

Website-Based Honey Sales and Production Management Information System

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Article History:

Received: 07-08-2026

Revised: 22-09-2026

Accepted: 23-09-2026

Keywords: Information system;
Honey sales; Production
management; Website;

Waterfall;

Abstract : The development of information technology provides opportunities for micro, small, and medium enterprises (MSMEs) to improve the efficiency of business management, including honey production and sales. Madu Sukeri MSME previously managed production records, inventory, customer data, and sales transactions manually, resulting in inefficient administration and an increased risk of recording errors. This study aims to develop a website-based honey sales and production management information system that integrates production, inventory, sales, payment confirmation, and reporting activities while facilitating online ordering. The system was developed using the Waterfall method, which includes requirements analysis, system design, implementation, and testing. The application was implemented using PHP, MySQL, HTML, CSS, JavaScript, and Tailwind CSS. Its main features include product and category management, production and inventory management, customer management, online ordering, payment confirmation, order-status monitoring, and sales and production reporting. System functionality was evaluated using Black Box Testing involving ten main functional scenarios. The test results showed that all tested functions operated according to the specified requirements. The developed system facilitates more structured data management, supports transparent transaction processes, reduces dependence on manual record-keeping, and improves access to sales and production information. This study contributes a practical information system that supports integrated MSME management and encourages more transparent and accountable business transactions in accordance with Islamic business values.

How to Cite:First author., Second author., & Third author. (20xx). The title. Ambidextrous Journal of Innovation Efficiency and Technology in Organizations. 5(2). Pp 352-360
<https://doi.org/10.61536/ambidextrous.v5i02.651>



<https://doi.org/10.61536/ambidextrous.v5i02.651>

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Introduction

The development of information technology has had a significant impact on various business sectors, including Micro, Small, and Medium Enterprises (MSMEs). The use of website-based technology can improve operational efficiency, accelerate data management, and support more accurate decision-making. Digitizing business systems is also one way for MSMEs to increase competitiveness, expand marketing reach, and provide better service to customers (Abdurrohman et al., 2024; Kusumo et al., 2021; Yulianto, 2023; Obor & Indah, 2024).

Madu Sukeri is a small and medium enterprise (SME) engaged in honey production and sales. Its operations still rely on manual recording of production, inventory management, customer data, and sales transactions. This reduces administrative effectiveness, increases the risk of recording errors, and makes it difficult for business owners to monitor stock and prepare sales reports quickly and accurately (Nabawi & Solecha, 2025; Apriana & Nurhasanah, 2021; Obor & Indah, 2024; Purwanto, 2024).

Several previous studies have shown that implementing a website-based information system can improve the effectiveness of sales, inventory, and transaction data management in various types of MSMEs. Website-based systems facilitate real-time information access, reduce manual recording, and improve data accuracy. However, most research focuses on sales systems, while integration between sales processes and production management has not been widely implemented in MSME-scale honey production businesses (Kusumo et al., 2021; Nabawi & Solecha, 2025; Romadhon & Murti, 2025; Purwanto, 2024; Agus et al., 2024).

Based on these issues, a system capable of integrating production and sales processes into a single application is needed. The developed system is expected to assist in the computerized management of production data, material and product inventory, sales transactions, and report preparation. Furthermore, customers can easily view product information, place orders, upload proof of payment, and monitor order status via the website (Abdurrohman et al., 2024; Nabawi & Solecha, 2025; Agus et al., 2024; Andriansyah & Busono, 2024).

This research developed a website-based honey sales and production management application using the Waterfall method. This method was chosen because it has systematic development stages, starting from needs analysis, system design, implementation, testing, and maintenance. The system design was carried out using the Unified Modeling Language (UML), while the application implementation utilized web technology with a database as the information storage medium (Kusumo et al., 2021; Apriana & Nurhasanah, 2021; Romadhon & Murti, 2025; Yulianto, 2023; Andriansyah & Busono, 2024).

The expected outcome of this research is an application capable of integrating honey production and sales management into a single system, thereby improving the operational effectiveness of the Madu Sukeri MSME. In addition to simplifying administration and reporting, this application is also expected to improve the quality of customer service through faster, more accurate, and more accessible transaction processes.

