ABSTRAK

Persediaan *spare part* memegang peran penting dalam kelancaran pelayanan bengkel karena berpengaruh langsung pada waktu servis dan kepuasan pelanggan. Namun, penentuan stok sering kali masih bergantung pada pengalaman, sehingga berisiko menimbulkan kekosongan pada part yang sering dibutuhkan atau penumpukan pada part yang jarang terjual. Penelitian ini bertujuan menganalisis pola pembelian dan segmentasi spare part untuk mendukung pengambilan keputusan manajemen stok di CV. XYZ. Data yang digunakan merupakan transaksi penjualan spare part periode Februari-Desember 2024 dengan total ±33.000 baris dari sekitar 7.543 transaksi. Proses penelitian mengikuti tahapan CRISP-DM. Pola pembelian dianalisis menggunakan *association rule mining* dengan algoritma FP-Growth pada parameter *minimum support* 0,01 dan *minimum confidence* 0,25 sehingga menghasilkan 81 aturan asosiasi. Segmentasi *spare part* dilakukan menggunakan K-Means clustering dengan jumlah 3 klaster yang kemudian dipetakan menjadi segmen *fast*, *slow*, dan *no moving*. *Cluster* 0 (*fast*) terdiri dari 114 item, *Cluster* 1 (*slow*) terdiri dari 176 item, dan *Cluster* 2 (*non*) terdiri dari 39 item. Hasil analisis diimplementasikan dalam *dashboard* Streamlit untuk membantu interpretasi dan rekomendasi prioritas stok. Evaluasi melalui wawancara menunjukkan *dashboard* dinilai sesuai dengan kebutuhan operasional bengkel dan layak digunakan sebagai pendukung keputusan.

Kata kunci: *spare part*, manajemen stok, FP-Growth, *association rules*, K-Means.

ABSTRACT

Spare parts inventory plays an important role in the smooth operation of a repair shop because it directly affects service time and customer satisfaction. However, stock determination often still depends on experience, which risks causing shortages of frequently needed parts or accumulation of rarely sold parts. This study aims to analyze spare part purchasing patterns and segmentation to support inventory management decision-making at CV. XYZ. The data used consists of spare part sales transactions from February to December 2024, totaling ±33,000 lines from approximately 7,543 transactions. The research process followed the CRISP-DM stages. Purchasing patterns were analyzed using association rule mining with the FP-Growth algorithm at a minimum support parameter of 0.01 and a minimum confidence of 0.25, resulting in 81 association rules. Spare part segmentation was performed using K-Means clustering with 3 clusters, which were then mapped into fast, slow, and no moving segments. Cluster 0 (fast) consisted of 114 items, Cluster 1 (slow) consisted of 176 items, and Cluster 2 (non) consisted of 39 items. The analysis results were implemented in a Streamlit dashboard to aid in interpretation and stock priority recommendations. Evaluation through interviews showed that the dashboard was deemed suitable for the workshop's operational needs and feasible for use as a decision support tool.

Keywords: spare parts, inventory management, FP-Growth, association rules, K-Means.