

Assets Inventory Information System Using Fifo Method in PT Brightfoods International's Web-Based Formulation

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Abstract

As time goes by, the world of technology is getting more sophisticated. We can easily get all the information we want to get. Internet access is getting faster and the world of software is progressing very rapidly. This progress must be based on a balanced advance in science and technology. One of them is PT Brightfoods International, a food manufacturing company located in the Sentul Industrial Area, Bogor, which produces food to be enjoyed throughout Indonesia. Currently, the storage of goods delivery data only uses general ledgers, raw material data forms and Microsoft Excel. So there are still frequent loss of stock of goods and not according to the order of the expiration date. This research designs and builds a web-based (offline) inventory system by applying the FIFO method. This record supports the company's business process activities and helps the data storage and processing process with FIFO calculations to avoid expired materials. The web-based inventory information system application using the FIFO method produces information to make a decision desired by the user. Therefore, an application is made that can assist the owner and his employees in processing data, as well as the number of items available. The information system used is based on web and using Sublime Text Tools and Database management Using the MySQL System.

Keywords: *Information Systems; FIFO; Inventory; WEB; Database*

1. Introduction

Advances in information and communication technology are growing day by day. This makes it easier for humans to process data and information so that we no longer need to waste a lot of time, money, and energy. Information technology is very useful in various fields, one of which is the inventory management system [1]. Inventory of goods in a company plays an important role. The role of inventory is increasingly important if it consists of various types and with a fairly high turnover rate. One of the problems that often arise in a manual inventory of goods is the unknown number and state of the remaining goods available in the warehouse with certainty. This can result in goods being stored in the warehouse for too long, excessive, lacking, or even running out of goods. Damage, incorrect entry, neglect to record requests, goods issued do not match orders, and all other possibilities can cause inventory records to differ from the actual inventory in the warehouse [2]. PT Brightfoods International is a food manufacturing company located in the Sentul Industrial Area, Bogor, which produces food to be enjoyed throughout Indonesia.

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Types of goods sold in the form of biscuits and snacks. Currently, the storage of goods delivery data only uses general ledgers, raw material data forms and Microsoft Excel. So there are still frequent loss of stock of goods and not according to the order of the expiration date. There have been many studies conducted previously on goods inventory information systems using the FIFO method, for this reason a literature review was carried out as one of the applications of research methods to avoid reinventing the wheel, continuing previous research, and knowing the same research area. According to Rizka's research, Rizkia explained the application of the FIFO method to determine inventory based on the expired date which was used first. This method avoids the prevention of Expired Date on goods and the amount of stock that can be well controlled so that the application of the FIFO method can simplify and speed up the calculation of inventory stock data of goods [3]. Ricak, Shelvy, Titania's research uses the fifo method where the goods that will come out first are seen from the expiration date so that the goods are neatly arranged and the expired goods can be known [4]. According to research by Novi, I Made, and Nurlaily, the Web-Based Goods Inventory Information System facilitates the Goods . Inventory Admin in item numbering, item data collection, item condition information, borrowing and returning items as well as item data collection from purchase transactions [5]. The research of Mardan, Dwinita, and Tedjo applied the System Development Life Cycle (SDLC) to develop an inventory system consisting of several stages, namely planning, analysis, design, selection, implementation and maintenance [6]. Ridha and Novria's research made an Inventory System Design. Goods at Alden Hotel Makassar, Using Data Flow Diagrams (DFD) diagrams. The analysis carried out includes the analysis of the current system, and the analysis of the proposed system [7]. The purpose of this research is how to implement inventory information using a web-based FIFO method so that an effective, accurate, and fast system is produced so that it can be useful for companies and employees who use it.

According to Baridwan and Zaki "Information system is a system that within an organization brings together daily transaction processing needs, supports operations, is managerial and strategic activities of an organization and provides certain outside parties with the necessary reports"[8].

