

ABSTRAK

PT Dinamika Utama Nusantara merupakan perusahaan distribusi yang bergerak di bidang perdagangan umum dan jasa yang melayani pelanggan segmen industri di wilayah Sumatera Selatan. Selama ini, proses pemesanan dan pencatatan transaksi masih dilakukan secara manual melalui Microsoft Excel, sehingga perusahaan kesulitan menjaga hubungan dengan pelanggan secara konsisten dan belum dapat memanfaatkan peluang cross-selling secara optimal. Penelitian ini bertujuan untuk mengembangkan sistem relasi pelanggan berbasis web yang dilengkapi fitur rekomendasi produk menggunakan algoritma Collaborative Filtering dengan pendekatan Item-Based dan perhitungan Cosine Similarity. Metode pengembangan sistem yang digunakan adalah model Waterfall, yang mencakup tahapan analisis kebutuhan, desain, pengembangan, pengujian, dan pemeliharaan. Sistem dirancang untuk tiga aktor pengguna, yaitu Admin, Pimpinan, dan Pelanggan, dengan hak akses yang berbeda sesuai peran masing-masing. Fitur rekomendasi bekerja dengan menganalisis data historis transaksi pelanggan untuk mengidentifikasi pola produk yang sering dibeli bersamaan, kemudian menghasilkan rekomendasi produk secara otomatis. Hasil pengujian menggunakan metode Black Box Testing menunjukkan bahwa seluruh fitur sistem, termasuk fitur rekomendasi produk, berjalan sesuai dengan kebutuhan fungsional yang telah ditetapkan. Sistem ini berhasil menggantikan proses manual, mendukung strategi cross-selling perusahaan, serta membantu pengambilan keputusan pemasaran berdasarkan data transaksi yang lebih terstruktur.

Kata kunci: Sistem Relasi Pelanggan, Rekomendasi Produk, Collaborative Filtering, Cosine Similarity, Cross-Selling

ABSTRACT

PT Dinamika Utama Nusantara is a distribution company engaged in general trade and services, serving industrial-segment customers in the South Sumatra region. Previously, the ordering and transaction recording processes were carried out manually using Microsoft Excel, making it difficult for the company to maintain consistent customer relationships and to fully leverage cross-selling opportunities. This study aims to develop a web-based customer relationship system equipped with a product recommendation feature using the Collaborative Filtering algorithm with an Item-Based approach and Cosine Similarity calculations. The system development method employed is the Waterfall model, covering the stages of requirements analysis, design, development, testing, and maintenance. The system is designed for three user roles — Administrator, Manager, and Customer — each with different access rights according to their respective responsibilities. The recommendation feature works by analyzing historical customer transaction data to identify patterns of products frequently purchased together, then automatically generating product recommendations. Testing conducted using the Black Box Testing method demonstrated that all system features, including the product recommendation feature, performed in accordance with the defined functional requirements. This system successfully replaces the manual process, supports the company's cross-selling strategy, and facilitates marketing decision-making based on more structured transaction data.

Keywords: Customer Relationship System, Product Recommendation, Collaborative Filtering, Cosine Similarity, Cross-Selling