

# The Evaluation of Supply Chain for Information System in GELAEEL Supermarket at Semarang Indonesia

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## ABSTRACT

The information system is a system within an organization reconcile the needs of the processing of daily transactions, support the operation, managerial and strategic activities of an organization and provide outside parties certain reports required. A supply chain refers to a complex network of relationships that sustain the organization with business partners to source production in conveying to the consumer. A supply chain management is very important for a company to make better effectiveness. Aim of this study was to developed information system to evaluate supply chain in supermarket. The tools that used in this research was the design of safety stock evaluation programs. The material was the supermarket and the data of safety stock, data of inventory each products, data of suppliers, and data of warehousing. The tool used in this research were PHP and My SQL. The sample is 15 respondents as staff in supermarket in Semarang Indonesia. The method analysis use in this research is descriptive analysis. The result of this study generate database system that can manage company data and avoid duplication of data. In this research produce inventory application which has product feature, supplier, inventory, transaction, and data warehous. The information system in supply chain at Gelael supermarket is very useful to know safety stock of product and avoid stock out product. New findings/significance that the design of this information system can help staff to work more efficiently and effectively in knowing the safety stock of products and overcome the product stock out.

## General Terms

Design of Safety Stock

## Keywords

supply chain, information system, supermarket

## 1. INTRODUCTION

The information system can also be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control within the organization[1].

The system is a combination of information can be organized in any of those people, hardware, software, network communications and resource data collected. People rely on information systems to communicate between each other using various types of physical tools (hardware), the command and information processing procedures (software), communication channels (networks), and the stored data [2].

Conducted a study on enterprise resource planning: implementation procedures and critical success factors. This study appreciated the complex nature of ERP systems. He pointed out that implementation of ERP is costly and demands a lot of organizational time and resources [3]. Sought to

establish the critical factors in the implementation of ERP and identified seven factors; business plan and vision, change management, communication, ERP team composition, skills and compensation, management support and championship, project management skills, system analysis, selection and technical implementation skills[4].

This chain is also a network of organizations that are interconnected and share the same goal, which is the best possible procurement or dealer hold the item [5].

## 2. RELATED WORK

Some previous studies that related to supply chain management, was to find out the effect of Information Systems on Upstream Supply Chain Management. It determined the effect of ERO on Upstream Supply Chain Management and the effect of EDI on Upstream Supply Chain Management among supermarkets with in Nakuru town. This study involved all the 9 supermarkets in Nakuru town. The recommended that organizations, especially fast moving inventory should take a strategic approach to adoption of information systems concerned with supply chain management[6]. They also concluded that the implementation of Supply Chain Management Software involves expensive alterations and customizations in the organization and therefore organizations have to be strategic in adopting these systems. They further suggested further research on the potential benefits and problems of using supply chain management software [7].

## 3. RESEARCH METHODOLOGY

### 3.1 Material and Tool

In this research, the sample is data about safety stock and factors affecting safety stocks in supermarket and the questionnaires will be spread on the sample is 15 respondents as staff in supermarket in Semarang. The tools that used in this research is the design of safety stock evaluation programs. The material is the supermarket and the data of safety stock, data of inventory each products, data of suppliers, and data of warehousing. The tool used in this research are PHP and My SQL.

### 3.2 Research Procedure

In this research there are some steps of the study, such as:

Planning and identification problem

Planning is about the evaluation of safety stock in supermarket.

The identification problem is about the difficulty of safety stock calculation in supermarket.

Make the program of evaluation supply chain in supermarket.

The program will used PHP and My SQL and the data containing the data inventory or stock, data of products, data inventory, data suppliers and data warehousing.

