BERKAH JAYA ELECTRIC SHOP APPLICATION IS BASED ON ANDROID

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Abstract—*Berkah Jaya Electric Shop is a shop engaged in the sale of various kinds of electrical equipment. Goods sold by the store such as cables, sockets, and switches. The process of selling goods at the store is only done offline, namely by means of buyers coming directly to the store location. The process of managing store goods is still done by manually recording. This certainly causes problems such as the obstruction of buyers by time, and inefficient management of stock items. With this research, a sales application will be created that can make it easier for buyers to order goods, make product complaints, get information on the goods needed, and assist sellers in managing stock items and reports. This application will be built using the Waterfall method, utilizing the PHP, Laravel, and Kotlin programming languages. Making this application makes it easier for buyers to place orders via smartphones and sellers can more easily manage goods.*

Keywords: *Berkah Jaya Electric Shop, kotlin, manual records, sales application, waterfall.*

Abstrak— *Toko Listrik Berkah Jaya merupakan sebuah toko yang bergerak dalam bidang penjualan berbagai macam alat listrik. Barang yang dijual oleh toko seperti kabel, stop kontak, dan saklar. Proses penjualan barang pada toko hanya dilakukan secara offline, yaitu dengan cara pembeli datang langsung ke lokasi toko. Proses pengelolaan barang toko masih dilakukan dengan cara pencatatan secara manual. Hal tersebut tentunya menimbulkan permasalahan seperti terhalangnya pembeli oleh waktu, dan pengelolaan stok barang yang tidak efisien. Dengan adanya penelitian ini, maka akan dibuat sebuah aplikasi penjualan yang dapat mempermudah pembeli dalam memesan barang, melakukan komplain produk, mendapatkan informasi barang yang dibutuhkan, serta membantu penjual dalam mengelola stok barang dan laporan. Aplikasi ini akan dibangun menggunakan metode Waterfall, dengan memanfaatkan bahasa pemrograman PHP, Laravel, dan Kotlin. Pembuatan aplikasi ini memudahkan pembeli dalam melakukan pemesanan melalui smartphone dan penjual dapat lebih mudah mengelola barang.*

Kata Kunci*: Toko Listrik Berkah Jaya, pencatatan manual, aplikasi penjualan, waterfall, kotlin*

INTRODUCTION

Electricity plays a vital role in everyday life and is considered a basic necessity for the community (Nti et al., 2020). Its benefits are immense as it powers various equipment and materials used in daily activities, ranging from lighting to electronic devices. With electricity, electronic equipment such as lamps, ovens, fans, and televisions can function properly, making work more efficient. Electric tools greatly rely on electricity for operation or as support for electrical items. For instance, sockets are commonly used to connect cables from electronic devices, switches are used to control lighting, and MCBs are used to regulate and cut off electric current. These electrical devices are crucial in facilitating the daily needs of the community. Overall, electricity is an essential energy source that greatly enhances our lives by providing convenience and efficiency.

The need for electrical equipment seems to have become a basic need for the community, along with the increasing number of new housing built. This phenomenon also increases the demand for electrical appliances along with the times and the increasingly complex needs of the community (Rashid & Joardder, 2022). However, despite the high demand, shops that sell electrical equipment are not yet evenly distributed among the community. Not all communities have easy access to these stores, so some people have to go the extra mile to get the power tools they need. This situation has led to various innovations in sales systems,

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including online sales that allow consumers in various locations to easily access and purchase these products.

