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| **Title** | : | **PERSONALIZED MOVIE RECOMMENDATION WITH ITEM-BASED COLLABORATIVE FILTERING** |
| **Author** | **:** | **Sit Yie Sian** |

**Abstract**

The primary objective of this project is to design and implement a movie recommendation system using item-based collaborative filtering, enhancing users' movie-watching experience by providing personalized movie recommendations. Addressing the challenge of finding relevant and enjoyable movies amidst the rapid growth of the entertainment industry, our system caters to individual preferences and tastes. The project encompasses the development of both item-based and user-based collaborative filtering algorithms, collection and preprocessing of movie rating data from the MovieLens dataset. Employing tools and techniques such as Python programming, pandas, NumPy, and similarity metrics like Pearson correlation coefficient and cosine similarity, the system incorporates various functional modules, including data preprocessing, similarity computation, rating prediction, and recommendation generation. Performance evaluation using metrics like Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE) demonstrates the effectiveness of the collaborative filtering algorithms in generating personalized movie recommendations, successfully capturing individual user preferences and improving the movie-watching experience. Further improvement could address data sparsity issues and incorporate hybrid filtering techniques to enhance recommendation quality.