

Sales Application Using Point of Sales System Method in Coffee Shop Management System

Nurlianti^{1*}, Ade Hastuty¹, Mughaffir Yunus¹, Marlina¹, and Andi Wafiah¹

¹Teknik Informatika, Universitas Muhammadiyah Parepare, Parepare, Indonesia

*Corresponding Author Email: 219280104.nurlianti@gmail.com

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Abstract: The development of information technology requires businesses to shift from manual systems to more efficient digital management. However, Mentuanging Coffee still runs sales processes and reports manually, making them prone to errors, delays in data processing, and difficulties in monitoring stock. This condition indicates the need for an integrated sales system that can support operational activities more accurately and structurally. This study aims to design and develop a sales application based on a Point of Sales (POS) system using the PHP programming language as a solution to automate transaction processes, inventory management, and sales reporting. The research methods used include needs analysis, an object-oriented approach, application implementation, and testing using the Black Box method to ensure all functions run according to specifications. The results show that the developed application is able to process transactions, improve recording accuracy, and generate reports in real time.

Keywords: Sales Application; Point of Sales System; Coffee Shop Management; PHP Programming.

1. Introduction

The increasingly rapid development of information technology has encouraged various business sectors to adapt and utilize digital systems in carrying out operational activities [1]. This transformation not only accelerates work processes but also improves accuracy and efficiency in data management, thereby directly enhancing business competitiveness. [2].

In the sales sector, technology is the tool most frequently used to support business needs [3]. Various digital applications and platforms help business actors manage transactions, record customer data, monitor stock, and analyze marketing developments more practically [4].

Management systems in coffee shops are now seen as important to ensure that sales activities run orderly and under control [5]. However, several previous studies have shown that some small businesses still face limitations in

implementing digital systems, because of limited resources, technological competence, or the lack of applications that suit their operational needs [6].

One business that currently lacks a digital sales management system is Mentuanging Coffee, located in Baroko District, Enrekang Regency. Management is still manual, hampering transaction recording, reporting, and daily stock monitoring.

The sales system has become a main pillar in the modern sales world because it can simplify the transaction process and provide accurate sales records [7]. This system allows business owners to make faster decisions based on real-time data. I chose PHP as the primary programming language for its development because of its ability to dynamically process data, manage databases, and build responsive web-based application interfaces. [8]. PHP also allows the integration of sales features, inventory management, and report generation, thus supporting the creation of a complete and easy-to-use sales application [9]. In addition, before being implemented, the system will go through a testing phase using the Black Box method to ensure that all functions run as needed so that the application is ready to use and can support operational activities optimally[10].

This research proposes the design of a sales management system tailored to the operational needs of Mentuanin Coffee. The approach used is designed to be easy to understand and efficient and supports structured data management to improve service quality and business performance.

Based on the description, this study aims to develop a sales management system that can help Mentuanin Coffee in optimizing transaction processes, recording, and data management so that operational activities can take place more regularly and effectively.

2. Material and methods

The research method used is the development research method (developmental research) using qualitative and quantitative approaches [11]. A qualitative approach is used to understand user needs and evaluate their experiences. A quantitative approach is used to measure improvements in transaction efficiency and accuracy.

2.1 Location and Time

The location of this research was carried out at Mentuanging Coffee, Baroko District, Enrekang Regency, with a research period of two months to obtain the necessary data at Mentuanging Coffee.

2.2 Data Collection Technique

Data collection is carried out to obtain information that will be used to achieve research objectives. Data collection in this study was carried out using a number of data collection techniques, namely:

1. Conducting interviews with shop owners (Wahyullah) regarding sales processes and financial and inventory report management.
2. Conduct observations to directly see the system currently running.

2.3 System Testing

Black box is a software testing method that assesses the performance of a system based on input and output without looking at the internal structure or program code within it [12].

