# Website-Based Information System Software for Managing Incoming and Outgoing Goods at the Provincial Revenue Agency Warehouse

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**ABSTRACT**

Warehouse operations require accurate recording of incoming and outgoing goods to maintain data consistency and stock control. At the Bapenda Provincial Warehouse, manual processes often caused data errors and reporting delays. This study aims to develop a web-based inventory management system to support efficient warehouse operations. The system was developed using the Software Development Life Cycle (SDLC) method and implemented with the Laravel framework and MySQL database. The results show that the system can record transactions, calculate stock automatically, and generate reports effectively. System testing confirms that all features function according to user needs.

## Introduction

Advances in information technology are encouraging government agencies to shift from manual to digital systems to improve the efficiency and accuracy of data management. In warehouse management, recording incoming and outgoing goods is crucial for maintaining consistency between physical stock and inventory data. However, manual recording still presents problems such as recording errors, delays in information, and difficulties in regularly monitoring stock (Ghani & Farhan, 2025).

The implementation of a web-based inventory information system is considered capable of addressing these issues through integrated, accurate, and easily accessible data recording. This system enables real-time stock monitoring, reduces the risk of human error, and accelerates administration and reporting processes (Suryani Irma Ade et al., 2025).

Therefore, the development of a website-based information system for managing incoming and outgoing goods at the Provincial Bapenda Warehouse is expected to increase the effectiveness and efficiency of inventory management (Melindawati & Farhan, 2025).

## Research Method

This research uses a prototype method in developing a warehouse information system. This method was chosen because it allows direct user involvement in the development process, allowing for accurate identification of system requirements.

Data collection was conducted through observation and interviews with warehouse staff to understand the process of recording incoming and outgoing goods and inventory management requirements. The development stages include needs analysis, prototyping, user evaluation, and system refinement. The developed system was tested using the Black-Box Testing method to ensure all functions operate according to user requirements.

## Result and Discussion

### A. System Analysis

A system analysis was conducted to understand the management of incoming and outgoing goods at the Provincial Revenue Agency (Bapenda) Warehouse and identify any problems. Observations revealed that inventory recording was not yet integrated, potentially leading to data errors, reporting delays, and difficulties in stock monitoring. Therefore, a website-based information system capable of supporting transaction recording, stock management, and reporting in a structured and accurate manner was required.

System requirements encompassed functional and non-functional requirements. Functional requirements encompassed inventory data management, recording incoming and outgoing goods, user management, automatic stock calculations, and inventory report presentation. Non-functional requirements encompassed ease of use, data security, and flexibility of system access. The results of this analysis served as the basis for the system design and development phase.
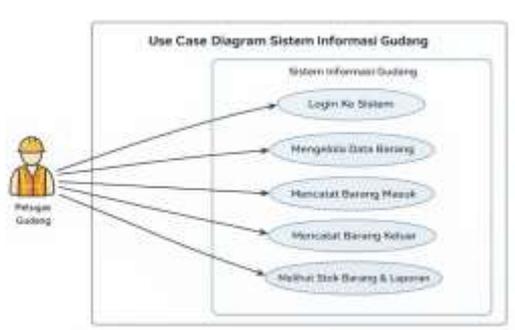
### B.System Design

The system design aims to provide an overview of the structure and workflow of the warehouse information system. The system is designed to be website-based, with modules for managing inventory data, incoming and outgoing inventory transactions, and inventory reporting. Use Case Diagrams are used to illustrate the interactions between warehouse personnel as the primary actors and the system, including login, data and transaction management, inventory monitoring, report presentation, and logout.

**Table 1.** Definition of Warehouse Clerk

| Nama Use Case | Aktor | Deskripsi |
|---|---|---|
| Login Sistem | Petugas Gudang | Petugas gudang masuk ke sistem menggunakan username dan password untuk mengakses fitur sistem. |
| Mengelola Data Barang | Petugas Gudang | Petugas menambahkan, mengubah, dan melihat data barang yang tersimpan di gudang. |
| Mencatat Barang Masuk | Petugas Gudang | Petugas mencatat barang yang masuk ke gudang beserta jumlah dan tanggal penerimaan. |
| Mencatat Barang Keluar | Petugas Gudang | Petugas mencatat barang yang keluar dari gudang sesuai kebutuhan operasional. |
| Mengelola Stok Barang | Petugas Gudang | Sistem menyesuaikan jumlah stok barang secara otomatis berdasarkan barang masuk dan keluar. |
| Melihat Laporan Barang | Petugas Gudang | Petugas melihat laporan barang masuk, barang keluar, dan stok barang secara periodik. |
| Logout Sistem | Petugas Gudang | Petugas keluar dari sistem setelah selesai menggunakan aplikasi. |

