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IMPLEMENTATION OF SUPPLY CHAIN MANAGEMENT AT CV.TINGGAR JAYA FOR WEB-BASED STOCK MONITORING

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ABSTRACT

Implementation of Supply Chain Management at CV. Tinggar Jaya is a company warehouse system designed for company needs to coordinate company resources. The problem that occurs at CV. Tinggar Jaya still uses manual methods, from ordering to checking or monitoring stock in the warehouse. Therefore, the solution to this problem is implementing supply chain management at CV. Tinggar Jaya will organize and monitor the warehouse's stock amount using the waterfall system design method with the expected goal of implementing supply chain management to monitor the stock of goods to be more efficient in carrying out this process.

Keywords: Warehouse, Supply Chain Management, Goods, Monitoring, Stock, Website

INTRODUCTION

Initially, the development of information technology was less advanced than it is now. With today's advancements, increasing understanding, developing knowledge, and improving conventional skills have become more accessible. Companies continue to grow in number and make efforts and strategies to build their business.[1]We often hear about the industrial revolution in telecommunications, which shows that technological development has progressed significantly and quickly. It cannot be denied that the development of aspects of human life will continue to change during the Industrial Revolution.[2]The importance of computers can be felt in various sectors, both in government institutions and companies. Awareness of the need for fast and accurate information has encouraged many agencies and companies to adopt computers equipped with application programs. The aim is to increase effectiveness and efficiency in carrying out tasks.[3]

Along with increasingly sophisticated technological developments, human needs for technology are more significant. Recently, the role of technology has been vital to helping a company carry out its daily operational activities. Therefore, an information system is necessary to help companies carry out their operational activities. Supply Chain Management emphasizes managing the supply of goods to the company. The advantage of implementing

supply chain management for monitoring the stock of goods is that tracking the stock is carried out at CV. Tinggar Jaya is not done manually. Supply Chain Management problems are operational problems that often occur in companies, especially in workshops that store stock in warehouses.[4]Inventory management is an essential system for improving business performance by managing activities in the warehouse sector of an industry. Inventory management involves various aspects, such as checking stock and receiving and releasing goods. All the resulting data is then used as information for the industry to distribute goods available in warehouses.[5]Supply chain management is a method for managing the flow of products, information, and money in a connected manner that involves parties from upstream to downstream. The main principles in SCM involve information transparency and cooperation between the company's internal functions and related parties within the supply chain. This supply chain includes the physical network of companies providing raw materials, producing goods or products, and sending them to end users. These companies generally involve suppliers, factories, distributors, retailers, and supporting companies such as logistics service providers.[6]

LITERATURE REVIEW

CV. Tinggar Jaya has more than 15 suppliers who supply goods to be sold. However, the problem at CV. Tinggar Jaya's stock monitoring could be more efficient because employees frequently check goods at the warehouse and record stock manually.

Previous research regarding the application of Supply Chain Management to monitor stock at Umi Nala stores shows that using qualitative descriptive data collection techniques can support management monitoring stock via the website. This can make it easier for shop owners to manage the supply chain.[7]

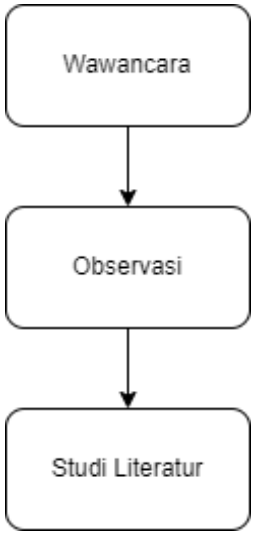
In the second literature study, the literature review in previous research focused on implementing web-based Supply Chain Management for stock management and distribution of mobile phone spare parts at Erwin Mobile. The aim is to solve this problem by implementing a website-based application or E-Supply Chain Management in the cellphone spare parts supply and distribution system. The research method applied at this stage is a qualitative method and system design using the waterfall method.[8]

