

Abstract

In recent years there have been many variations of food recipes that have developed in the community. These recipes can be selected for users in the form of food recipe recommendations. This study aims to apply Singular Value Decomposition (SVD) to provide recipe recommendations using the “Food.com recipes and interactions” dataset has imbalance characteristics. The SVD algorithm predicts ratings based on the user's previous rating history. This study will test several SVD parameters, including n_epochs , lr_all , reg_all in the 5-fold Cross-validation mechanism. To handle the rewards, we oversampled the training data in each cross-validation. From the test results, the best performance $RMSE = 1.52688$, $MAE = 1.40020$, $Recall = 0.38378$, $Precision = 0.94126$, $F1-Score = 0.54486$, $Specificity = 0.95296$, $False\ positive\ rate = 0.04704$ and $NDCG = 0.99417$.

Keywords: Recipe Recommendation, Singular Value Decomposition, Imbalance Data, Cross-validation, Specificity.