Berikut Adalah Use Case Diagram Gudang Bapenda buat **b inggris jiee**



Gambar 1 Use Case Gudang Bapenda

**System Design**

The Activity Diagram illustrates the workflow of warehouse officers, starting from login, data and transaction management, until logout. The Schema Diagram describes the database table structures and relationships to ensure integrated and traceable storage of transaction and stock data. The Entity Relationship Diagram (ERD) represents the relationships among key entities such as users, items, and transactions, serving as the basis for database design.

**Application Development**

The application was developed using the Software Development Life Cycle (SDLC) method, which includes analysis, design, implementation, and testing stages. The system was built as a web-based application using the Laravel framework.

The database was implemented using Laravel migration to create structured and consistent tables for users, items, and transactions. The user interface was developed using Blade Template and Bootstrap with a responsive design, providing main features such as login, dashboard, item management, transactions, and stock visualization.
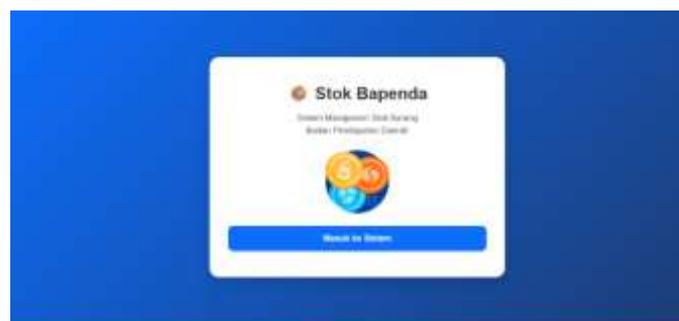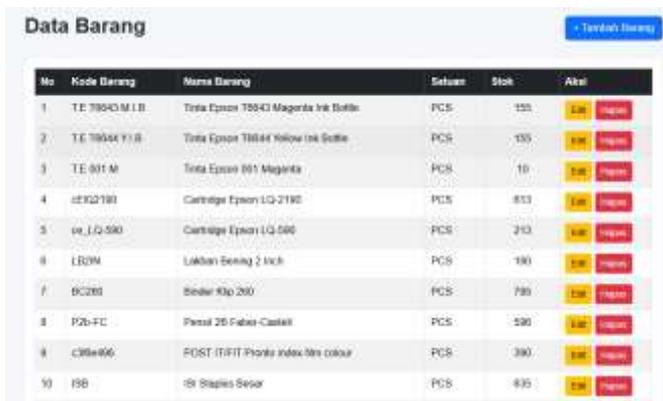


Gambar 2 Antarmuka halaman Login

### B inggris jiee

This page is used by warehouse staff to access the inventory management system. Users can log in by clicking the "Login to System" button and then proceeding with the authentication process. After successfully logging in, users will be directed to the dashboard page where they can manage and monitor incoming and outgoing goods data.



Gambar 3 Antarmuka Halaman Dasboard

On this page, the system displays a summary of important information, including the number of incoming goods, outgoing goods, and the total number of items available in the warehouse. The dashboard also features graphs of incoming and outgoing goods to help staff visually and periodically monitor stock movements.



Gambar 4 Antarmuka Halaman Data Barang

On this page, warehouse staff can view a list of items, including item codes, item names, unit prices, and stock quantities. Additionally, features like add, edit, and delete items are available to facilitate item data management, ensuring stock is always properly monitored and updated.

### Conclusion

This study successfully developed a web-based inventory management information system for the Provincial Revenue Agency (Bapenda) Warehouse using the Software Development Life Cycle (SDLC) method. The system supports the management of incoming and outgoing goods, automatic stock calculation, and inventory reporting in an integrated manner. System testing indicated that all main functions operated as expected and met user requirements. Therefore, the developed system is able to improve the accuracy, efficiency, and effectiveness of warehouse inventory management compared to the previous manual system.

## Acknowledgment

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