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# Design of A Website-Based Fruit Seed Sales Information System

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**ABSTRACT**

***Objective:*** *This study aims to evaluate the effectiveness of the "Design of a Website-Based Fruit Seed Information System" in Tulangan District, Sidoarjo Regency, as a technological innovation to enhance agricultural management within the context of globalization and the Industrial Revolution 4.0.* ***Method:*** *The research employed a developmental and testing approach, where 10 users participated in system trials to assess usability, response time, and data accuracy. The system utilized a MySQL database and was evaluated based on service speed, data input success, and user satisfaction.* ***Results:*** *The findings revealed that the average service time was reduced to 5 minutes – significantly faster than manual transactions – with 80% of users successfully entering data and 90% expressing satisfaction with the system's ease of use. The average seller response time ranged between 2–5 minutes, and all transactions were encrypted to ensure data security.* ***Novelty:*** *This study presents an innovative integration of digital technology into the agricultural sector, demonstrating how a web-based system can streamline seed sales, promote digital literacy among farmers, and improve agricultural productivity through efficient information management.*

## INTRODUCTION

In the era of globalization and the Industrial Revolution 4.0, the agricultural sector is increasingly inseparable from technological advances. The adoption of information technology in this sector can have a significant positive impact. One crucial aspect of agriculture is the sale of plant seeds, particularly fruit seeds. High-quality seeds are the main foundation for productivity and quality of agricultural products [1]. Therefore, innovative solutions are needed to optimize the fruit seed sales process, and this is where website-based information systems play a crucial role.

In today's digital era, it's crucial for farmers to leverage information technology to improve the efficiency and effectiveness of sales to the public. One effective solution is to design and develop a web-based information system tailored to farmers' needs. With a web-based application, farmers can manage sales data, reach more consumers, and provide various other benefits in a more structured and accessible way.

The case study in this research is a fruit seedling seller in Tulangan District, Sidoarjo Regency. As a micro, small, and medium enterprise (MSME), selling these seeds can provide innovation to the community, although farmers may face various challenges in sales data management and intense competition. Therefore, designing and building a dedicated application for selling fruit seeds is a relevant and strategic step to improve performance and sales [2].

The positive impact of this information system design is felt not only by business owners but also by the wider community. The availability of high-quality fruit seeds can increase overall agricultural productivity. Furthermore, this application can be a catalyst for improving the welfare of farmers and business owners in the agricultural sector, thereby creating a positive social impact.

With all its potential and benefits, implementing this information system is not only a necessity but also a breakthrough that supports positive transformation in the agricultural sector. The combination of information technology and agriculture provides a concrete example of how technological advancements can permeate various sectors of life, bringing benefits to many parties, and opening the door to a more sustainable and modern future.

Through this research, entitled "WEB-BASED FRUIT SEEDLING SALES INFORMATION SYSTEM," it is hoped that a better understanding of the importance of integrating information technology in the agricultural sector will be fostered and that it will inspire other farmers to adopt a similar approach to improve the quality and accessibility of sales at the local level [3]. Thus, developing a web-based information system for fruit seedling sellers is not only an academic project, but also a strategic step in increasing better and more inclusive fruit seedling sales.

## RESEARCH METHOD

Observation is a data collection technique carried out by directly observing the research subject/object [4]. Observations are carried out to obtain information that actually occurs by conducting direct observations on site. From the results of the observations carried out, the author obtained information in the form of systems implemented by farmers still using manual systems, for example data recording and sales at the Tulangan market.

Data collection uses documentation and interview methods, namely by collecting data from each type of fruit seeds sold periodically and monitoring how the fruit sales system runs within a period of approximately 15 working days.

A research method is a way to solve problems or develop knowledge using systematic and logical scientific methods [5]. This research uses the Waterfall Model. The stages involved in the Waterfall Model include data analysis, website design, coding using the Code Igniter 3 framework, system testing, and system completion.