### 3.3 System Framework

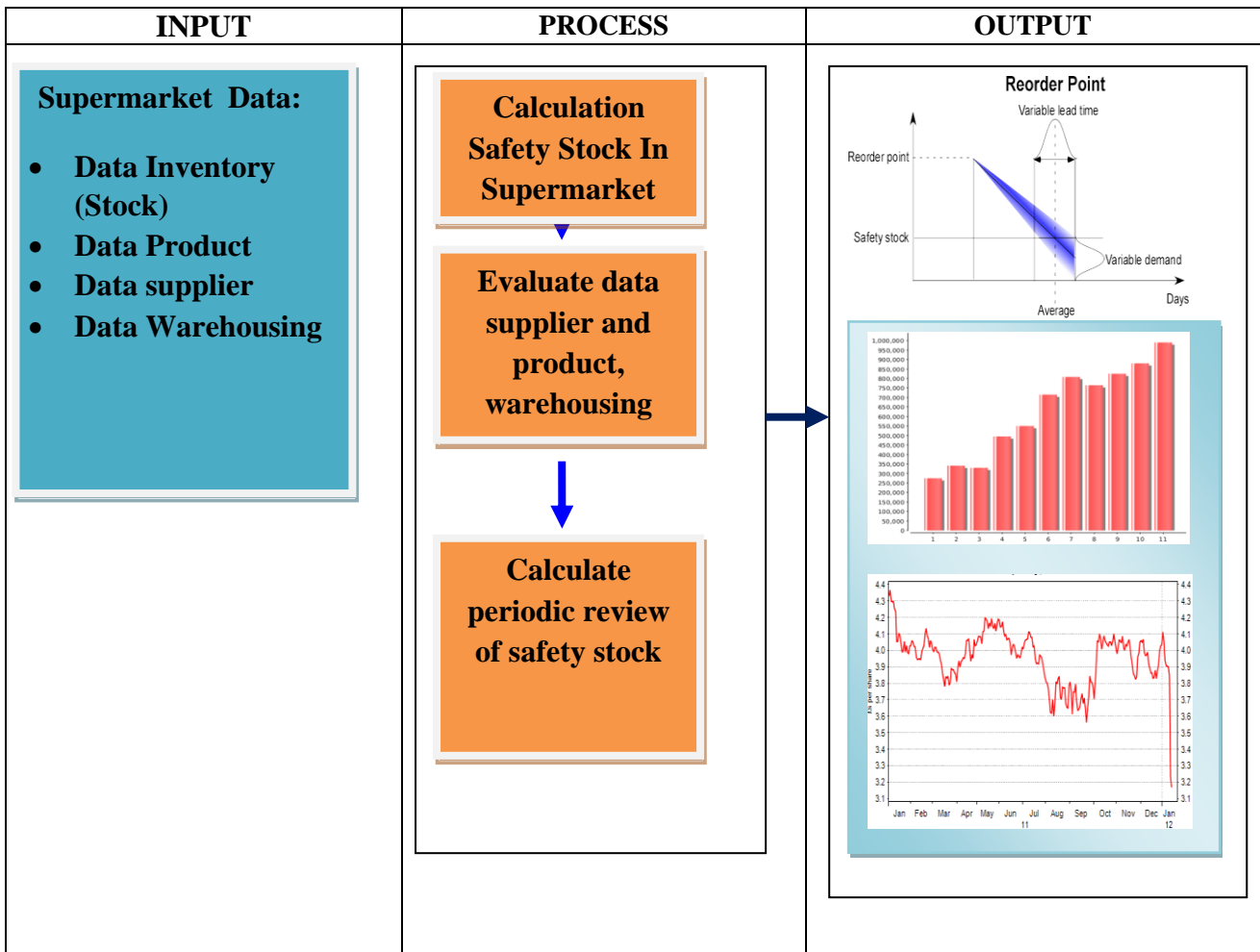


Figure 1. System Framework

## 4. RESULT

### 4.1 Design Information System in Supply Chain Supermarket

Information systems and supply chains have a strategic role to build and enhance the company's ongoing competitive advantage. Here is the design of information systems used in the supply chain at Gelael supermarket.

Home, in this menu contain of logged in user as admin (Figure.2).

Management data, in this menu contain:

Product, in this menu contains the product data. In the product data there are all the product of the supermarket (Figure .3).

Supplier, in this menu contains the name of the supplier of the supermarket (Figure .4).

Inventory, in this menu contains the name of the supplier, name of the product, a number of the stocks, and date add the information (Figure .5).

Transaction, in this menu contains the name of the supplier, name of the product, recorder point, average usage, safety stock, quantity, and year (Figure .6).

Data Warehouse, in this menu contains the name of the product, total recorder point, jumlah, month, and year (Figure .7).

Dashboard, in this menu contains the name of the supplier and year to show the graph of safety stock the supply chain and real time supply chain management (Figure.8, and Figure.9) .