2.4 The system is running

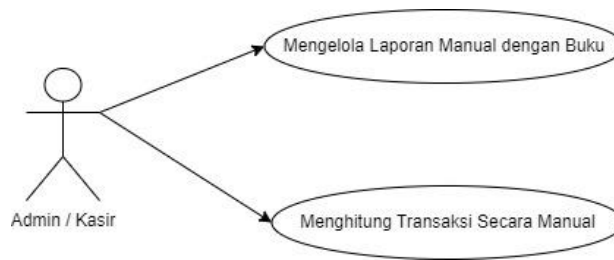


Figure 1. Running System Design

The current system for managing coffee shops involves the admin, who also acts as the cashier, managing sales reports by manually recording them in a book. This bookkeeping method is flawed in that the data is susceptible to damage due to tearing, wet paper, or loss, resulting in the lack of backup files. The sales transaction calculation process is still performed manually, with the cashier adding up the transactions using a calculator. The cashier begins by reviewing the customer's shopping list, then checking the prices listed, and then adding them up with the calculator. This is less effective for customers purchasing large quantities of items, as the process of calculating the total price can be time-consuming, potentially leading to errors

2.5 Proposed System

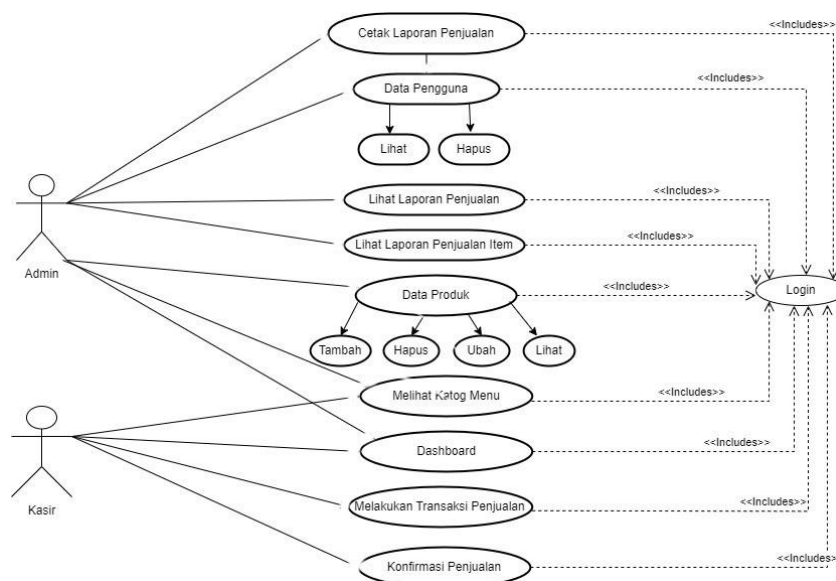


Figure 2. Proposed System Design

The users of this application are divided into three categories: admin, cashier, and buyer. At the admin level, accessible features include the dashboard, which allows viewing and printing sales reports; access to the user data page to view or delete data; viewing sales reports for each item; and access to the product data page, with actions such as adding, deleting, modifying, and viewing products.

At the cashier level, accessible features include the dashboard, viewing the menu catalog, conducting sales transactions, and confirming sales. The workflow for a sales transaction is for the cashier to pick up the purchased item, enter the type, quantity, or variation, and then add it to the transaction cart and calculate the total price. The cashier then selects a payment method (cash, QRIS, card, or e-wallet). The system processes the transaction, prints or sends a receipt, and automatically reduces inventory and records the sales report.

First-time buyers must register (fill in their name, phone number/email, password, etc.), then log in to the system. After successfully logging in, customers enter the dashboard/main page, then select a product or service from the available menu and add it to their cart. Next, the customer checks out, checks the order summary, and then selects a payment method (cash, transfer, card, or e-wallet/QRIS). After payment confirmation, the system will send a notification to the cashier/admin that the order has been received, save the transaction, automatically reduce stock, and display or send a digital receipt to the customer.