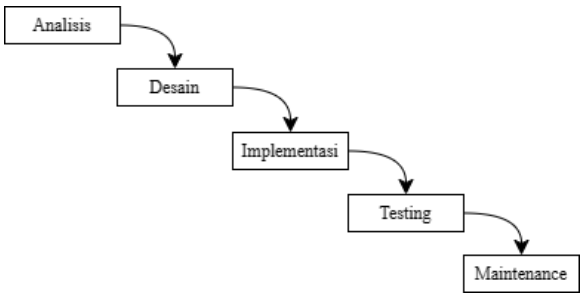
In this era of rapid technological development, almost all Indonesians own a smartphone (Firmansyah et al., 2020). Currently, smartphones are not only used as a tool for communication, but also used to support daily activities (Rara et al., 2024). This happens because on smartphones there are various kinds of applications made by developers to meet the needs of its users. One of them is online buying and selling activities, users can buy the products they need only through a smartphone (Farhaan et al., 2021). The existence of online buying and selling applications provides benefits for both parties, both sellers and buyers. From the seller's point of view, with the existence of online buying and selling applications, one of which can increase sales of existing products (Putra, 2024). From the buyer's point of view, online buying and selling applications can facilitate the buying process with various features in it. In addition, the ease of access via smartphone allows buyers to shop anytime and anywhere, without being constrained by time and place (Nurmansyah & Fachrie, 2023).

Berkah Jaya Shop is engaged in the sale of electrical appliances. Currently, the store still uses a conventional sales system, where buyers must come directly to the store and pay in cash. This creates several obstacles, especially for buyers who live far from the store location. They often have to face issues of distance, travel costs, and limited time, making the shopping experience less efficient and time-consuming. In addition, the Berkah Jaya store does not have a good system for collecting transaction data. The entire sales recording process is still done manually, which results in frequent errors in recording. This becomes a problem when there are complaints or complaints from customers related to purchases, because the transaction data is incomplete or inaccurate. The lack of an efficient recording system also makes it difficult to monitor stock, manage financial reports, and analyze sales.. The store's marketing system is also still ineffective, even though good marketing is very important to increase sales and store development (Samiha, 2022). With increasingly fierce business competition, Toko Berkah Jaya must have advantages that other stores do not have and keep up with technological developments in order to compete with other stores.

To solve the problems that occur at Toko Berkah Jaya, the steps that can be taken are that the author will create an android-based sales application system. This sales application will be used by Toko Berkah Jaya to make it easier for buyers to order the desired product. In addition, this application will also help stores manage transactions and stock items more regularly and effectively. With this application, it is hoped that Toko Berkah Jaya can improve service to customers and provide a better shopping experience. So that in the end it will increase customer satisfaction and build a positive image of the store in the eyes of consumers.

MATERIALS AND METHODS

The research method for developing an Android-based electrical store application uses a waterfall approach. With this method, development becomes more structured and systematic. This approach includes several stages, namely requirements analysis, system design, implementation, testing, and maintenance as shown in Figure 1 below (Wijaya et al., 2022).



Source: (Haerani et al., 2023)

Figure 1. Waterfall Method

Requirement analysis

Analysis is the first step that must be taken at the data processing stage. Data analysis is carried out after collecting data related to the research. In this step the author conducts interviews with shop owners to get information about the needs of the store to be associated with the application that will be made later (Asrin & Utami, 2023). Berkah Jaya Shop has been established for more than 10 years, but its operations still rely on manual methods. To overcome this problem and improve efficiency, several user needs have been identified. The store needs an online transaction system that allows customers to make purchases without having to come directly to the store. The store also needs an admin dashboard to facilitate the management of transactions, stock, customer complaints and sales reports.

System design

Design is a step taken after analyzing. In this step the author will create an application description according to the results of the analysis, such as software architecture design, data structure, and program creation procedures (Alkatiri & Purnomo, 2022). This design maker will be made

using draw.io and figma. This design process is very important at the data processing stage, because it can facilitate the creation of the system.

Implementation

Implementation is the next step after analyzing the data, in this step the author applies the results of the data that has been analyzed and the design that has been designed in the application to be made by adjusting the predetermined needs and specifications (Herawati et al., 2021). The implementation process uses the Laravel framework with the PHP programming language, Kotlin, and the Firebase database.

