ABSTRAK

Penelitian ini bertujuan untuk membangun sistem deteksi keberlanjutan studi mahasiswa menggunakan algoritma *Content-Based Filtering* dengan pendekatan pembobotan. Metode yang digunakan menggabungkan dua pendekatan *Content-Based Filtering*, yaitu *Content-Based Filtering* berbasis capaian akademik mahasiswa berupa Indeks Prestasi Kumulatif (IPK) dan jumlah Satuan Kredit Semester (SKS), serta *Content-Based Filtering* berbasis nilai mata kuliah, yang digabungkan menggunakan metode *weighted sum* untuk menghasilkan skor deteksi risiko mahasiswa. Data penelitian, dengan kriteria mahasiswa berisiko tidak bisa lanjut studi karena sisip program (*drop out*) ditentukan berdasarkan ketentuan akademik, yaitu telah menempuh minimal 50 SKS dengan IPK $\leq 2,00$. Proses penelitian meliputi pra-pemrosesan data, perhitungan kemiripan menggunakan cosine similarity, serta evaluasi model dengan pembagian data sebagai data latih dan sebagai data uji menggunakan metrik akurasi, precision, recall, dan F1-score. Hasil penelitian menunjukkan bahwa metode *Content-Based Filtering* dengan pendekatan pembobotan mampu mendeteksi mahasiswa yang berpotensi berisiko tidak lanjut studi karena terkena sisip program (*drop out*) secara efektif, dengan tingkat akurasi sebesar 92,42%, *precision* sebesar 100%, *recall* sebesar 58,97%, dan *F1-score* sebesar 74,19%, sehingga sistem yang dibangun dapat dimanfaatkan sebagai sistem peringatan dini bagi pihak akademik dalam mendukung pengambilan keputusan.

Kata kunci: *Content-Based Filtering*, pembobotan, keberlanjutan studi, sisip program.

ABSTRACT

This study aims to develop a student study continuity detection system using a weighted Content-Based Filtering (CBF) approach. The proposed method integrates two Content-Based Filtering models, namely CBF based on students' academic achievement attributes, including Grade Point Average (GPA) and total earned credits, and CBF based on course grades. These two models are combined using a weighted sum method to produce a final student risk detection score. The dataset used in this study consists of academic records of students from the Informatics Study Program at Universitas Sanata Dharma, where students are classified as being at risk of drop out if they have completed at least 50 credits with a GPA of 2.00 or lower. The research process includes data preprocessing, similarity computation using cosine similarity, and model evaluation through the division of data into training and testing sets. Model performance is evaluated using accuracy, precision, recall, and F1-score metrics. The experimental results show that the weighted Content-Based Filtering approach is effective in detecting students at risk of drop out, achieving an accuracy of 92.42%, precision of 100%, recall of 58.97%, and an F1-score of 74.19%. These results indicate that the proposed system can be utilized as an early warning system to support academic decision-making and monitoring of student study continuity.

Keywords: Content-Based Filtering, weighting method, study continuity, study interruption.