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Recommendation System Based on Double Ensemble Models using KNN-MF(Article)(Open Access)

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Abstract

In today's digital environment, recommendation systems are essential as they provide personalised content to users, increasing user engagement and enhancing user satisfaction. This paper proposes a double ensemble recommendation model that combines two collaborative filtering algorithms, K Nearest Neighbour (KNN) and Matrix Factorization (MF). KNN is a neighbourhood-based algorithm that uses the similarity between users or items to make recommendations. At the same time, MF is a model-based algorithm that decomposes the user-item rating matrix into lower-dimensional matrices representing the latent user and item factors. The proposed double ensemble model uses KNN and MF to predict missing ratings matrix and combines their predictions using stacking. To evaluate the performance of the proposed ensemble model, we conducted experiments on three datasets i.e. Movielense, BookCrossing dataset and Hindi Movie dataset and compared the results with those of single algorithm approaches. The