
Web-Based E-Commerce Using Up Selling and Safety Stock Methods

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ABSTRACT

This research examines the application of the e-commerce platform at the An-Nur Muslim Shop which sells Hajj and Umrah equipment. In the rapidly developing digital era, e-commerce has become essential for companies to expand market share and increase operational efficiency. E-commerce is changing the traditional way of commerce, allowing customers to shop easily and safely. The principle of fair and legal transactions in Islam is an important basis for the development of e-commerce, as emphasized in QS An-Nisa: 29. The Up Selling method is applied to increase sales by offering similar products that have a higher value, which is expected to encourage customers to buy more products. Up Selling works by sorting products from lowest to highest price and offering discounts and special promos on products that meet the criteria. In addition, the Safety Stock concept is used to manage inventory more efficiently. Safety Stock helps anticipate demand uncertainty and delays in receiving raw materials, maintaining optimal stock levels. With this approach, An-Nur Moeslim Shop's can keep stock levels low to reduce inventory management costs and match new orders only when stock is low. The proposed e-commerce system will allow users to search for products, review descriptions and prices, and make purchases easily through a user-friendly web interface. It is hoped that this e-commerce platform will strengthen An-Nur Moeslim Shop's position in the market, provide significant added value, and improve the overall customer shopping experience.

Keywords: E-Commerce; Hajj and Umrah equipment; Moeslim Shop; Up Selling; Safety Stock

INTRODUCTION

Electronic commerce (E-Commerce) is a process of buying and selling products electronically by consumers and from company to company using computers as an intermediary for business transactions (Nurdiansyah et al., 2022). This concept has changed the traditional way trade is conducted, providing a huge opportunity for businesses to reach a wider market and increase their operational efficiency.

An-Nur Moeslim Shop's is a shop that sells Hajj and Umrah equipment, to expand market coverage beyond the physical area of the shop and increase affordability for customers in distant locations. Through the development of e-commerce platform technology, customers can easily explore the various products offered by stores, make purchases quickly and safely, and get responsive customer service. In Q.S An-Nisa: 29.

This verse teaches that transactions must be carried out in a legal and fair manner, and based on the willingness and consent of both parties. E-commerce really provides convenience for economic actors. If the harmony and conditions for buying and selling are truly implemented, then e-commerce players have implemented the values of Islamic teachings. By making good use of digital technology, An-Nur Moeslim Shop's can build stronger relationships with their customers and strengthen their position in the market.

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Overall for An-Nur Moeslim Shop's, this concept is the basis for expanding their business and bringing a better shopping experience to their customers.

The main problem faced by An-Nur Moeslim Shop's is that the current inventory and sales management system is still done manually, where the process of recording stock and calculating sales is done using simple physical records or Excel. This manual method has many disadvantages, such as the risk of errors in recording, taking a long time to update data, and being less efficient in fulfilling customer requests. Apart from that, this method also makes it difficult for shop owners to optimize inventory, so stock shortages often occur which can affect customer satisfaction. Manual systems also do not support modern sales methods such as Up Selling, where customers are not automatically offered similar products with higher value. Implementing an e-commerce system that is integrated with the Up Selling method and Safety Stock management will help stores automatically offer products to customers and manage inventory more efficiently, reducing the risk of stock shortages and increasing sales value.

The Up Selling method is a sales method used to offer products that have similar products with a higher value than other products, one strategy that can increase sales and increase the number of purchases from one product to buying many products (Yani et al ., 2022). The way the Up Selling method works is only taking price data that is one level above. The products offered in Up Selling can be one or more items, if the product meets the Up Selling criteria then the system will automatically display the products that are Up Selling. Because basically the query command in Up Selling itself is to use sorting from smallest to largest (Ascending) or in database queries the command is ASC (Saputro & Seabtian., 2021). In the context of Up Selling, the system offers special discounts and promos. Inventory control management is carried out in almost all companies, one of which is engaged in the sale of Hajj and Umrah equipment, an important factor in a business engaged in sales. Therefore, every business actor needs inventory control to obtain a more optimal inventory level. The management carried out is to always keep stock levels low to minimize inventory management costs, and match new orders only when stock runs out. Safety stock is a safety stock to anticipate demand uncertainty. Stock is obtained by estimating safety stock from daily sales data for the previous month. The purpose of holding a safety stock is to meet the possibility of a shortage of raw materials, due to usage that is greater than originally estimated. Delays in receiving ordered raw materials (Mikharani & Satria et al., 2022).

With the adoption of a reliable e-commerce platform and solutions that are continuously updated in accordance with market and technological developments, An-Nur Moeslim Shop's is expected to achieve sustainable growth and provide significant added value to their customers.

