



Design of Web-Based Inventory Accounting Information System at PT XYZ

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Abstract

PT XYZ is a company engaged in the retail trade of large and small clothing, and it is located in the city of Bandung. As a trading company, PT XYZ needs to utilize information technology in managing warehouse inventory, which is no longer manual management, namely recording in paper media, which will be susceptible to data discrepancies. The web application here is interpreted as an inventory application through a display that includes goods to be stored in the warehouse and product transactions that come in and out. The research method used here is the interview and observation method. Software creation is carried out with a waterfall model consisting of the following stages: system planning analysis, system analysis, design, implementation, and maintenance. In the object of system modeling with visual data flow diagrams and flowcharts. The results of this study produce web-based software using PHP as a programming language with MySQL as a database and visual code for its program editor. Through this system, it is expected to facilitate work and can be used at any time. This inventory application can be a benchmark for managing incoming and outgoing goods. Another benefit is that this web-based application aims to control the stock of goods at any time.

Keywords: Web-based System, Inventory System, Prototype, PHP, MySQL

1. Introduction

The swift development of technology has reshaped the business landscape, prompting companies to adopt information systems for decision-making, information dissemination, and enhancing work efficiency [1]. Such systems help avoid errors in accounting records from manual data entry, especially in inventory management [2]. Inventory, which consists of goods held for sale or further processing, is a crucial asset, especially for businesses with high turnover rates and diverse stock [3]. Issues related to inventory often include a lack of awareness about stock levels or conditions, leading to overstock, shortages, damage, or discrepancies between recorded and actual inventory [2].

PT XYZ, a company engaged in retail trade for clothing in various sizes in Bandung, has experimented with several accounting software solutions. However, these systems have not fully met the company's requirements, leading them to revert to using Microsoft Excel. Unfortunately, Excel lacks DBMS capabilities [4] and cannot automatically generate inventory reports, resulting in inefficiencies. To address this issue, the study proposes developing a web-based inventory system that provides fast, accurate, and reliable information [5] [6]. A web-based system offers greater accessibility and can enhance inventory management for various items, such as clothing in different sizes and types. Unlike the previous systems, this new design allows for recording multiple items in a single transaction, simplifying the sales and purchasing processes. The researchers aim for this system to meet the inventory management needs for retail clothing trade effectively.



2. Literature Review

The swift development of technology has reshaped the business landscape, prompting companies to adopt information systems.

2.1. Inventory Information System:

An accounting information system (AIS) processes data and transactions to generate helpful business information. An inventory information system specifically tracks inventory data in a database, minimizing errors in data input, processing, and reporting [7]. The system is integral to sales, returns, purchases, and other related processes. It aims to [8] (a) provide accurate inventory data, (b) track inventory flow to determine the necessary control levels, and (c) monitor inventory levels economically. A well-integrated inventory system helps businesses make informed decisions and policies by generating essential reports [9].

2.2. Inventory

Inventory refers to goods a company holds for sale or operational purposes [2] [10]. There are two main inventory recording methods:

1. **Periodic System:** Inventory levels are updated at the end of a specified period, and the inventory account is not used for daily transactions.
2. **Perpetual System:** Inventory records are continuously updated with each transaction, allowing for real-time data on stock levels and cost of goods sold.

2.3. Understanding Information

The definition of information is data that is processed into something more valuable to help decision-making [11] [12].

2.4. Basic Concepts of Information Systems

Information Systems are the relationship between data and methods that use hardware and software to provide useful information [13]. Subsequent Organizational integration in information systems is an effort to connect and align various departments and work units in a company to work together effectively and efficiently [14] [15].

2.5. Definition of Inventory

Inventory refers to the stock of goods owned by a business that is intended to be sold within a specific business period, goods that are being produced or in the process of production, or raw materials waiting to be used in production [16]. Inventory management is essential for product distribution companies because the company must be able to predict the amount of product that will be prepared [17] [18]. In this case, the inventory system uses a periodic system because the number of units in inventory is seen based on a fixed period. Where the number of orders from one period to the next depends on changes in demand. Therefore, this inventory system requires a more extensive safety stock than the perpetual inventory system, which aims to overcome changes in demand during a specific period [19].

3. Research Methods

3.1. Data Collection Technique

The data collection techniques used are interviews and observations, including:

1. **Interviews**
Interviews are a technique used to ask directly to obtain the required data. In this case, the Author asked PT XYZ employees to determine the flow of goods inventory at PT XYZ, Stock of goods, Incoming Goods, Outgoing goods, and output of PT XYZ goods Inventory Reports.
2. **Observation**
Observation is a method used to collect data by directly observing the process of stocking goods, incoming and outgoing goods, and then reporting the availability of goods.
3. **Literature Study**
Literature study is a technique for obtaining data using journals as reference materials or books when writing reports.
4. **Analysis and Design**
After the Author obtains the required data, the Author designs an inventory information system at PT XYZ and works on the system using PHP as a programming language, then MYSQL as a database and visual studio code for the program editor to create the difference.

