

ABSTRAK

Yogyakarta sebagai destinasi wisata populer di Indonesia memiliki ratusan pilihan akomodasi yang membuat wisatawan mengalami kesulitan dalam menemukan hotel yang sesuai dengan preferensi mereka. Berdasarkan wawancara dengan lima responden yang memiliki pengalaman berkunjung ke Yogyakarta, ditemukan bahwa mereka membutuhkan sistem yang dapat memberikan rekomendasi hotel berdasarkan lokasi, kenyamanan, fasilitas, dan rentang harga yang relevan. Penelitian ini bertujuan mengembangkan sistem rekomendasi hotel berbasis web yang dapat memberikan rekomendasi personal dan akurat dengan mempertimbangkan preferensi fasilitas, budget, kategori hotel, dan kedekatan geografis dengan lokasi wisata.

Sistem dikembangkan menggunakan pendekatan *Weighted Hybrid Filtering* yang mengkombinasikan tiga metode: *Content-Based Filtering (CBF)* yang menganalisis karakteristik hotel menggunakan *TF-IDF* dan *cosine similarity*, *Collaborative Filtering (CF)* yang memprediksi *rating* berdasarkan kesamaan perilaku pengguna menggunakan *K-Nearest Neighbors*, dan *Location-Based Service (LBS)* yang menghitung *skor proximity* menggunakan *formula Haversine*. Sistem dilengkapi dengan *smart fallback mechanism* yang melakukan relaksasi kriteria pencarian secara bertahap untuk memastikan pengguna selalu mendapatkan rekomendasi yang relevan.

Dataset penelitian mencakup 120 hotel di Yogyakarta yang tersebar di 15 area strategis dengan lima klasifikasi kategori (*Luxury*, *Business*, *Mid-Range*, *Budget*, dan *Boutique*) serta 500 interaksi *user*-hotel. Sistem diimplementasikan sebagai aplikasi web menggunakan *framework Streamlit* dengan fitur filter *multi-kriteria*, visualisasi peta interaktif menggunakan *Folium*, dan transparansi algoritma melalui *score breakdown*. Hasil evaluasi menunjukkan sistem mencapai *Precision 100%*, *Recall 10.40%*, *F1-Score 18.10%*, dan *MAE 0.32*. Penelitian ini membuktikan bahwa pendekatan *weighted hybrid filtering* efektif dalam memberikan rekomendasi hotel yang akurat dengan mempertimbangkan *multiple criteria decision making*, sehingga dapat membantu wisatawan dalam merencanakan akomodasi yang lebih efisien dan kontekstual.

Kata kunci: sistem rekomendasi, *hybrid filtering*, *location-based service*, *collaborative filtering*, *content-based filtering*, hotel Yogyakarta

ABSTRACT

Yogyakarta as a popular tourist destination in Indonesia has hundreds of accommodation options that make it difficult for tourists to find hotels that match their preferences. Based on interviews with five respondents who have visited Yogyakarta, it was found that they need a system that can provide hotel recommendations based on location, comfort, facilities, and relevant price ranges. This research aims to develop a web-based hotel recommendation system that can provide personalized and accurate recommendations by considering facility preferences, budget, hotel categories, and geographical proximity to tourist attractions.

The system was developed using a Weighted Hybrid Filtering approach that combines three methods: Content-Based Filtering (CBF) which analyzes hotel characteristics using TF-IDF and cosine similarity, Collaborative Filtering (CF) which predicts ratings based on user behavior similarities using K-Nearest Neighbors, and Location-Based Service (LBS) which calculates proximity scores using the Haversine formula. The system is equipped with a smart fallback mechanism that performs gradual search criteria relaxation to ensure users always receive relevant recommendations.

The research dataset includes 120 hotels in Yogyakarta distributed across 15 strategic areas with five category classifications (Luxury, Business, Mid-Range, Budget, and Boutique) and 500 user-hotel interactions. The system is implemented as a web application using the Streamlit framework with multi-criteria filter features, interactive map visualization using Folium, and algorithm transparency through score breakdown. Evaluation results show the system achieves 100% Precision, 10.40% Recall, 18.10% F1-Score, and 0.32 MAE. This research proves that the weighted hybrid filtering approach is effective in providing accurate hotel recommendations by considering multiple criteria decision making, thus helping tourists plan accommodation more efficiently and contextually.

Keywords: *recommendation system, hybrid filtering, location-based service, collaborative filtering, content-based filtering, Yogyakarta hotel*