Furthermore, this third literature study focuses on analyzing E-SCM implementation using a dashboard system to monitor the flow of material movement. The aim is to support the design of a dashboard monitoring information system, which will help the SCM department

implement the E-SCM concept and monitor the flow of material movement. The system development method used in this research is SDLC (System Development Collaborative). The design of this information system will produce an application or web that can display information about the flow of material movement in graphic form on the dashboard page. This web-based application will display information such as the number of goods in the warehouse, the stock of goods, and the number of incoming or outgoing transactions that will be carried out there.[9]

METHODS

Research Stages



Picture 1 Research Stages

The data collection methods used are as follows:

1. **Interview**

   Interviews were conducted with CV workshop owners. Tinggar Jaya will gather data to conduct this research.

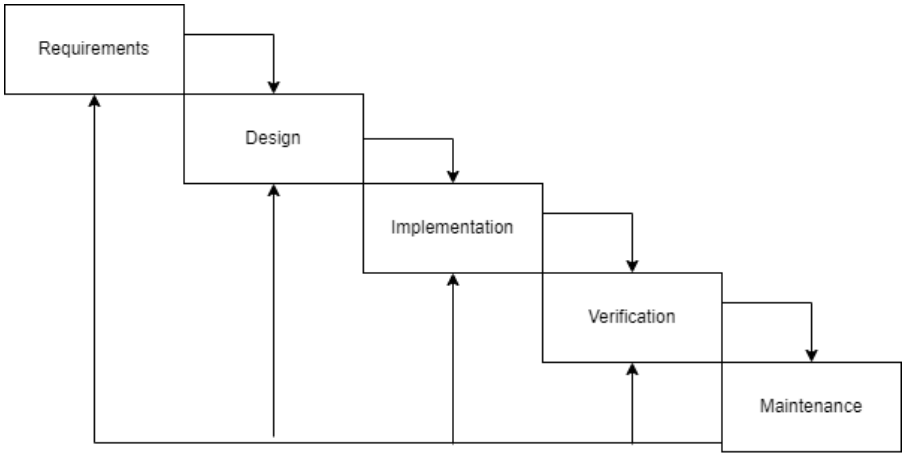
2. **Observation**

   Observations are carried out by coming and observing the work process and how to monitor stock carried out at CV. Tinggar Jaya. A few photos were taken as documentation for making observations at CV. Tinggar Jaya.

3. **Study of literature**

   Literature studies collect data from previous research and serve as reference material for current research, which can help generate creative ideas.

Waterfall Method



Picture 2 Waterfall Method (Pressman,2015:42) [10]

The system design method used is the Waterfall method. The waterfall method is often called the classic life cycle, where it describes a systematic sequence and approach in software development, starting with identifying user needs and continuing with steps such as Requirements, Design, Implementation, Verification, and Maintenance.[11] The essence of the waterfall method is the implementation of one system sequentially or linearly[12]. The waterfall method is an approach to developing structured and sequential information systems. The waterfall is a software development method that proposes a systematic approach to software design, starting from the design stage to maintenance, including the stages of the waterfall method below. Where is each step? In this method, it is carried out sequentially and without interruption.[13]The waterfall is a software development method that proposes a systematic approach to software design, starting from the design stage to maintenance, including the stages of the waterfall method below.[14]

The stages of the waterfall method are:

1. ***Requirements***

   At this stage, system design needs to understand the expected software and its constraints. Data can be obtained through surveys, interviews, and directly observing conditions, such as how to monitor stock in the warehouse at CV Tinggar Jaya.

2. ***Design***

   The second stage is design, which involves drawing and making sketches that will be used as a reference in implementing the approved system.[15]At this stage of system design, you must create a system design that can help provide an overview of the appearance of

E-Supply Chain Management for monitoring stock and can also help understand the system as a whole.

3. ***Implementation***

   The next stage is implementation, which involves designing an E-Supply Chain Management system using the PHP programming language and integrating it with the MySQL database.

4. ***Verification***

   At this stage, verifying and testing the system aims to find out whether the system entirely or partially meets the system requirements.

5. ***Maintenance***

   Next is the final stage of the waterfall method. At this stage, the implemented system undergoes a maintenance process. Maintenance includes fixing errors that may not have been detected in previous steps.