3.2. Software Development Method

This inventory information system will be developed using the prototype model, which involves quickly gathering information about user requirements. The prototype will be evaluated by users and used to refine the software development process [5]. One advantage of the prototype method is that users are actively involved in the analysis and design stages [20]. The complete steps of the prototype method are as follows:

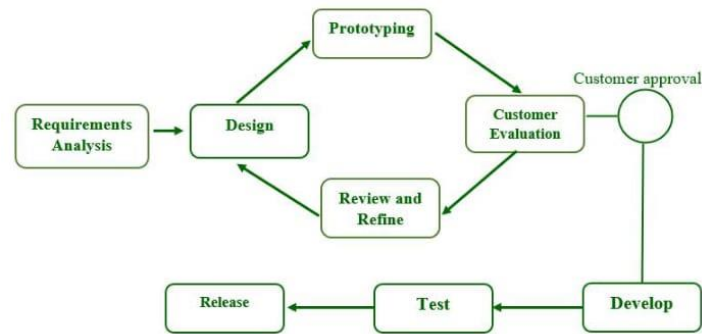


Fig 1. Stages of the Prototype Method

Phases of the Prototyping Model:

Step-1: Requirements Gathering and Analysis:

The first phase in developing a prototyping model is requirement analysis. In this stage, the system's needs are clearly defined. System users are interviewed to identify their expectations and requirements for the system.

Step-2: Quick Design:

The second phase involves creating a preliminary or quick design. This is not a complete design but a basic structure that gives users an early overview of the system. This rapid design helps in developing the prototype.

Step-3: Build a Prototype:

A functional prototype is built at this stage based on the quick design. It is a basic, working model representing the desired system on a smaller scale.

Step-4: Initial User Evaluation:

The prototype is then presented to users for preliminary testing. This step allows the users to evaluate the strengths and weaknesses of the prototype. Feedback and suggestions from users are collected and sent to the developers.

Step-5: Refining the Prototype:

If users are unsatisfied with the initial model, the prototype is refined based on feedback and suggestions. Once the users are satisfied with the improvements, the final system is developed based on the refined prototype.

Step-6: Product Implementation and Maintenance:

After the final system is fully developed, it undergoes thorough testing and is deployed into production. To ensure smooth operation and avoid major issues, the system is regularly maintained by the developers.

4. Results and Discussion

The Author designed this system with the aim that previously arising problems can be resolved with the presence of this system, especially in managing stock and regulating incoming and outgoing goods.