LITERATURE REVIEW

E-commerce

E-commerce is an expansion of the meaning of electronic business (e-business) which covers more broadly the buying and selling of goods and services. The scope of E-business includes customer service, collaboration between several business relationships and the use of electronic-based transactions in a business company. E-business uses an Information and Communication Technology (ICT) system involving a type of business that has many processes in one coordinated system. Three processes commonly used in E-business based systems are production processes, customer focused processes and internal management processes (Yusuf et al., 2022).

Up Selling

The upselling strategy itself is a sales program that is used to offer products that have similar products with a higher value than other products. One strategy that can increase sales and increase the number of purchases from one product to buying many products is cross selling and upselling. Cross selling involves selling additional products that are related or unrelated to previously purchased products, while upselling involves increasing sales volume, for example buyers repurchase the same product or add a

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product with a more expensive price and more complex features (Yani et al. , 2022).

Safety Stok

Safety stock is a safety stock to anticipate demand uncertainty. Stock is obtained by estimating safety stock from daily sales data for the previous month. The purpose of holding a safety stock is to meet the possibility of a shortage of raw materials, due to usage that is greater than originally estimated. Delays in receiving ordered raw materials. To calculate safety stock, the following safety stock equation is used:

$$\text{Safety Stock (SS)} = \text{LT} \times \text{CA} \dots\dots\dots (1)$$

Information:

LT (Lead Time) = order waiting time

CA (Consumption Average) = average sales (Mikharani & Satria., 2022).

METHOD

In conducting research, the method used is the Research and Development (R&D) method. Research and Development (R&D) is a process or steps to develop a new product or improve an existing product. Development research is a type of research that can be a link or breaker of the gap between basic research and applied research. (Okpatrioka., 2023). The steps taken for the Research and Development (R&D) research design are as follows :

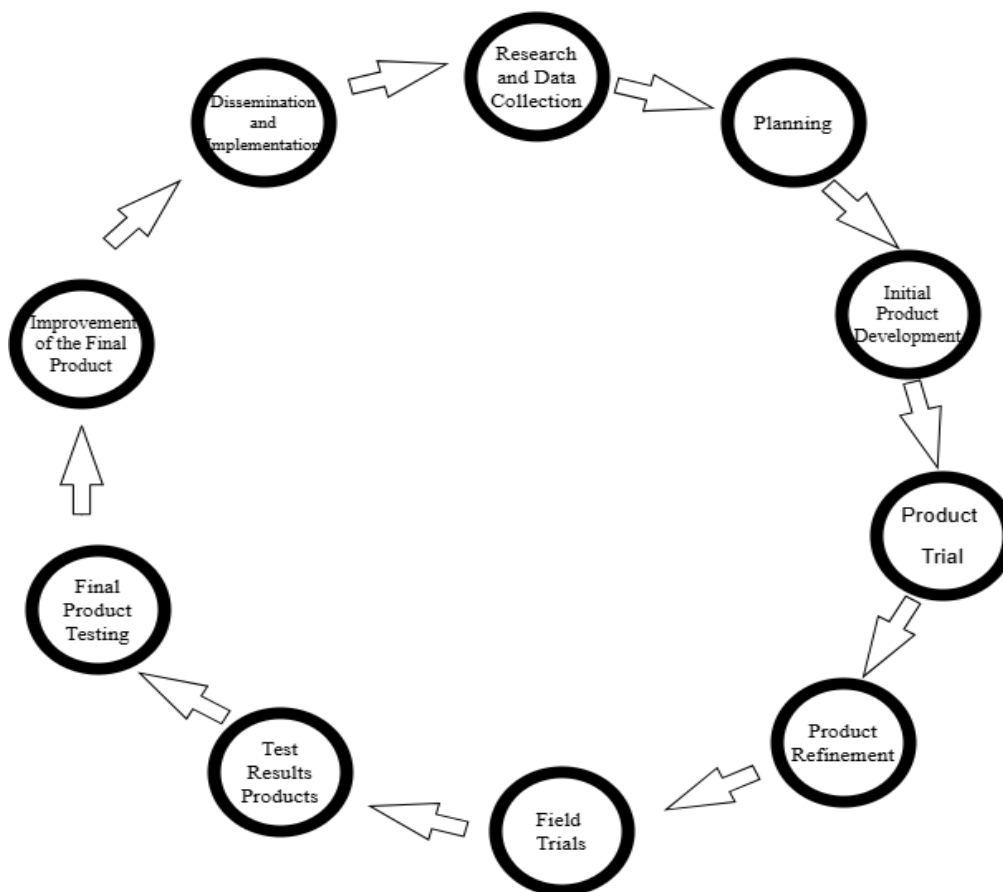


Figure 1. Research Stages

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Description of research stages :

1. Research and Data Collection

At this stage, researchers will collect data related to the needs and problems faced by An-Nur Moeslim Shop's in their e-commerce system. Data can be collected through interviews with shop owners, observations of current operational processes, as well as literature studies on Up Selling and Safety Stock methods. This data is important to understand how the sales process and stock management are carried out manually and how e-commerce can provide solutions.