The software development method is a framework used to structure, plan, and control the development process of an information system [6]. The method used by the author is the waterfall method. The waterfall method is a method that provides a sequential or ordered software lifecycle approach. One of the frameworks used in creating this final project is Codeigniter. The author used the Codeigniter framework because it eliminates the need to code from scratch, making the work process faster. CodeIgniter has the fastest execution compared to other frameworks [9].

## RESULTS AND DISCUSSION

### 1. System Design

To facilitate the design or construction of a system, it is necessary to design a flowchart, use case diagram, and activity diagram so that the system can be built in a sequential manner.

a. Flowchart

A flowchart is a graphical representation of the steps and sequence of procedures in a program [10].

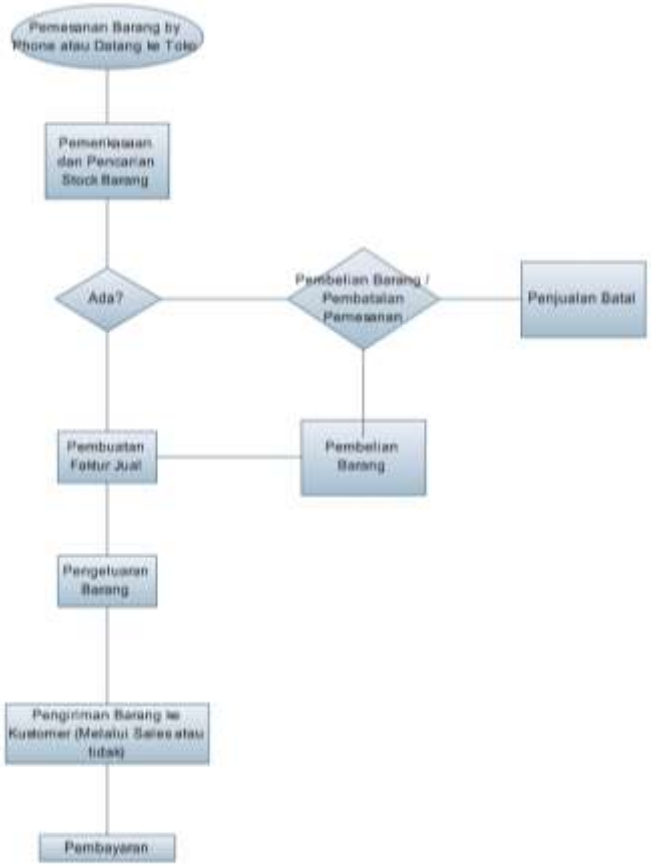


**Figure 1.** Flowchart

The process begins with a user making a purchase. The system will identify the buyer's details. If registered, the user will be directed to the homepage to make a purchase. The system will calculate the purchased item. Once the calculation is complete, the user will receive proof of purchase from the system.

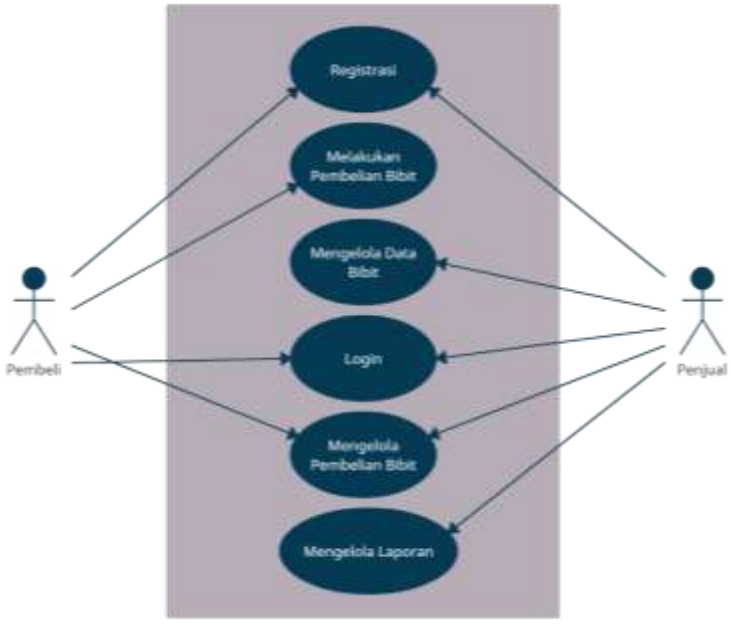


**Figure 2.** Usecase Diagram

The usecase diagram above shows that there are two users connected to the system: the Seller and the Buyer [11]. Each user has a different role. Figure 3 illustrates the flow of each user's role within the system.

