

A product recommendation system considering sentiment and implicit information

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ABSTRACT

Currently, most product websites allow users to express their reviews in terms of explicit rating and sentimental comments at same time. To increase profits, it is important for product providers to match customers with most appropriate products through accurate recommendation. However, three main problems are revealed. First, although some previous researches use both explicit rating and textual comments as the preference source, seldom of them consider the scenario that users may provide conflicted review information. Second, traditional researches focus on getting the sentiment rating in each word or sentence aspect, they seldom focus on getting the sentiment from document aspect. Third, the implicit feedback of users is seldom considered with other preferences in recommendation system recently. To solve these problem, a recommendation system based on sentiment and implicit information is proposed. First, a preference rating integration is developed to solve the scenario when the explicit rating and the textual comment are conflicted. Second, in this research, a deep learning sentiment classifier is developed to transfer a user comment as a sentiment rating. To take implicit information such as customer preferences into consideration, the Singular Value Decomposition with Implicit Feedback (SVD++) algorithm is applied. Finally, the product list with top predict rating will be recommended to customers. The experiment shows that considering the sentiment information and implicit feedback makes the recommendation result more accurate. It also shows that using complex structure of the sentiment classifier can get the higher accuracy of prediction. On the other hand, different parameters in data preprocessing of user comments will also affect the accuracy of the sentiment classifier. It is believed that the proposed method can solve the review with inconsistency and lacking explicit rating problems.