2.6 Data Flow Analysis With UML

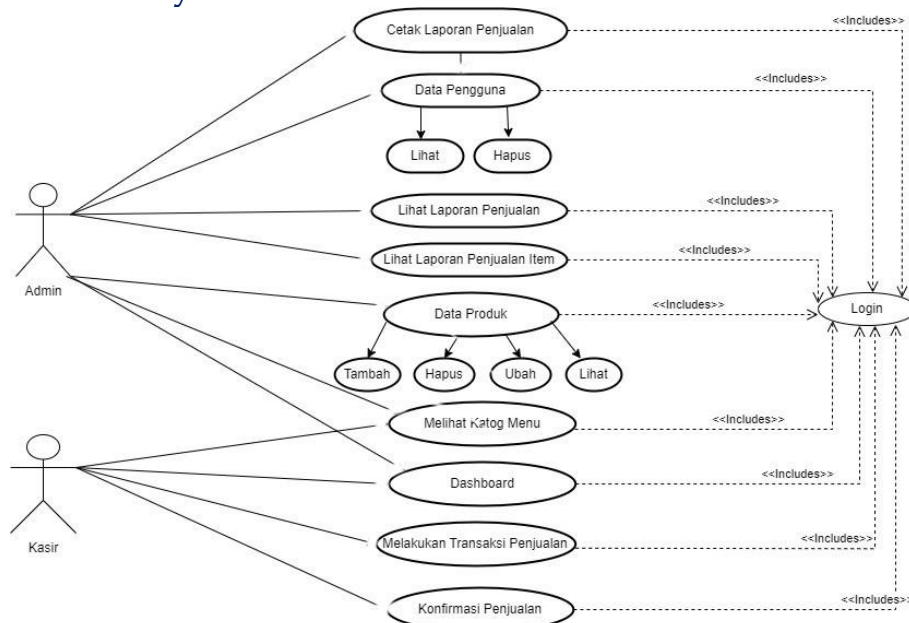


Figure 3. Use Case Diagram

A use case diagram is a UML diagram that visualizes the interaction between actors (users or other systems) and the system being developed, showing the

main functions (use cases) that can be performed by actors in the system to achieve certain goals [13].

Table 1 Admin use case explanation

Use case name	Use case description
Login	Admin must log in to the application to access the features.
Print sales report	Admin can print sales reports
View sales reports	Admin can view sales reports
View item sales report	Admin can view sales reports for each item.
Product data	Admin can perform CRUD actions on the product data menu
View the menu catalog	Admin can view the menu catalog
Dashboard	Admin can access the dashboard page

Table 2 Explanation of cashier use case

Use case name	Use case description
Login	Cashiers must log in to the application to access the features.
View the menu catalog	Cashiers can view the menu catalog
Dashboard	Cashiers can access the dashboard page
Conduct sales transactions	Cashiers can carry out direct sales transactions offline at the store
Sales confirmation	Cashier can confirm sales/transactions

3. Results and discussion

3.1 Account Registration

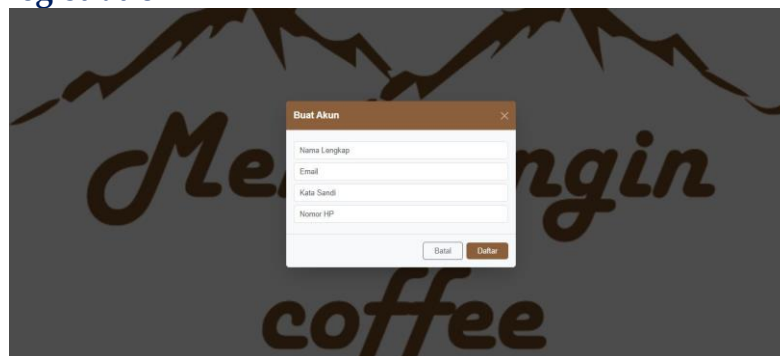


Figure 4. Account Registration

This page is used by customers to register. Users enter their name, email address, mobile phone number, password, and other required information.

After successfully creating an account, customers can immediately log in to the system.

3.2 Login page



Figure 5. login page

This page serves as the initial gateway for admins, cashiers, and customers to access the system. Users must enter a valid email address and password. If the information is correct, the system will direct them to the dashboard based on their access level.