Testing

Testing is the most important step that must be done, because in this step the author tests to ensure that the application can run as expected and the processed data runs correctly (Inastiana et al., 2020). The author uses the black box method by giving questionnaires to respondents to conduct testing.

Maintenance

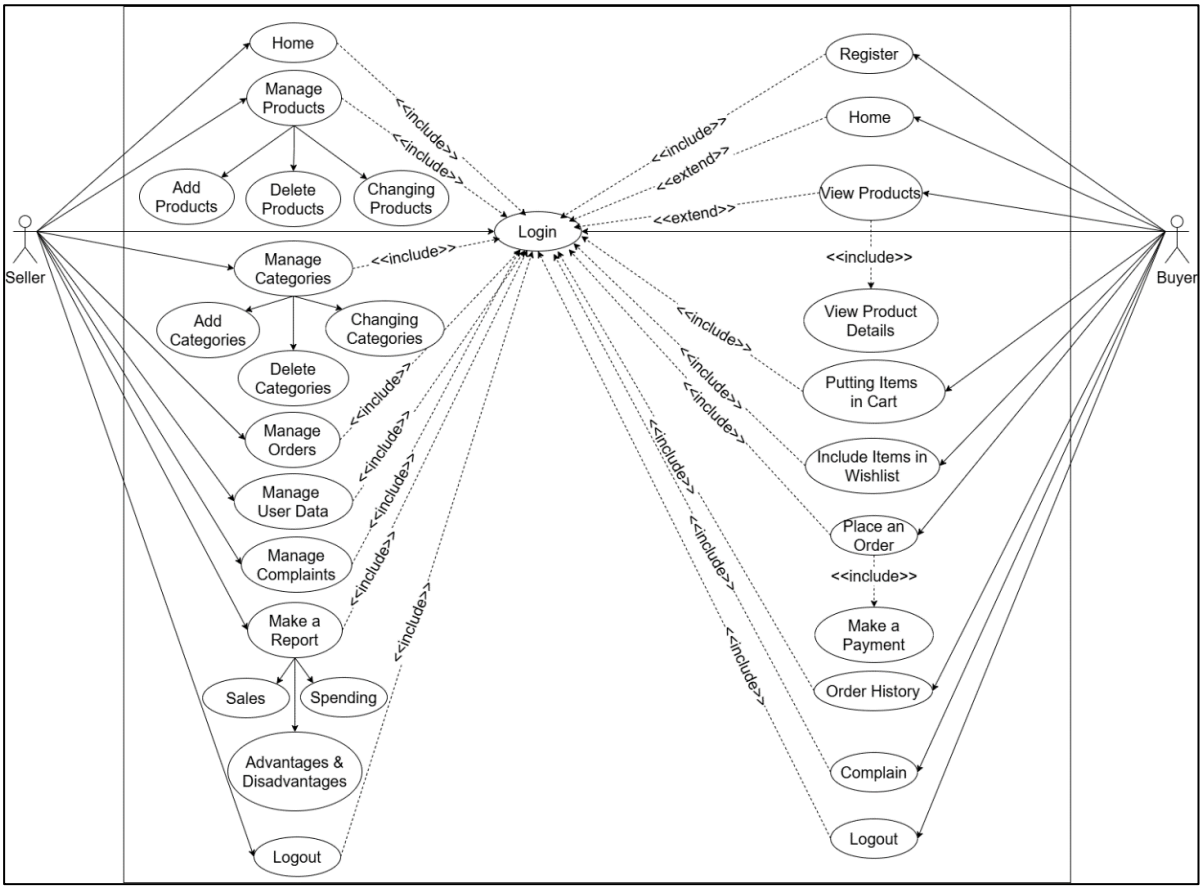
Maintenance is the last step in this stage, the author performs regular maintenance to ensure that the application continues to run according to the flow created, and the data that is run works properly (Alda, 2023).