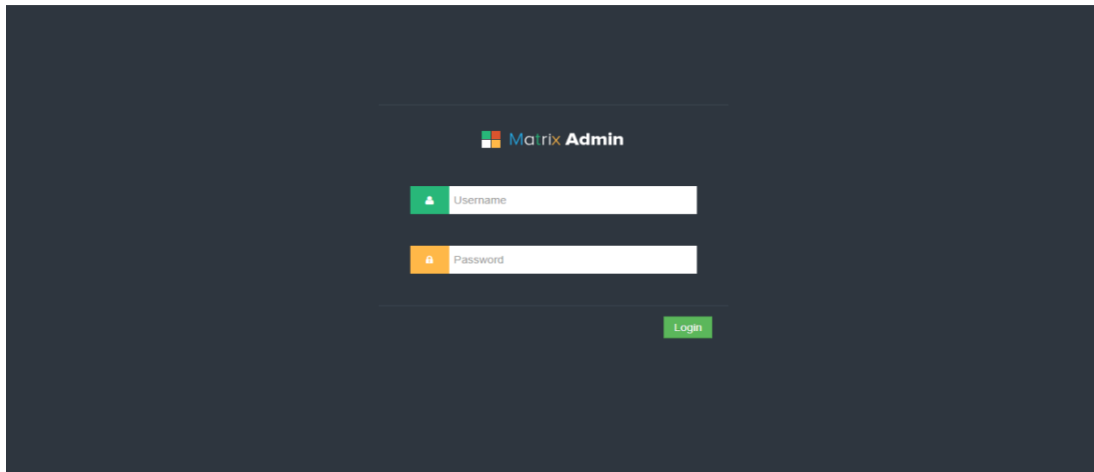


Figure 2. Display Menu Log In User

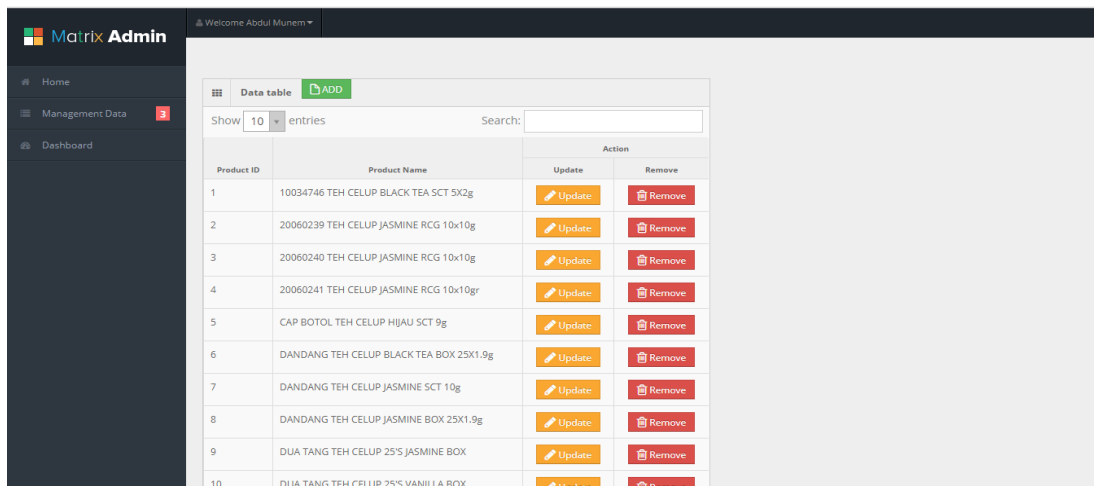


Figure 3. Display Menu Product in the Management Data Menu

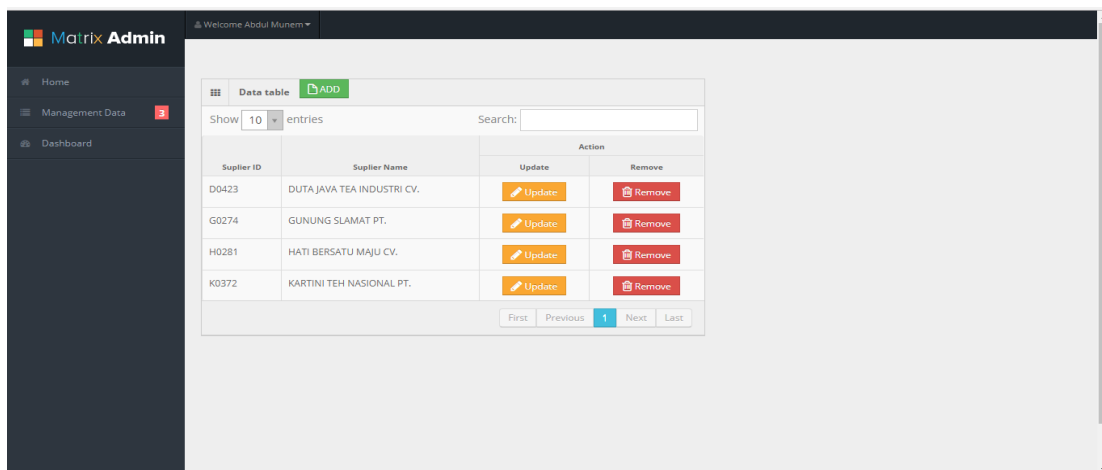


Figure 4. Display Menu Supplier in the Management Data Me

Matrix Admin

Welcome Abdul Munem

Home

Management Data 3

Dashboard

Data table ADD

Show 10 entries

Search:

Transaction ID	Supplier Name	Product Name	Stock	Date Add	Action	
					Update	Remove
2	G0274    GUNUNG SLAMAT PT.	1    10034746 TEH CELUP BLACK TEA SCT 5X2g	1011	2017-06-18	Update	Remove
3	H0281    HATI BERSATU MAJU CV.	2    20060239 TEH CELUP JASMINE RCG 10x10g	400	2017-06-18	Update	Remove

First Previous Next Last

Figure 4. Display Menu Inventory in the Management Data Menu

Matrix Admin

Welcome Abdul Munem

Home

Management Data 2

Dashboard

Data table ADD

Show 10 entries

Search:

Transaction ID	Supplier Name	Produk Name	Reorder Point	Average Usage	Safety Stock	Month	Year	Action	
								Update	Remove
2	G0274    GUNUNG SLAMAT PT.	2    20060239 TEH CELUP JASMINE RCG 10x10g	103	10	43	Jan	2016	Update	Remove
3	G0274    GUNUNG SLAMAT PT.	3    20060240 TEH CELUP JASMINE RCG 10x10g	43	10	23	Jan	2016	Update	Remove
4	G0274    GUNUNG SLAMAT PT.	4    20060241 TEH CELUP JASMINE RCG 10x10gr	322	0	54	Jan	2016	Update	Remove