In the opinion of Dewayani, J and Wahyuningsih, F "inventory or inventory is an asset available for sale in the normal activities of inventory. In the manufacturing business, inventory includes raw materials, goods in the production process, finished goods " [9]. Ruslan and Rosady's opinion "First In First Out (FIFO) is a method that assumes that the goods purchased first will be sold first, so that the cost of the goods purchased for the first time will be charged first as cost of goods sold" [10].

According to Agus and Ristono "Design is the determination of the processes and data required by the new system. The benefits of this system design stage provide a complete design description as a guide for programmers in developing applications. In accordance with the computerized system components, what must be designed in this stage includes hardware or software, databases and applications. According to Sommerville in the book "[10]. The opinion of Hakim and Lukmanul "Website is an internet facility that connects documents in local and remote scope. Documents on the website are called web pages and links on the website allow users to move from one page to another (hyper text), both between stored pages. in the same server or servers around the world. Pages are accessed and read through browsers such as Netscape Navigator, Internet Explorer, Mozilla Firefox, Google Chrome and other browser applications "[12].

2. Methods

The research methodology in this study is to overcome this problem, so we need an inventory information system for goods assets with the First In First Out (FIFO) method on the web-based PT Brighfoods International formulation, where the system can facilitate the process of controlling goods transaction reports quickly. and can see stock data that expired date. With this information system, it is hoped that the company can minimize the risk of an error in the date of the goods to be used. The method of developing information systems in this study uses the waterfall method. The waterfall model is a classical model that is systematic, sequential in building software. The name of this model is actually "Linear Sequential Model". This model is often referred to as the "classic life cycle" or the waterfall method. This model belongs to the generic model of software engineering and was first introduced by Winston Royce around 1970 so that it is often considered

ancient, but is the most widely used model in Software Engineering (SE). This model takes a systematic and sequential approach. It is called a waterfall because the stages that are passed must wait for the completion of the previous stage and run sequentially [13].

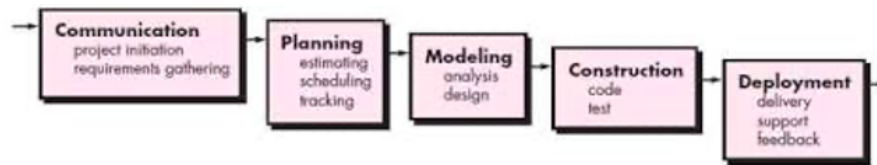


Figure 1. Waterfall Method.

2.1 Framework

The following writing describes the general framework of thinking in the following diagram in Figure 2

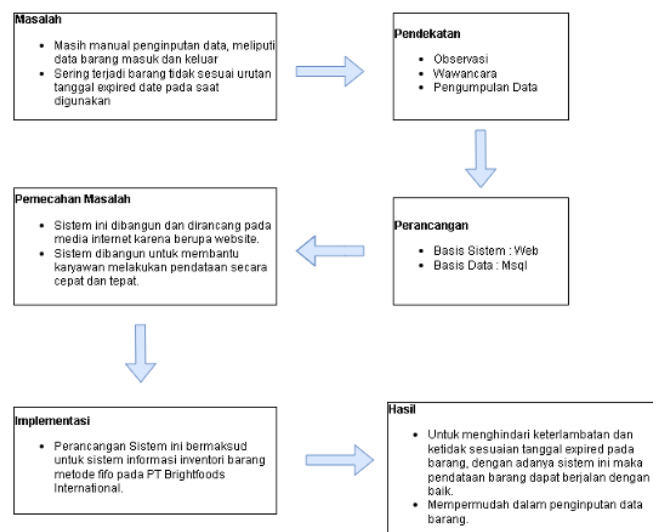


Figure 2. Framework.