3.3 Admin

3.3.1 Admin Dashboard Page

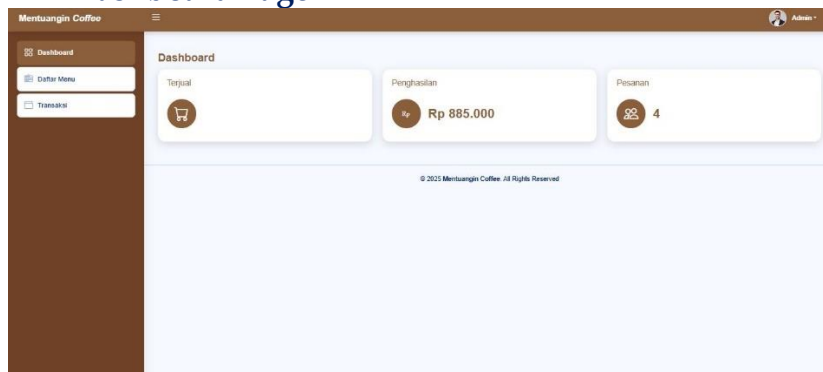


Figure 6. Admin Dashboard Page

The admin dashboard displays a summary of important information such as sales volume, total transactions, and product data. This page provides a quick overview of store operations to assist admins in decision-making.

3.3.2 Admin Transaction Page

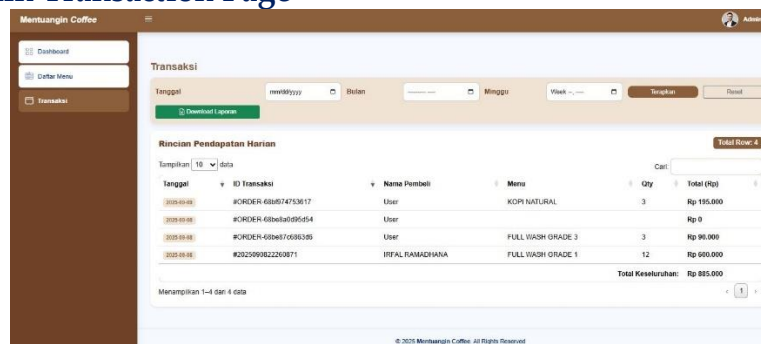


Figure 7. Admin Transaction Page

On this page, admins can view all transactions, browse sales details, and even search by specific date or period. The system also provides daily, weekly, and monthly filters to facilitate sales analysis.

3.3.3 Admin Menu List Page

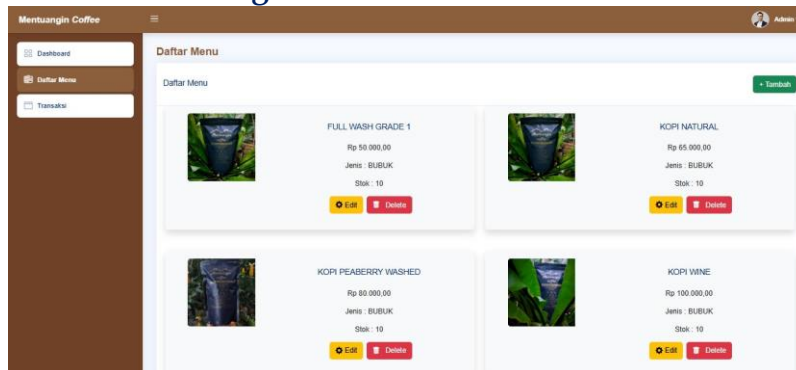


Figure 8. Admin Menu List Page

This page displays the entire menu of products available at the coffee shop. Admins can add, change, delete, and update product data such as menu name, price, image, menu type, and stock. This page serves as a central inventory management center.

3.4 Costumer

3.4.1 Customer Index Page



Figure 9. Customer Index Page

The main page for customers after logging in. On this page, users can view general information, menu navigation, and a list of products offered by the store.