5	G0274    GUNUNG SLAMAT PT.	5    CAP BOTOL TEH CELUP HIJAU SCT 9g	112	0	23	Jan	2016	Update	Remove
6	G0274    GUNUNG SLAMAT PT.	6    DANDANG TEH CELUP BLACK TEA BOX 25X1.9g	243	0	46	Jan	2016	Update	Remove
7	G0274    GUNUNG SLAMAT PT.	7    DANDANG TEH CELUP JASMINE SCT 10g	355	0	22	Jan	2016	Update	Remove
8	G0274    GUNUNG SLAMAT PT.	8    DANDANG TEH CELUP JASMINE BOX	611	0	55	Jan	2016	Update	Remove

Figure 5. Display Menu Transaction in the Management Data Menu

Matrix Admin

Welcome Abdul Munem

Home

Management Data 3

Dashboard

Data Monthly Reorder Point

NO	Produk Name	Total Reorder Point	Jumlah	Month	Year
1	10034746 TEH CELUP BLACK TEA SCT 5X2g	3948	10	Agu	2016
2	10034746 TEH CELUP BLACK TEA SCT 5X2g	3475	10	Mar	2016
3	10034746 TEH CELUP BLACK TEA SCT 5X2g	3872	10	Des	2016
4	10034746 TEH CELUP BLACK TEA SCT 5X2g	2320	10	Jul	2016
5	10034746 TEH CELUP BLACK TEA SCT 5X2g	2380	10	Feb	2016
6	10034746 TEH CELUP BLACK TEA SCT 5X2g	3948	10	Nov	2016
7	10034746 TEH CELUP BLACK TEA SCT 5X2g	3009	10	Jun	2016
8	10034746 TEH CELUP BLACK TEA SCT 5X2g	10276	10	Jan	2016
9	10034746 TEH CELUP BLACK TEA SCT 5X2g	3475	10	Okt	2016
10	10034746 TEH CELUP BLACK TEA SCT 5X2g	3872	10	Mei	2016
11	10034746 TEH CELUP BLACK TEA SCT 5X2g	3872	10	Sep	2016
12	10034746 TEH CELUP BLACK TEA SCT 5X2g	3948	10	Apr	2016