2.2 System Development

- (a) Requirements analysis and definition
This stage by analyzing the system requirements. Complete data collection, in this stage literature study, observation and interviews were carried out.
- (b) System and software design
The system design stage is carried out by translating the collected data and software into software design before coding using traditional diagrams.
- (c) Implementation and unit testing
At this stage the program design is translated into codes using the programming language used using PHP, the database used is MYSQL and the web server used is Apache.
- (d) Implementation and system testing
At this stage, the program units are unified and then tested as a whole using the black box method to ensure that the input used produces the appropriate output.
- (e) Operation and maintenance
This stage is operating the program in its environment and carrying out maintenance such as adjustments or changes due to adaptation to the actual situation. But at this stage it was not carried out because the research was only to design and build applications.

3. Result and Discussion

The results and discussion of the design of the PT Brightfoods International goods inventory information system using the waterfall method starting from needs analysis, system design, program testing, and program implementation are as follows.

3.1 Requirements Analysis

The results of the analysis of the needs for an inventory information system of PT Brightfoods International. System requirements define things that are needed by the system that is built, among others, the ability to be able to order goods by displaying the amount of stock and details of available goods., The ability to calculate the stock of goods from the process of exiting and entering goods, prints reports of goods out.

3.2 System planning

The design of the system to build a Web-Based Goods Inventory Information System in the Formulation section of PT BrightFoods International is as follows in Figure 3 Context

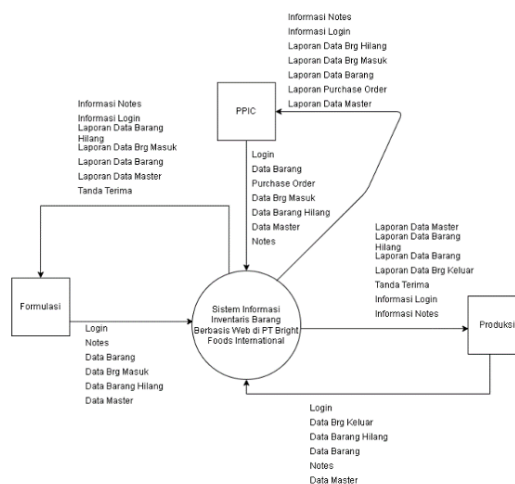


Figure 3. Context Diagram Layout.

diagram is a general description of the organization of the system to be built. The context diagram image is also a description of the data flow that exists in the system as a whole and aims to identify the system that will be created. DFD provides a mechanism for functional modeling or information flow modeling. Therefore, DFD is more suitable to be used to model software functions that will be implemented using structured programs dividing its parts with functions and procedures [14].

Data Flow Diagram (DFD) Level 0 Based on the context diagram, the Web-Based Goods Inventory system at PT BrightFoods International consists of several main activities, namely: Master (goods, notes), transactions (goods_in, goods_out), stock (stock data, history) and reports (goods, incoming goods and outgoing goods). The overall activity and its data flow, ppic description, formulation and production are shown in Figure 4.

