



Information System Supply Chain Management with FIFO Perpetual Method

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Abstract: Inventory is one of the assets that has an important role for the activities of a company. Problems that often occur in inventory are at the time of recording and evaluating inventory. Generally, the recording is not detailed or even manual, thus making inventory reports unclear and not good. This study aims to improve inventory management and report presentation by implementing a Supply Chain Management (SCM) information system using the Perpetual FIFO method at PT. Von Mustika. This system is built using the PHP programming language and MySQL database which functions to overcome the problem of inventory management and report presentation at PT. Von Mustika. The result of this research is that the company's report recording will be more detailed, the report will be more clear, effective and efficient to control the value of inventory and inventory expenses in real time so that the company's decision making is done quickly and accurately.

Keywords: Information System, Supply Chain Management, Perpetual FIFO, Inventory Report

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1. Introduction

Inventory is one of the assets that has an important role for the activities of a company [1]. Problems that often occur in inventory are at the time of recording and evaluating inventory [2]. Generally, the recording is not detailed or even manual, thus making inventory reports unclear and not good. The development of information and knowledge technology has progressed very rapidly [3]. This is because information has a very important role in creating advances in information technology in all fields of business. An information system is defined as a set of interrelated components that collect, process, store, and distribute information to support decision making and control in an organization [4].

PT. Von Mustika Sejahtera, which is a company engaged in the distributor and retail of ornamental plants in the form of orchids, having its address at Ruko Gor Mugas, Jl. Tri Lomba Juang No. 7,

Mugassari Village, South Semarang District, Semarang City. PT. Von Mustika Sejahtera was established in 2017. From the results of observations at PT. Von Mustika Prosperous transaction management - accounting transactions still use manual processes, namely book recording and Microsoft excel, including the management of inventory records. PT. Von Mustika Sejahtera Semarang determines the value of the ending inventory, from the results of processing the daily transaction evidence that is recapitulated, then from the final amount per item of orchid flowers is inputted into Microsoft excel. The problems that occur in PT. Von Mustika Sejahtera at the time of presenting the inventory report, including recording sales, purchases, and double recording during the recapitulation process of transaction evidence carried out by employees[5]. This can allow the results of the ending inventory value and inventory expense to be greater or less which will affect the financial statements. With manual inventory recording, it takes a long time to determine the ending inventory [6]. So that the decision-making process related to inventory takes a long time [7].

In this work, we learn that there are many problems that occur in the manual reporting system that has been used by PT. Von Mustika. The solution that the company can do is to design and create an information system using Supply Chain Management (SCM) [8]. Supply Chain Management is needed by companies that have led to management with a just-in-time system, because the just-in-time concept emphasizes the timeliness of the arrival of materials from suppliers to consumers according to a set schedule so that they are able to record inventory which includes the recording process, summary, reporting of existing transaction activities in the company so that the presentation of reports is more timely, accurate and relevant [9]. The method that can be applied in the inventory recording process is by using the perpetual method and to determine inventory valuation using the FIFO (first-in, first-out) method.

2. Methods

2.1. Inventory Valuation Method

Inventory is a current asset in a company. If the company is a trading company, inventory is defined as merchandise held for sale in the normal operations of the company. Meanwhile, if the company is a manufacturing company, inventory is defined as raw materials contained in the production process or stored for the production process. In assessing the inventory used, there are methods, including: First In First Out (FIFO) and Average. FIFO is a method that assumes that the first item in is the first item out, while the Average consists of a Weight Average and a Moving Average [10]. Table 1. describe data transaction, Table 2. describe FIFO Method

Table 1. Data Transaction

Date	Transaction	Unit	Cost/Unit	Selling Price/unit
	Balance	800	6	4.800
4	Purchase	200	7	1.400
10	Purchase	200	8	1.600
11	Sell	800		
12	Purchase	400	8	3.200
20	Sell	500		
25	Purchase	100	8	800
28	Purchase	600	9	5.400

Table 2. FIFO Method

Date	in			out			balance		
	Q	P	T	Q	P	T	Q	P	T
Feb 1							800	\$6	4.800
4	200	\$ 7	1.400				800	6	4.800
							200	7	1.400
10	200	8	1.600				800	6	4.800
							200	7	1.400
							200	8	1.600
11				800	6	4.800	200	7	1.400
							200	8	1.600
12	400	8	3.200				200	7	1.400
							600	8	4.800
20				200	7	1.400			
				300	8	2.400	300	8	2.400
25	100	8	800				400	8	3.200
28	600	9	5.400				400	8	3.200
							600	9	5.400

2.2. Inventory Recording Method

To support inventory reporting, several inventory recording methods are used, namely: the Periodic Method and the Perpetual Method.

