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Inventory Information System at PT. Jaya Tegar Sejahtera Uses the FIFO Method in the Production Process

Tria Hadi Kusmanto[1]
[1]Universitas Indraprasta PGRI (Unindra), Indonesia, E-mail: triahadi226@gmail.com

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Abstract: *Action research focuses on product identification and management to collect data on available commodity inventory, also called inventory systems. The author's focus in this context is on PT. Jaya Tegar Sejahtera at this time. The greater the complexity of data management related to stock availability, including shortages, excess stock, and stock level variations, the more goods PT. Jaya Tegar Sejahtera has in stock. Realizing that the business is growing and more data needs to be processed, PT. Jaya Tegar Sejahtera requires a software application to conduct inventory. Therefore, PT. Jaya Tegar Sejahtera needs an inventory information system to help with all inventory management tasks and determine the amount of inventory needed to meet all client requests. The study aims to create an inventory information system that follows the First In, First Out (FIFO) method to overcome existing problems using MySQL and PHP. The results of this study indicate that this inventory information system can make it easier for the sales department to request goods, allow companies to check directly into the warehouse to find stock information and help users work more productively and effectively in inventory management.*

Introduction

PT. Jaya Tegar Sejahtera and other new trading companies are in dire need of an inventory management system. As a manufacturer, a business can maintain its products for potential future sales. When inventory in the warehouse runs low, entrepreneurs usually place orders with external vendors to meet monthly demand. The increasing demand for products often makes companies unable to meet the demand. According to Indroprasto & Suryani (2012), companies sometimes receive more orders than they can fulfill, which means they have to keep much inventory in the warehouse and incur excessive costs.

The more inventory PT. Jaya Tegar Sejahtera has a more difficult time managing and recording stock availability at the data processing stage of a corporation. These problems include quickly occurring data redundancy, fluctuations in inventory levels at the end of the period, stock shortages that hinder smooth trading, and unmet client requests. Thus, businesses will lose customers and opportunities to make profits. In addition, businesses often have excess inventory, which causes stock buildup in warehouses and product loss due to prolonged storage. This study designs an inventory information system that records, monitors and processes data to support all operations related to inventory management. Stock levels can be managed effectively, and fast, accurate, and relevant reports can be generated to improve business quality. The goal is to solve PT's inventory processing problems. Jaya Tegar Sejahtera so that inventory data processing becomes faster, more efficient, and more controlled.

According to Sampeallo (2012), store inventory is not optimal because it is not

planned properly based on the original paper. Inadequate warehouse inventory is the cause of this. This happens when a company orders something after receiving an order for a particular item. As a result, customers are forced to wait for the goods to arrive. However, we also have excess inventory, which results in storage costs for things like maintenance and replacement of damaged goods stored in the warehous.

Heizer et al. (2017) identified four inventory categories: 1) Raw material inventory: This is an inventory of tangible goods that will be used during production. 2) Inventory of goods in process, also called inventory of goods in process, consists of parts or raw materials that have gone through several processes but still require further processing to be converted into final goods. 3) Maintenance, repair, and operations (MRO) inventory is an inventory of materials needed to maintain the productivity of machines and operations. Finished product inventory consists of goods produced and prepared for sale or delivery to clients. Maintaining inventory levels at the desired level is known as inventory control. Inventory control in goods products places great emphasis on material handling. Because the purchase of services is often related to their consumption, control over the supply of services is given greater weight than control over raw materials in service products, eliminating the need for inventory (Zainul, 2019).

PT. Jaya Tegar Sejahtera currently uses Microsoft Excel. The limitations of Microsoft Excel products become apparent to users as they progress in development. As a result, business people need well-organized software that makes all inventory, goods, customers, suppliers, and sales transaction data easily accessible and understandable. They also want reports that contain all data and transaction data. Based on this topic, this study will create a desktop application system for inventory using the First In First Out (FIFO) method.

Method

Data collection methods are a set of procedures or techniques used to collect information or data from the topic of investigation. This study collected data using various observation techniques, interviews, and literature studies. During the observation, observations were made of PT. Jaya Tegar Sejahtera was present during the inspection, especially in the warehouse where the goods to be sold are stored. In order to gain a comprehensive understanding of inventory. This requires monitoring the essential documents received by the warehouse, the steps involved in releasing products for sale, and the FIFO system in commodity receipt transactions.