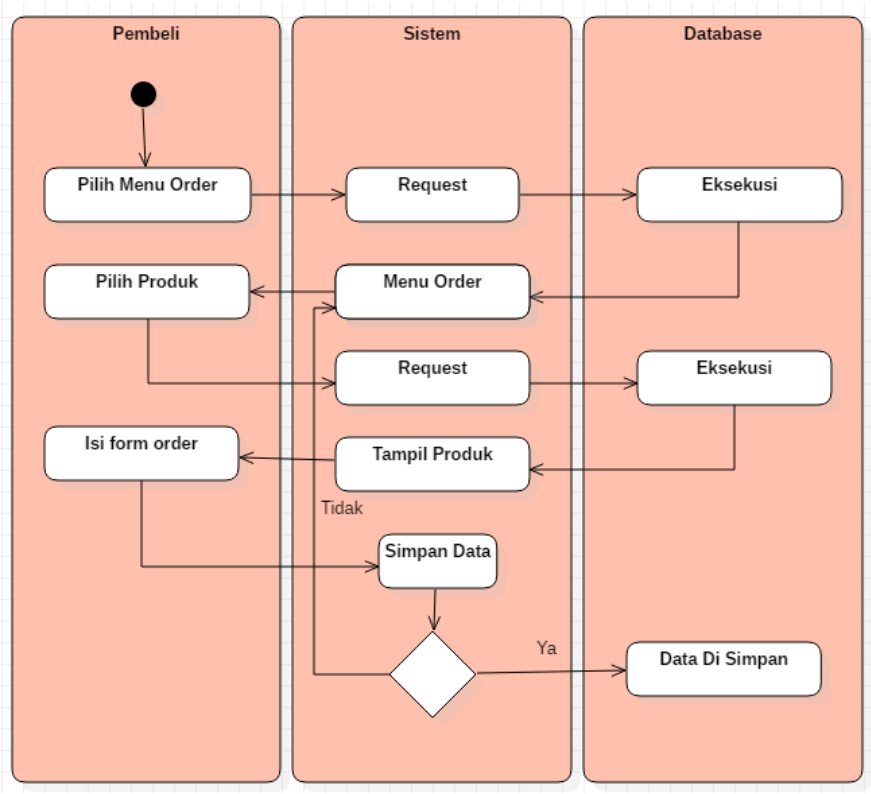


**Figure 3.** Activity Diagram

## 2. System Implementation

To clarify the design of the application system created by the author, it will be explained in each display, below is a picture of the application display:

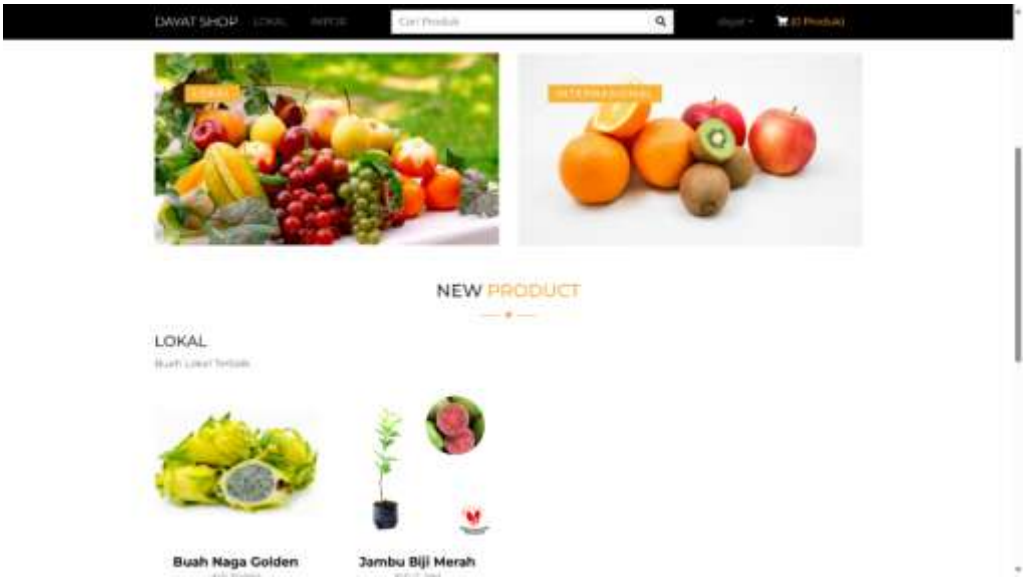


**Figure 4.** Home View

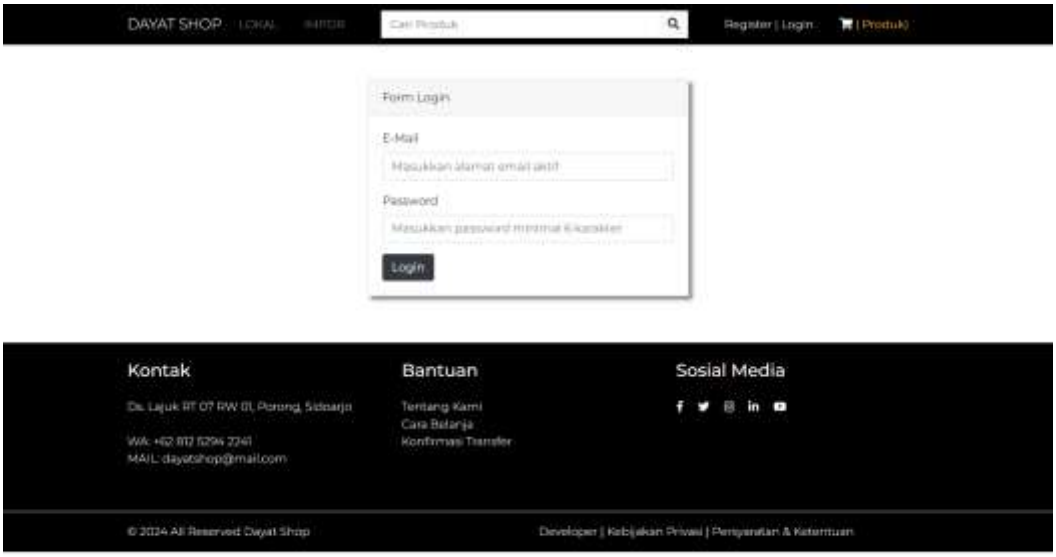


**Figure 5.** Login View

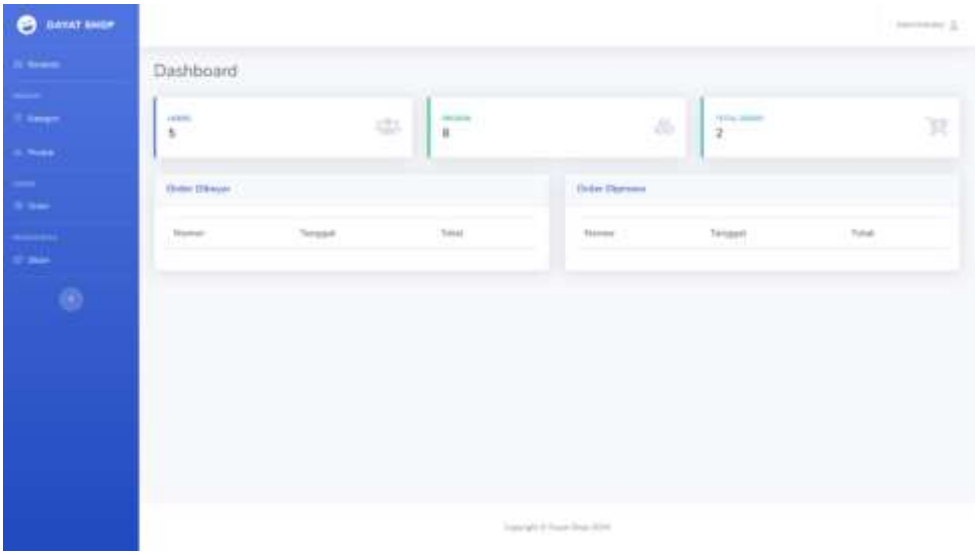


**Figure 6.** Seller Dashboard View

The dashboard features several features, including categories, products, and orders. Sellers can change the order entry status whenever a buyer enters a listing and can also delete a product if it's out of stock.

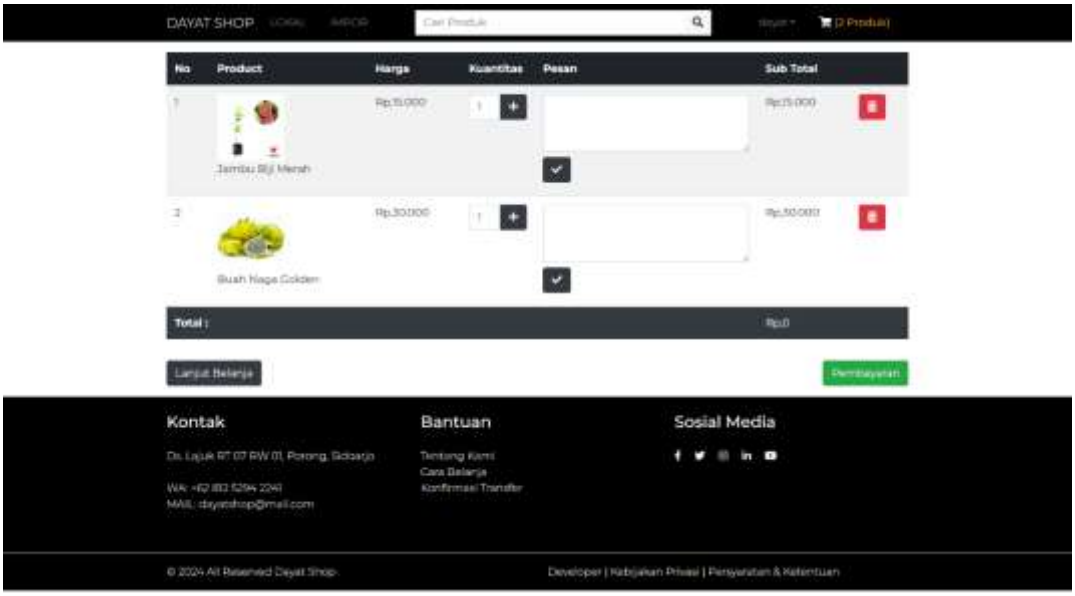


**Figure 7.** Checkout View

On this page, buyers can add and edit items in their shopping list. This feature allows buyers to easily make purchases without having to return to the homepage to search for items. The system will calculate the total cost to be paid once the buyer clicks the payment button. If the system detects any inconsistencies in the entered data, a warning popup will appear when the user is about to leave the page.