RESULTS & DISCUSSION

Designing and building E-Supply Chain Management for web-based stock monitoring can help the company perform its Supply Chain Management. E-Supply Chain Management design involves a series of stages to ensure successful implementation and operation in E-Supply Chain Management design.

CV Warehouse System Business Process Analysis. Ongoing Tinggar Jaya

1. **CV Warehouse System Business Process. Ongoing Tinggar Jaya**

   In this section, the ongoing business processes will be explained, namely:

   a. Employees check goods routinely once a week
   b. Then, the employee checks in the warehouse to see if the goods are available. If not, the employee informs the owner that the stock is unavailable and then orders the goods from the supplier via WhatsApp. If the goods are available, the employee records them manually.

2. **Proposed CV.Tinggar Jaya Warehouse System Business Process**

   The proposed computerized stock checking process flow is:

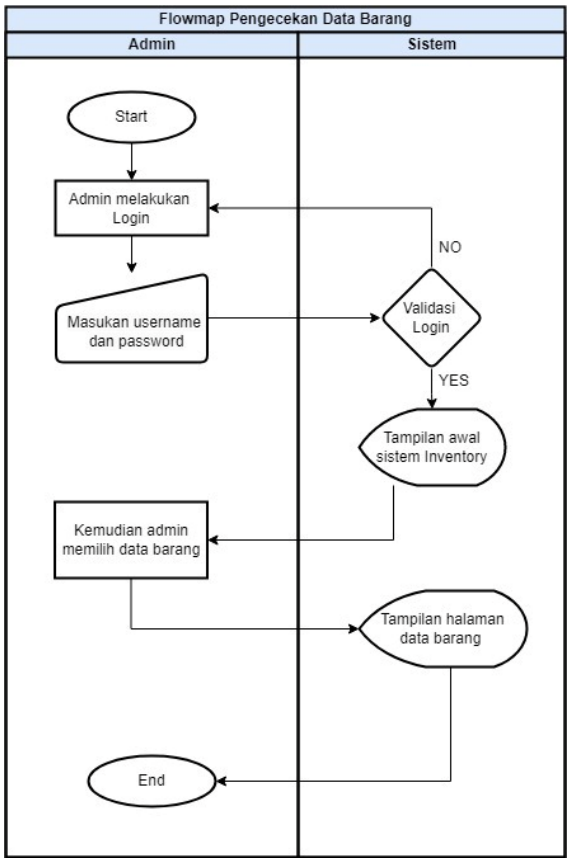
   a. Employees log in to the system.
   b. Employees can check stock regularly through the integrated E-Supply Chain Management system.

c. If it is unavailable, the employee will inform the owner that the goods are not in stock and then order them from the supplier.