Furthermore, interviews were conducted in direct question-and-answer sessions with the director and head of the PT warehouse. Jaya Tegar Sejahtera regarding the policies and procedures for entering and releasing commodities using the FIFO system at PT. Jaya Tegar Sejahtera, the marketing, purchasing, and warehouse administration departments. This study also uses literature studies to collect references for creating inventory programs and information regarding literature reviews from books, journals, and papers..

The Waterfall model used in this research (Nunez et al., 2015; Saravanos & Curinga, 2023). It is a system analysis and development presented in Figure 1.

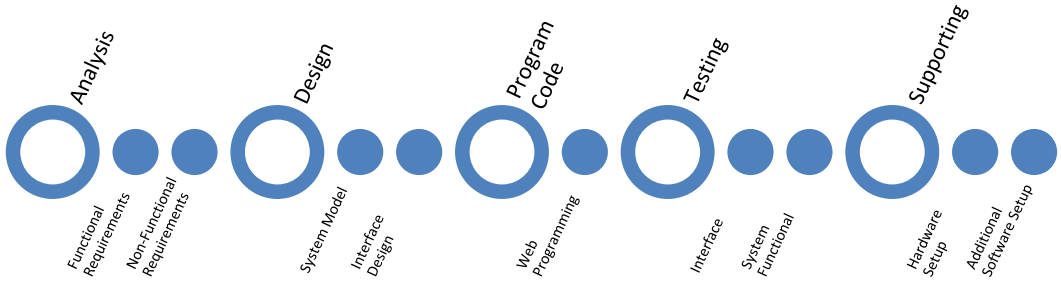

Figure 1. System Development Model

Software Requirement Analysis is conducted to determine the root cause of the problems that arise at PT. Jaya Tegar Sejahtera. The author examines the problems that arise at the analysis stage. The inventory control system, especially inventory management and documentation, is one of the problems faced by PT. Jaya Tegar Sejahtera. Jaya Tegar Sejahtera. In more detail, it can be said that a poor inventory management system is the cause of the high number of damaged goods, thereby increasing the cost of repairs. The absence of minimum and maximum stock limits often causes stockouts and sometimes excess goods, disrupting the orderly sales process. It is crucial to ensure that all commodities are accurately recorded on the stock card to avoid misleading information and inaccurate recording. In addition, the difference between the inventory report from the administration department and the warehouse stock card can cause delays in obtaining inventory. This is the result of tedious and time-consuming Microsoft Office Excel 2007 data entry in the administration department, which often causes errors when entering inventory reports, resulting in incorrect information.

They are setting up a sorting system for incoming and outgoing goods based on the date of receipt, creating supporting documentation for incoming and outgoing goods, and creating an inventory program to manage PT. Jaya Tegar Sejahtera's inventory. These suggested system improvements are the result of a comprehensive analysis of PT. Jaya Tegar Sejahtera's operations. PT. Jaya Tegar Sejahtera combines the administration and warehousing sections. Activities carried out in this analysis stage include describing PT. Jaya Tegar Sejahtera's business procedures related to the inventory in and out system are documented using the FIFO method in activity diagrams, describing documents and reports related to the inventory in and out system. This document is a reference for the author to translate into a programming language, analyze reports and documents, and provide suggestions for improvements in terms of adding documents or reports as needed and analyzing the procedures for the in and out system at PT. Jaya Tegar Sejahtera.

In the Design stage, the inventory control system is built using the concept of structured programming using desktop programming language and MySQL database, and the system design is made using UML (Use Case Diagram, Activity Diagram, Deployment Diagram, and Component Diagram). This program contains subsystems that start with the data processing of PT. Jaya Tegar Sejahtera, namely employee data processing, goods data, supplier data processing, customer data, goods purchase order data, incoming goods transaction data, outgoing goods order data, outgoing goods transaction data, and other data information that is still related to the goods inventory system at PT. Jaya Tegar Sejahtera.

