ABSTRAK

Perkembangan teknologi informasi telah mendorong digitalisasi pada industri kuliner, termasuk proses pemesanan makanan pada rumah makan dine-in. Permasalahan yang sering terjadi adalah pelanggan mengalami kesulitan dalam menentukan pilihan menu yang sesuai dengan preferensi karena banyaknya variasi menu yang tersedia. Kondisi tersebut dapat menyebabkan pelanggan membutuhkan waktu lebih lama dalam mengambil keputusan, terutama saat terjadi antrean panjang sehingga meningkatkan tekanan dalam proses pemilihan menu. Penelitian ini mengembangkan sistem rekomendasi pemesanan dine-in berbasis *Hybrid Filtering* dengan menggabungkan metode *Content-Based Filtering* (CBF) dan *Collaborative filtering* (CF) untuk menghasilkan rekomendasi menu yang lebih personal. Metode CBF diterapkan menggunakan pembobotan TF-IDF dan Cosine *Similarity* berdasarkan karakteristik menu, sedangkan CF menggunakan pendekatan *Item-Based Collaborative filtering* dengan perhitungan *Cosine Similarity* dan *Weighted sum* berdasarkan pola rating pengguna. Kedua metode digabungkan menggunakan pendekatan weighted *hybrid* dengan bobot 70% CBF dan 30% CF. Sistem dikembangkan menggunakan Flask sebagai backend dan Vue.js sebagai frontend dengan dataset *Food Recommendation System* dari Kaggle. Evaluasi sistem dilakukan menggunakan metrik *Mean Average Precision* (MAP) dan *Normalized Discounted Cumulative Gain* (NDCG). Hasil pengujian terbaik diperoleh pada skenario Top-3 dengan nilai MAP sebesar 0,967 dan NDCG sebesar 0,977. Selain itu, dilakukan pengujian beta berdasarkan enam aspek *usability*, yaitu *Learnability, Efficiency, Memorability, Error Tolerant, Satisfaction, dan Effective.* Hasil pengujian memperoleh nilai rata-rata *usability* sebesar 91% dengan kategori sangat baik, yang menunjukkan bahwa sistem mampu menghasilkan rekomendasi yang relevan serta mudah digunakan oleh pengguna.

Kata Kunci: Sistem Rekomendasi, *Hybrid Filtering*, TF-IDF, *Collaborative filtering*, *Dine-In*.

ABSTRACT

The advancement of information technology has encouraged digital transformation in the culinary industry, including the food ordering process in dine-in restaurants. A common problem faced by customers is the difficulty in selecting menus that match their preferences due to the large variety of available choices. This condition can cause customers to spend more time making decisions, especially during long queues, which may increase pressure during the menu selection process. This research develops a dine-in ordering recommendation system based on *Hybrid* Filtering by combining Content-Based Filtering (CBF) and *Collaborative filtering* (CF) to provide more personalized menu recommendations. The CBF method is implemented using TF-IDF weighting and Cosine *Similarity* based on menu characteristics, while CF applies an Item-Based *Collaborative filtering* approach using Cosine *Similarity* and *Weighted sum* calculations based on user rating patterns. Both methods are combined using a weighted *hybrid* approach with a ratio of 70% CBF and 30% CF. The system is developed using Flask as the backend and Vue.js as the frontend with the Food Recommendation System dataset from Kaggle. System evaluation is conducted using *Mean Average Precision* (MAP) and *Normalized Discounted Cumulative Gain* (NDCG) metrics. The best evaluation results are obtained in the Top-3 scenario, achieving a MAP score of 0,967 and an NDCG score of 0,977. Furthermore, beta testing is conducted based on six usability aspects, namely Learnability, Efficiency, Memorability, Error Tolerant, Satisfaction, and Effective. The beta testing results show an average usability score of 91%, categorized as excellent, indicating that the system is capable of providing relevant recommendations and offering a user-friendly experience.

Keywords: Recommendation System, *Hybrid* Filtering, TF-IDF, *Collaborative filtering*, Dine-I