
Sistem Pemberi Rekomendasi Buku Menggunakan Matrix Factorization dengan Metode Alternating Least Squares

Hafid Ahmad Adyatma¹, Z. K. A. Baizal²

^{1,2}Fakultas Informatika, Universitas Telkom, Bandung

³Divisi Digital Service PT Telekomunikasi Indonesia

hafidnony@students.telkomuniversity.ac.id, baizal@telkomuniversity.ac.id.

Abstract

In this digital age, we are faced with countless choices of books. Finding books that match our interests and desires becomes a complex challenge. However, the existence of a book recommender system is useful to help provide the best decision-making experience that users can have. This research develops a book recommender system using Collaborative Filtering (CF) Matrix Factorization with Alternating Least Squares method which is compared with Singular Value Decomposition method to see an accurate recommender system. This research uses datasets from Goodreads in the form of book data and rating data. This research uses several evaluation metrics, namely RMSE and MAE for regression metrics and F1-Score and Precision for classification metrics. Based on the research that has been done, SVD gets a better accuracy value with an RMSE value of around 0.86822, for MAE values around 0.6903, for F1-Score values around 0.827923 and for Precision values around 0.568347. Meanwhile, the ALS algorithm gets an RMSE value of around 1.09320, for MAE value of around 0.86479, for F1-Score value of around 0.000304 and for Precision value of around 0.000596.

Keywords: Collaborative Filtering; Recommender System; Matrix Factorization; Singular Value Decomposition; Alternating Least Squares