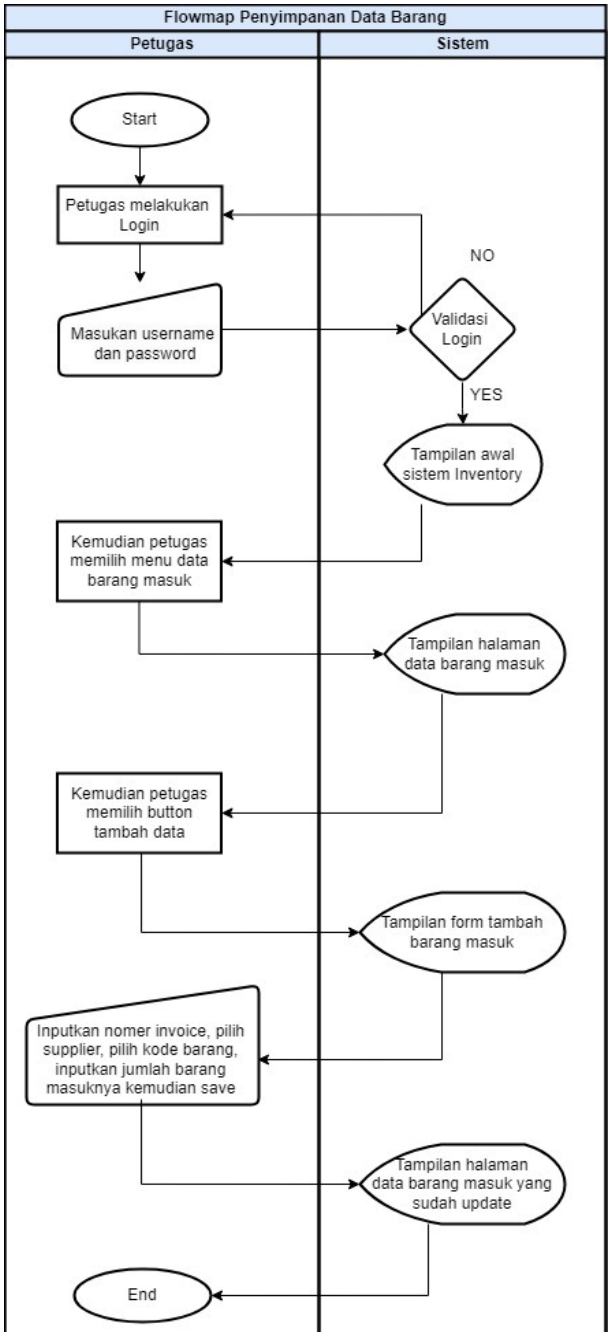
d. If the goods are available, the employee will update the total stock of goods in the system.

3. Flow map Diagram

Research flowmap in implementing Supply Chain Management in the CV.Tinggar Jaya warehouse system:



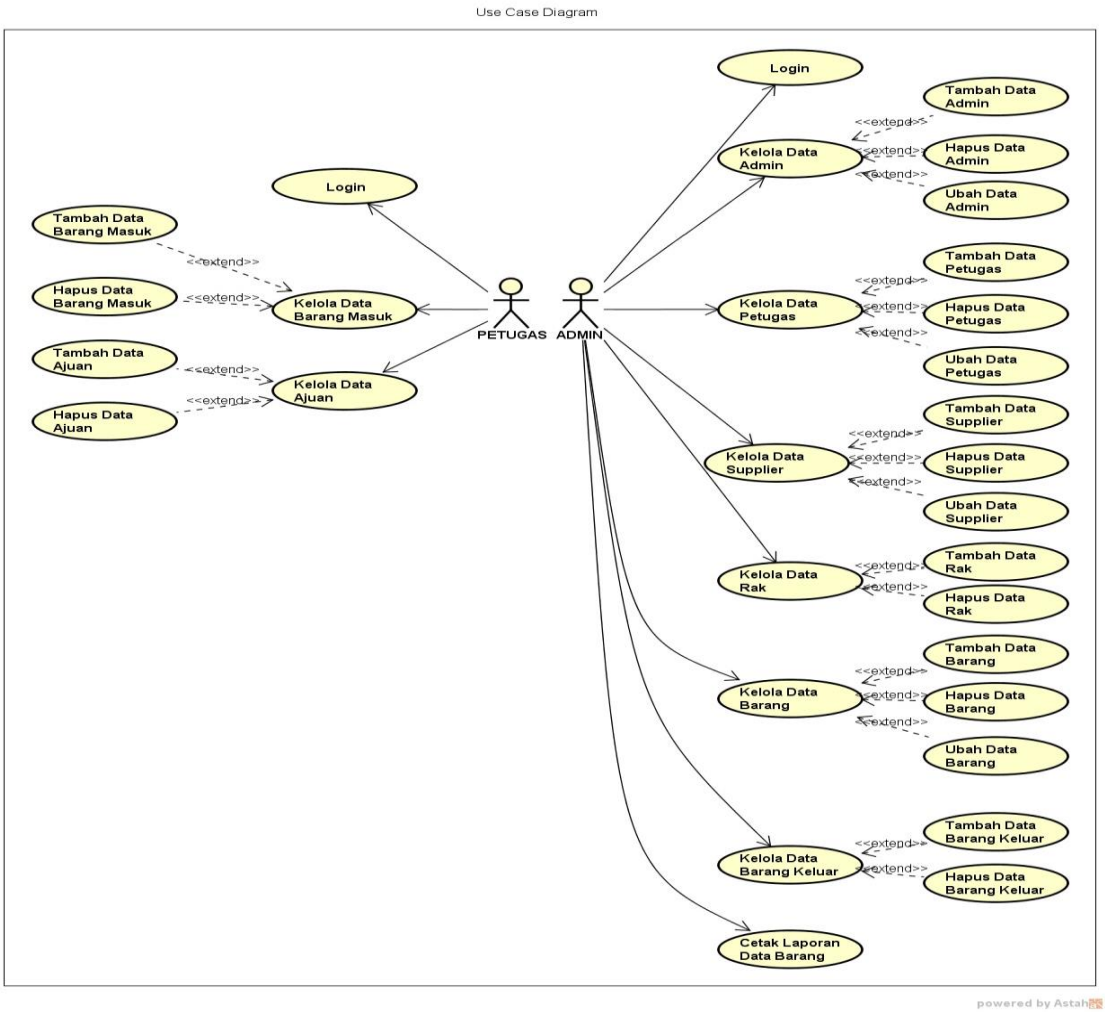
Picture 3 Flowmap Diagram for Checking Goods