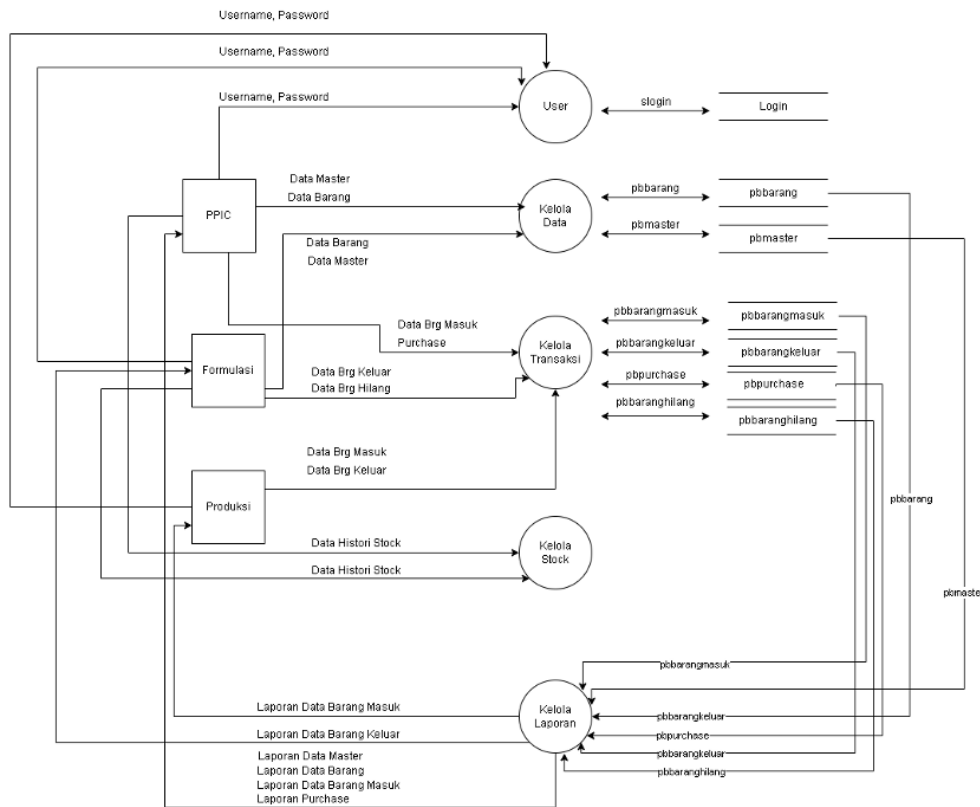


Figure 4. DFD level 0 Goods asset inventory information system.

To describe the flow of data in more detail in each process as described in DFD Level 0, then the description is described in DFD level 1. The following is a detailed description of DFD level 1 for a web-based ATK procurement management information system.

3.3 DFD level1Manage Reports

Report data in the goods inventory information system, the processes involved are goods data reports which consist of several reports, namely goods data reports, purchase reports, incoming goods reports, outgoing goods reports, lost goods reports. And the Goods Purchasing Report consists of several tables, namely goods data and purchase data as shown in Figure 5.

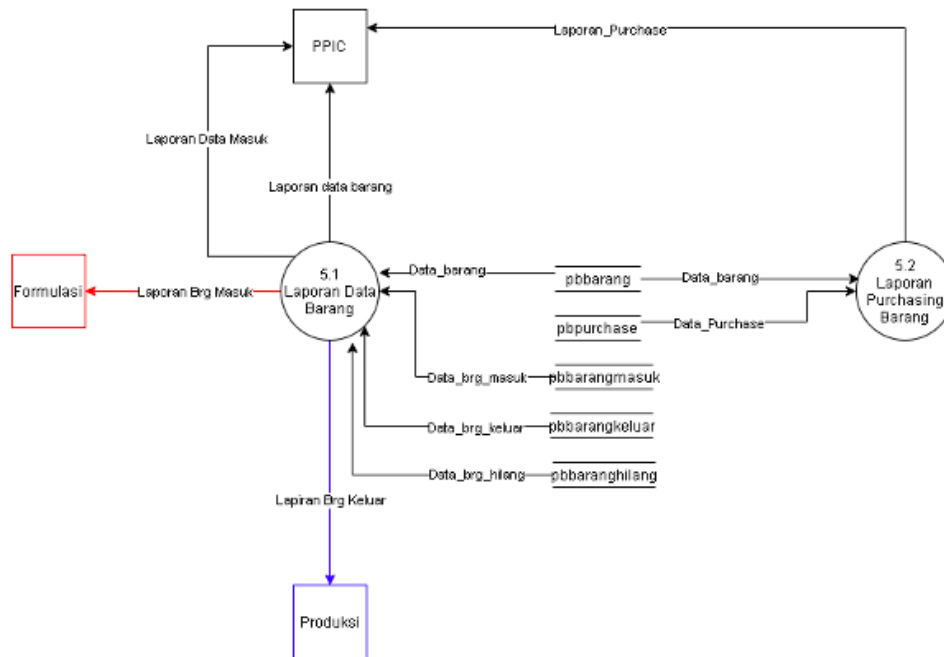


Figure 5. DFD level 0 Goods asset inventory information system.