2. Planning

After the data was collected, the researcher prepared a development plan for the e-commerce system that would be implemented. Planning includes identifying the main features to be developed, such as the integration of the Up Selling method to increase sales value, and Safety Stock for more efficient stock management. At this stage, system architecture design, user interface design, and testing strategy planning are also carried out.

3. Initial Product Development

In this stage, the initial product of the e-commerce system begins to be developed based on the plans that have been made. Development involves creating a web platform that allows customers to make purchases, view Up Sell products, and manage stock using the Safety Stock method. This product is still in its early stages and has not yet been fully implemented.

4. Product Trial

Initial/Limited Trial The initial product that was developed was then tested on a limited basis by the development team and a small number of users, for example from internal parties at An-Nur Moeslim Shop's. This trial was carried out to identify initial technical problems and see whether key features such as Up Selling and Safety Stock management were functioning properly.

5. Initial Product Refinement

Based on the results of limited trials, initial product improvements were made. Found technical issues were fixed, and the system was further optimized. At this stage, additional features or design improvements may be made to improve the user experience.

6. Field Trials

After refinement, the product is tested on a larger scale, for example by involving more users or shop customers. This trial aims to see how the system works in situations that are closer to real conditions, including how customers respond to the Up Selling feature and how the system handles stock management in various sales scenarios.

7. Refinement of Test Results Products

From the results of wider field trials, the product was refined again. Feedback from users and findings from large-scale testing are used to improve the system, ensuring there are no more bugs or major flaws before the product is officially launched.

8. Final Product Testing

After final refinement, the product enters the final testing phase. At this stage, all features are functional and the product is considered ready to be implemented. Final testing is carried out to ensure there are no major problems before the product is released to all customers.

9. Revision or Improvement of the Final Product

If there are small problems that are still found in the final trial, revisions or improvements are made. At this stage, the product is approaching its final form and is ready to be used in full-scale implementation.

10. Dissemination and Implementation

The finished product is then disseminated and implemented. The e-commerce system is starting to be used by An-Nur Moeslim Shop's to handle online sales with Up Selling features and optimal Safety Stock management. At this stage, training is carried out for system users and provision of technical support for full implementation.

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RESULT

The results and discussion of the background of this research focus on the implementation of the e-commerce platform at the An-Nur Muslim Shop, which aims to expand market coverage and increase operational efficiency. By using the Up Selling method, sales are expected to increase through offering products with higher value and special promos. This method allows the system to automatically display relevant products based on price order. In addition, the Safety Stock concept is applied to manage inventory optimally, keeping stock low but sufficient to meet demand. The use of these two methods is expected to not only increase sales and inventory efficiency, but also strengthen relationships with customers through more responsive service and a better shopping experience. This implementation is also in accordance with the principles of fair transactions in Islam, as regulated in QS An-Nisa: 29, thus providing an ethical basis for the development of digital-based businesses.

Method Testing Up Selling

The An-Nur Moeslim Shop's has various types of goods, one example of the goods that the An-Nur Moeslim Shop's has is mukena with a variety of materials such as cotton, silk and brocade. The price of mukena ranges from IDR 100,000 to IDR 800,000. Mukena products are categorized based on price:

Table 1. Mukena Price Categories

Levels 1	IDR 100.000 s/d IDR.300.000
Levels 2	IDR. 300.000 s/d IDR. 500.000
Levels 3	IDR. 500.000 s/d IDR. 700.000
Levels 4	IDR. 800.000

The mukena at Level 1 has a simple design made from cotton, while the mukena at Level 4 has a luxurious design made from silk and brocade. If a customer sees a mukena at Level 1, the system will recommend a mukena from Level 2 which has a more attractive design and higher quality material. To encourage customers to buy up-selling products, An-Nur Moeslim Shop's provides a special offer for mukenas at Level 2 if purchased with other Hajj accessories. When customers view the mukena details at Level 1, the web interface will display mukena recommendations from Level 2 with the label "More Comfortable and Luxurious". The application of the Up Selling method to the mukena product category at the An-Nur Moeslim Shop's not only increases sales but also strengthens relationships with customers. With the right strategy and attractive offers, customers are encouraged to choose higher value products, increasing their satisfaction and loyalty to the store.