The Periodic method is an inventory mutation that does not use an inventory ledger, but uses an estimate of purchases, purchase returns, sales, sales returns and so on. This method does not use a stock card. Inventory costing is calculated by determining the ending inventory first through physical calculations, followed by calculating the Cost of Goods Sold [11], while the Perpetual Method is inventory mutation using inventory estimates. This method uses inventory cards in the calculation of inventory costing. Cost of Goods Sold (HPP) is calculated every time a sale occurs by determining the cost flow [12].

3. Results and Discussion

3.1. Context Diagram Created for the system

Context diagram is a diagram that describes the relationship between External Entities and the system to be built, where the data entered by the external component will be processed in the system and will produce the desired report by the external component in accordance with the data entered.

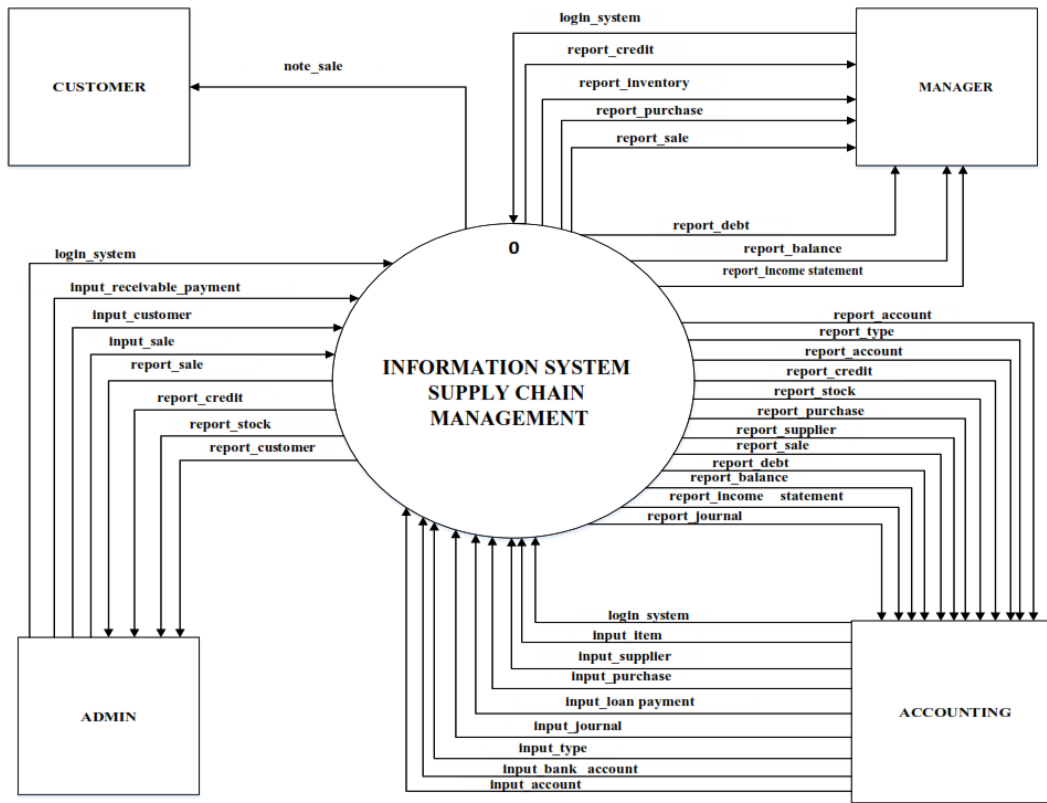


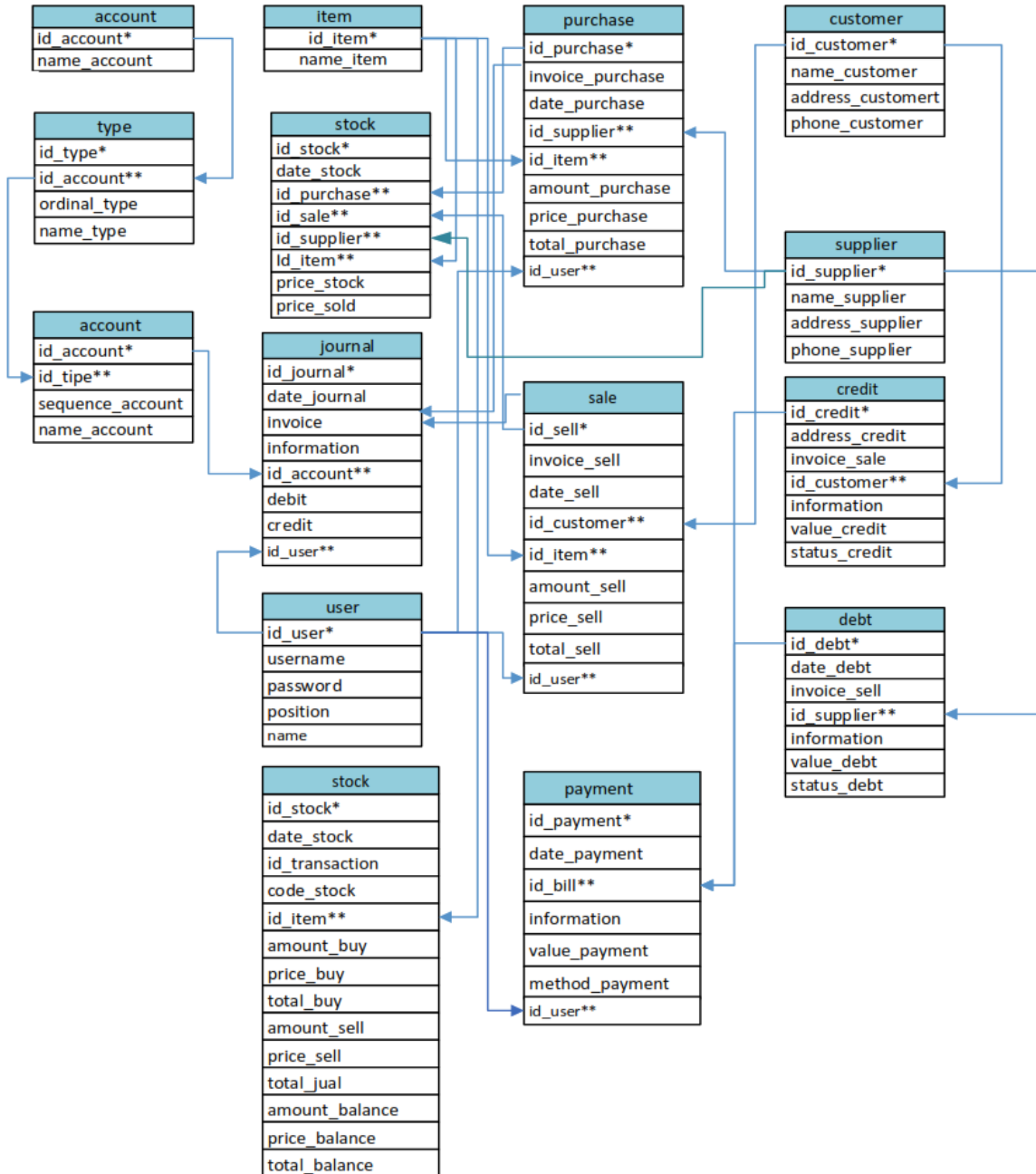
Figure 1. Context Diagram

in Figure 1. it is explained that the Customer Entity receives data flows in the form of data flows from the system in the form of sales notes. The leading entity receives data flows from the system in the form of accounts receivable reports, accounts payable reports, inventory reports, purchase reports, sales reports, balance reports, income statements. The admin entity receives and provides data flow to the system. The data flow given by the admin entity to the system is in the form of customer input, sales input, and receivable payment input. The flow of data received by the admin from the system is in the form of sales reports, accounts receivable reports, inventory reports. Accounting entities receive and provide data flow to the system. The data flow given by the accounting entity to the supplier input system, purchase input, account input, type input, account input, goods input, debt payment input, journal input. The flow of data received by accounting from the system is in the form of sales reports, purchase reports, inventory reports, accounts payable reports, accounts receivable reports, profit and loss reports, balance reports, journal reports.