Figure 6. Display Menu Datawarehouse in the Management Data Menu

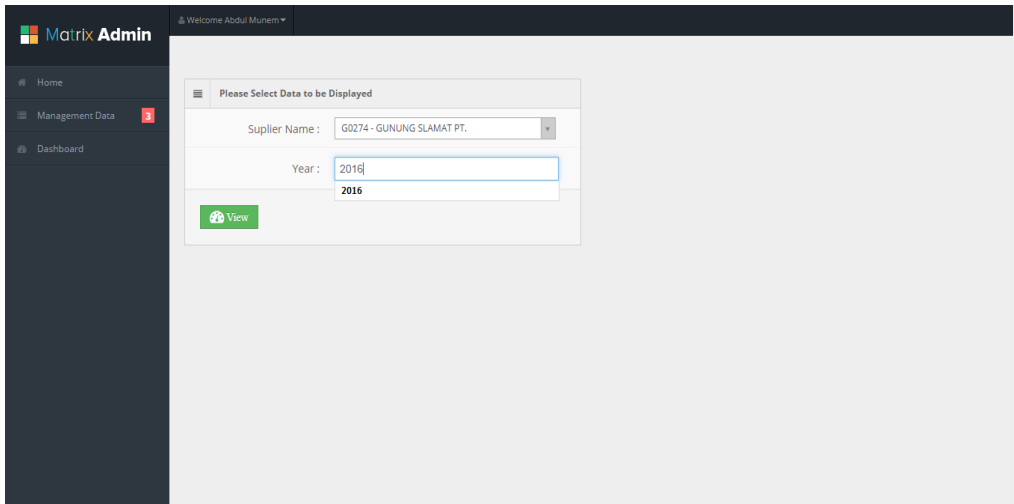


Figure 7. Display Menu Dashboard

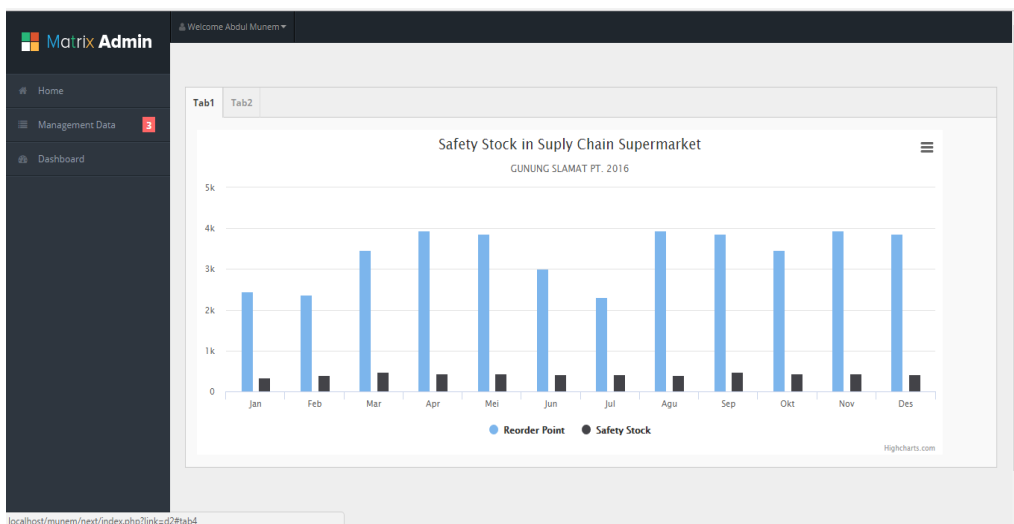


Figure 7. Display Output Recorder Point and Safety Stock

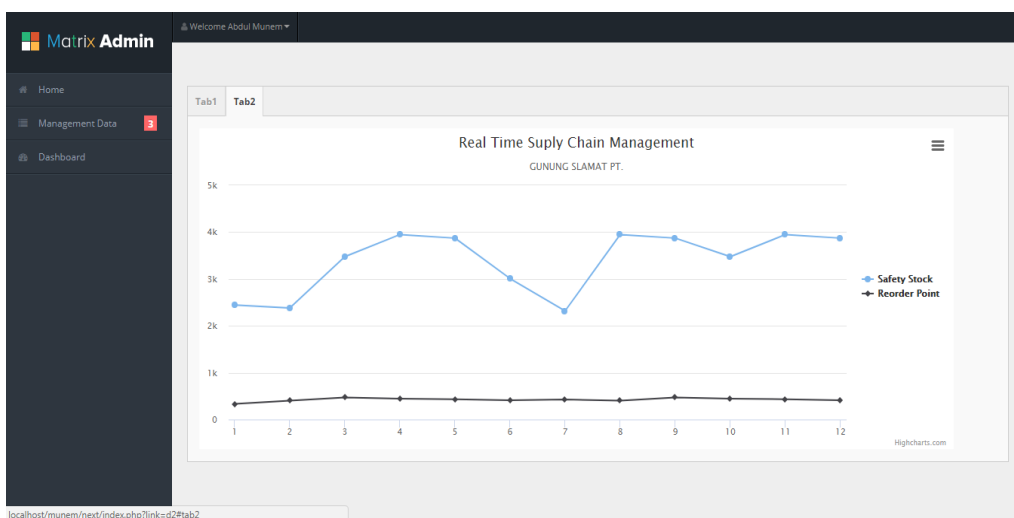


Figure 8. Display Output Real Time

## 4.2 Evaluation Information System in Supply Chain Supermarket

### 4.3 Gender

Data of respondents characteristic based on the gender served in the table 4.1:

**Table 4.1 Gender of Respondent**

Gender	N	Frequency (%)
Male	7	46.7
Female	8	53.3
Total	15	100

Table 4.1 presents the number of male respondents is 7 respondents or 46.7% whereas the female respondents is 8 respondents about 53.3% of the populations. Thus the most number of respondents is female respondents with the number of 8 persons or 53.3%.

**Table 4.2 Age of Respondent**

Age (years old)	N	Frequency (%)
< 21	2	13.3
21 – 25	1	6.7
26 – 30	6	40.0
31 – 35	1	6.7
36 – 40	2	13.3
> 41	3	20.0
Total	15	100.0

### 4.4 Description Analysis

Evaluation of information system in the supply chain supermarket is done using descriptions of data from questionnaires that are asked to the staff of the supermarket. Table 4.3 is a description of data from the respondent's answer.

**Table 4.3 Description Data of Variables**

Indicator	Data Description			
	Mean	Max	Min	Mode
The design of this information system is easy to use and understand	3.80	4	3	4
The menus of this information system are easy to use and understand	3.67	5	3	4
The design of this information system makes the job easier	3.73	5	3	4
The design of this information system is able to provide useful information to know the	3.47	4	3	3

condition of product stock				
The design of this information system is able to provide information about safety stock	3.53	4	3	4
The design of this information system can reduce the risk of stock out	3.80	4	3	4
The design of this information system is able to provide information about lead time	3.73	4	3	4
The design of this information system makes the work more efficient	3.67	5	1	4
This information system is able to provide policy to the company regarding product stock policy	3.60	4	2	4
Summary	3.67	5	1	4

Based on the description of the data (table 4.3) it can be seen that the summary answer of the questionnaire is known that the answer of the maximum respondent is 5 and the minimum is 1 whereas the mode or answer that often appears is 4 that means agree.

## 6. CONCLUSION

Based on the results of the research can be concluded that: In this research generate database system that can manage company data and avoid duplication of data. Produce inventory application which has product feature, supplier, inventory, transaction, and data warehouse. The information system in supply chain at Gelael supermarket is very useful to know safety stock of product and avoid stock out product. Based on the respondent's answer, it is known that the design of this information system can help staff to work more efficiently and effectively in knowing the safety stock of products and overcome the product stock out.

## 7. SUGGESTION

Need to test the use of information systems directly to more known the shortcomings and advantages of this information system directly.

## 8. REFERENCES

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