RESULTS AND DISCUSSION

Some of the needs that must be met by Toko Listrik Berkah Jaya from the results of the analysis that has been carried out are that the store needs a system that can manage stock items to reduce the risk of errors in recording. It takes a system that is able to make financial reports, including income and expenses so that this process becomes more efficient and accurate. In addition, the store also needs a system that can facilitate buyers in making purchases and transactions at the store without the need to come directly to the store.

The following are the results of designing a system design consisting of use case diagrams, activity diagrams, sequence diagrams, class diagrams, and entity relationship diagrams for the Berkah Jaya Electric Shop application:

Figure 2 is the result of a use case diagram that has been created with the purpose of describing how the interaction between one or more actors on the information system will be created. Seller actors can manage products such as



Source: (Research Result, 2024)

Figure 2. Use Case Diagram of System

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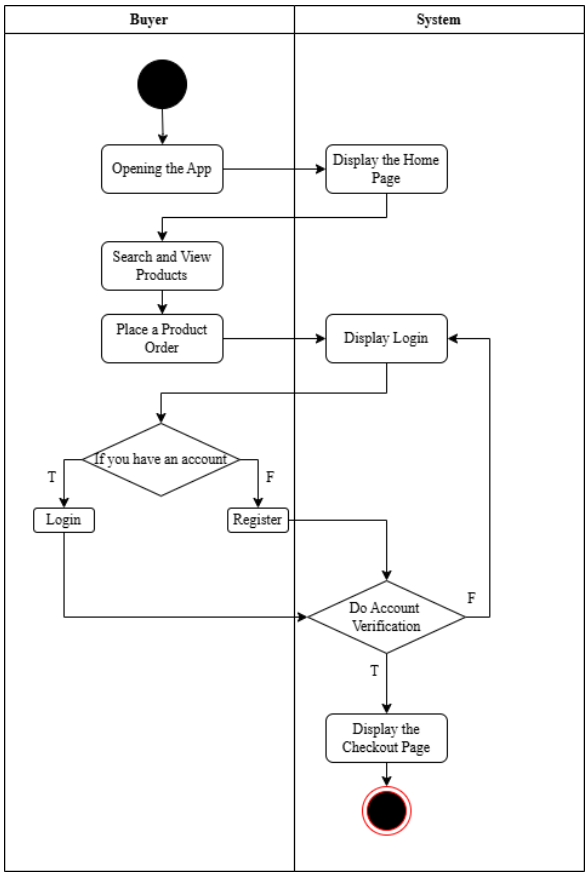
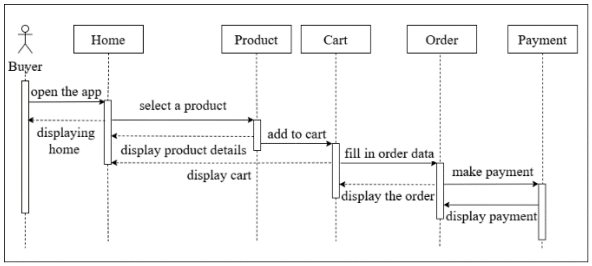
adding, deleting, changing products in the storefront, managing categories such as adding, deleting, changing categories contained in the store, managing orders, managing user data, and creating reports such as store income and expenses. While buyer actors can place product orders, view order history, create a product wishlist, and make complaints.