Method Testing Safety Stock

An-Nur Moeslim Shop's collected data on mukena sales for the last six months. From this data, the average monthly sales (CA) is obtained, the data can be seen as follows.

Table 2. Sales Data for the Mukena Category

No	Period	Units	Unit	Total/Month
1.	February, 2 2024	20	pcs	400
		30	pcs	
		30	pcs	
	February, 9 2024	20	pcs	
	February, 16 2024	40	pcs	
		20	pcs	

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		20	pcs	
	February, 23 2024	20	pcs	
		70	pcs	
		30	pcs	
		50	pcs	
		50	pcs	
2.	March, 2 2024	40	pcs	400
		60	pcs	
	March, 9 2024	40	pcs	
		60	pcs	
	March, 16 2024	20	pcs	
		20	pcs	
	March, 23 2024	20	pcs	
		20	pcs	
		80	pcs	
	March, 30 2024	40	pcs	
3.	April, 6 2024	50	pcs	550
		50	pcs	
	April, 13 2024	50	pcs	
		60	pcs	
		90	pcs	
	April, 20 2024	70	pcs	
		50	pcs	
		50	pcs	
	April, 23 2024	80	pcs	
4.	May, 4 2024	40	pcs	500
		40	pcs	
		10	pcs	
		10	pcs	
		20	pcs	
	May, 11 2024	10	pcs	
		20	pcs	
	May, 18 2024	30	pcs	
		20	pcs	
		50	pcs	
		50	pcs	
	May, 25 2024	40	pcs	
		60	pcs	
		30	pcs	
		70	pcs	
5.	June, 1 2024	200	pcs	600
	June, 8 2024	90	pcs	
	June, 15 2024	90	pcs	
	June, 22 2024	120	pcs	
	June, 28 2024	100	pcs	

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So it can be concluded that the total sales for the last month were 600 pcs, then calculate the average sales value for the last month, $600/30 = 20$ to get.

CA (Consumption Average) = 20
LT (Lead Time) = 7
Safe Stock = 20×7
= 140.

So it can be concluded that the safety stock is 140/pcs.

Implementation

Application implementation is the process of installing, configuring, and operationalizing a software application in a production environment. This stage includes careful planning, technical installation, and testing to ensure the application functions according to user needs. This process begins with planning and preparing adequate infrastructure, followed by software installation and configuration according to organizational specifications. Next, testing is carried out to ensure the application functions properly, including functional tests, load tests, and security tests. Finally, implementation ends with user training and post-implementation support to ensure the application can be used effectively and efficiently.

1. Login

Login is the process by which users access their accounts on the app by entering credentials such as email and password to ensure security and authorized access. The results can be seen in the following image:

