

Abstract

The process of selecting perfumes on e-commerce platforms is often affected by search bias, which challenges consumers in finding products aligned with their preferences. Previous studies using the AHP method relied on respondent satisfaction scores, which skewed towards highly positive responses and resulted in a reported accuracy of 90.07%. This study proposes a recommender system employing Content-based Filtering with the TF-IDF algorithm to enhance accuracy. TFIDF was chosen for its efficiency in quantifying reviews and user ratings, enabling more relevant recommendations. The system was developed through data collection and filtering, sentiment analysis of reviews, TF-IDF implementation, and re-ranking recommendations based on sentiment and user ratings. The system's performance was evaluated using precision and recall metrics on Top-N recommendations, with Word2Vec employed for comparative analysis. The results of this paper demonstrate that TF-IDF significantly outperforms Word2Vec, achieving a precision of 80% and recall of 95%, compared to Word2Vec's precision of 18% and recall of 89%. Moreover, rating-based models demonstrated superior performance over sentiment-based models, achieving a maximum precision of 82.09% and a recall of 98%. This study highlights TF-IDF's effectiveness in improving recommendation accuracy and its capability to address search bias, providing a more robust and effective solution for perfume recommendations.

Keywords: Content Based Filtering, TF-IDF, Word2Vec, recommendation system, precision, recall