

## ABSTRAK

**MUHAMMAD RAYHAN ARSHA.** *Analisis Prediksi Penjualan Produk Obat Dengan Metode Single Moving Average Di Apotek Andarean Nursifa* (Dibimbing oleh Fahrin Irfhamna Rachman dan Titin Wahyuni)

Apotek berperan penting dalam distribusi obat, tetapi pengelolaan stok sering menghadapi tantangan akibat ketidakseimbangan antara permintaan dan ketersediaan obat. Penelitian ini menerapkan metode *Single Moving Average* (SMA) untuk meramalkan penjualan guna meningkatkan efisiensi stok di Apotek Andarean Nursifa, dengan menganalisis data penjualan obat periode 2021–2023.

Tahapan penelitian mencakup pengolahan data, perhitungan *Moving Average*, penghitungan *Safety Stock*, perhitungan Reorder Point, perhitungan *Order Quantity*, serta visualisasi data. Selain itu, dilakukan analisis *Safety Stock* per item, Reorder Point per item, dan *Order Quantity* per item untuk menentukan strategi optimal dalam pengelolaan stok obat.

Hasil penelitian menunjukkan bahwa metode SMA efektif dalam meramalkan penjualan, terutama untuk obat dengan pola permintaan stabil. Akurasi peramalan dievaluasi menggunakan MAE, MAPE, MSE, dan MAD, yang menunjukkan bahwa metode ini dapat diandalkan dalam pengambilan keputusan stok obat. Namun, metode ini memiliki keterbatasan dalam mengakomodasi perubahan mendadak akibat faktor eksternal seperti musim, kebijakan, atau kondisi kesehatan masyarakat. Oleh karena itu, kombinasi dengan metode lain atau penyesuaian berbasis tren pasar dapat meningkatkan efektivitas peramalan. Dengan sistem yang lebih akurat, apotek dapat mengoptimalkan stok, mengurangi risiko kelebihan atau kekurangan obat, serta meningkatkan efisiensi distribusi kepada masyarakat.

**Kata kunci:** Peramalan Penjualan, *Single Moving Average*, Pengelolaan Stok Obat, Apotek.

## ABSTRACT

**MUHAMMAD RAYHAN ARSHA.** Analysis of Drug Product Sales Prediction Using the Single Moving Average Method at Andarean Nursifa Pharmacy (Supervised by Fahrim Irhamna Rachman dan Titin Wahyuni)

Pharmacies play a crucial role in drug distribution, but stock management often faces challenges due to imbalances between demand and supply. This study applies the Single Moving Average (SMA) method to forecast sales and improve stock management efficiency at Andarean Nursifa Pharmacy, by analyzing drug sales data from 2021 to 2023.

The research stages include data processing, Moving Average calculation, Safety Stock calculation, calculation Reorder Point, Order Quantity calculation, and data visualization. Additionally, an analysis of Safety Stock per item, Reorder Point per item, and Order Quantity per item is conducted to determine optimal stock management strategies.

The results indicate that the SMA method is effective in forecasting sales, particularly for drugs with stable demand patterns. Forecasting accuracy was evaluated using MAE, MAPE, MSE, and MAD, demonstrating that this method is reliable for stock management decision-making. However, SMA has limitations in accommodating sudden changes due to external factors such as seasonal variations, government policies, or public health conditions. Therefore, combining it with other forecasting methods or adjusting it based on market trends can enhance forecasting effectiveness. With a more accurate system, pharmacies can optimize stock management, reduce the risk of overstocking or shortages, and improve drug distribution efficiency.

**Keywords:** *Sales Forecasting, Single Moving Average, Stock Management, Pharmacy.*