3.4.2 Order Personal Data Page

Figure 10. Order Personal Data Page

Before placing an order, customers will be asked to fill in personal information such as name, contact information, and other necessary information. This information is used to identify the buyer and is recorded in the transaction system.

3.4.3 Order Details Page

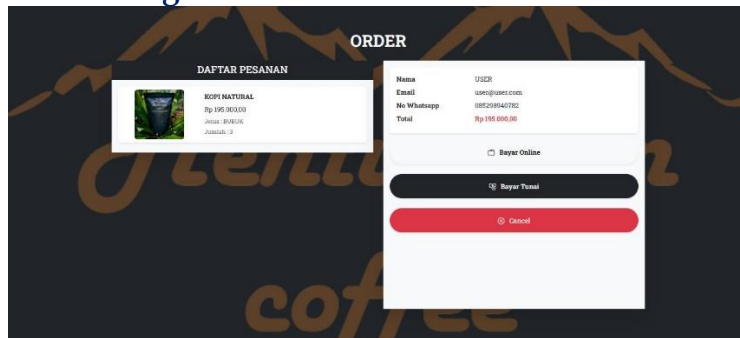


Figure 11. Order Details Page

On this page, customers can view a summary of their selected order, including the menu name, number of items, total price, and payment method options. This page ensures buyers can double-check before proceeding with the transaction.

3.4.4 Shopping Receipt Page



Figure 12. Shopping Receipt Page

After a successful transaction, the system displays a digital receipt. This receipt contains complete order details, total payment, transaction time, and payment status. The receipt can be printed or saved by the buyer.

3.4.5 Customer Menu List Page

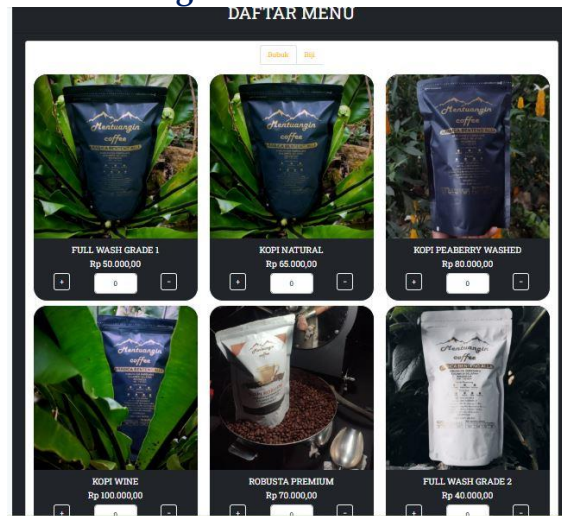


Figure 13. Customer Menu List Page

This page displays the menu that customers can order from. Each item is equipped with an image, price, and menu type so customers can choose more easily. The selected menu will go into the order basket.

3.5 Cashier

3.5.1 Cashier Dashboard Page

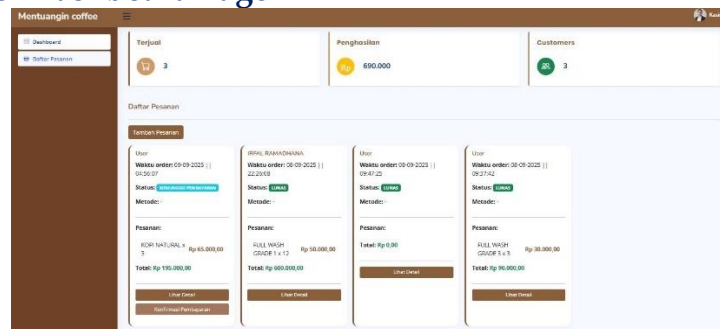


Figure 14. Cashier Dashboard Page

The cashier has a dedicated dashboard that displays the latest transaction information, a list of incoming orders, and quick access to the sales process. This page makes it easy for cashiers to monitor service activity in real time.