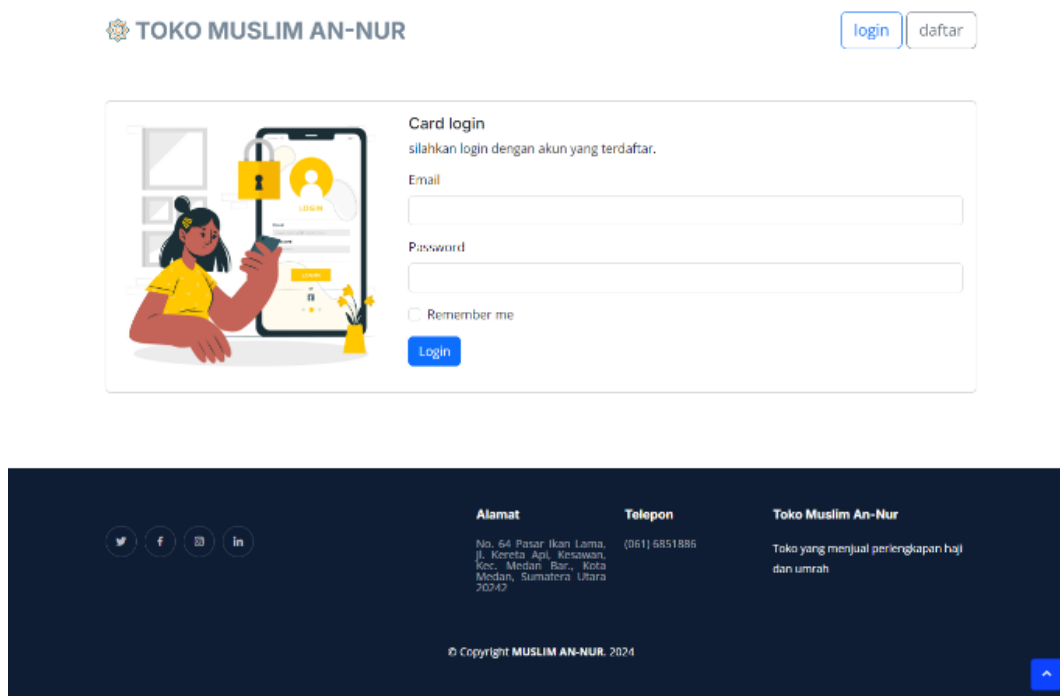


Figure 1. System Login Display

2. Register

Register allows new users to create an account by filling in the required personal information, such as name, email address, and password. The results can be seen in the following image :

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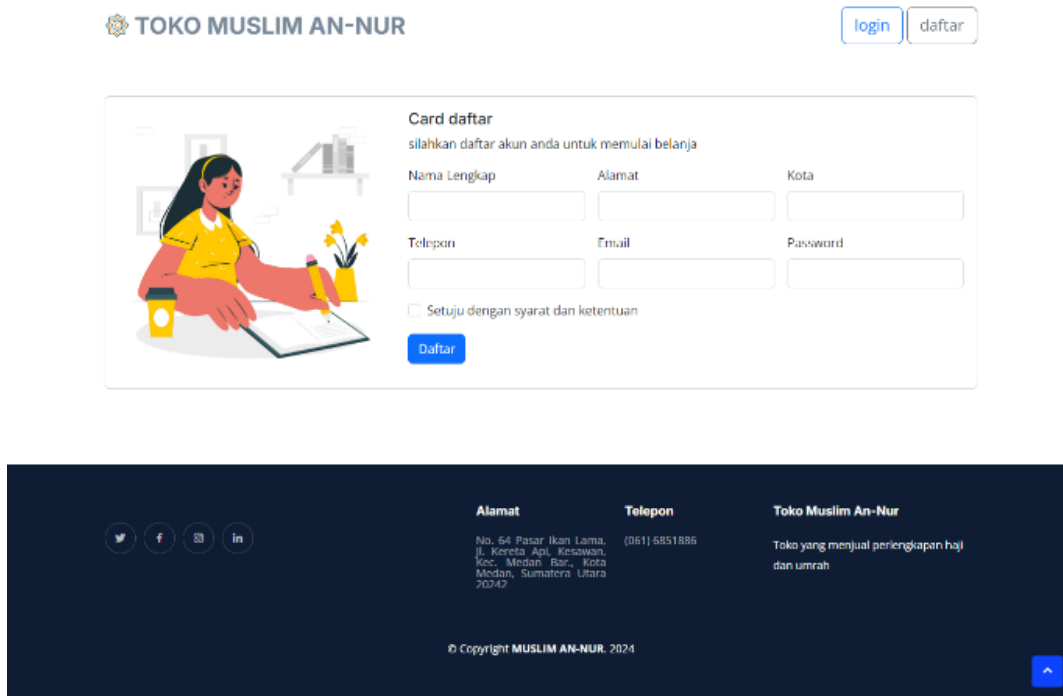


Figure 2. Account List Display

3. Items

Items include management, including adding, editing, and deleting items available for sale in the app. The results can be seen in the following image:

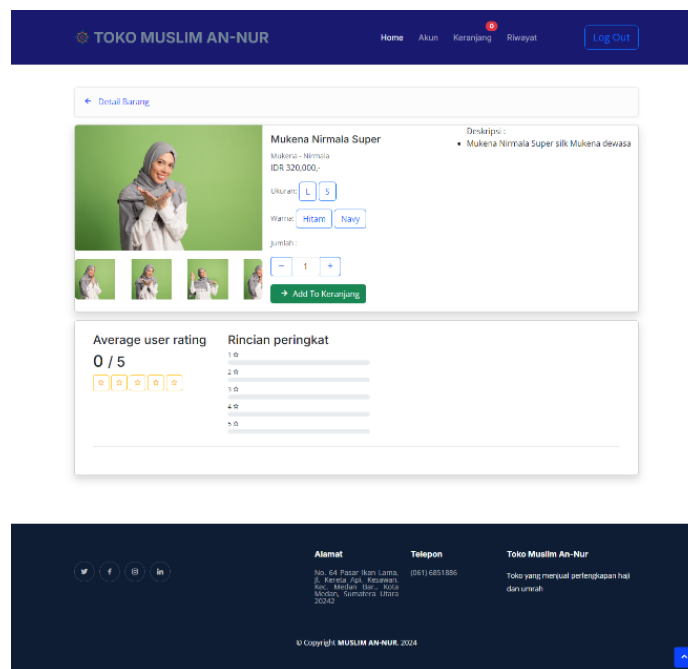


Figure 3. Item Display

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4. Payment

Payment refers to the process in which customers complete a transaction by selecting an available payment method and making payment. The results can be seen in the following image:

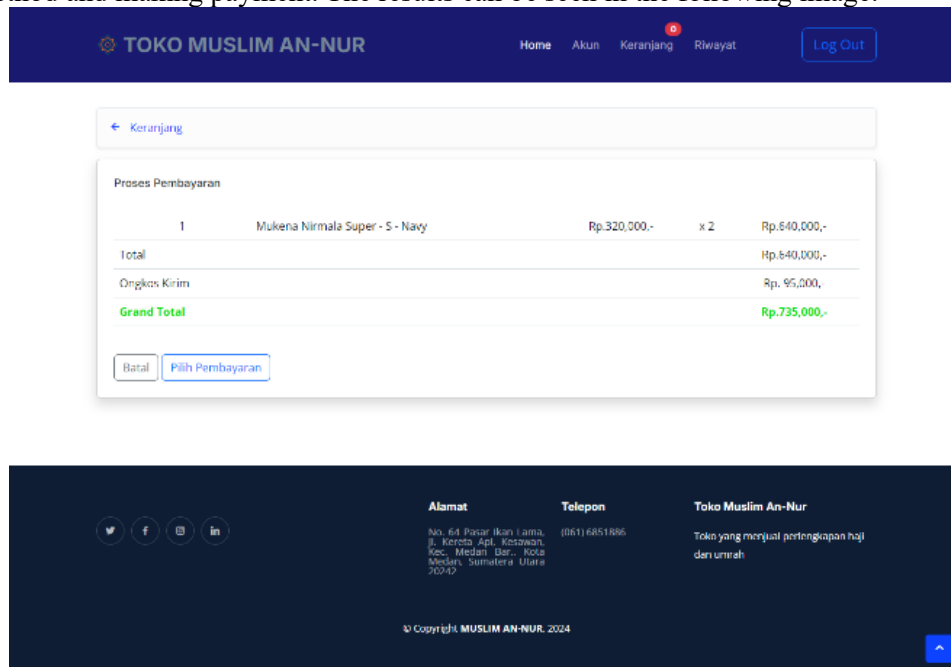


Figure 4. Payment Display

5. Delivery

Delivery includes managing delivery from sellers to consumers, including selecting delivery services and providing services. The results can be seen in the following image :

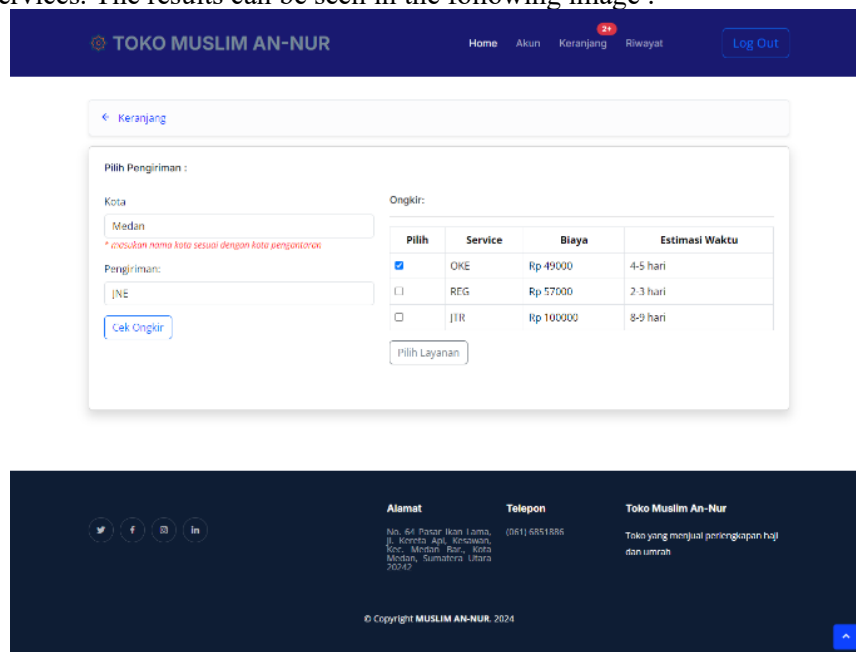


Figure 5. Delivery Display

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6. Return

Returns are the process by which consumers return goods that are unsuitable or damaged and request a replacement or refund. The results can be seen in the following image:

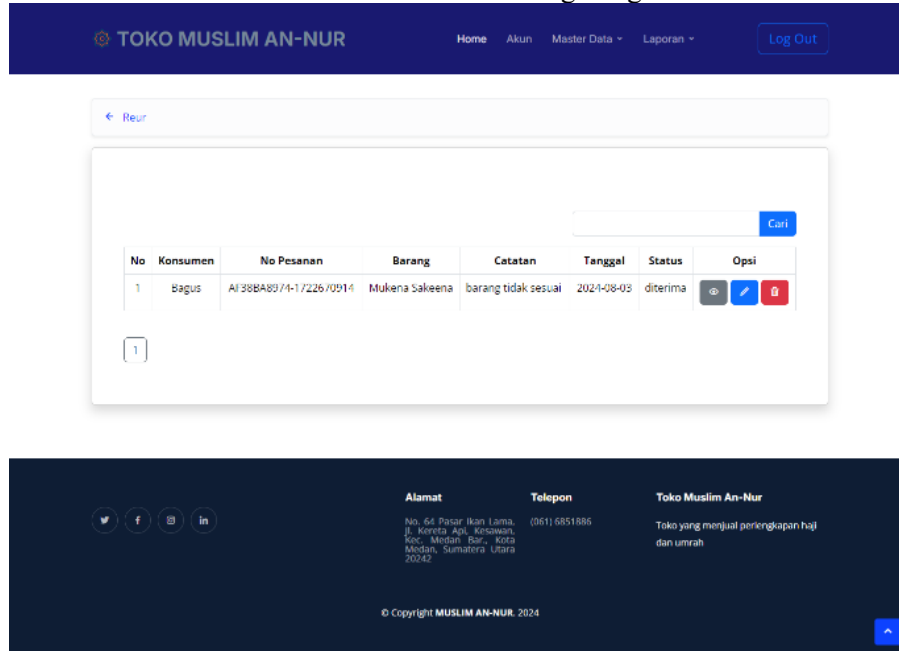


Figure 6. Returns Display

7. Items Report

Items Reports provide information about the status and quantity of available stock, helping in managing goods. The results can be seen in the following image :

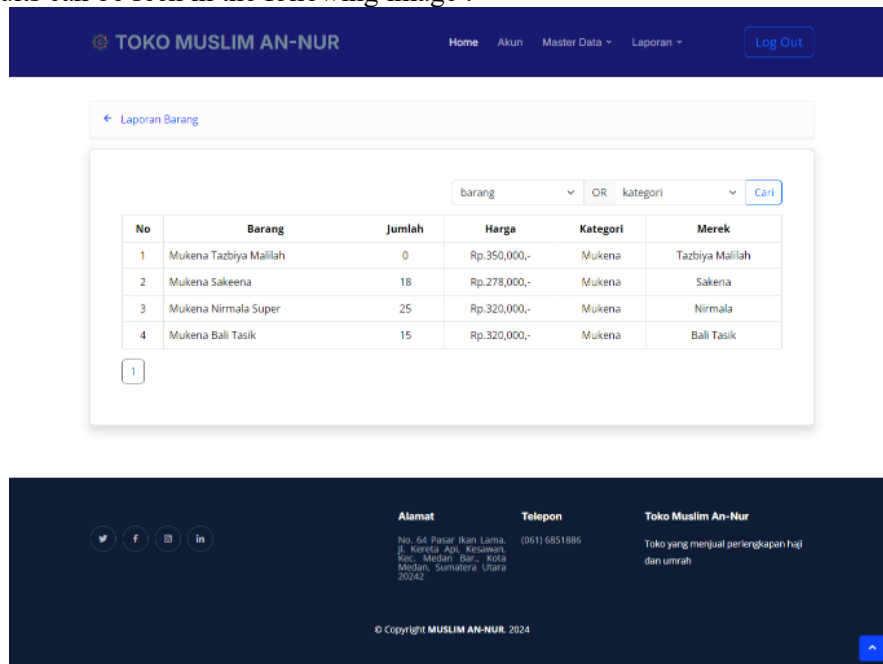


Figure 7. Item Report Display

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8. Sales Reports

Sales Reports provide data about product sales, including sales numbers, revenue, and sales trends. The results can be seen in the following image:

