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# **Time and feature specific sentiment analysis of product reviews**

Important - In this work an “aging factor” to assign time-specific weights to the reviews has been introduced.

Abstract-

Customer reviews are a great source of firsthand experience–related information about the product. These can be usefully exploited to gain an insight about the product, its features, its improvements, its loopholes, etc. Such reviews are important for both companies and for the customers. For companies, these reviews act as feedback about their products, and for the customers, they are useful for analyzing whether or not to purchase the product. However, it becomes very difficult to go through all the reviews and analyze the product. Moreover, if one is interested only in few features of the product, it becomes a double-fold task for him. Also, it is very difficult to say that how good the product is as per the current market. Hence, sentiment analysis has been explored to analyze the review comments considering time- as well as feature-specific sentiments of product reviews. In this work an “aging factor” to assign time-specific weights to the reviews has been introduced. All the weighted reviews about the specific features sum up to give an overall idea about that feature. Customer reviews about a mobile phone, collected from Kaggle, have been used to perform the experiment. Various machine-learning algorithms, for example, Naïve Bayes, [support vector machine](https://www.sciencedirect.com/topics/chemical-engineering/support-vector-machine), random forest, and maximum entropy classifiers have been experimented upon, and the best working algorithm was chosen for further steps. At last an insight about the future work in this direction has been given.

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**Abstract**

This paper examines the informational role of product ratings. We build a theoretical model in which ratings can help consumers figure out how much they would enjoy the product. In our model, a high average rating indicates a high product quality, whereas a high variance of ratings is associated with a niche product, one that some consumers love and others hate. Based on its informational role, a higher variance would correspond to a higher subsequent demand if and only if the average rating is low. We find empirical evidence that is consistent with the theoretical predictions with book data from Amazon.com and BN.com. A higher standard deviation of ratings on Amazon improves a book's relative sales rank when the average rating is lower than 4.1 stars, which is true for 35% of all the books in our sample.