

ABSTRAK

Pengelolaan stok dan penataan produk yang masih dilakukan secara konvensional di Toko Dunia *Computer* dapat menyebabkan ketidaksesuaian antara persediaan dan kebutuhan pelanggan. Penelitian ini bertujuan mengimplementasikan *Market Basket Analysis* (MBA) menggunakan algoritma *Equivalence Class Transformation* (ECLAT) untuk mengidentifikasi pola pembelian produk serta mendukung strategi penataan produk dan penjualan. Data penelitian terdiri dari 521 transaksi penjualan dengan jumlah produk 557 barang, periode 1 Januari hingga 30 Desember 2023. Tahapan penelitian meliputi *preprocessing*, transformasi data ke dalam *Vertical TID-list*, pencarian *frequent itemsets*, pembentukan *association rules*, serta pengukuran *support*, *confidence*, dan *lift*. Algoritma *ECLAT* diimplementasikan dalam aplikasi berbasis *web*. Hasil pengujian dengan *minimum support* 7% dan *minimum confidence* 70% menghasilkan 12 *frequent itemsets* dan 2 *association rules*. *McAfee Anti Virus* memiliki *support* tertinggi sebesar 23,22%. *Rule Logitech Mousepad → McAfee Anti Virus* menghasilkan *confidence* 75,00% dan *lift* 3,23, sedangkan *RAM Corsair DDR4 8 GB → SSD NVME 512 GB Patriot* menghasilkan *confidence* 70,37% dan *lift* 6,43. Nilai *lift* lebih dari 1 menunjukkan hubungan positif antarproduk. Hasil tersebut dapat digunakan sebagai dasar penempatan produk yang berkaitan secara berdekatan serta penerapan strategi *cross-selling* dan *bundling*. Rekomendasi penataan produk meliputi *etalase* 1 untuk *peripheral input*, *etalase* 2 untuk komponen *hardware* dan *storage*, *etalase* 3 untuk *software* dan keamanan, serta *etalase* 4 untuk perkabelan dan *converter*. Dengan demikian, *ECLAT* dapat membantu Toko Dunia *Computer* mengidentifikasi pola pembelian dan mendukung pengambilan keputusan berbasis data.

Kata Kunci: *Market Basket Analysis*, *ECLAT*, *frequent itemsets*, *association rules*, *etalase*.

ABSTRACT

Conventional inventory management and product arrangement practices at Dunia Computer Store may lead to discrepancies between product availability and customer needs. This study aims to implement Market Basket Analysis (MBA) using the Equivalence Class Transformation (ECLAT) algorithm to identify product purchasing patterns and support product arrangement and sales strategies. The research data consist of 521 sales transactions involving 557 products during the period from January 1 to December 30, 2023. The research stages include preprocessing, transformation into the Vertical TID-list format, frequent itemset mining, association rule generation, and measurement of support, confidence, and lift. The ECLAT algorithm was implemented in a web-based application. Testing with a minimum support of 7% and a minimum confidence of 70% produced 12 frequent itemsets and 2 association rules. McAfee Anti Virus had the highest support value of 23.22%. The rule Logitech Mousepad $\rightarrow$ McAfee Anti Virus achieved a confidence of 75.00% and a lift of 3.23, while RAM Corsair DDR4 8 GB $\rightarrow$ SSD NVME 512 GB Patriot achieved a confidence of 70.37% and a lift of 6.43. Lift values greater than 1 indicate positive associations between products. These results can be used as a basis for placing related products closer together and implementing cross-selling and bundling strategies. The recommended product arrangement includes Display 1 for input peripherals, Display 2 for hardware components and storage, Display 3 for software and security, and Display 4 for cables and converters. Therefore, ECLAT can help Dunia Computer Store identify purchasing patterns and support data-driven decision-making.

Keywords: Market Basket Analysis, ECLAT, frequent itemsets, association rules, display.