM classifier has the highest performance with 78.85% accuracy and 94.60% AUC, compared to 73.57% and 63.63% accuracy, 80.63% and 69.38% AUC of the NB classifier and the sentiment quantification approach respectively. Specific indices based on classification and lexicon approaches are proposed to assess the brand popularity.*

### 1. INTRODUCTION

In the past decade, the interest in brand analysis of business sector have increased. Companies seek to collect and analyse their customer feedback to gain useful information that can be used to improve their products and services and compare their brand's popularity with the popularity of competing brands and enhance their performance.

Brand popularity is an important issue for many brands and their consumers. A brand is a name, term, sign, symbol, design, or collection of these to distinguish products or services of one vender or a gathering of sellers to separate them from those of competitors (Kotler, 1996). Whereas popularity as viewed by (Rana, 2015) is a situation or statues when many people like some things, implying the

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preference of a group of people or the general public. Hence, brand popularity is the accumulation of brand goodwill and market acceptance over time (Kim & Chung, 1997).

Brand popularity positively affects brand performance and brand image and can enhance the confidence of customers in making purchasing decisions (Kim & Chung, 1997; Aaker, 1992). The popularity associated with perceived quality can provide value to the brand, which will increase the probability of choosing the brand among alternative brands (Aaker, 1992). In addition, brand popularity affects product evaluation in diverse ways, including uniqueness, positive attitude, perceived quality, manufacturer esteem, and purchase intention (Whang, Ko, Zhang, & Mattila, 2015). Popular brands have more loyal customers, while less popular brands have fewer customers, who are not considered as loyal (Ehrenberg, Goodhardt, & Barwise, 1990). The popularity of using social networks in recent years has led to creating a huge amount of textual data, which has become a rich source of data for brands. Recommendation, comments and word-of-mouth can have a substantial influence on the brand popularity. Therefore, the brands can benefit from social media data to get information about their popularity and the popularity of their competing brands.

The use of social media, such as blogs, micro blogs, discussion forums, and multimedia sharing sites, has increased in all aspects of life, especially in the business sector. Social media is defined as a "...group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content..." (Kaplan & Haenlein, 2010). Nowadays, social media networks have become a rich resource of data for organisations and institutes where people can express and share information, their opinions and thoughts freely without restrictions. Organisations can collect and analyse these data to gain helpful information for a given issue. This information can be used by organisations to monitor their brand's performance and compare it with their competitors, evaluate their marketing strategies, and analyse how their products and services are received by the consumers (Alshukri, Coenen, Li, Redfern, & Wong, 2014). However, these data are in an unstructured and in informal form that make brands unable to react to feedback and make decisions quickly. To address these challenges, it is desirable to provide an approach to assess brand popularity effectively in a brief time. Social media mining technique can be used to collect and analyse these data.

Social media mining is defined as the operations of representing, examining, and extracting patterns with meaning from the data available in social media (Zafarani, Abbasi, & Liu, 2014). Mining social media can help in developing the business and building new business strategies. The large amount of user-generated data available in social media can be used for data mining to extract knowledge (Pippal, Batra, Krishna, Gupta, & Arora, 2014).

Sentiment analysis technique is one of the most popular data-mining approaches used in analysing social media data to analyse people's sentiments, opinions, emotions, and attitudes about different entities, such as products, services, organisations, companies, individuals, topics, and events and includes multiple fields, such as machine learning, natural language processing (NLP), information retrieval, computational linguistics, and text mining (Beigi, Hu, Maciejewski, & Liu, 2016).

In the current research, we focused on how to use social media mining techniques to develop a novel data-mining approach to assess brand popularity. In this paper, brand popularity is defined as the extent to which a brand has positive word of mouth on social media from the consumers. Existing literature on assessing brand popularity has been reviewed in the following section. We then presented our methodology to assess the popularity of specific brands using sentiment analysis techniques, followed by an experimental analysis of the proposed approach. The paper is concluded with a discussion on the results of the experimental analysis and possible future works.

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