Abstract

Facial skincare is crucial for maintaining clean, healthy, and glowing skin. Recommendation systems, such as Collaborative Filtering and Content-Based Filtering, can suggest skincare products based on user reviews. This study compares two Matrix Factorization models, namely Non-Negative Matrix Factorization (NMF) and Singular Value Decomposition (SVD), to improve the accuracy and relevance of skincare recommendations. The results show that the SVD algorithm is superior, with a Mean Absolute Error (MAE) of 0.7190, Root Mean Square Error (RMSE) of 1.0104, Precision of 0.8054, Recall of 0.8144, and an F-1 score of 0.8099. In comparison, the NMF algorithm has an MAE of 0.7074, RMSE of 1.1052, Precision of 0.7865, Recall of 0.7987, and an F-1 score of 0.7926. The test results indicate that both methods can produce fairly accurate recommendation systems.

Keywords: Matrix Factorization, Collaborative Filtering, Skincare, Non-Negative Matrix Factorization, Singular Value Decomposition