3.2. Normalization Form III used in the system

The Table 3 is the third normal table, meaning that each table has a relationship between tables

Table 3. Normalized Form III



3.3. Implementation

Based on the system design that has been designed in the previous chapter, the following is an implementation of the system that has been designed. This system is implemented using a web programming application as follows:

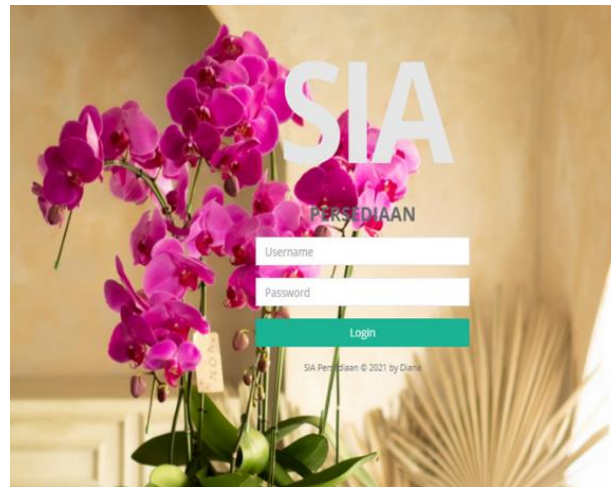


Figure 2. Login Page

Figure 2. describe login page. This login page is the first form / page before entering the main menu page of the system by entering the username and password of each user. Access rights consist of 3 users.

- a. Leaders only have access rights to view reports of accounts receivable, accounts payable, inventory, sales, purchases, balance sheets, profit and loss.
- b. Admin has access rights to input customer data, sales transactions, receivable payment transactions, inventory reports, sales reports, accounts receivable reports.
- c. Accounting has full access rights except for sales transactions, receivable payment transactions, and customer data input.

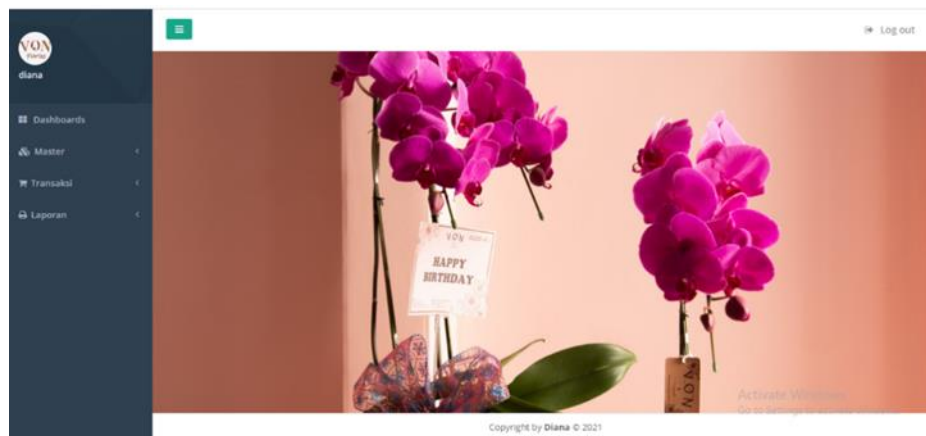


Figure 3. Main Menu Page

Figure 3 describe main menu page. The main page is a page that displays the system's main menu which consists of submenus. If the user is logged in, this page will appear.

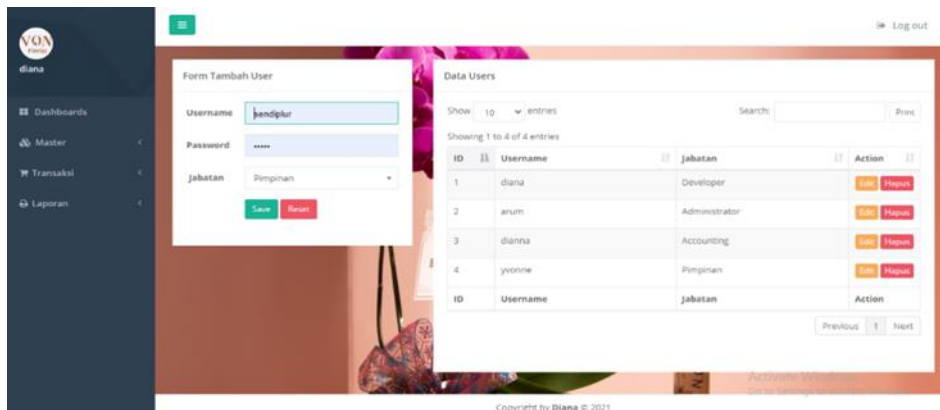


Figure 4. User Form

Figure 4. describe user form. The user form is used to add a new user in order to access the inventory information system. Here is the view of the user form.