Literature review

Information Systems

An information system is a collection of interacting components that collect, process, store, and present information to support operational processes and decision-making within an organization. Implementing information systems in MSMEs can improve data management efficiency, reduce recording errors, and accelerate the delivery of information to users. In this study, an information system was used to integrate honey production, inventory management, and sales processes so that all data can be managed centrally (Abdurrohman et al., 2024; Kusumo et al., 2021; Yulianto, 2023; Pratama et al., 2024).

Website

Website An internet-based medium that can be used to convey information and provide various online services. In business, websites serve not only as a promotional medium but also as a means of conducting transactions, managing customer data, and presenting product information. The use of websites in sales systems makes it easy for customers to access product information and make transactions at any time, regardless of time and location (Romadhon & Murti, 2025; Kusumo et al., 2021; Obor & Indah, 2024; Petrus et al., 2024).

Production and Sales Management

Production management is an activity aimed at managing the production process effectively and efficiently, from planning and controlling raw materials, through the production process, to producing ready-to-sell products. Meanwhile, the sales system manages transactions, customer data, payments, and sales reports. Integrating these two processes into a single information system can improve operational effectiveness, simplify inventory control, and produce more accurate and timely reports (Abdurrohman et al., 2024; Nabawi & Solecha, 2025; Purwanto, 2024; Andriansyah & Busono, 2024).

Unified Modeling Language (UML)

Unified Modeling Language (Universal Modeling Language) is a standard modeling language used to describe the requirements, structure, and behavior of a software system. UML assists developers in designing a system before implementation. The diagrams used in this study include Use Case Diagrams, Activity Diagrams, Sequence Diagrams, and Class Diagrams to model the functions and workflow of a honey sales and production management application (Romadhon & Murti, 2025; Agus et al., 2024).

MySQL

MySQL is a relational database management system (RDBMS) that uses SQL (Structured Query Language) to manage data. MySQL is widely used in web-based application development because it is open source, lightweight, and has good performance in handling large amounts of data. In this study, MySQL is used as a data storage medium for data such as product data, sales transactions, customer data, and production reports so that data can be accessed and managed in a structured and efficient manner (Romadhon & Murti, 2025; Kusumo et al., 2021; Agus et al., 2024; Fitriyanto & Fitriani, 2024).

Waterfall Method

The Waterfall method is a software development model that is carried out in stages and sequentially. The stages in this method include requirements analysis, system design, implementation, testing, and maintenance. This approach was chosen because it has a systematic development flow, simplifying the documentation process and producing software that meets user needs (Abdurrohman et al., 2024; Kusumo et al., 2021).

Research methodology

Data collection

Data collection was conducted to obtain the information needed to develop a website-based honey sales and production management application. Data were obtained through direct observation at the Madu Sukeri MSME to understand the ongoing business processes, interviews with the business owner to determine system requirements and challenges faced, and literature review from books and scientific journals related to information systems, website-based sales, production management, and the Waterfall method. The results of the data collection served as the basis for the system requirements analysis process.

Needs Analysis

The system requirements analysis was conducted based on observations, interviews, and literature review. This stage aims to identify the system's functional and non-functional requirements so that the developed application can address the problems faced by the Madu Sukeri MSME. Functional requirements include product data management, production management, sales transactions, customer management, payment confirmation, and report generation. Meanwhile, non-functional requirements encompass ease of use, data security, and system performance.

System Development

System development uses the Waterfall method which consists of the stages of needs analysis, system design, testing. This method was chosen because it has a systematic workflow so that each stage can be completed sequentially and produces a system that meets user needs.

System Design

Design system done using Unified Modeling Language (UML). In addition, database and user interface design is carried out as a reference in the application implementation process.