3.5.2 Cashier Order List Page

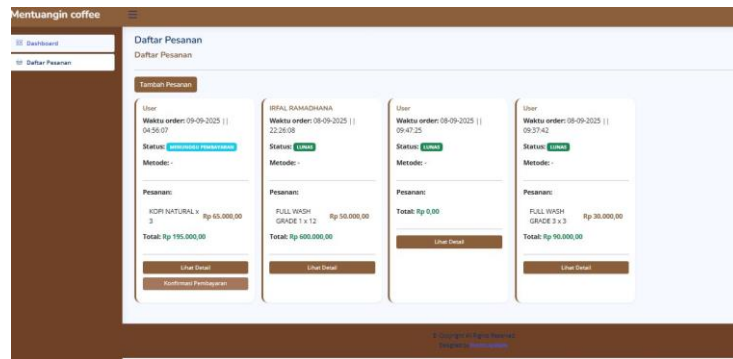


Figure 15. Cashier Order List Page

This page displays a list of orders received from customers. Cashiers can view order details, verify them, and process payments. This feature simplifies coordination between ordering and in-store service. This page displays a list of orders received from customers. Cashiers can view order details, verify them, and process payments. This feature simplifies coordination between ordering and in-store service.

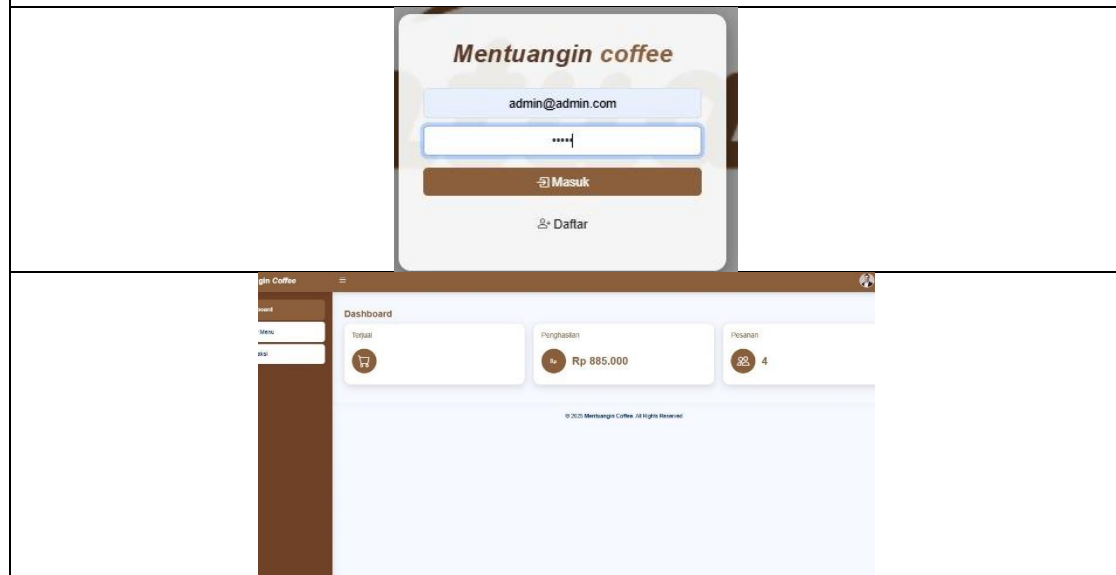
3.6 Black Box Testing

3.6.1 Login form testing

Table 3 Login form testing


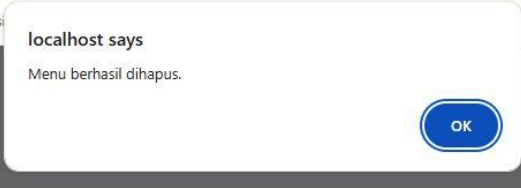


Factor Test	Results	Description
Admin, cashier or user enters the username and password registered in the system.	Succeed	If the username and password do not match, the user remains on the login page. 2. If the username and password match then the user is directed to the dashboard page

