

ABSTRAK

Pariwisata merupakan sektor penting yang mendorong pertumbuhan ekonomi di berbagai negara. Banyaknya pilihan hotel yang tersedia di platform *Online Travel Agent* (OTA) seperti Traveloka sering kali menyulitkan wisatawan dalam menemukan hotel yang sesuai dengan preferensi mereka. Selain itu, sistem rekomendasi hotel yang ada umumnya masih menggunakan metode tunggal dan belum mampu menangani permasalahan *cold start*, yakni kondisi di mana pengguna baru belum memiliki riwayat interaksi pada sistem. Penelitian ini bertujuan membangun sistem rekomendasi hotel berbasis *Hybrid Recommendation System* yang menggabungkan metode *Collaborative Filtering* dan *Content-Based Filtering* dengan pembobotan dinamis untuk mengatasi masalah *cold start user*. Dataset yang digunakan adalah TripAdvisor Hotel Reviews dari Kaggle. Atribut author dan ratings digunakan dalam CF, sedangkan atribut hotel_class, region, dan locality digunakan dalam CBF. Penanganan cold start dilakukan menggunakan pendekatan berbasis popularitas (*Popularity-Based Recommendation*). Pembobotan dinamis diterapkan untuk menyesuaikan kontribusi antara CF dan CBF secara adaptif berdasarkan jumlah interaksi pengguna. Sistem diimplementasikan dalam bentuk aplikasi web menggunakan Streamlit. Evaluasi dilakukan menggunakan metode *Leave-One-Out Cross Validation* dengan metrik *Mean Absolute Error* dan *Root Mean Squared Error*. Hasil evaluasi menunjukkan bahwa metode *Hybrid Recommendation* menghasilkan performa terbaik dengan nilai MAE sebesar 0,746971 pada K=5 dan nilai RMSE sebesar 0,987865 pada K=10, lebih baik dibandingkan metode CF maupun CBF secara individual. Penelitian ini diharapkan dapat membantu wisatawan menemukan hotel yang sesuai preferensinya secara lebih efisien, serta berkontribusi pada pengembangan sistem rekomendasi yang adaptif di sektor pariwisata.

Kata kunci: Sistem Rekomendasi Hotel, *Collaborative Filtering*, *Content-Based Filtering*, *Hybrid Filtering*, Pembobotan Dinamis, *Cold Start*, *Mean Absolute Error*, *Root Mean Squared Error*.

ABSTRACT

Tourism is an important sector that drives economic growth in many countries. The large number of hotel options available on Online Travel Agent (OTA) platforms such as Traveloka often makes it difficult for travelers to find hotels that match their preferences. In addition, existing hotel recommendation systems generally still use a single method and are not yet able to handle the cold start problem, which occurs when new users do not have any interaction history in the system. This study aims to build a hotel recommendation system based on a Hybrid Recommendation System that combines Collaborative Filtering and Content-Based Filtering methods with dynamic weighting to address the user cold start problem. The dataset used is the TripAdvisor Hotel Reviews from Kaggle. The attributes author and ratings are used in CF, while the attributes hotel_class, region, and locality are used in CBF. Cold start handling is performed using a popularity-based recommendation approach. Dynamic weighting is applied to adaptively adjust the contribution between CF and CBF based on the number of user interactions. The system is implemented as a web application using Streamlit. Evaluation is conducted using Leave-One-Out Cross Validation with Mean Absolute Error and Root Mean Squared Error as evaluation metrics. The results show that the Hybrid Recommendation method achieves the best performance with a MAE value of 0.746971 at K=5 and an RMSE value of 0.987865 at K=10, outperforming both CF and CBF methods individually. This research is expected to help travelers find hotels that better match their preferences more efficiently, as well as contribute to the development of adaptive recommendation systems in the tourism sector.

Keywords: *Hotel Recommendation System, Collaborative Filtering, Content-Based Filtering, Hybrid Filtering, Dynamic Weighting, Cold Start, Mean Absolute Error, Root Mean Squared Error.*