

ABSTRAK

Penelitian ini mengkaji penerapan teknik *data mining* untuk menganalisis pola penjualan sepatu di Toko Tunelbrand, Aceh Utara. Tujuan utama adalah mengidentifikasi keterkaitan antarproduk melalui algoritma *Apriori* serta memprediksi volume penjualan berdasarkan variabel harga dan promosi menggunakan metode regresi linier berganda. Proses analisis mencakup evaluasi data transaksi penjualan guna menghasilkan *frequent itemsets* dan aturan asosiasi berdasarkan nilai ambang *support* dan *confidence* tertentu, serta pengembangan model regresi linier untuk estimasi penjualan. Hasil dari algoritma Apriori mengungkap adanya pola pembelian yang signifikan, seperti kombinasi produk Adidas-Nike dengan *support* sebesar 50% *confidence* 67%, Nike-Adidas dengan *support* sebesar 50% dan *confidence* 100%, serta Puma-Adidas dengan *support* 33% dan *confidence* 100%. Model regresi linier menunjukkan nilai koefisien determinasi (R^2) sebesar 0,3813, *RMSE* sebesar 3,41 dan *Mean Squared Error* (MSE) dalam rentang 2,7 yang menandakan bahwa performa prediksinya masih terbatas. Sistem berbasis *web* yang dikembangkan dalam penelitian ini mampu menyajikan visualisasi hasil analisis secara informatif, sehingga dapat digunakan untuk mendukung pengambilan keputusan dalam strategi penempatan produk, promosi bundling, serta peramalan permintaan secara lebih efisien.

Kata Kunci: *Data Mining*, Algoritma Apriori, Regresi Linier, Penjualan Sepatu.

ABSTRACT

This study examines the application of data mining techniques to analyze shoe sales patterns at Tunelbrand Store in North Aceh. The main objective is to identify product associations using the Apriori algorithm and to predict sales volume based on price and promotion variables through a multiple linear regression method. The analysis process includes evaluating sales transaction data to generate frequent itemsets and association rules based on specified support and confidence thresholds, as well as developing a regression model to estimate sales. The results of the Apriori algorithm reveal significant purchasing patterns, such as the combination of Adidas-Nike with 50% support and 67% confidence, Nike-Adidas with 50% support and 100% confidence, and Puma-Adidas with 33% support and 100% confidence. The multiple linear regression model shows a coefficient of determination (R^2) of 0.3813, an RMSE of 3.41, and a Mean Squared Error (MSE) of approximately 2.7, indicating that its predictive performance is still limited. The web-based system developed in this study is capable of presenting the analysis results in an informative manner and can be used to support decision-making in product placement strategies, bundling promotions, and more efficient demand forecasting.

Keyword: *Data Mining, Apriori Algorithm, Linear Regression, Shoe Sales.*