

PENERAPAN SISTEM PREDIKSI STOK BARANG BERBASIS WEB PADA TOKO SRC SAIFUL

Nadya Nurasia Koimah

ABSTRAK

Toko Toko SRC Saiful membutuhkan pengelolaan data stok dan transaksi penjualan yang lebih terstruktur karena proses pencatatan yang berjalan sebelumnya masih dilakukan secara manual. Kondisi tersebut dapat menyebabkan beberapa kendala, seperti kurangnya ketepatan informasi jumlah barang, kesulitan dalam proses pengecekan persediaan, serta kurang efektifnya penentuan kebutuhan *restock*. Oleh karena itu, penelitian ini mengembangkan sistem berbasis *web* untuk membantu pengelolaan stok melalui pencatatan transaksi, penyimpanan data barang, monitoring persediaan, serta prediksi jumlah stok yang dibutuhkan berdasarkan data penjualan. Pengembangan aplikasi dilakukan dengan pendekatan *Waterfall* melalui beberapa proses, mulai dari analisis kebutuhan hingga evaluasi sistem. Selain pengembangan sistem, dilakukan pengujian terhadap algoritma Regresi *Linear* dan *Random Forest* dengan menggunakan evaluasi *R-Squared* (R^2) serta *Mean Absolute Error* (MAE). Berdasarkan hasil pengujian, *Random Forest* memperoleh hasil terbaik dengan R^2 sebesar 0,9885 dan MAE sebesar 2 unit sehingga digunakan sebagai model prediksi pada aplikasi. Evaluasi pengguna melalui *User Acceptance Testing* (UAT) menghasilkan nilai 93,5% dengan kategori sangat baik. Hasil tersebut menunjukkan bahwa sistem berhasil dalam mendukung pengelolaan stok dan membantu proses pengambilan keputusan secara lebih baik dibandingkan manual.

Kata Kunci: *website*, sistem prediksi stok, pengelolaan stok, Regresi Linear, Random Forest

IMPLEMENTATION OF A WEB-BASED INVENTORY STOCK PREDICTION SYSTEM AT SRC SAIFUL STORE

Nadya Nurasia Koimah

ABSTRACT

SRC Saiful Store requires more structured inventory data management and sales transaction recording since the previous recording process was still performed manually. This condition may cause several problems, such as inaccurate stock information, difficulties in checking product availability, and ineffective determination of restock requirements. Therefore, this research develops a web-based system to support inventory management through transaction recording, product data storage, stock monitoring, and prediction of required inventory levels based on sales data. The application development process applies the Waterfall approach, which includes several stages from requirement analysis to system evaluation. In addition to system development, this study evaluates Linear Regression and Random Forest algorithms using R-Squared (R^2) and Mean Absolute Error (MAE) as performance metrics. Based on the testing results, Random Forest achieved the best performance with an R^2 value of 0.9885 and an MAE of 2 units, making it the prediction model implemented in the application. User evaluation through User Acceptance Testing (UAT) obtained a score of 93.5%, which is categorized as very good. These results indicate that the system successfully supports inventory management and assists the decision-making process more effectively compared to manual methods.

Keywords: *web-based system, inventory stock prediction, inventory management, Linear Regression, Random Forest*