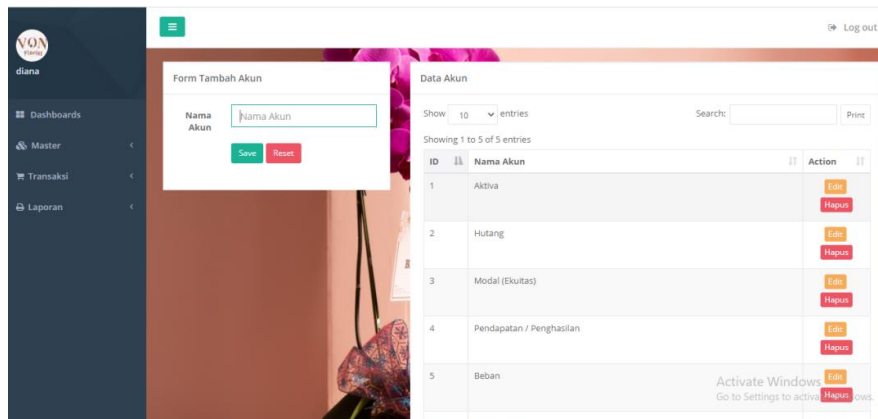


Figure 5. Account Form

Figure 5. describe account form. This account form is used for account names such as assets, income, expenses, capital payables.

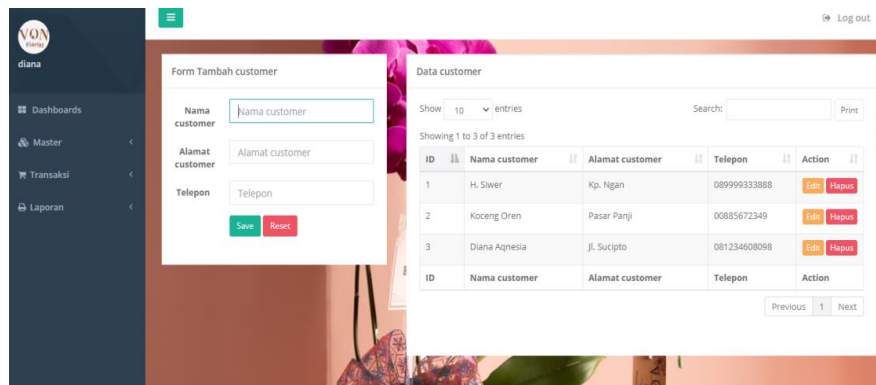


Figure 6. Customer Data Input Form

Figure 6. describe customer data input form. Form type is used to input account data type. And a sub-account, such as an asset account, will then be classified into 2 types, namely current assets and fixed assets.

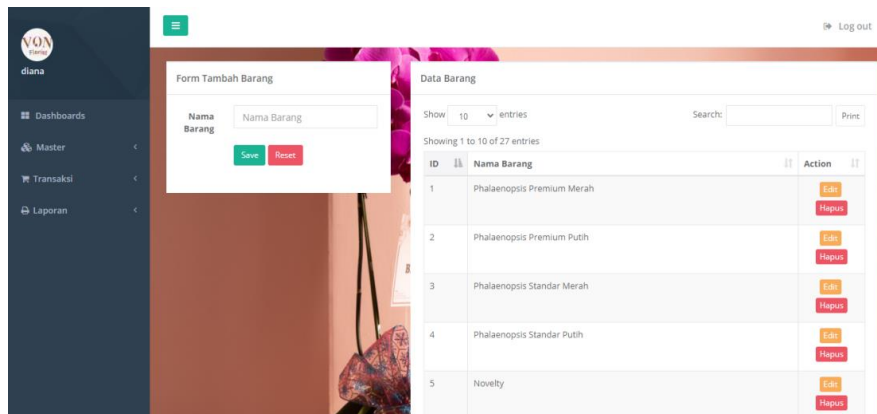


Figure 7. Item Data Input Form

Figure 7. describe item data input form. This account form is used to input account data that will be used in the transaction process and also reports on this inventory information system, for example: cash, inventory, accounts payable, sales, etc.