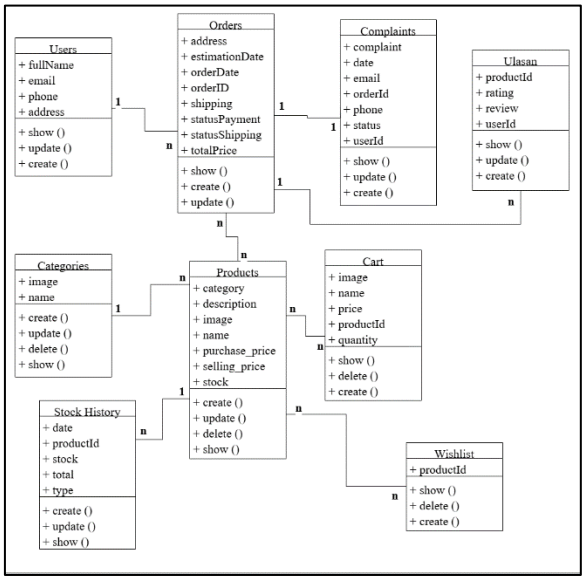
Source: (Research Result, 2024)
Figure 3. Activity Diagram of Product Ordering

Figure 3 is the result of an activity diagram that has been created with the aim of describing the steps that occur in a process, how these activities interact with each other. The activity diagaram of the buyer placing an order explains the buyer's activities when placing an order in this application. Buyers can access the home page, then search and select the products they need. After that the buyer can put the product in the basket, then do the checkout and payment process.



Source: (Research Result, 2024)
Figure 4. Sequence Diagram of Buyer Placing Order

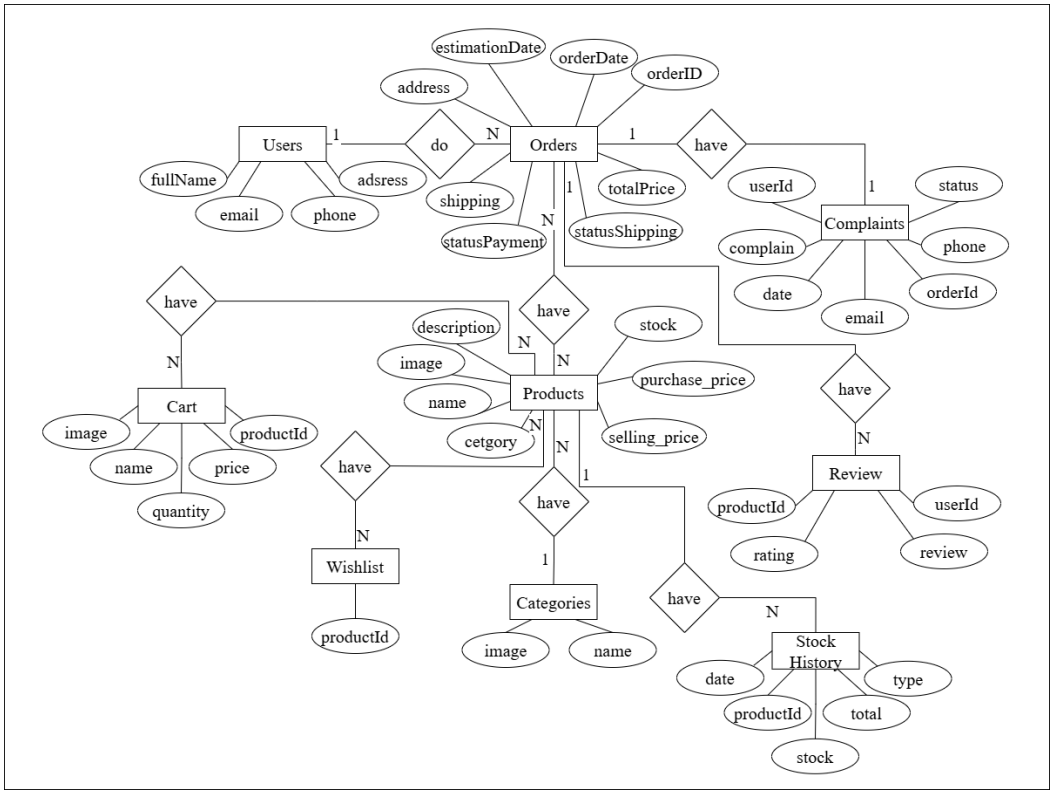
Figure 4 is the result of a sequence diagram that has been made to describe the flow of buyers when they want to place an order. The process starts from the buyer opening the application, then the system will display the home page, then the buyer chooses the product needed then adds it to the basket. After that, fill in the order data and finally make a payment.