3.4 DFD level 1 Manage Data

Manage data in the goods inventory information system, the processes involved are the goods data that is inputted into the goods data table and this master data is the main data for carrying out goods transactions as shown in Figure 6.

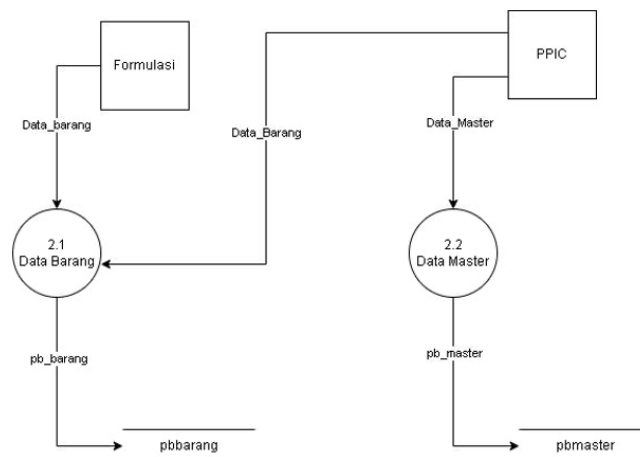


Figure 6. DFD level 1 Manage Data.

3.5 DFD Level 1 Manage Users

User data in the goods inventory information system, the processes involved are Username and Password which are inputted into the Login table and From the Login table, send again whether the data matches those in the login table, as shown in Figure 7

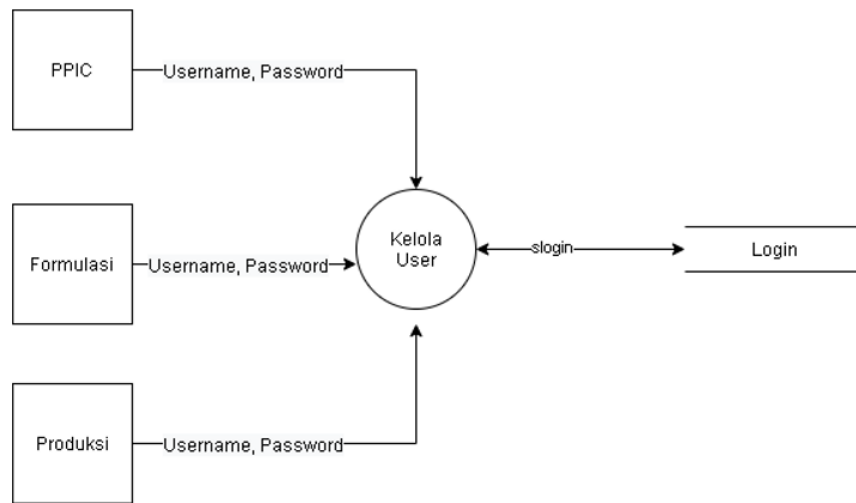


Figure 7. DFD level 1 Manage Users.

3.6 DFD Level 1 Manage Transactions

Transaction data in the goods inventory information system the processes involved are incoming goods transaction data that is inputted into the incoming goods table, outgoing goods, purchasing table, and lost goods table. Manage Transactions, process incoming data and send it to several tables. and the table sends to Manage transactions. shown in Figure 8.

