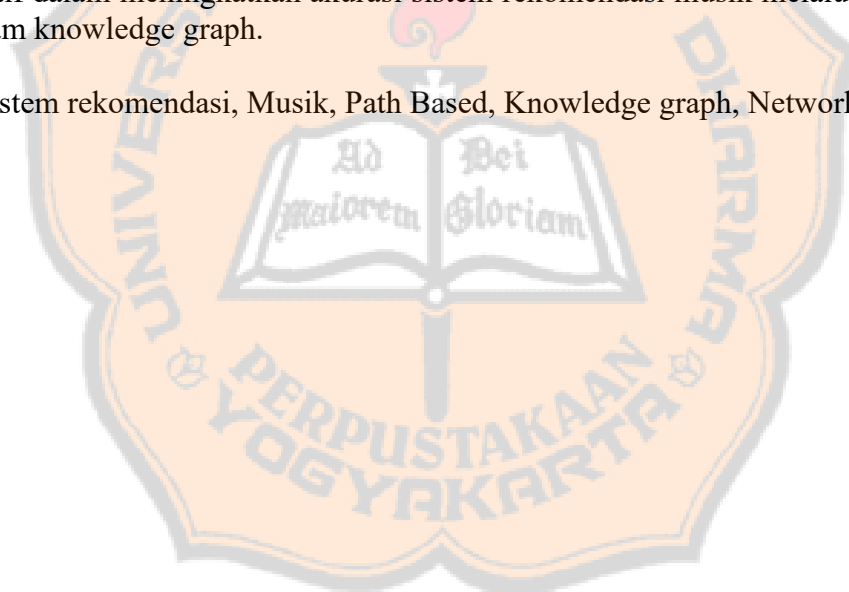


ABSTRAK

Perkembangan teknologi digital telah membawa perubahan besar dalam cara manusia mengakses dan menikmati musik. Dalam menghadapi banyaknya pilihan lagu yang tersedia di platform streaming, dibutuhkan sistem rekomendasi musik yang mampu menyajikan lagu-lagu secara personal sesuai dengan preferensi pengguna. Penelitian ini bertujuan untuk mengembangkan dan mengevaluasi sistem rekomendasi musik berbasis Path-Based dengan memanfaatkan pendekatan Knowledge Graph untuk memodelkan hubungan antar entitas seperti pengguna, lagu, genre, dan artis. Data yang digunakan dalam penelitian ini diperoleh dari dataset 100 lagu terpopuler yang diambil dari Organize Your Music, yang kemudian direpresentasikan dalam bentuk graf relasional. Sistem dirancang untuk menelusuri jalur antar node dalam graf untuk menghitung skor kemiripan menggunakan rumus Path Weighted Similarity. Implementasi dilakukan menggunakan bahasa pemrograman python dengan dukungan pustaka NetworkX. Evaluasi performa sistem dilakukan dengan menggunakan tiga metrik pengukuran utama, yaitu Precision, Mean Reciprocal Rank (MRR), dan Normalized Discounted Cumulative Gain (NDCG). Hasil pengujian terhadap 10 pengguna menunjukkan bahwa sistem mampu memberikan rekomendasi musik yang cukup akurat dan relevan dengan tingkat Precision tertinggi mencapai 98.2%, MRR hingga 55.10%, dan skor NDCG mendekati 90.78%. Kesimpulannya adalah pendekatan Path-Based dapat menjadi alternatif efektif dalam meningkatkan akurasi sistem rekomendasi musik melalui eksplorasi jalur relasional dalam knowledge graph.

Kata kunci: Sistem rekomendasi, Musik, Path Based, Knowledge graph, NetworkX



ABSTRACT

The development of digital technology has significantly transformed the way people access and enjoy music. With the vast number of songs available on streaming platforms, there is a growing need for music recommendation systems that can deliver personalized song suggestions based on user preferences. This study aims to develop and evaluate a Path-Based music recommendation system by utilizing a Knowledge Graph approach to model relationships among entities such as users, songs, genres, and artists. The data used in this study was obtained from a dataset of the top 100 most popular songs sourced from Organize Your Music, which was then represented in the form of a relational graph. The system is designed to traverse paths between nodes in the graph to calculate similarity scores using the Path Weighted Similarity formula. Implementation was carried out using the Python programming language with support from the NetworkX library. The system's performance was evaluated using three primary metrics: Precision, Mean Reciprocal Rank (MRR), and Normalized Discounted Cumulative Gain (NDCG). Testing on 10 users showed that the system was capable of providing fairly accurate and relevant music recommendations, with the highest Precision reaching 98.2%, MRR up to 55.10%, and an NDCG score approaching 90.78%. In conclusion, the Path-Based approach can serve as an effective alternative to improve the accuracy of music recommendation systems through the exploration of relational paths in a knowledge graph.

Keywords: Recommendation system, Music, Path-Based, Knowledge graph, NetworkX

