

ABSTRAK

Perkembangan layanan *streaming* musik menyebabkan jumlah lagu yang dapat diakses pengguna semakin besar, sehingga pengguna dapat mengalami kesulitan dalam menemukan lagu yang sesuai dengan preferensi. Penelitian ini bertujuan untuk membangun sistem rekomendasi musik berbasis *Content-Based Filtering* dengan menerapkan *feature fusion* untuk menggabungkan metadata dan *audio features* pada dataset *Spotify* berjumlah 14.798 lagu. Data diperoleh melalui studi dokumentasi terhadap dataset *Spotify* yang memuat informasi judul lagu, nama artis, nama album, genre, *danceability*, *energy*, *loudness*, *acousticness*, *instrumentalness*, *valence*, dan *tempo*. Prosedur penelitian dilakukan melalui *text preprocessing* pada metadata, pembentukan representasi teks menggunakan TF-IDF, normalisasi *audio features* menggunakan *Min-Max Scaling*, penggabungan fitur menggunakan *feature fusion*, serta perhitungan kemiripan menggunakan *cosine similarity* untuk menghasilkan rekomendasi Top-N. Analisis data dilakukan dengan mengevaluasi hasil rekomendasi menggunakan dua pendekatan *ground truth*, yaitu kesamaan metadata berdasarkan nama artis atau nama album dan kesamaan karakteristik audio. Hasil evaluasi *ground truth* metadata memperoleh *Precision@10* sebesar 0,9000, *MAP@10* sebesar 0,9000, dan *NDCG@10* sebesar 0,9364. Sementara itu, evaluasi *ground truth* audio memperoleh *Precision@10* sebesar 0,9000, *MAP@10* sebesar 0,8664, dan *NDCG@10* sebesar 0,9266. Hasil tersebut menunjukkan bahwa sistem rekomendasi musik berbasis *Content-Based Filtering* dengan *feature fusion* mampu menghasilkan rekomendasi lagu yang relevan.

Kata kunci: sistem rekomendasi musik, *Content-Based Filtering*, *feature fusion*, TF-IDF, *cosine similarity*.

ABSTRACT

The development of music streaming services has resulted in an increasing number of songs accessible to users, making it difficult for users to find songs that suit their preferences. This study aims to build a Content-Based Filtering-based music recommendation system by applying feature fusion to combine metadata and audio features on a Spotify dataset of 14,798 songs. Data were obtained through a documentation study of the Spotify dataset containing information on song titles, artist names, album names, genres, danceability, energy, loudness, acousticness, instrumentalness, valence, and tempo. The research procedure was carried out through text preprocessing on metadata, forming text representations using TF-IDF, normalizing audio features using Min-Max Scaling, combining features using feature fusion, and calculating similarity using cosine similarity to produce Top-N recommendations. Data analysis was carried out by evaluating the recommendation results using two ground truth approaches, namely metadata similarity based on artist name or album name and audio characteristic similarity. The results of the metadata ground truth evaluation obtained Precision@10 of 0.9000, MAP@10 of 0.9000, and NDCG@10 of 0.9364. Meanwhile, the audio ground truth evaluation obtained a Precision@10 of 0.9000, a MAP@10 of 0.8664, and a NDCG@10 of 0.9266. These results indicate that the Content-Based Filtering-based music recommendation system with feature fusion is capable of generating relevant song recommendations.

Keywords: *music recommendation system, Content-Based Filtering, feature fusion, TF-IDF, cosine similarity.*