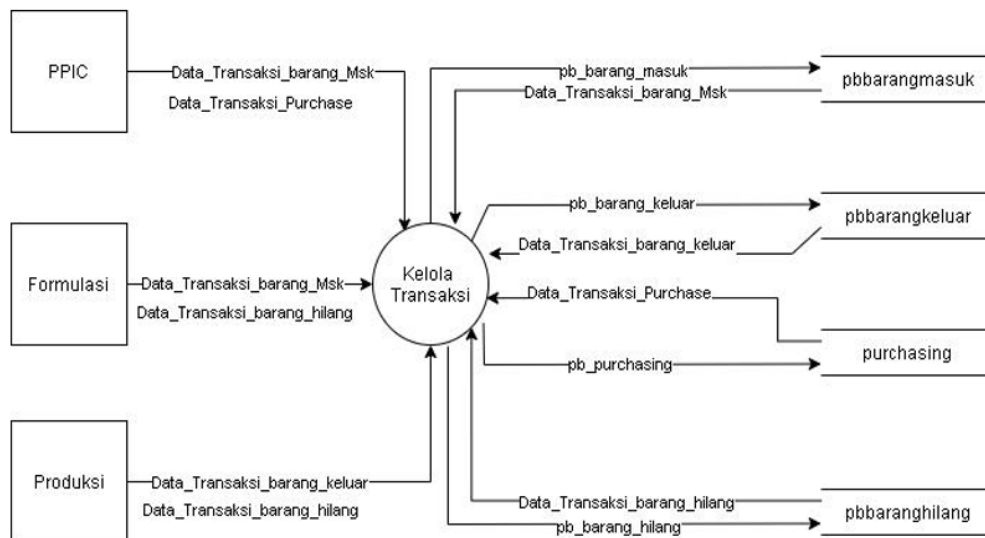


Figure 8. DFD level 1 Manage Transactions.

3.7 DFD Level 1 Manage Stock

Transaction data in the goods inventory information system the processes involved are Stock history data sends Manage stock to be processed. and Manage Stock, receive processing from stock history data, seen in Figure 9.

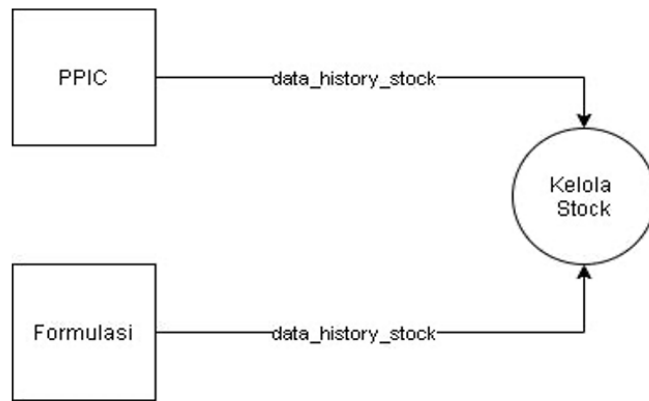


Figure 9. DFD level 1 Manage Transactions.

3.8 ERD Data Entity Relationship

Data Entity Relationship Diagram is used to see the relationship between the entities contained in the Goods Inventory Information System at PT BrightFoods International. In the ERD of this information system, there are six entities, namely pbbarang, pbuser, pbgoods out, pbgoodsin. The ERD contained in the Goods Inventory Information System at PT BrightFoods International is as follows

