ABSTRAK

Penelitian ini membandingkan dua metode sistem rekomendasi, yaitu *item-based collaborative filtering* dan *content-based filtering*, untuk memberikan rekomendasi destinasi wisata di Kabupaten Samosir. *Item-based collaborative filtering* mengandalkan kemiripan antar objek wisata berdasarkan *rating* pengguna, sedangkan *content-based filtering* mencocokkan karakteristik destinasi dengan preferensi pengguna. Data yang digunakan berupa daftar destinasi wisata di Samosir beserta *rating* dari Google Maps. Evaluasi dilakukan dengan metrik *precision, recall, f1-score*, dan *Mean Average Precision* (MAP) pada variasi jumlah rekomendasi 5, 10, 15, dan 20. Hasil evaluasi menunjukkan bahwa *content-based filtering* unggul pada jumlah rekomendasi yang lebih sedikit. Pada 5 rekomendasi, *content-based* mencatat *precision* 0.8, *recall* 0.04, *f1-score* 0.07, dan MAP 0.64, sedangkan *item-based* hanya mencapai *precision* 0.6, *recall* 0.03, *f1-score* 0.06, dan MAP 0.45. Pada 10 rekomendasi, *content-based* memperoleh *precision* 0.7, *recall* 0.07, *f1-score* 0.12, dan MAP 0.52, lebih tinggi dari *item-based* yang mencatat *precision* 0.6, *recall* 0.06, *f1-score* 0.1, dan MAP 0.41. Pada 15 rekomendasi, *content-based* mencapai *precision* 0.8, *recall* 0.12, *f1-score* 0.2, dan MAP 0.6, sedangkan *item-based* hanya memperoleh *precision* 0.73, *recall* 0.11, *f1-score* 0.18, dan MAP 0.5. Namun, pada 20 rekomendasi, *item-based* lebih unggul dengan *precision* 0.8, *recall* 0.15, *f1-score* 0.26, dan MAP 0.67, sementara *content-based* menurun ke *precision* 0.7, *recall* 0.14, *f1-score* 0.23, dan MAP 0.53. Temuan ini menunjukkan bahwa *content-based filtering* lebih stabil pada jumlah rekomendasi kecil, *sementara item-based collaborative filtering* lebih efektif pada jumlah besar. Sistem yang dikembangkan juga menyediakan antarmuka web interaktif dan mendukung evaluasi performa secara menyeluruh.

Kata Kunci : sistem rekomendasi, *item-based collaborative filtering*, *content-based filtering*, destinasi wisata, evaluasi, *precision*, *recall*, *f1-score*, MAP, Kabupaten Samosir

ABTRACT

This study compares two recommendation system methods, namely item-based collaborative filtering and content-based filtering, to provide tourism destination recommendations in Samosir Regency. Item-based collaborative filtering relies on the similarity between tourist objects based on user ratings, while content-based filtering matches destination characteristics with user preferences. The data used consists of a list of tourist destinations in Samosir along with ratings from Google Maps. Evaluation was conducted using precision, recall, f1-score, and Mean Average Precision (MAP) metrics across recommendation sizes of 5, 10, 15, and 20. The evaluation results show that content-based filtering outperforms at smaller recommendation sizes. For 5 recommendations, content-based achieved a precision of 0.8, recall of 0.04, f1-score of 0.07, and MAP of 0.64, while item-based reached only precision 0.6, recall 0.03, f1-score 0.06, and MAP 0.45. For 10 recommendations, content-based recorded precision 0.7, recall 0.07, f1-score 0.12, and MAP 0.52, higher than item-based with precision 0.6, recall 0.06, f1-score 0.1, and MAP 0.41. For 15 recommendations, content-based scored precision 0.8, recall 0.12, f1-score 0.2, and MAP 0.6, while item-based achieved precision 0.73, recall 0.11, f1-score 0.18, and MAP 0.5. However, for 20 recommendations, item-based performed better with precision 0.8, recall 0.15, f1-score 0.26, and MAP 0.67, compared to content-based which dropped to precision 0.7, recall 0.14, f1-score 0.23, and MAP 0.53. These findings indicate that content-based filtering is more stable at smaller recommendation sizes, while item-based collaborative filtering is more effective at larger ones. The developed system also provides an interactive web interface and supports comprehensive performance evaluation.

Keywords: recommendation system, item-based collaborative filtering, content-based filtering, tourism destinations, evaluation, precision, recall, f1-score, MAP, Samosir Regency