ABSTRACT

Music streaming, especially among millennials, encourages the expansion of song choices through recommendations that match preferences. This study develops a music recommendation system using the Alternating Least Squares (ALS) method, focusing on handling data sparsity in the Last FM and Million Song Dataset (MSD) datasets. ALS, as a matrix factorization solution, separates the user-item rating matrix, improving the personalization of recommendations. Testing on various data proportions showed optimal performance at a 50:50 proportion, resulting in the highest Precision@K. Although the Precision@K values were relatively low, they showed the potential for model improvement in overcoming sparsity. Evaluation on a random user (UserID 76) also confirmed the effectiveness of the 50:50 proportion in providing recommendations that match preferences. The research conclusion achieves its objectives, however, it highlights the room for improvement in the optimality of the ALS model. Further development can consider adjusting ALS parameters and optimizing computation time. These findings provide a basis for more accurate and relevant music recommendation systems, especially in implicit music dataset scenarios.

Keywords: alternating least squares, collaborative filtering, sparse, recommendation system, music