Picture 4 Flowmap Diagram of Goods Data Storage

4. Use Case Diagrams

Use Case research in implementing Supply Chain Management in the CV warehouse system. Tinggar Jaya:



Picture 5 Usecase Diagrams

Implementation of E-Supply Chain Management for Monitoring Stock of Goods

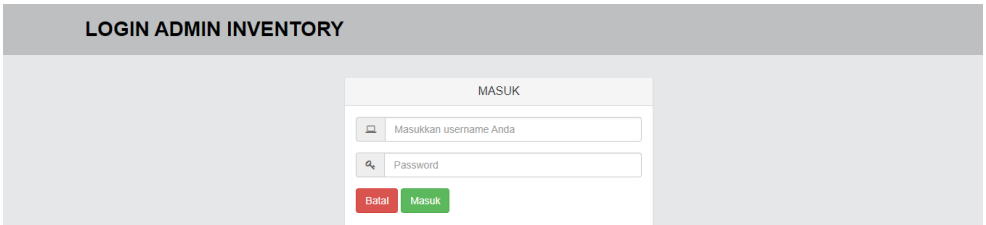
1. Login to the System

To log in as admin, in the main display, enter the main page, and click the admin option in the display as follows:

Picture 6 Login to the System

2. Admin Login

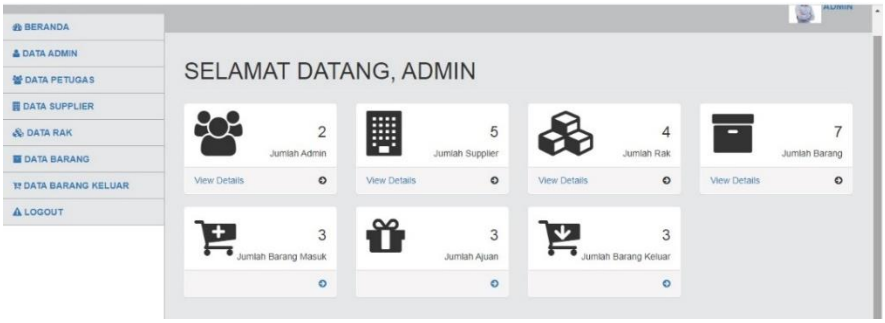
After clicking admin, a screen appears where you have to enter your username and password according to the following screen:



Picture 7 Admin login

3. Admin Main Page Display (Home)

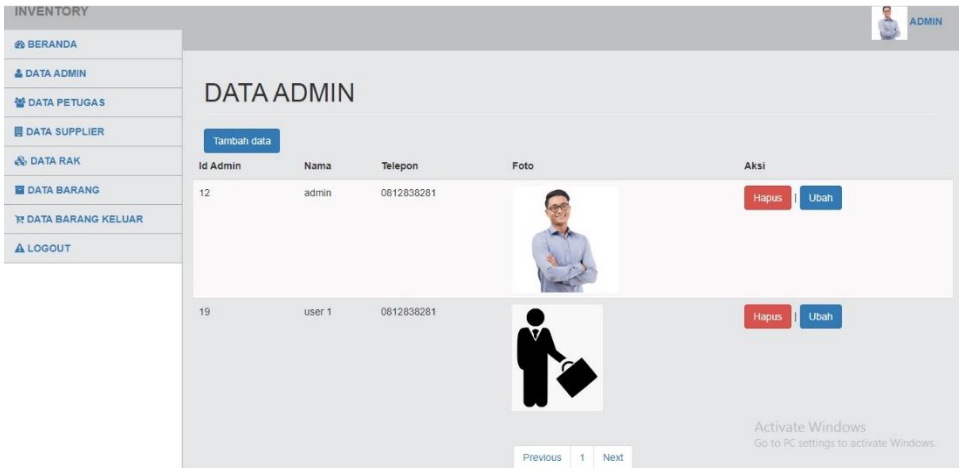
After logging in, the central system display on the admin homepage will display several options according to the image below:



Picture 8 Admin Main Page Display (Home)

4. Admin Data Display

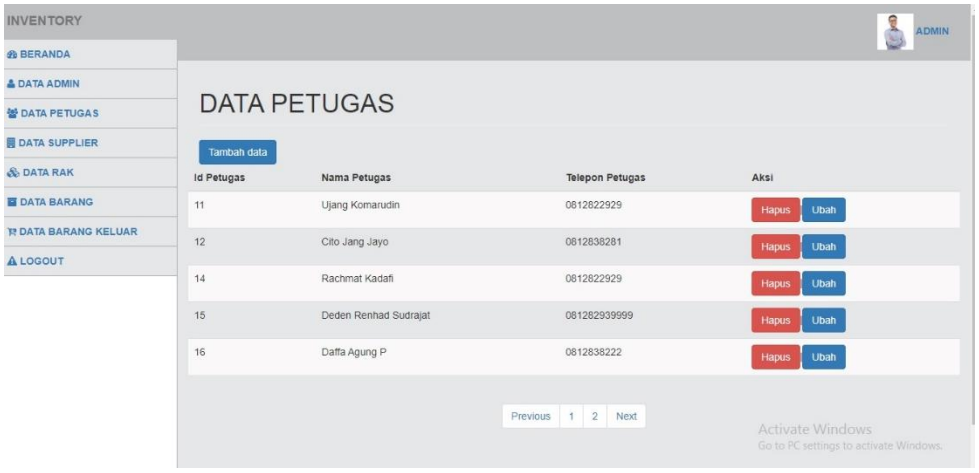
This display will display admin data that is connected to this system and can be accessed; also, in this display, you can add, change, and delete selected admin data. The following displays the admin data as follows:



Picture 9 Admin Data Display

5. Officer Data Display

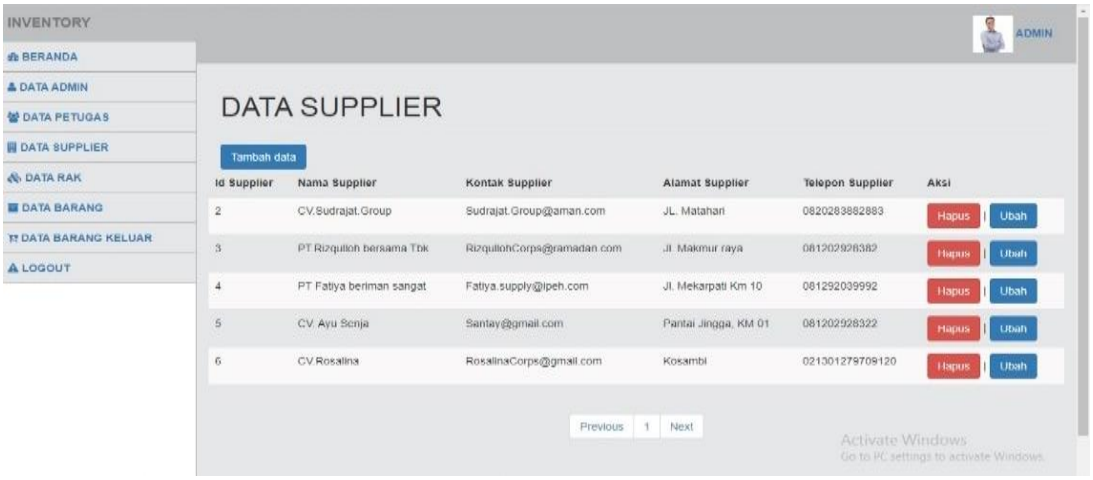
This display displays data on officers connected to this system, and the admin can monitor if there are requests for goods coming in through the names of officers whom the system has registered. In this display, you can also add, delete, and change officer data; here is the data display:



Picture 10 Officer Data Display

6. Supplier Data

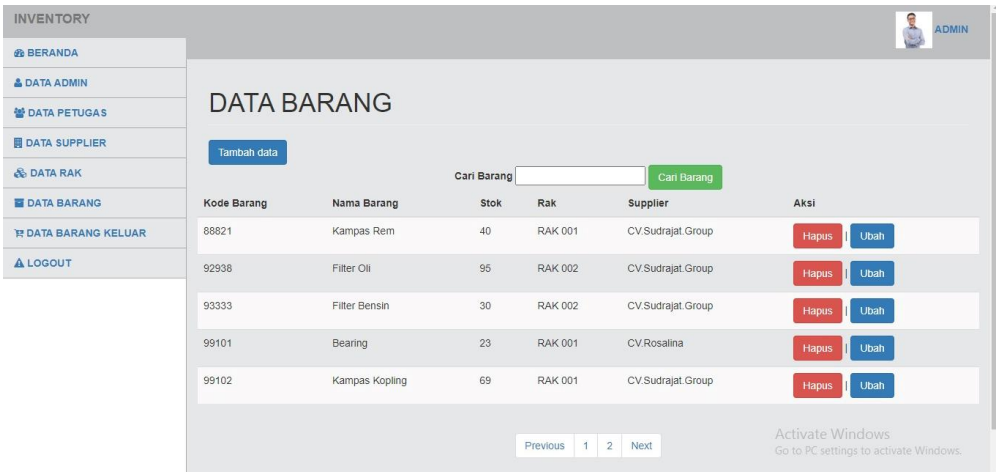
This display displays supplier data that collaborates with CV Tinggar Jaya. This display can also add, delete, and change supplier data. It can be seen in the following image:



Picture 11Add Item Data

7. Add Item Data

This item data displays only existing items, starting from stock, goods, and suppliers. In this display, you can also add, delete, and change item data according to the following image:



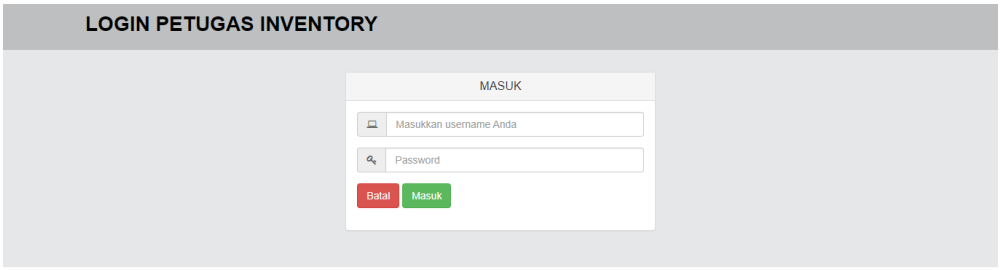
Picture 12 Outgoing Goods Data

8. Outgoing Goods Data

This outgoing goods data display is to find out what stock goods are being issued so that all data can be neatly arranged. You can add, delete, and change outgoing goods data from this view. Like the following picture:

