

***Prediction of Cough Medicine Stock at Medilife Pharmacy Using the Least
Square Algorithm***

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ABSTRACT

Medicine inventory is an important aspect of pharmacy operations because it affects the availability of medicines for customers. Inaccurate inventory management can lead to either overstocking or shortages of medicines. Medilife Pharmacy still manages its inventory based on historical data; therefore, a system is needed to help predict medicine stock requirements for future periods. This study aims to develop a web-based cough medicine stock prediction system using the Least Square method. The system was developed using Python, Flask, SQLite, and Pandas. The data used consisted of historical medicine stock data from January 2022 to December 2024, including Demacolin, OBH Combi Plus, and Paratusin. The results of this study indicate that the system was successfully developed and is capable of generating medicine stock predictions based on historical data. Accuracy testing produced a Mean Absolute Deviation (MAD) value of 2.8, a Mean Squared Error (MSE) value of 11.6, and a Mean Absolute Percentage Error (MAPE) value of 3.9%. The MAPE value indicates that the Least Square method provides highly accurate forecasting results. Therefore, the developed system can support more effective medicine inventory planning and management at Medilife Pharmacy.

Keywords: Drug Stock Prediction, Least Square, Forecasting, Flask, Medilife Pharmacy.