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Music Recommender System Based on Play Count Using Singular Value Decomposition++

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Abstract− The availability of digital music content on various music streaming services, which is constantly growing, has increased the need for recommender systems (RS) to assist users in finding music that suits their taste without the need of searching manually. One of the commonly used paradigms is Collaborative Filtering (CF). In CF, the input used to predict ratings can take the form of explicit or implicit input from user feedback. In the music domain, implicit feedback such as the number of music plays can be utilized to predict a user's music preferences. Singular Value Decomposition++ is one of the Matrix Factorization (MF) algorithms that can leverage implicit feedback and address the sparsity issue. In this research, a music recommender system is built using the Million Song Dataset (MSD) Subset from The Echo Nest, utilizing SVD++ algorithm. Additionally, the performance of the built system is measured through k-fold cross-validation using the evaluation metrics RMSE and NDCG. The performance measurement results using RMSE and NDCG in 5-fold cross-validation yield an RMSE of 0.4423, NDCG@5 of 0.8232, and NDCG@10 of 0.8231 for the top 10 items.

Keywords: Recommender System; Collaborative Filtering; Singular Value Decomposition++; Music

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