

**DINING ESTABLISHMENT RECOMMENDATION SYSTEM  
USING MACHINE LEARNING**

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## ABSTRACT

Recommendation systems are now widely implemented across various domains in the modern technological landscape, including e-commerce platforms like Shopee, Amazon, and Lazada, as well as movie streaming services such as Netflix, Hulu, and Disney Plus. Among the many methods used in recommendation systems, Matrix Factorization (MF) stands out as a key technique within collaborative filtering (CF). The project intends to develop a dining establishment recommendation system for Malaysian customers using Singular Value Decomposition (SVD) and Principal Component Analysis (PCA) methods that are the specific type of MF. The study investigates the usefulness of various MF approaches by analysing a secondary dataset of user ratings and reviews for more than 800 restaurants. The system seeks to improve user happiness by making personalised suggestions based on their interests and location. The results show that PCA surpasses SVD in terms of Root Mean Square Error (RMSE), making it the preferable approach for creating accurate and efficient meal suggestions. The project features a user-friendly interface created using Streamlit that allows users to pick their location and obtain top eating recommendations, which are then enhanced by analysing relevant user evaluations with TF-IDF and cosine similarity.

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