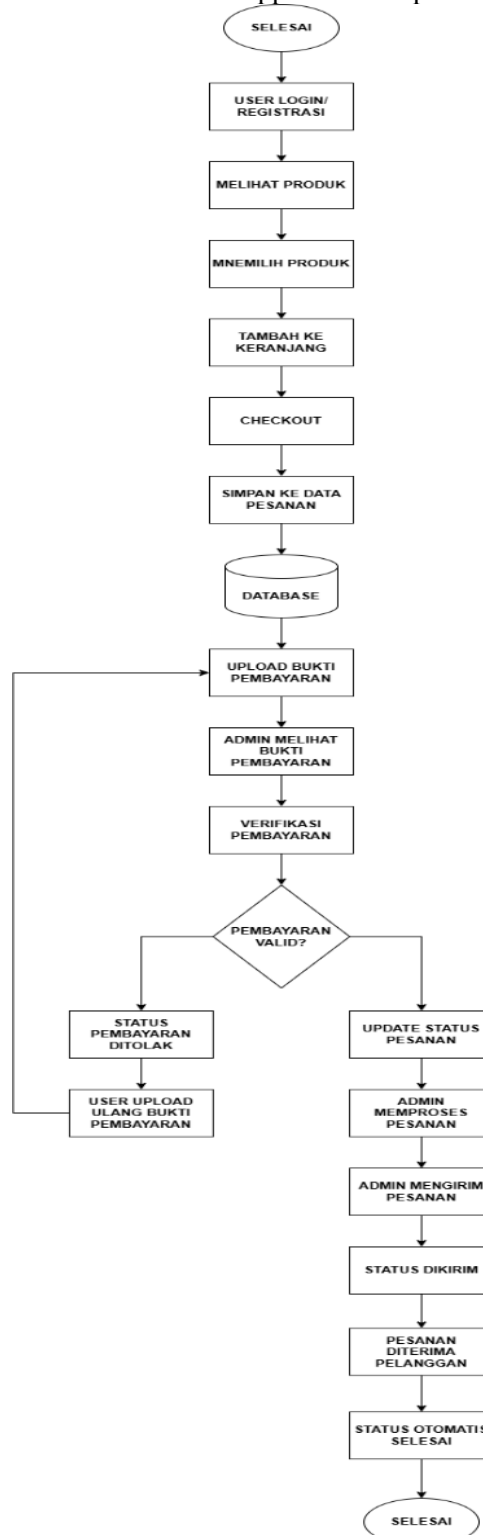


Figure 1. System Flow Chart

Figure 1 shows the proposed system flow. The process begins when a user logs in or registers, then views and selects a product, adds it to their cart, and checks out. The order data is then saved to the database, and the user uploads proof of payment. The admin will then review and verify the proof of payment. If the payment is invalid, the payment status will be rejected, prompting the user to re-upload the proof of payment. Conversely, if the payment is valid, the order status will be updated, and the admin

will then process and ship the order until the status changes to completed after the order is received by the customer.

System Testing

System testing was conducted using the Black Box Testing method to ensure every application function operates according to user requirements. Testing was conducted on all key features, including the login process, product data management, production management, sales transactions, payment confirmation, and report generation. The test results demonstrated that all system functions operated according to the designed scenarios, thus declaring the application fit for use.

Results and Discussion

System Implementation

The research results in a website-based honey sales and production management application developed to support the activities of the Madu Sukeri MSME. The system has two main users: the admin and the customer. The admin can manage category, product, production, order, payment, customer, and report data, while the customer can register, log in, view products, place orders, upload proof of payment, and monitor order status.

1. Login Page

The login page serves as the user's initial access to the system. Users enter their registered username and password. The system validates the data and directs the user to the appropriate page for their access rights. The user dashboard page is shown in Figure 2.

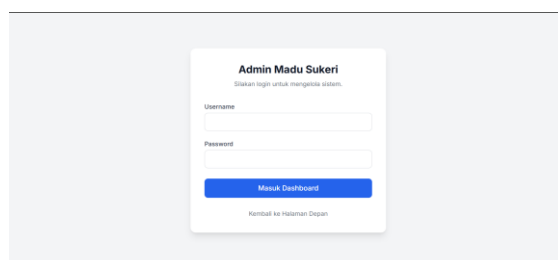
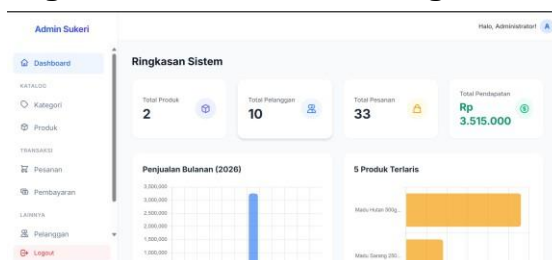