Next, the Program Code Creation stage. The results of the design stage are

continued with translation into a software program using the PHP programming language because it is easy to operate, does not complicate users, and is expected to overcome the problems at PT. Jaya Tegar Sejahtera. At the testing stage, testing is carried out using the Black-Box Testing approach to minimize errors and ensure that the output produced is as desired—finally, the Supporting stage. The hardware specifications for the data program application are a Core i3 processor, 4 GB RAM, 500 GB hard disk, and a 16-inch monitor. At the same time, The software specifications are used by the operating system so that the program runs and functions to organize data to be stored on the hard disk and printed. The software needed for the data storage application program created is using MySQL.

Result and Discussion

PT. Jaya Tegar Sejahtera is a company that purchases and sells snacks for outgoing goods inventory at PT. Anugrah Bumi, the activity begins when the marketing department receives an order for goods from a customer, which is made in writing in a delivery note. Using the application begins by logging in to the application with a username and password that have been registered in the system. After successfully logging in, the main menu will appear, which can be used to input data such as employee, consumer, supplier, and goods.

Goods ordered by consumers will be made a delivery note and invoice faxed to the warehouse section and received by the warehouse administration. The warehouse administration checks the stock in the warehouse to see if the amount ordered is sufficient; the warehouse administration section makes an internal warehouse delivery note and arranges a delivery schedule for the customer. The internal warehouse delivery note will be given to the warehouse head to prepare the goods that will later be sent to the customer. If the warehouse administration checks the stock and it runs out, the administration will make a schedule for purchasing goods to be approved by the president director; if the president director has approved it, the warehouse administration will send it to the purchasing section to make a PO in two copies which are used to order the goods needed according to the request from the warehouse administration section. Then, the PO will be sent to the supplier to be filled out according to the name and number of goods.

After the PO is processed or filled, the number of goods ordered, along with the documents and the Delivery Note from the supplier, will be checked and archived by the warehouse section. Suppose the goods from the supplier have arrived at the warehouse. In that case, the warehouse administration section checks the supplier's delivery note and packing list to see whether they are by the PO. If they are in accordance, then the checker section begins to count the number of goods received. After that, three copies of the delivery note are attached, one for the warehouse and two copies for the supplier as proof of receipt of the goods.

System Design

The following are the specifications for the needs (System requirements) of the inventory control system at PT. Jaya Tegar Sejahtera.

