ANALISIS PERAMALAN PENJUALAN AIR MINERAL UNTUK MENENTUKAN PERSEDIAAN DI CV TIRTA SHAHADAH

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Abstrak

CV Tirta Shahadah merupakan perusahaan yang bergerak di bidang produksi Air Minum Dalam Kemasan (AMDK) dengan berbagai varian ukuran, seperti 120 ml, 220 ml, 330 ml, 600 ml, dan galon isi ulang. Permasalahan yang dihadapi perusahaan adalah ketidakseimbangan antara persediaan dan permintaan, yang ditunjukkan dengan tingginya tingkat *stockout* sebanyak 443 dan *overstock* sebanyak 1818 selama periode 10 bulan, dari Juni 2024 hingga Maret 2025. Penelitian ini bertujuan untuk melakukan peramalan penjualan untuk menentukan jumlah persediaan yang lebih optimal dengan menggunakan tiga metode yaitu *Weighted Moving Average* (WMA), *Double Exponential Smoothing* (DES), dan *Trend Analysis*. Evaluasi akurasi dilakukan dengan menggunakan tiga indikator *error* yaitu *Mean Absolute Deviation* (MAD), *Mean Squared Error* (MSE), dan *Mean Absolute Percentage Error* (MAPE). Hasil penelitian menunjukan bahwa dari ketiga metode peramalan penjualan produk yang paling sesuai untuk menentukan jumlah persediaan pada bulan April 2025 di CV Tirta Shahadah yaitu *Double Exponential Smoothing* (DES) untuk kemasan 120ml sebanyak 334 dus, dengan nilai MAPE sebesar 35,174%. Kemasan 220ml sebanyak 1200 dus, dengan nilai MAPE sebesar 14,34%. Kemasan 330ml sebanyak 1114 dus, dengan nilai MAPE sebesar 9,409%. Kemasan 600ml sebanyak 787 dus, dengan nilai MAPE sebesar 9,587%. Sementara untuk kemasan galon *refill*, metode *Trend Analysis* dengan peramalan sebanyak 272 unit dan memberikan nilai error terkecil dengan nilai MAPE sebesar 11,745%.

Kata Kunci: Peramalan Penjualan, *Time Series*, Air Minum Dalam Kemasan, Persediaan, Stok Barang

ANALYSIS OF MINERAL WATER SALES FORECASTING TO DETERMINE INVENTORY AT CV TIRTA SHAHADAH

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Abstract

CV Tirta Shahadah is a company engaged in the production of Bottled Drinking Water (AMDK) with various size variants, such as 120 ml, 220 ml, 330 ml, 600 ml, and refill gallons. The problem faced by the company is the imbalance between supply and demand, which is indicated by a high level of stockouts of 443 and overstocks of 1818 during a 10-month period, from June 2024 to March 2025. This study aims to conduct sales forecasting to determine a more optimal amount of inventory using three methods, namely Weighted Moving Average (WMA), Double Exponential Smoothing (DES), and Trend Analysis. Accuracy evaluation is carried out using three error indicators, namely Mean Absolute Deviation (MAD), Mean Squared Error (MSE), and Mean Absolute Percentage Error (MAPE). The results showed that of the three product sales forecasting methods, the most appropriate for determining inventory levels in April 2025 at CV Tirta Shahadah was Double Exponential Smoothing (DES) for 334 boxes of 120ml packaging, with a MAPE of 35.174. The 220ml packaging had 1200 boxes, with a MAPE of 14.34. The 330ml packaging had 1114 boxes, with a MAPE of 9.409. The 600ml packaging had 787 boxes, with a MAPE of 9.587. For gallon refill packaging, the Trend Analysis method, forecasting 272 units, yielded the smallest error with a MAPE of 11.745.

Keywords: *Sales Forecasting, Time Series, Bottled Drinking Water, Inventory, Stock*

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