4.1. Flowchart

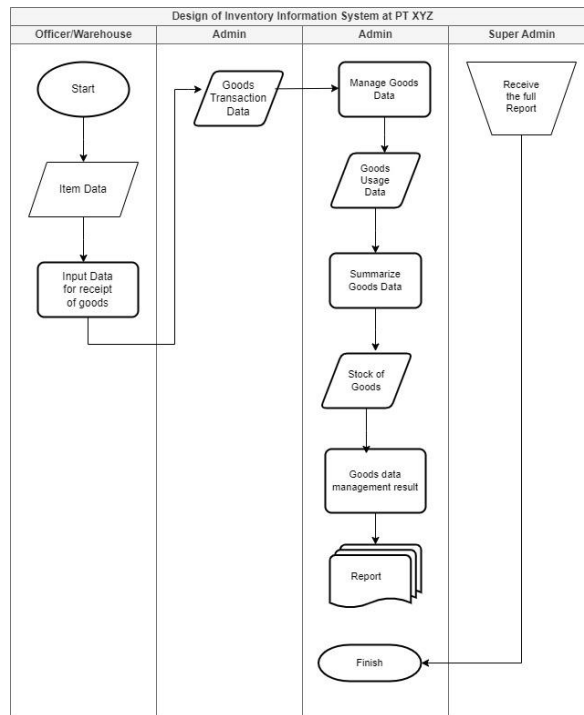


Fig 2. Inventory Flowchart

4.2. Data Flow Diagram

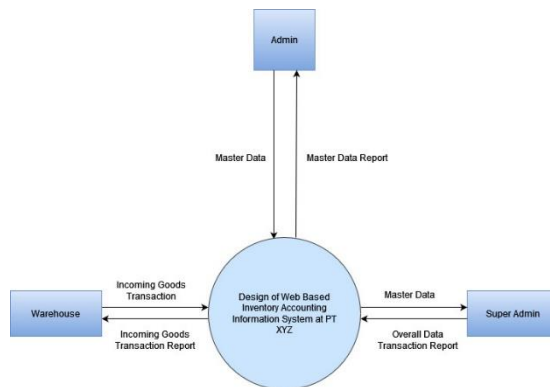


Fig 3. DFD Level 0

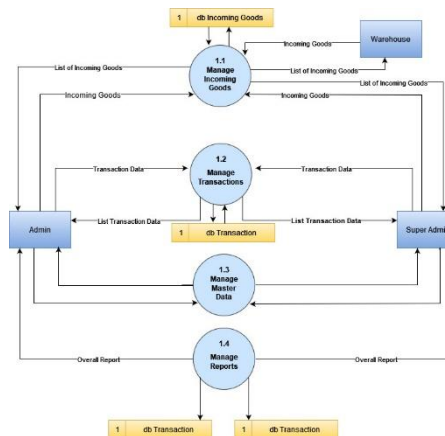


Fig 4. DFD Level 1

4.3. Desain Database (ERD)

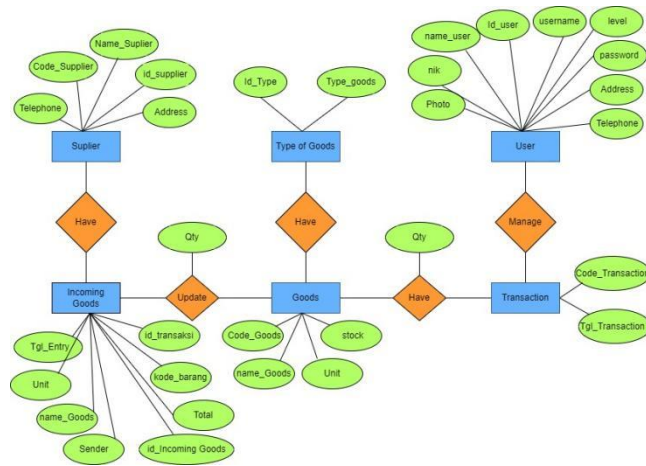


Fig 5. ERD (Entity Relationship Diagram)

4.4. System View

a. Login System View

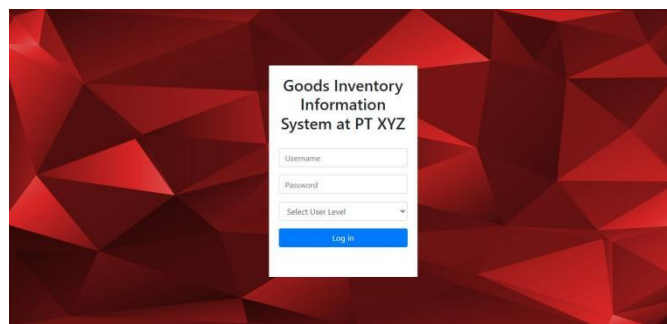


Fig 6. Display Login

Display the login menu, where there are username and password columns that must be entered to access the system.

b. Dashboard

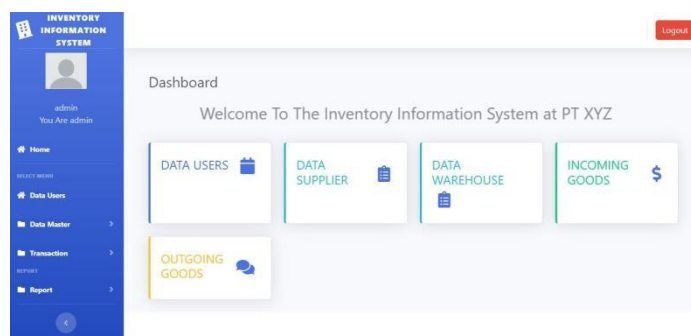
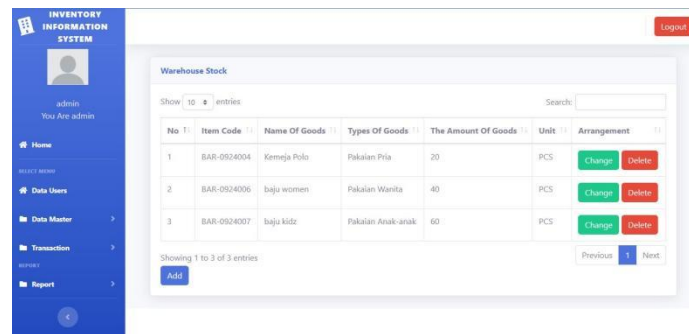