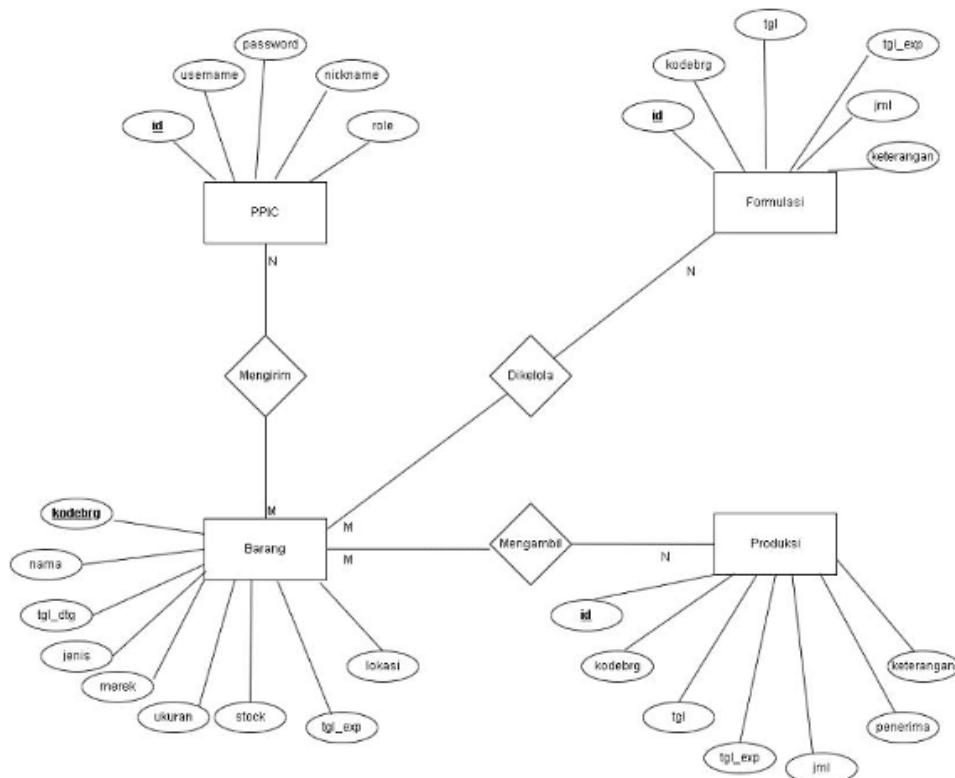


Figure 10. DFD level 1 Manage Transactions.

3.9 Database design

Databases is a collection of interconnected data that is stored together, in such a way, and without unnecessary redundancy (repetition) so that it can be reused quickly and easily to

meet various needs [15]. This relationship shows the relationship between a table and another table. In the inventory information system, there are 6 tables, namely:



Figure 11. Database Design.

3.10 System Testing and Implementation

Stage The testing method used is black box testing which focuses more on the functionality of the software being built. Testing is done by inputting data into the system to get the output produced whether it is as expected without looking at the programming language code in it. Testing the login page is done to find out the user has been functioning properly and in accordance with the system design flow. This test is carried out based on user categories in the system, namely admin, ppic, formulation, and production.

Table 1. Attributes of NSL KDD.

Cases and Test Results (Normal Data)			
Action actor	Which is expected	Observation	Conclusion
Entering Username and Password	The system is able to validate data for users who are registered in the system to get access rights to enter the dashboard page	Observation	Received
Cases and Test Results (No Normal Data)			
Entering Username and Password	The system is able to validate data for users who are not registered in the system so they are not entered into the system	Stay at the login page and can't log into the system	Received

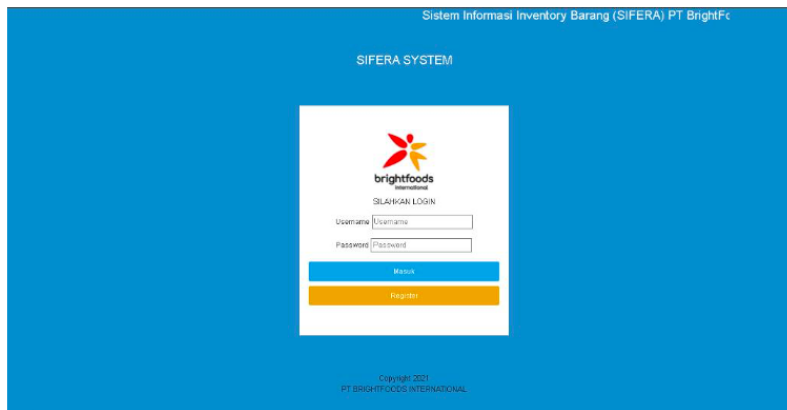


Figure 12. User login page.

3.11 Testing the Add Data Page

The Add page test is carried out to add data for incoming or outgoing goods. When the goods have been made by PPIC, this test is carried out based on the category of users in the system, namely admin, PPIC, formulation, and production

Table 2. Attributes of NSL KDD.