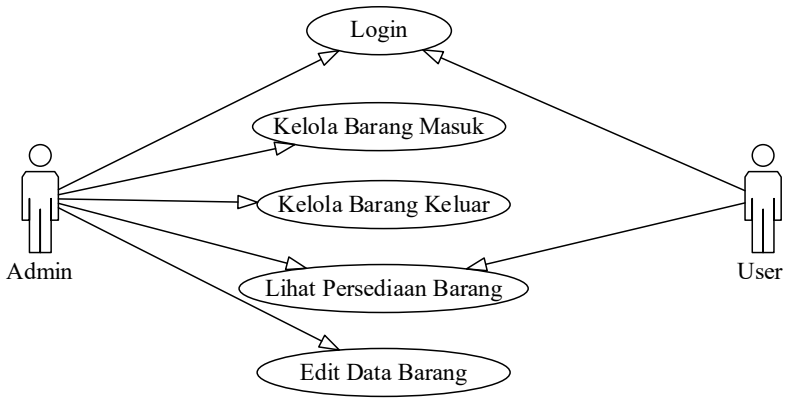

Figure 2. Use Case Diagram

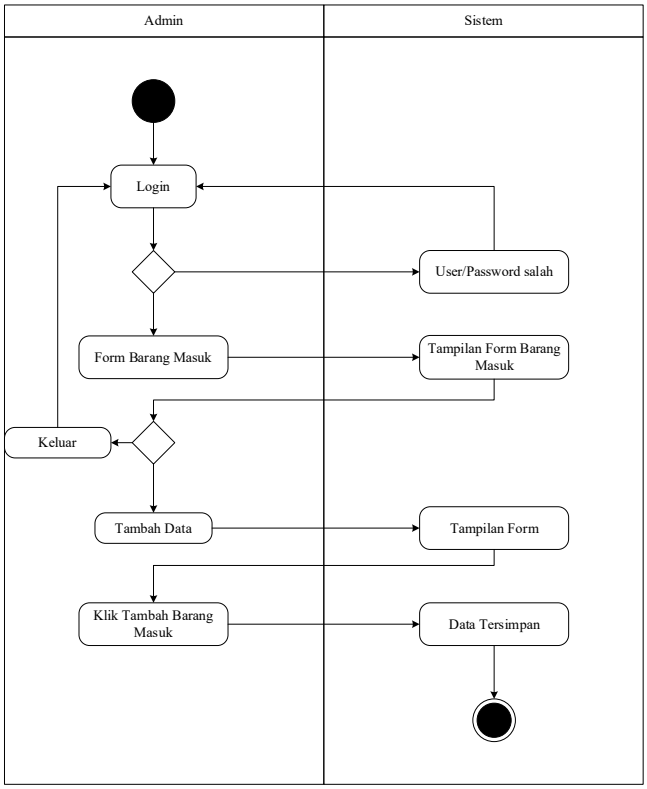

Figure 3. Activity Diagram Inputting Item Data

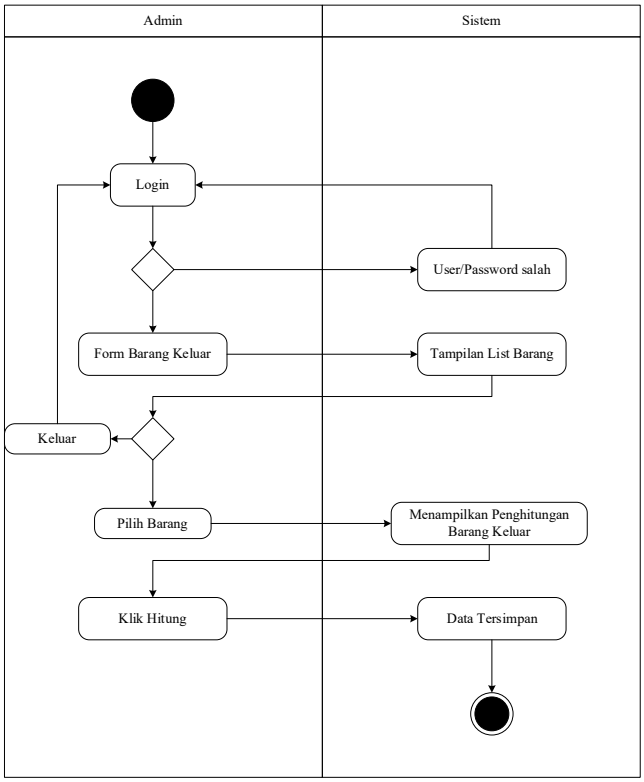

Figure 4. Activity Diagram List Barang Keluar

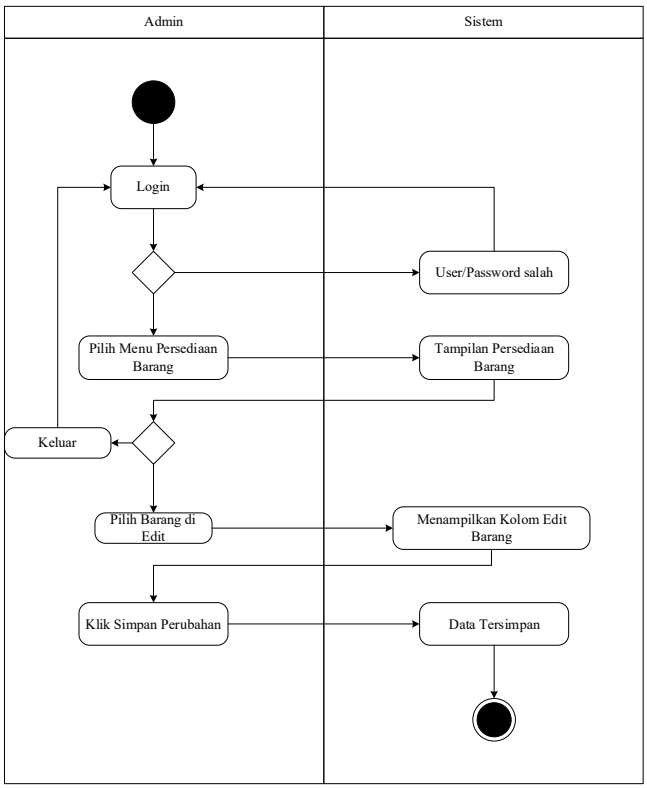

Figure 5. Activity Diagram Edit Data Barang

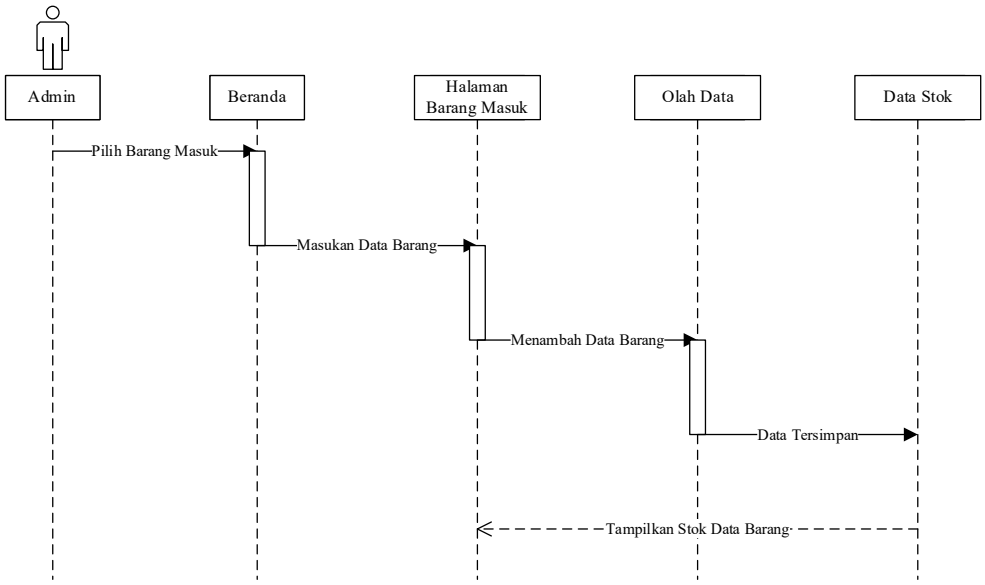

Figure 6. Sequence Diagram of Goods Data Input

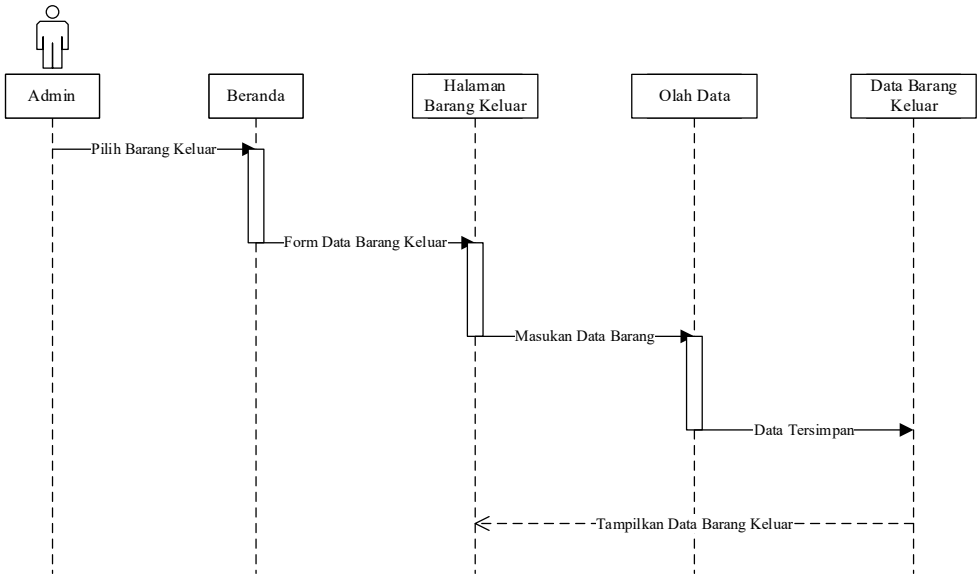

Figure 7. Sequence Diagram of Goods Out