Fig 7. Dashboard

The main page appears after the user authenticates himself. This page displays the menu provided by the system.

c. Display of Goods Data

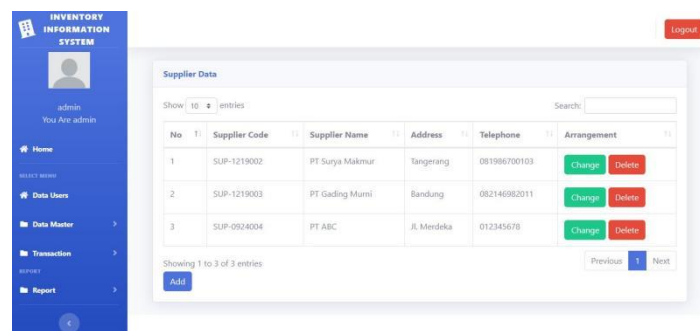


No	Item Code	Name Of Goods	Types Of Goods	The Amount Of Goods	Unit	Arrangement
1	BAR-0924004	Kemeja Polo	Pakaian Pria	20	PCS	Change Delete
2	BAR-0924006	baju women	Pakaian Wanita	40	PCS	Change Delete
3	BAR-0924007	baju kids	Pakaian Anak-anak	60	PCS	Change Delete

Fig 8. Warehouse Stock Data

This page contains information about warehouse data. On this page, the admin can make changes and delete.

d. Display Supplier Data

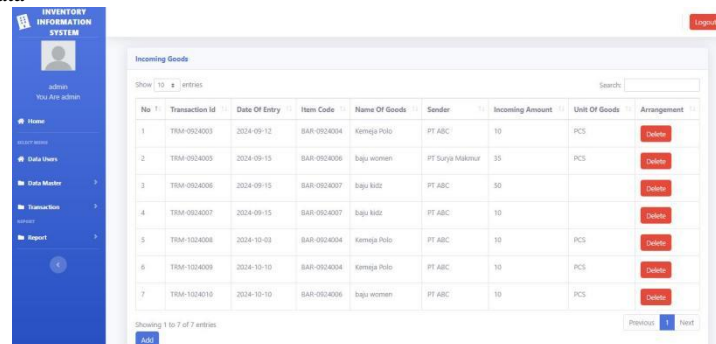


No	Supplier Code	Supplier Name	Address	Telephone	Arrangement
1	SUP-1219002	PT Surya Makmur	Tangerang	081966700103	Change Delete
2	SUP-1219003	PT Gading Murni	Bandung	082146982011	Change Delete
3	SUP-0924004	PT ABC	Jl. Merdeka	012345678	Change Delete

Fig 9. Supplier Data

This page contains information about Supplier data. On this page, the admin can make changes and delete.

e. Display Incoming Goods Data

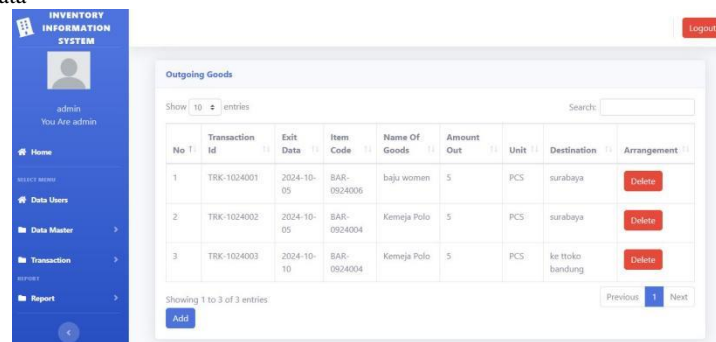


No	Transaction Id	Date Of Entry	Item Code	Name Of Goods	Sender	Incoming Amount	Unit Of Goods	Arrangement
1	TRM-0924003	2024-09-12	BAR-0924004	Kemeja Polo	PT ABC	10	PCS	Delete
2	TRM-0924005	2024-09-15	BAR-0924006	baju women	PT Surya Makmur	35	PCS	Delete
3	TRM-0924006	2024-09-15	BAR-0924007	baju kids	PT ABC	30		Delete
4	TRM-0924007	2024-09-15	BAR-0924007	baju kids	PT ABC	10		Delete
5	TRM-1024008	2024-10-03	BAR-0924004	Kemeja Polo	PT ABC	10	PCS	Delete
6	TRM-1024009	2024-10-10	BAR-0924004	Kemeja Polo	PT ABC	10	PCS	Delete
7	TRM-1024010	2024-10-10	BAR-0924006	baju women	PT ABC	10	PCS	Delete

