ABSTRAK

Perkembangan teknologi sistem rekomendasi telah mendorong kemunculan pendekatan baru untuk meningkatkan akurasi dan relevansi rekomendasi dalam konteks pariwisata. Penelitian ini mengusulkan sistem rekomendasi paket wisata di Kalimantan Barat dengan memanfaatkan pendekatan berbasis *Knowledge Graph* (KG) dan algoritma *Weighted Random Walk* (WRW). Sistem dirancang untuk menghasilkan rekomendasi tempat wisata, akomodasi, dan tempat makan berdasarkan preferensi pengguna, seperti kategori wisata, jenis makanan, dan prioritas penilaian. Dataset diperoleh melalui teknik *web scraping* dari *Google Maps* dan bekerja sama dengan Dinas Pariwisata Provinsi Kalimantan Barat, mencakup informasi spasial dan atribut destinasi. KG dibangun untuk memodelkan relasi antar entitas, dan WRW digunakan untuk menelusuri jalur relevansi dengan mempertimbangkan bobot seperti jarak geografis dan rating. Evaluasi sistem dilakukan menggunakan metrik *Precision@K*, *Recall@K*, *F1-Score@K*, dan *Hit Rate@K*. Hasil penelitian menunjukkan bahwa sistem mencapai nilai precision hingga 1.0 dan *hit rate* sempurna, dengan performa optimal pada *k=10* (F1-score 0.7697), yang mencerminkan keseimbangan antara akurasi dan cakupan. Sistem juga menunjukkan fleksibilitas dalam menangani kompleksitas preferensi pengguna. Temuan ini menegaskan bahwa integrasi KG dan WRW mampu meningkatkan kualitas rekomendasi secara signifikan dan mendukung pengalaman wisata yang lebih personal di Kalimantan Barat.

Kata Kunci: Sistem rekomendasi, *Knowledge Graph, Weighted Random Walk,* pariwisata, Kalimantan Barat, evaluasi sistem.

ABSTRACT

The advancement of recommendation system technologies has led to the emergence of new approaches aimed at enhancing the accuracy and relevance of recommendations in the tourism domain. This study proposes a tourism package recommendation system for West Kalimantan by leveraging a Knowledge Graph (KG)-based approach and the Weighted Random Walk (WRW) algorithm. The system is designed to generate personalized recommendations for tourist destinations, accommodations, and culinary spots based on user preferences such as tourism categories, food types, and rating priorities. The dataset was obtained through web scraping from Google Maps in collaboration with the West Kalimantan Provincial Tourism Office, encompassing spatial information and destination attributes. The KG was constructed to model the relationships among entities, while WRW was utilized to explore relevance paths by incorporating weights such as geographical distance and rating scores. System performance was evaluated using the metrics Precision@K, Recall@K, F1-Score@K, and Hit Rate@K. The results demonstrate that the system achieved a precision value of up to 1.0 and a perfect hit rate, with optimal performance observed at k=10 (F1-score of 0.7697), indicating a balanced trade-off between accuracy and coverage. The system also exhibited flexibility in handling complex user preferences. These findings confirm that integrating KG and WRW significantly improves recommendation quality and supports a more personalized tourism experience in West Kalimantan.

Keywords: Recommendation system, Knowledge Graph, Weighted Random Walk, tourism, West Kalimantan, system evaluation.