

ABSTRACT

CLUSTERING-BASED COMIC RECOMMENDER SYSTEM USING COLLABORATIVE FILTERING METHOD

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The COVID-19 pandemic has limited the activities of global citizens in their homes for a long time. This situation can cause boredom and stress. Reading comics can act as entertainment and reduce people's stress. However, finding a good comic to read can be challenging. Thus, creating a Comic Recommender System can help people to find their preferred comic.

The Comic Recommender System is built using Item-based Collaborative Filtering to give a comic recommendation based on the prediction of similarity value between comics. Item-based Collaborative Filtering has scalability and sparsity issues. Clustering methods: K-Means and DBSCAN are implemented to solve these problems.

Offline evaluation and user survey are conducted to compare the performance of K-Means and DBSCAN. The offline evaluation measures two parameters: MAE and running time. The offline evaluation result shows that DBSCAN has better accuracy than K-Means, but K-Means has a faster running time. The user survey was conducted to 30 participants, and the Comic Recommender System has an average score above 4 (1-5 scale) in relevance, novelty, serendipity, and increasing recommendation diversity parameters.

Keywords: clustering, collaborative filtering, comics, DBSCAN, K-Means, recommender system

INTISARI

SISTEM REKOMENDASI KOMIK BERBASIS CLUSTER MENGUNAKAN METODE COLLABORATIVE FILTERING

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Pandemi COVID-19 telah lama membatasi aktivitas warga global di rumah mereka. Situasi ini dapat menyebabkan kebosanan dan stres. Membaca komik bisa menjadi hiburan dan mengurangi stres masyarakat. Namun, menemukan komik yang bagus untuk dibaca bisa jadi menantang. Dengan demikian, membuat Sistem Rekomendasi Komik dapat membantu orang untuk menemukan komik pilihan mereka.

Sistem Rekomendasi Komik dibangun menggunakan *Item-based Collaborative Filtering* untuk memberikan rekomendasi komik berdasarkan prediksi nilai kemiripan antar komik. *Item-based Collaborative Filtering* memiliki masalah *scalability* dan *sparsity*. Metode *clustering*: K-Means dan DBSCAN diimplementasikan untuk mengatasi masalah ini.

Evaluasi *offline* dan survei pengguna dilakukan untuk membandingkan kinerja K-Means dan DBSCAN. Evaluasi *offline* mengukur dua parameter: MAE dan *running time*. Hasil evaluasi offline menunjukkan bahwa DBSCAN memiliki akurasi yang lebih baik daripada K-Means, namun K-Means memiliki *running time* yang lebih cepat. Survei pengguna dilakukan kepada 30 peserta, dan Sistem Rekomendasi Komik memiliki skor rata-rata di atas 4 (skala 1-5) dalam parameter relevansi, kebaruan, kebetulan, dan peningkatan keragaman rekomendasi.

Kata kunci: *clustering*, *collaborative filtering*, DBSCAN, K-Means, komik, sistem rekomendasi