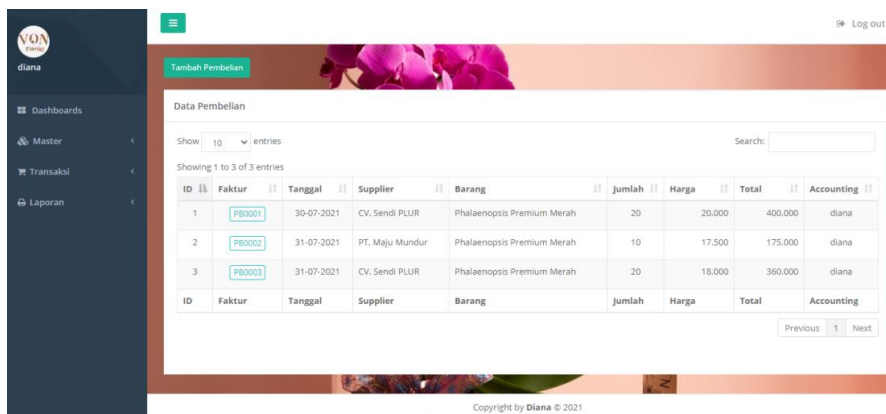


Figure 8. Purchase Form

Figure 8. describe purchase form. This form is used to input supplier data. This supplier data will be used in purchase transactions and debt payments

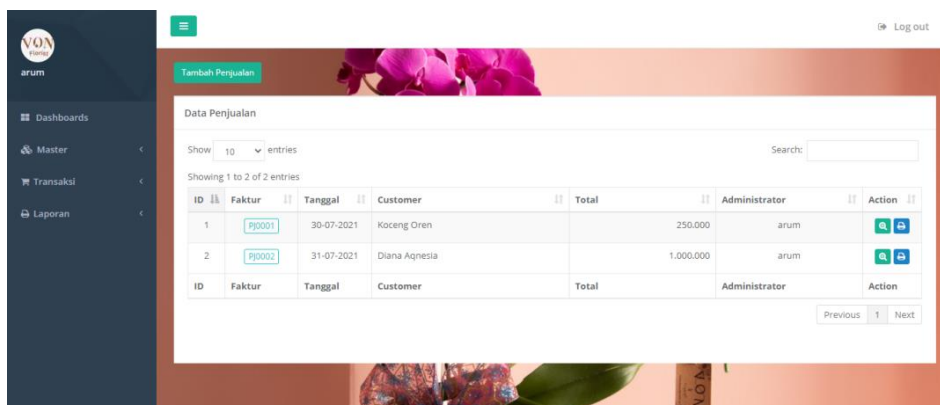


Figure 9. Sales Form

Figure 9. describe sales form. The sales form is used to input sales transactions, on the sales transaction form there is an add item button that is used to enter sales transactions.

INVENTORY CARD
RED PREMIUM PHALAENOPSIS
09/01/2021-09/30/2021

Date	Purchase			Sell			Balance		
	Qty	Price	Total	Qty	Price	Total	Qty	Price	Total
01-09-2021	25	100.000	2.500.000	0	0	0	25	100.000	2.500.000
02-09-2021	10	105.000	1.050.000	0	0	0	25	100.000	2.500.000
02-09-2021	0	0	0	0	0	0	10	105.000	1.050.000
03-09-2021	0	0	0	25	100.000	2.500.000	0	100.000	0
03-09-2021	0	0	0	5	105.000	525.000	5	105.000	525.000
04-09-2021	10	110.000	1.100.000	0	0	0	5	105.000	525.000
04-09-2021	0	0	0	0	0	0	10	110.000	1.100.000
07-09-2021	0	0	0	5	105.000	525.000	0	105.000	0
07-09-2021	0	0	0	0	0	0	10	110.000	1.100.000

Figure 10. Inventory Form

Figure 10. describe inventory form. Inventory report form is used to display inventory cards using the FIFO Perpetual method for inventory control. To view the inventory report, you must enter the start, end date of the report, and select the name of the item to be printed. Inventory reports use the FIFO valuation method, in this method the goods that enter first are the goods that must go out first

4. Conclusions

With the Supply Chain Management information system FIFO Perpetual method for inventory management, report presentation becomes clearer, more effective and efficient. This system allows every transaction to be recorded in inventory value and inventory expense, then it will be entered into the inventory, balance and profit and loss reports so that it can facilitate the admin in internal control of inventory. This system facilitates staff performance so that it can shorten the reporting process time because all staff can access the required reports according to access rights. This system makes it easy to control inventory values and inventory expenses in real time so that decisions can be made quickly and accurately.

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