9. Officer Login

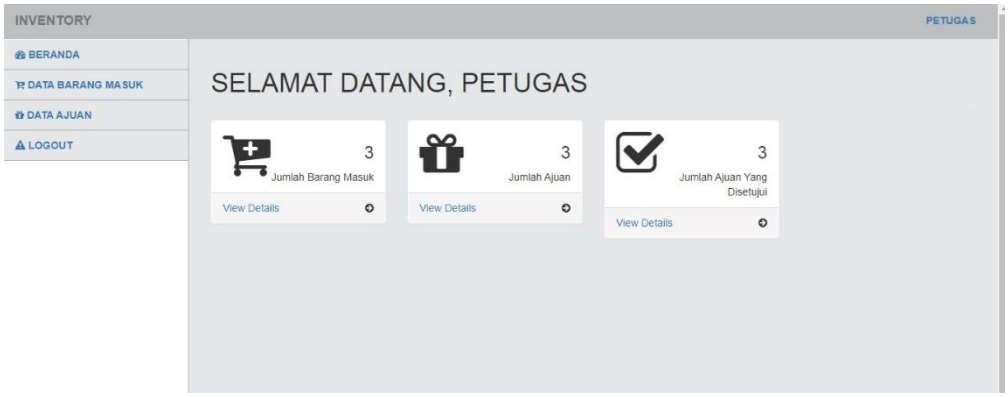
To log in as an officer, in the main display, you must click on the officer option in the following display:



Picture 13 Officer Login

10. Officer Main View (Home)

After logging in, the system main display on the officer homepage will display several options according to the image below:



Picture 14 Officer Main View (Home)

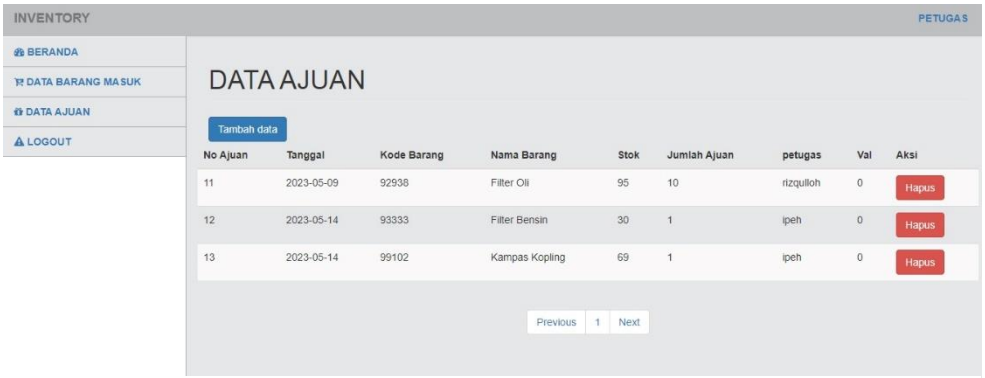
11. Incoming Goods Data

In this display, to display data on goods entered or sent by suppliers, the officers here are tasked with recording data on incoming goods. In this display, you can also add and delete data on incoming goods, as shown in the image below:

Picture 15 Incoming Goods Data

12. Submission data display

This submission data display will display data from submissions for requests for stock of goods by officers to the admin, where the admin is tasked with approving officers regarding stock of goods at CV Tinggar Jaya. You can also add and delete data from this display. To add goods request data, the officer must click on the "Add Data" button and fill in several instructions for adjusting the goods request data to the admin so that the admin can immediately receive the goods request data by checking the stock and goods data in the warehouse. In this display, you can also add and delete application data, as in the following image:



Picture 16 Admin Data Display

CONCLUSION & LIMITATIONS

This research concludes that the warehouse system business process manages stock in and out of goods at CV. Tinggar Jaya is still done manually without using technology. In this case, there is a drawback, namely that every item check still needs to be carried out directly by employees to ensure the amount of stock. Therefore, a computerized web-based warehouse system was created to monitor or monitor the amount of warehouse stock at CV. Suggestions that are deemed necessary and proper for information technology management include the development of a more integrated system that not only provides inventory management but can also develop other information system applications.

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