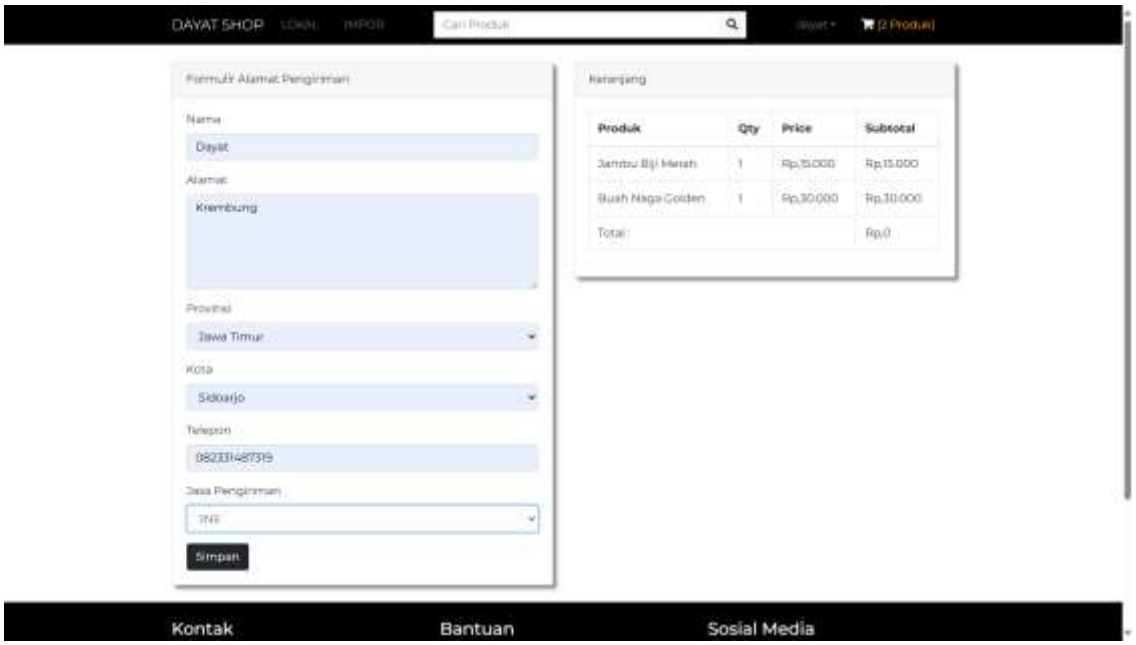


**Figure 8.** Address Filling Display

At this stage, the user will fill in data for the purpose of sending the product that has been purchased.

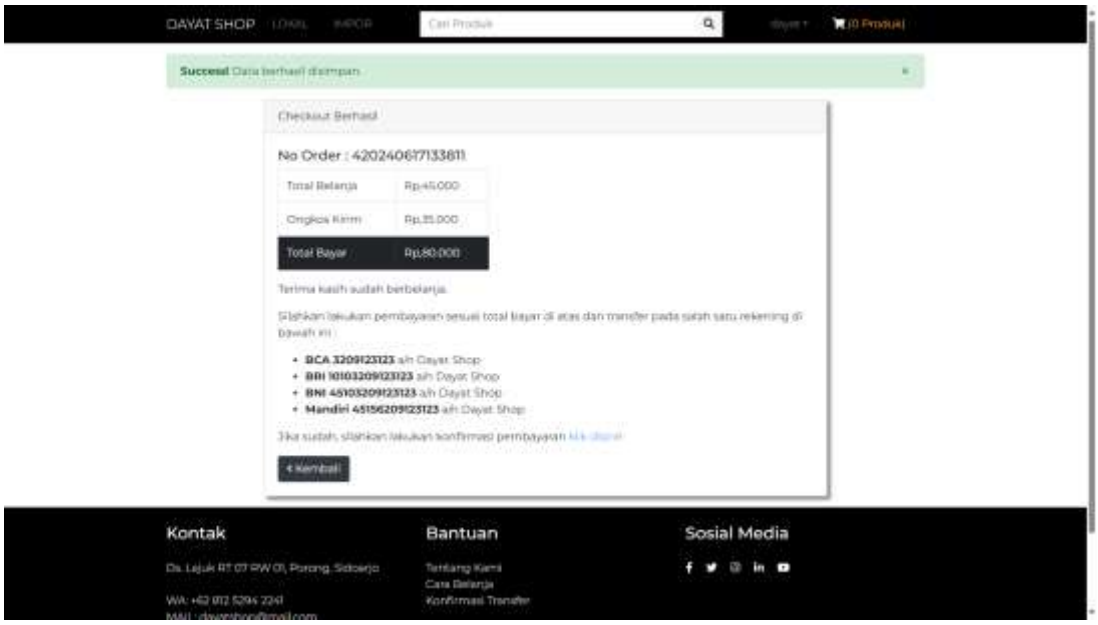


**Figure 9.** Purchase Invoice Display

On this page, users will receive a purchase invoice containing the total amount due and some information about the seller's account. If the buyer fails to transfer the money to the seller with proof of transfer, the seller can forcibly cancel the purchase within a specified time period.