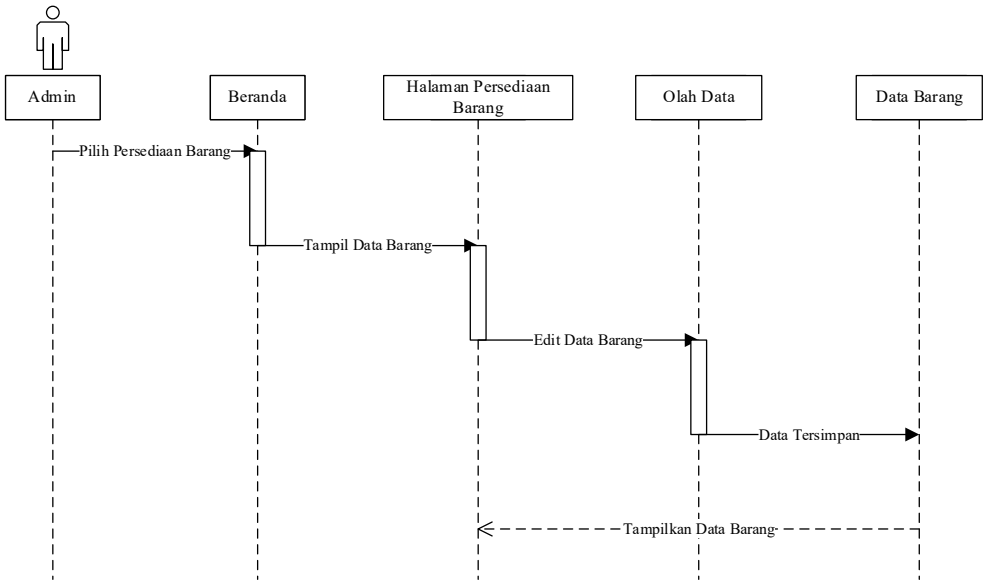

Figure 8. Sequence Diagram Edit Goods Data

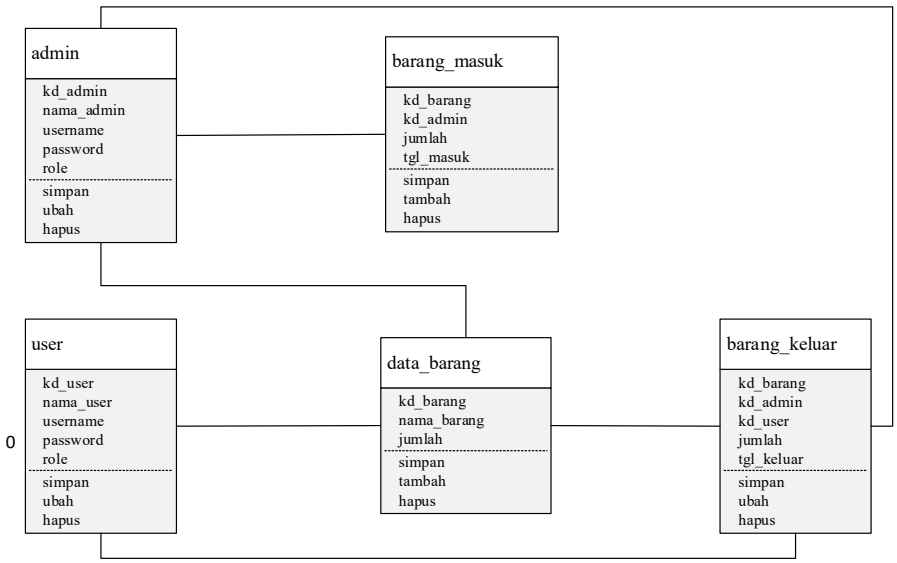

Figure 9. Class Diagram of Goods Data

Screen Display

Figure 10. Dashboard Form

Figure 11. Incoming Goods Form

Figure 12. Outgoing Goods Form

Figure 13. Goods Inventory Form

Conclusion

The design of the inventory information system at PT. Jaya Tegar Sejahtera is a functional system within the organization. The inventory information system application can accelerate and improve the performance of warehouse officers in calculating inventory data using the FIFO approach. This application helps smooth the inventory transaction process, accelerate the process, and improve the performance of the

warehouse section in recording goods. In addition, the company can view inventory within a certain period and find the minimum and maximum stock details.

Acknowledgements

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