Figure 2. Admin Login Page

2. Admin Dashboard Page

The admin dashboard is the main page used to manage all system activities. This page displays information and menus for managing product data, categories, production, orders, payments, customers, and reports. The dashboard helps admins obtain more structured information about the state of the system's data. The user dashboard page display is shown in Figure 3.

Figure 3. Admin Dashboard Page



3. Product Page

The product page displays information about available honey products. Admins can add, edit, and delete product data, as well as manage information such as product name, category, price, stock, and image. For customers, the user dashboard page is shown in Figure 4.

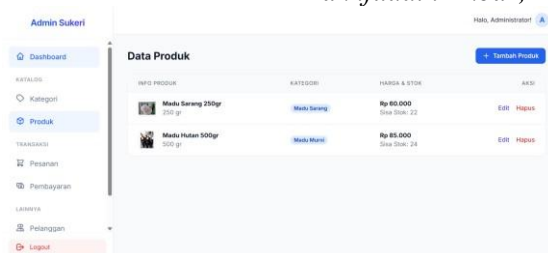


Figure 4. Product Page

4. Order and Checkout Page

The order page allows customers to select products and add them to their cart. Once selected, customers can proceed to checkout by filling in the required information. The system then saves the order data and displays the transaction details. The user dashboard page is shown in Figure 5.

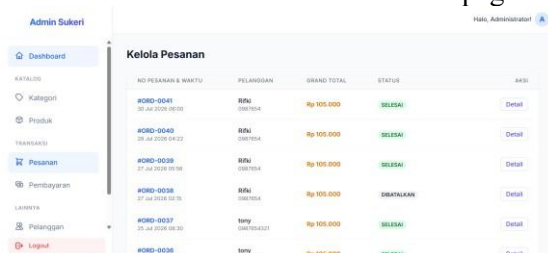


Figure 5. Order and Checkout Page

5. Payment Confirmation Page

The payment confirmation page allows customers to upload proof of payment after placing an order. The submitted payment details can then be reviewed by the admin. The admin can verify the proof of payment and update the order status accordingly. The user dashboard page display is shown in Figure 6.

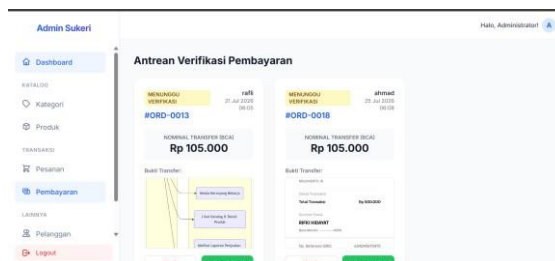
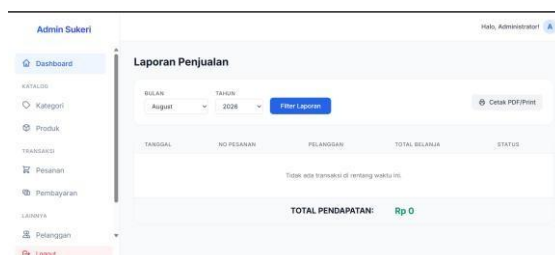


Figure 6. Payment Confirmation Page

7. Report Page

The report page is used to display sales and production information stored in the system. This information can help administrators monitor business activities and track transaction history. Computerized reporting also simplifies the process of recording and managing business information. A preview of the report page is shown in Figure 7.



System Testing

System testing was conducted using the Black Box Testing method to determine whether the application's functions meet the specified requirements. Testing was conducted by providing input for

each feature and then observing the system's output. A table of system functionality is shown in Table 1.