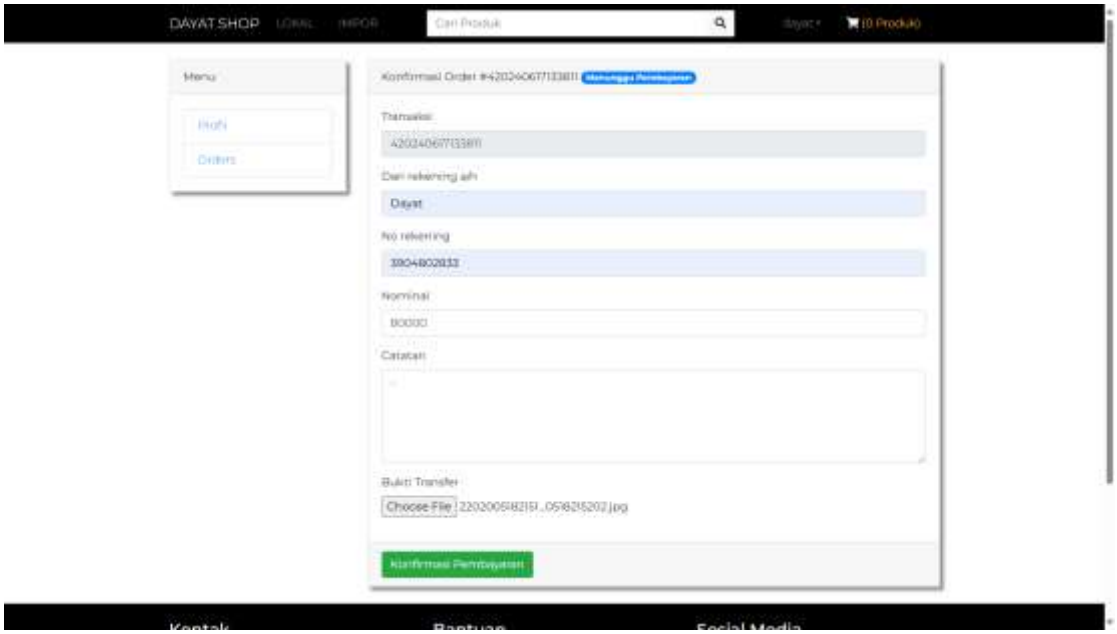


**Figure 10.** Display of Transfer Proof Filling

On this page, the user will enter proof of transfer data according to the amount determined by the system in the previous step. This data will be forwarded to the seller, who will review and process it.