Sreen Shoot




3.6.2 Admin Order List Testing

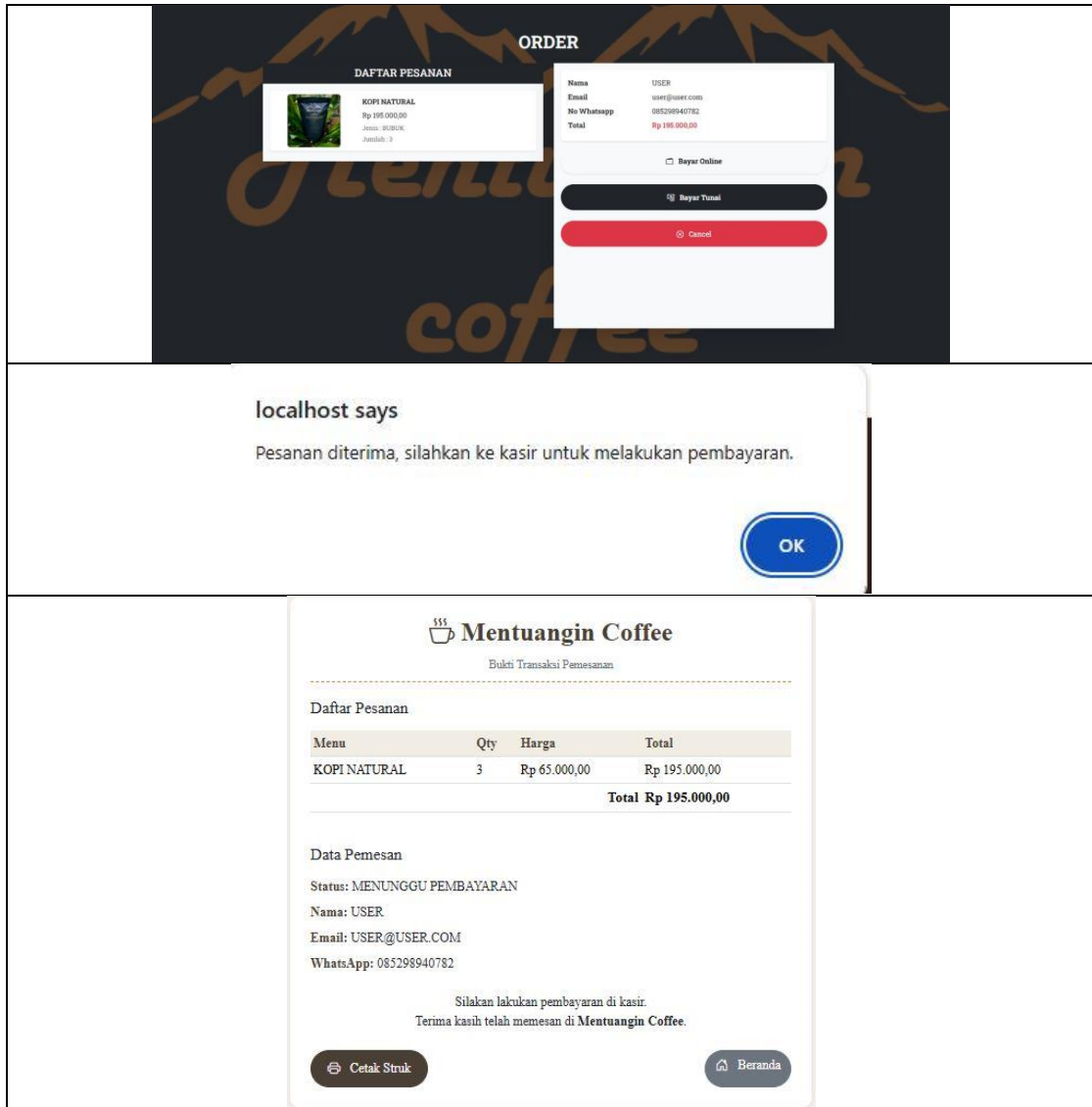
Table 4 Admin Order List Testing

Factor Test	Result	Description
Manage admin list page data including viewing, deleting as well as adding and changing menu data	Succeed	1. Successfully displaying the page when the menu is pressed. 2. Successfully adding data. 3. Successfully deleting or editing the selected data.
Sreen Shoot		
		