Fig 10. Incoming Goods Data

This page contains information about incoming goods in the warehouse. Admin can make add and delete.

f. Display Outgoing Goods Data



No	Transaction Id	Exit Data	Item Code	Name Of Goods	Amount Out	Unit	Destination	Arrangement
1	TRK-1024001	2024-10-05	BAR-0924006	baju women	5	PCS	surabaya	Delete
2	TRK-1024002	2024-10-05	BAR-0924004	Kemeja Polo	5	PCS	surabaya	Delete
3	TRK-1024003	2024-10-10	BAR-0924004	Kemeja Polo	5	PCS	ke ttoko bandung	Delete

Fig 11. Outgoing Goods Data

This page contains information about outgoing goods in the warehouse. Admin can make add and delete.

g. Display Warehouse Stock Report

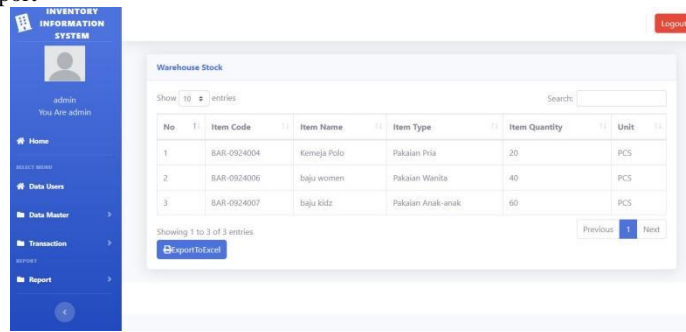


Fig 12. Warehouse Stock Report

This page contains information on overall stock data. Admin can export data.

h. Display Incoming Goods Report

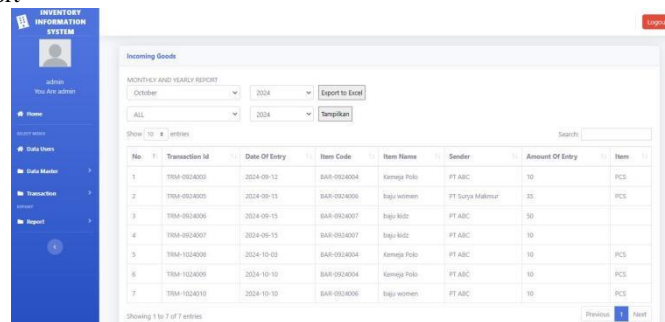


Fig 13. Incoming Goods Report

This page contains information on overall incoming goods data. Admin can export data

i. Display Outgoing Goods Report

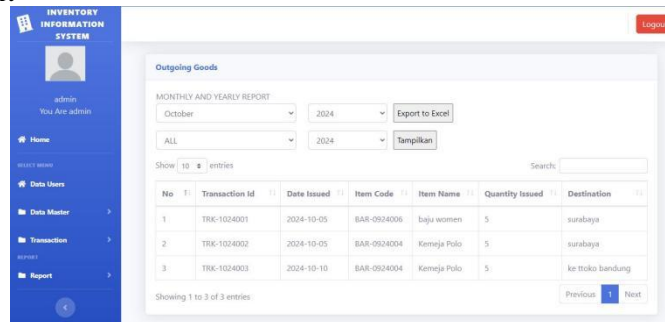


Fig 14. Outgoing Goods Report

This page contains data on overall outgoing goods. Admin can export data

j. Display User Data

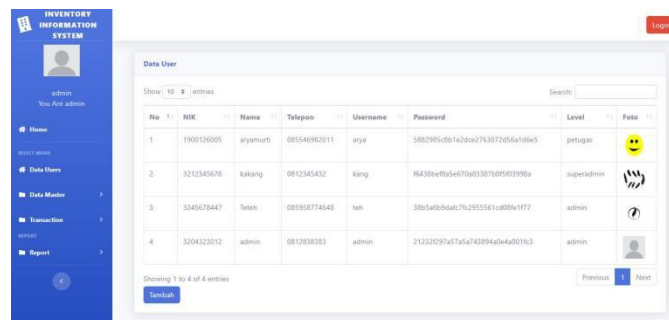


Fig 15. User Data

This page contains information on overall user data. Admin can make add.

5. Conclusion

Web-based inventory information systems are very appropriate in the era of technology that prioritizes speed and accuracy. This is because the computerized system in data management guarantees data security and ease of access. This web-based inventory information system is handy for companies because it makes it easier to create reports, especially controlling incoming and outgoing goods and managing stock of goods, making it easier for companies to increase profits and reduce risks that occur.

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