Table 1. System Testing Table

No.	Tested Features	Testing Scenario	Expected results	Test Results	Status
1	Login	User enters valid username and password	The system displays pages according to user access rights.	Successfully logged in to the admin/customer dashboard	Succeed
2	Manage Products	Admin adds, changes, and deletes product data	Product data is stored, updated, and deleted correctly	All functions work as expected	Succeed
3	Manage Production	Admin adds honey production data	Production data is saved and stock is updated	Production data saved successfully	Succeed
4	Product Ordering	Customer selects product and adds to cart	The product goes into the shopping cart	Product added successfully	Succeed
5	Checkout	Customers fill in their order details and check out.	Order data is stored in the system	Order successfully created	Succeed
6	Payment Confirmation	Customer uploads proof of payment	Proof of payment is stored in the system	Proof of payment successfully uploaded	Succeed
7	Payment Verification	Admin verifies proof of payment	Payment status is updated according to verification results	Payment status updated successfully	Succeed
8	Manage Customers	Admin views customer data	Customer data is displayed correctly	Customer data successfully displayed	Succeed
9	Sales report	Admin opens sales report	Sales reports are displayed according to transaction data	Report displayed successfully	Succeed
10	Production Report	Admin opens production report	Production reports are displayed according to production data	Report displayed successfully	Succeed

Discussion

The implementation results show that the developed application meets the primary needs for production and sales management at the Madu Sukeri MSME. The system is able to integrate product management, production, sales transactions, payment confirmation, and report preparation into a single website-based application. This integration makes the administrative process more structured because all data is stored in a database and can be accessed for operational and reporting purposes.

Production and inventory data management is a crucial aspect of the system being developed. Admins can record production results, manage product data, and monitor stock availability in a computerized manner. Furthermore, the system provides a sales transaction feature that allows customers to view product information, place orders, and upload proof of payment online. Integration between production and sales processes makes it easier for administrators to manage all business activities through a single, interconnected system.

Test results using the Black Box Testing method indicate that all of the application's main functions operate according to functional requirements. Testing was conducted on user authentication, product management, production management, sales transactions, payment confirmation, and report generation. Based on the test results, all features successfully executed according to the predetermined scenario, thus declaring the application suitable for use in supporting the operational activities of the Madu Sukeri MSME.

Compared to previous research that developed a website-based sales information system, this study focuses not only on the sales process but also integrates production management into a single application. The developed system is able to connect production processes, inventory management, sales

transactions, and report generation in an integrated manner. Thus, the system can help reduce manual record-keeping, improve data accuracy, and simplify business activity monitoring.

However, the developed application still has several limitations. The system is not equipped with automatic sales analysis features or production requirement predictions based on transaction history. Furthermore, the testing conducted in this study was limited to functional testing using the Black Box Testing method, thus not covering in-depth usability, performance, or security aspects of the system. Therefore, further development could consider adding sales analysis features, stock predictions, and usability and security testing to improve the application's quality.

Conclusion

Based on the results of the research and discussion that has been carried out, it can be concluded that:

1. A website-based honey sales and production management application has been successfully developed to support the production, sales, and administration processes of the Madu Sukeri MSME. The system provides product management, production management, sales transactions, payment confirmation, customer management, and reporting features in one integrated application.
2. The system was developed using the PHP programming language with support for HTML, CSS, and JavaScript for the interface, and MySQL as the database management system. This technology integration supports computerized management of product data, production, transactions, and reports.
3. Black Box Testing results indicate that all of the application's main functions, including user authentication, product management, production management, sales transactions, payment confirmation, and report generation, operate as expected. This demonstrates that the application meets user functional requirements.
4. The developed application is able to increase the effectiveness of production and sales management by reducing manual recording processes, simplifying data management, and producing more accurate and structured information so that it can support operational processes and decision-making at the Madu Sukeri MSME.
5. Further development can be done by adding sales analysis features, stock requirement predictions, automatic notifications to customers, as well as testing usability, performance, and system security to improve the quality and reliability of the application.

Thank-you note

The author would like to thank Majapahit Islamic University, particularly the Faculty of Engineering and the Informatics Study Program, for their support during the research. He also thanks his supervisor for his guidance and direction, and all those who assisted in the development of the Website-Based Honey Sales and Production Management Information System, leading up to the preparation of this article.

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