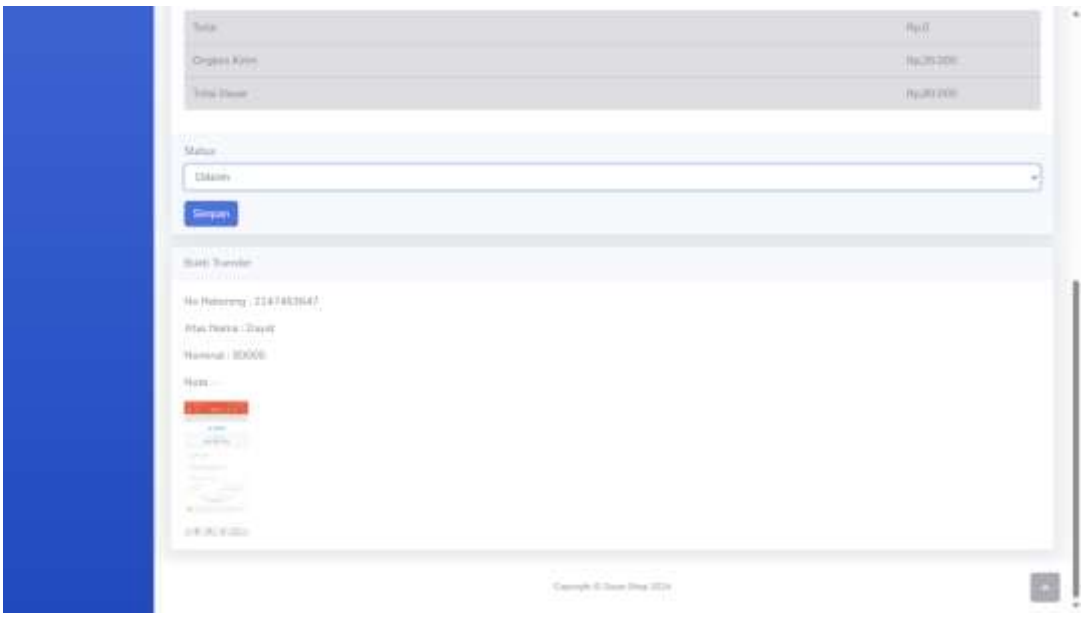

**Figure 11.** Purchase Details Display on the Seller Page

On this page, sellers can change the purchase status. They can also view the buyer's proof of transfer. All proof of transfer will be stored in the database.

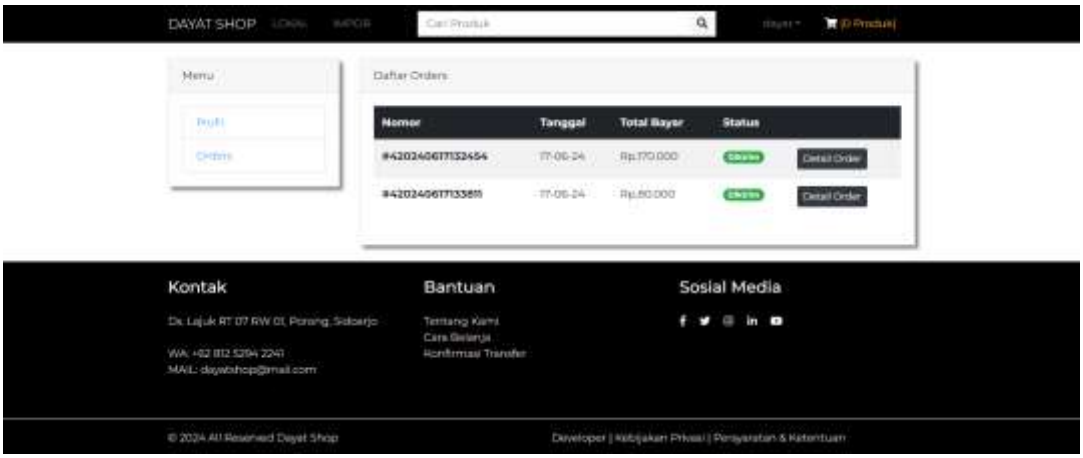


**Figure 12.** Purchase Status Display

Researchers have also conducted website tests that connect sellers with buyers on several respondents who will fill in several statements regarding website features using UAT testing [12].

## CONCLUSION

**Fundamental Finding :** The implementation of the "Web-Based Fruit Seedling Sales Information System" demonstrated a high level of usability and effectiveness, as evidenced by faster transaction times, improved seller responsiveness, and strong user adoption, with 90% of participants expressing satisfaction. The system successfully streamlined the sales process, reduced service time to an average of 5 minutes, and enhanced data input accuracy and transaction efficiency. **Implication :** These results indicate that digital platforms can significantly improve agricultural commerce efficiency, enhance user experience, and promote digital transformation among local

farmers and sellers. **Limitation :** Despite its positive outcomes, the system exhibited technical limitations such as slow performance during peak usage, which could affect user experience and transaction consistency. **Future Research :** Further studies should focus on optimizing system performance under high traffic conditions, integrating mobile-based interfaces, and expanding the system's functionality to include real-time analytics and wider regional implementation to support sustainable agricultural digitalization.

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