		
		
		

3.6.3 Customer Order Testing

Table 5 Customer Order Testing

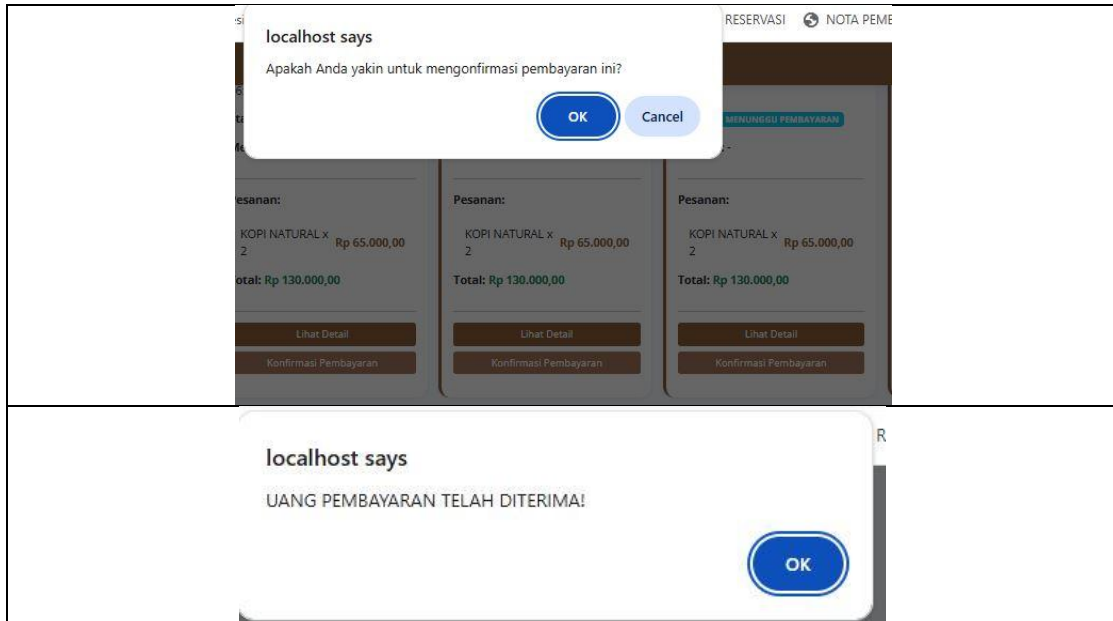
Factor Test	Result	Description
Manage page data Users can place orders with online or cash payment options.i	Success	1. Successfully placed order 2. Successfully displayed shopping receipt.
Sreen Shoot		
		



3.6.4 Testing the cashier payment confirmation page

Table 6 Testing the cashier payment confirmation page

Factor Test	Result	Description
Manage this page data Is admin payment confirmation	Success	Successful payment confirmation
Sreen Shoot		



4. Conclusion

Based on the research and testing results in the previous chapters, the development of a Point of Sales (POS) sales application for coffee shop management demonstrates that the system provides an effective solution for managing transactions and financial reporting. Sales recording can be done in real time. The application also provides important features such as sales recording, inventory management, and the preparation of daily and per-item reports. From a management perspective, the system assists with stock monitoring, transaction monitoring, and the automatic presentation of reports that support data-driven decision-making. Overall, this web-based application has been proven to improve efficiency, transparency, and operational quality at Mentuangin Coffee.

This research recommends the development of graphical sales analysis and stock forecasting features, as well as the expansion of reporting, such as profit and loss analysis and reports per product category. These developments are expected to make the application more comprehensive and modern, enhancing Mentuangin Coffee's efficiency and competitiveness.

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Competing interest

The authors declare no competing interest.

Ethical clearance

This research did not involve human or animal subjects.

AI statement

This article is the author's original work, written from original research and no sections or figures are generated by AI. English is checked using Grammarly and has been verified by the authors.

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