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Perbandingan *Clustering* Algoritma *K-Means*
Dan Algoritma *K-Medoids* Untuk Mengoptimalisasikan Stok Barang
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Abstrak

Penimbunan stok barang berlebih di gudang menjadi awal permasalahan. Jumlah permintaan konsumen yang fluktuaktif mengakibatkan ketersediaan stok barang menjadi tidak stabil. Maka, perlu mengoptimalkan stok barang dengan mengelompokkan barang apa saja yang diminati menggunakan teknik data mining dengan metode *clustering* serta algoritma *k-means* dan algoritma *k-medoids*. Penelitian ini bertujuan mengimplementasikan serta membandingkan hasil klaster stok barang menggunakan algoritma *k-means* dan algoritma *k-medoids*. Perhitungan manual dan Rstudio menghasilkan 3 klaster. Implementasi kedua algoritma pada data stok barang berhasil dengan hasil rerata barang keluar algoritma *k-means* klaster 1 tertinggi bulan Mei sebesar 8,53, klaster 2 rerata barang keluar tertinggi bulan Januari sebesar 12,2 dan klaster 3 rerata barang keluar tertinggi bulan Mei sebesar 12,2. Sedangkan rerata barang keluar algoritma *k-medoids* klaster 1 tertinggi bulan April sebesar 11,9, klaster 2 rerata barang keluar tertinggi bulan Februari sebesar 10,2 dan klaster 3 rerata barang keluar tertinggi bulan Maret sebesar 8,83.

Kata Kunci: *Stok Barang, Clustering, K-Means, K-Medoids*

Abstract

The accumulation of excess stock in the warehouse is the beginning of the problem. The amount of fluctuating consumer demand resulted in unstable stock availability. So, it is necessary to optimize the stock of goods by grouping any items of interest using data mining techniques with the clustering method as well as the k-means algorithm and the k-medoids algorithm. This study aims to implement and compare the results of inventory clusters using the k-means algorithm and the k-medoids algorithm. Manual calculations and Rstudio generate 3 clusters. The implementation of the two algorithms on stock data was successful with the result that the highest average of goods out of the k-means algorithm for cluster 1 was 8.53 in May, cluster 2 had the highest average outflow of goods in January of 12.2 and

cluster 3 the highest average of goods out in May was 12. ,2. Meanwhile, the highest average outflow of k-medoids in April was 11.9, cluster 2 had the highest average outflow in February at 10.2, and cluster 3, the highest average outflow in March, was 8.83.

Keywords: *Stock of goods, Clustering, K-Means, K-Medoids*

Pembimbing I

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