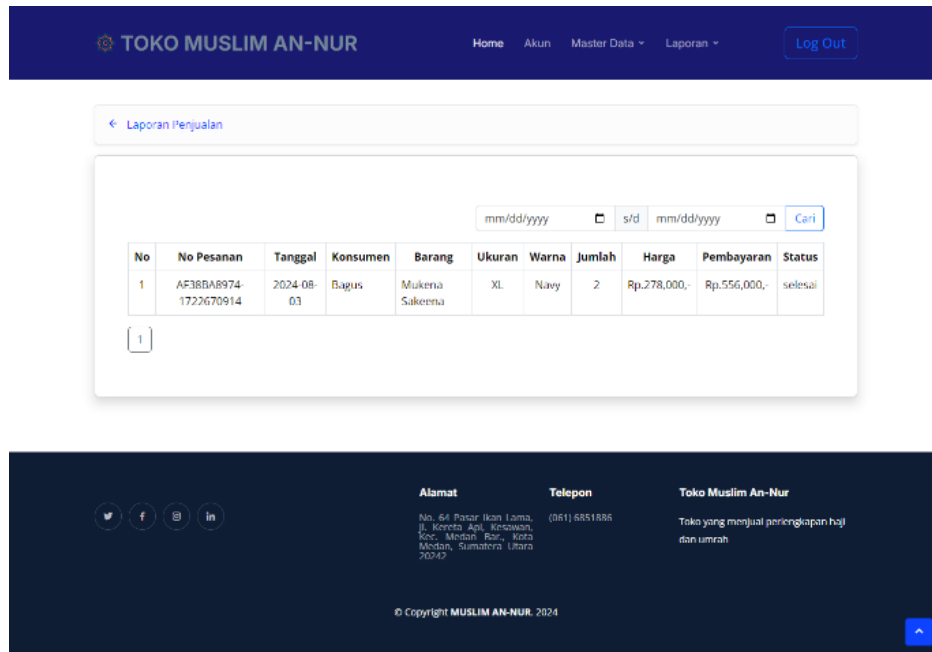


Figure 8. Sales Report Display

9. Return Report

The Returns Report includes information about the items returned by the customer, the reason for the return, and the return processing status. The results can be seen in the following image:

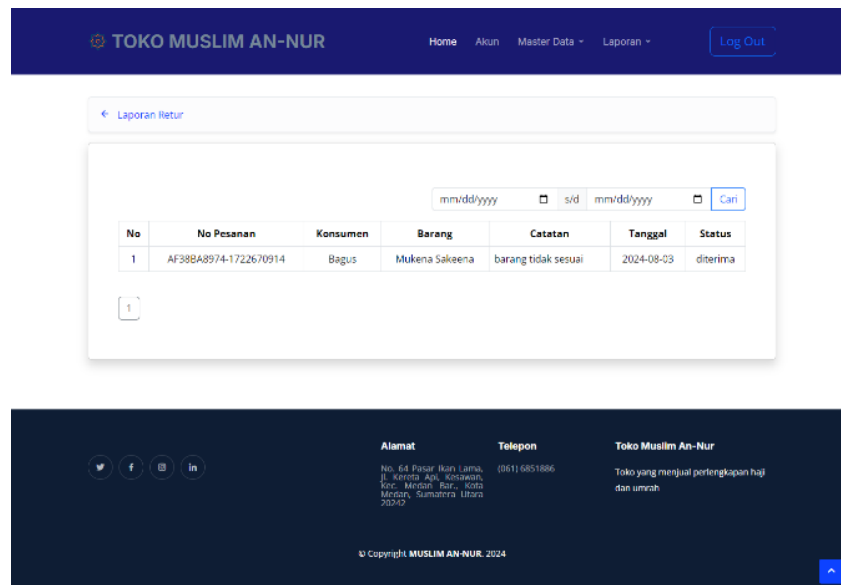


Figure 9. Returns Report Display

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CONCLUSION

Based on the analysis and implementation of the web-based An-Nur Muslim Shop e-commerce application using the Up Selling and Safety Stock method, it can be concluded that this approach is effective in improving the shopping experience for customers and optimizing inventory management. The Up Selling method helps in increasing sales by offering relevant and better products to customers, while Safety Stock helps manage inventory optimally, preventing stock shortages that can disrupt the smooth operation of the store. Implementing an e-commerce system also allows An-Nur Moeslim Shop's to reach a wider market, increase product affordability, and provide more responsive customer service. For future improvements, it is recommended An-Nur Moeslim Shop's continue to monitor and analyze sales and inventory data to improve Up Selling strategies and more precise Safety Stock settings. In addition, it is also necessary to develop a more detailed reporting system, including sales and returns reports, to support better decision making in marketing strategies and inventory management. By continuing to follow technological developments and e-commerce trends, An-Nur Moeslim Shop's can maintain its competitiveness in an increasingly competitive market and continue to increase customer satisfaction.

The Cart screen displays the items that have been selected by the customer for purchase, allowing them to edit quantities or remove items before checkout. The display can be seen in the following image:

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