ABSTRAK

Penelitian ini bertujuan untuk mengembangkan sistem klasifikasi kelayakan rumah kost menggunakan algoritma *C4.5* berdasarkan kualitas pelayanan dan fasilitas yang tersedia. Sistem ini dikembangkan untuk mengevaluasi kelayakan rumah kost dengan mempertimbangkan berbagai faktor, seperti pelayanan pengelola, kebersihan, keamanan, fasilitas kamar, fasilitas umum, akses internet, kenyamanan, dan harga. Hasil klasifikasi menunjukkan bahwa pada kategori kos mewah, 43% dinyatakan layak dan 57% tidak layak. Pada kategori kos standar, 21% dinyatakan layak dan 79% tidak layak, sedangkan pada kategori kos ekonomis, 23% dinyatakan layak dan 77% tidak layak. Evaluasi model menggunakan *Confusion Matrix* dan *Classification Report* menunjukkan bahwa *precision* berkisar antara 0.4 – 1.0, *recall* antara 0.67 – 1.0, dan *F1-score* antara 0.5 – 0.91, dengan akurasi keseluruhan yang cukup baik. Selain itu, analisis fitur penting menunjukkan bahwa harga, air dan listrik, serta fasilitas kamar menjadi faktor utama dalam menentukan kelayakan rumah kost. Dengan hasil tersebut, sistem ini terbukti mampu mengklasifikasikan rumah kost secara efektif dan dapat digunakan sebagai alat bantu dalam pengambilan keputusan bagi pemilik dan calon penyewa.

Kata Kunci: *C4.5*, *Data Mining*, Klasifikasi, *Machine Learning*, Rumah Kost

ABSTRACT

This research aims to develop a boarding house eligibility classification system using the C4.5 algorithm based on service quality and available facilities. The system was designed to evaluate the eligibility of boarding houses by considering various factors, such as management services, cleanliness, security, room facilities, public facilities, internet access, comfort, and price. The classification results indicate that in the luxury boarding house category, 43% were deemed eligible, while 57% were not. In the standard boarding house category, 21% were classified as eligible and 79% as ineligible, while in the economical boarding house category, 23% were eligible and 77% were ineligible. Model evaluation using Confusion Matrix and Classification Report showed precision ranging from 0.4 to 1.0, recall from 0.67 to 1.0, and F1-score from 0.5 to 0.91, with overall accuracy being reasonably good. Additionally, feature importance analysis revealed that price, water and electricity, and room facilities are the primary factors in determining boarding house eligibility. Based on these results, the system proved effective in classifying boarding houses and can serve as a decision-making tool for owners and prospective tenants.

Keywords: *C4.5, Data Mining, Classification, Machine Learning, Boarding House*