Source: (Research Result, 2024)
Figure 5. Class Diagram of Berkah Jaya Electric Shop Application

Figure 5 is the result of a class diagram that has been created to model the static structure of a system. This class diagram describes the classes that exist in the system, attributes and relationships between classes.

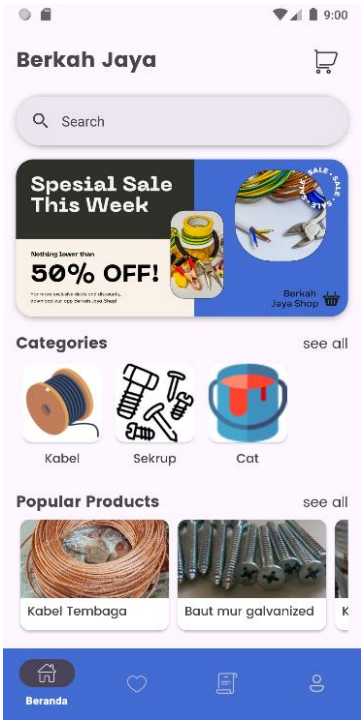
Figure 6 is the result of the Entitiy relationship diagram that has been created to design the database by describing the relationship between entities. By describing the relationships between entities in the system, this can help in modeling the logical structure of the database.



Source: (Research Result, 2024)

Figure 6. Entitiy Relationship Diagram of Berkah Jaya Electric Shop Application

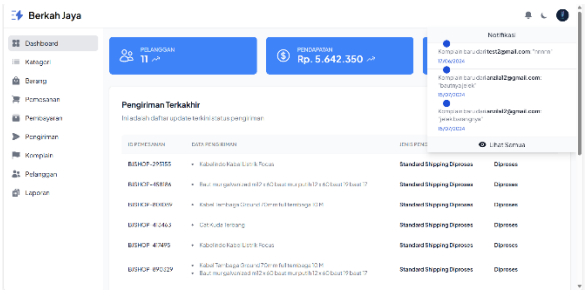
The results of the above design were then implemented by researchers in program development. The following are the results of the program implementation that has been carried out:



Source: (Research Result, 2024)

Figure 7. Buyer's Menu View

Figure 7 is the design of the buyer's home menu. On this page the menu that can be used by buyers is wishlist, order, cart, search products, and account.



Source: (Research Result, 2024)

Figure 8. Seller Menu View

Figure 8 is the admin dashboard menu design. On this page, the menu that can be used is managing categories, items, orders, payments, shipments, complaints, customers, and reports.

The program that has been made is tested to ensure that the system made can function according to predetermined specifications and to measure user satisfaction and experience with the system made. Testing is done by distributing questionnaires to users, both buyers and sellers. This is done to collect the necessary data and feedback. The following are the questions and results of the questionnaire distributed:

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Table 1. Results of Buyer Satisfaction Questionnaire

No	Question	Response				Total Respondents
		SS	S	KS	TS	
1	P1	11	10	4	0	25
2	P2	12	12	1	0	25
3	P3	18	5	2	0	25
4	P4	16	8	1	0	25
5	P5	15	7	3	0	25
6	P6	12	12	1	0	25
7	P7	19	5	1	0	25
8	P8	11	9	5	0	25
Total		114	68	18	0	200
Presentation		57%	34%	9%	0	

Source: (Research Result, 2024)

Table 2. Percentage of Buyer Questionnaire Results

No	Question	SS	S	KS	TS
1	P1	44%	40%	16%	0%
2	P2	48%	48%	4%	0%
3	P3	72%	20%	8%	0%
4	P4	64%	32%	4%	0%
5	P5	60%	28%	12%	0%
6	P6	48%	48%	4%	0%
7	P7	76%	20%	4%	0%
8	P8	44%	36%	20%	0%

