IMPLEMENTATION OF FP-GROWTH ALGORITHM TO DETERMINE CONSUMER PURCHASE PATTERNS ON SALES TRANSACTION DATA PT LIGNO SPECIALTY CHEMICALS

ABSTRACT

Business competition in Indonesia is currently getting strict, especially in the manufacturing industry. PT ligno Specialty chemicals is a chemical industry company that applies the B2B model in their target market. PT Ligno must maintain relationships with customers such as fulfilling customer demand for the stock of goods to be purchased. However, deter*mining* the amount of inventory for sales stock is not an easy thing. At PT Ligno in deter*mining* the amount of inventory is only based on mere estimates and on the other side there is sales transaction data that has not been optimally utilized. So that an alternative solution in this study is to use the data *mining* method with the FP-Growth algorithm to find out the association rule between goods. This study aims to determine consumer purchase patterns based on sales transaction data for 2018-2021 and evaluate the results of association rules using lift ratios. The results showed that the FP-Growth algorithm can be applied to determine consumer purchasing patterns in PT Ligno's sales transactions. There are 8 association rules that meet the minimum support of 5% and the minimum confidence of 80%, and consumers tend to buy items FGC-C043, FGC-C029, and FGC-C042 simultaneously, and also on items FGC-C012 and FGC-C013. The rules with the highest support, confidence, and lift ratio values are if you buy FGC-C043 items, you also buy FGC-C029 and FGC-C042 items with a support value of 6.3%, confidence of 100%, and lift ratio of 14,458. The results of the evaluation of the combination of minimum support and minimum confidence, show that there are four rules with an lift ratio of less than . So that overall, the rules generated in the FP-Growth algorithm in addition to the four rules are valid if they are used as a reference in deter*mining* inventory.

Keywords: Data Mining, FP-Growth, Inventory, Consumer Purchase Patterns

IMPLEMENTASI ALGORITMA *FP-GROWTH* UNTUK MENENTUKAN POLA PEMBELIAN KONSUMEN PADA DATA TRANSAKSI PENJUALAN PT LIGNO *SPECIALTY CHEMICALS*

ABSTRAK

Persaingan bisnis di Indonesia saat ini semakin ketat terutama di industri manufaktur. PT Ligno *Specialty Chemicals* merupakan perusahaan industri kimia yang menerapkan model B2B dalam target pasarnya. PT Ligno harus menjaga hubungan terhadap pelanggan seperti memenuhi permintaan pelanggan atas stok barang yang akan dibeli. Akan tetapi menentukan jumlah persediaan barang untuk stok penjualan bukanlah hal yang mudah. Pada PT Ligno dalam menentukan jumlah persediaan barang hanya berdasarkan perkiraan belaka dan di sisi lain terdapat data transaksi penjualan yang belum dimanfaatkan secara optimal. Sehingga alternatif solusi pada penelitian ini yaitu memanfaatkan metode data *mining* dengan algoritma *FP-Growth* untuk mengetahui *association rule* antar barang. Penelitian ini bertujuan menentukan pola pembelian konsumen berdasarkan data transaksi penjualan tahun 2018-2021 dan mengevaluasi hasil *association rules* menggunakan *lift ratio*. Hasil penelitian menunjukkan algoritma *FP-Growth* dapat diterapkan untuk menentukan pola pembelian konsumen pada transaksi penjualan PT Ligno. Terdapat 8 *association rules* yang memenuhi minimum *support* 5% dan minimum *confidence* 80%, dan konsumen cenderung membeli item FGC-C043, FGC-C029, dan FGC-C042 secara bersamaan, dan juga pada item FGC-C012 dan FGC-C013. Adapun *rules* dengan nilai *support*, *confidence*, dan *lift ratio* tertinggi yaitu jika membeli item FGC-C043 maka juga membeli item FGC-C029 dan FGC-C042 dengan nilai *support* 6,3%, *confidence* 100%, dan *lift ratio* 14,458. Hasil evaluasi terhadap kombinasi minimum *support* dan minimum *confidence*, menunjukkan terdapat empat *rules* dengan *lift ratio* kurang dari satu. Sehingga secara keseluruhan, *rules* yang dihasilkan pada algoritma *FP-Growth* selain ke empat *rules* tersebut valid jika dijadikan acuan dalam penentuan persediaan barang.

Kata Kunci: Data *Mining*, *FP-Growth*, Persediaan Barang, Pola Pembelian Konsumen