Cases and Test Results (Normal Data)			
Action actor	Which is expected	Observation	Conclusion
Entering Username and Password	Data goes into the pb-barang table	Data goes into the pbbarang table	Received
Cases and Test Results (No Normal Data)			
Empty (do not input any data)	The message "please fill out this field" appears.	The message "please fill out this field" appears.	Received

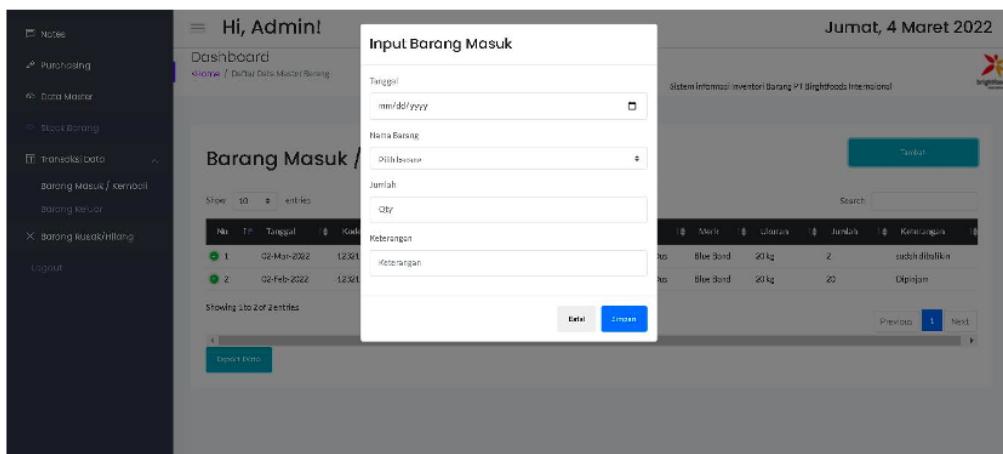


Figure 13. Add incoming goods page.

3.12 Item Edit Page Test

Testing of the item editing page is carried out to change the data of incoming or outgoing goods, if there are items that will be changed by the user.

Table 3. Attributes of NSL KDD.

Cases and Test Results (Normal Data)			
Action actor	Which is expected	Observation	Conclusion
Entering Username and Password	Data goes into the pb-barang table	Data goes into the pbbarang table	Received

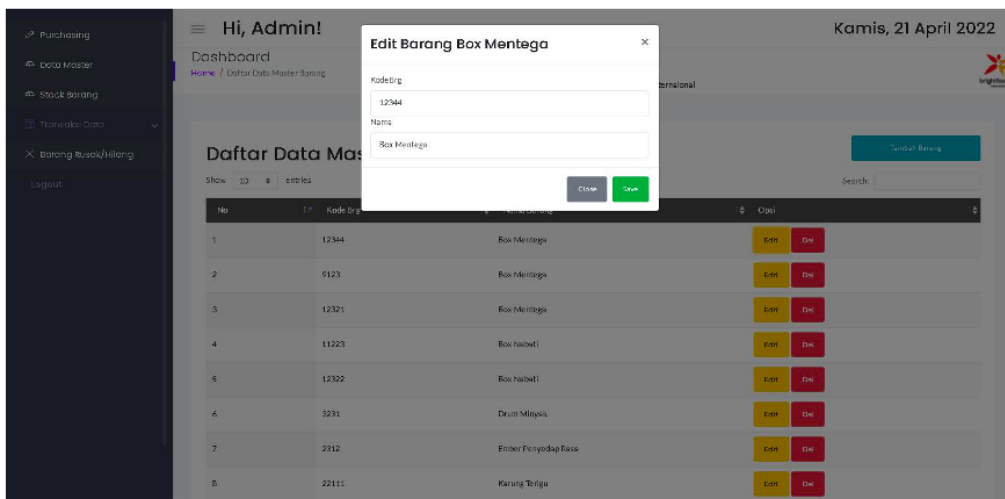


Figure 14. Item edit page.

4. Conclusion

From the results and discussion, it is concluded that this research is an information system. This inventory can store inventory data for processing information and managing inventory data effectively and efficiently, Inventory Information System, can process incoming and outgoing goods transactions. The benefit of this information system is to assist the Operators and Leaders of PT BrightFoods International, in displaying all transaction reports quickly and accurately.

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