Source: (Research Result, 2024)

Description :
P1 :The appearance of the application is not boring
P2 :The language in the application is easy to understand
P3 : This application has ease of use
P4 : The process of ordering goods on the application is easy to do
P5 : The process of complaining about goods is easy to do
P6 : The features in the application can run according to their function
P7 : This application can facilitate purchases without having to come to the store
P8 : This application can quickly display data responses

Description :
SS : Strongly agree
S : Agree
KS : Disagree less
TS : Disagree

Table 1 and Table 2 is the result of the buyer satisfaction questionnaire and its percentage. Based on the questionnaire results, most respondents chose the answer "Strongly Agree" with a total percentage of 57%. The highest percentage with the answer "Strongly Agree" is owned by the question "This application can facilitate purchases without having to come to the store" with a percentage of 76%. The lowest percentage with the answer "Strongly Agree" is owned by the questions "The application display is not boring" and "This application can quickly display data responses" with a percentage of 44%.

Table 3. Results of Saller Satisfaction Questionnaire

No	Question	Response				Total Respondents
		SS	S	KS	TS	
1	P1	2	2	1	0	5
2	P2	4	1	0	0	5
3	P3	5	0	0	0	5
4	P4	3	2	0	0	5
5	P5	4	1	0	0	5
6	P6	4	1	0	0	5
7	P7	4	1	0	0	5
8	P8	5	0	0	0	5
9	P9	1	4	0	0	5
Total		32	12	1	0	45
Presentasion		71%	26%	2%	0	

Source: (Research Result, 2024)

Table 4. Percentage of Seller Questionnaire Results

No	Question	SS	S	KS	TS
1	P1	40%	40%	20%	0%
2	P2	80%	20%	0%	0%
3	P3	100%	0%	0%	0%
4	P4	60%	40%	0%	0%
5	P5	80%	20%	0%	0%
6	P6	80%	20%	0%	0%
7	P7	80%	20%	0%	0%
8	P8	100%	0%	0%	0%
9	P9	20%	80%	0%	0%

Source: (Research Result, 2024)

Description :
P1 : The appearance of the management system is not boring
P2 : The language in the management system is easy to understand
P3 : This management system has ease of use
P4 : The process of managing goods on this system is easy to do
P5 : The order management process on this system is easy to do

P6 : The complaint management process on this system is easy to do
P7 : The features of this system can run according to their functions
P8 : This management system can make it easier for sellers to manage store sales
P9 : This management system can quickly display data responses

Table 3 and Table 4 is the result of the seller satisfaction questionnaire and its percentage. Based on the questionnaire results, most respondents chose the answer "Strongly Agree" with a total percentage of 71%. The highest percentage with the answer "Strongly Agree" is owned by the questions "This management system has ease of use" and "This management system can make it easier for sellers to manage store sales" with a percentage of 100%. The lowest percentage with the answer "Strongly Agree" is owned by the question "The appearance of the management system is not boring" with a percentage of 44%.

Based on the highest and lowest scores on the results of the seller and buyer questionnaires, it can be concluded that the application of the jaya blessing shop can make it easier for sellers and buyers to manage the store and order products at the store.

CONCLUSION

Based on the research that has been done, it can be concluded that the results of making the Berkah Jaya Electric Shop Application can facilitate sellers and buyers. This application allows buyers to order goods online without having to go directly to the store, and helps sellers manage stock items and make reports efficiently. The main features of this application include real-time stock management, online order processing, and structured sales report generation.

For further development, it is recommended to consider some additional features that can improve the capabilities and user experience such as the addition of a notification feature to notify customers about promos and discounts and a chat feature between buyers and sellers so that buyers can consult regarding the items needed. By developing these features, the application will be better able to meet user needs and support the growth and management of store operations in the future.

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