

Designing a Web-Based Cashier Information System at Kedai Santai Cafe and Millennial Resto in Pabuaran

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Kata Kunci:

Sistem Informasi, Metode Prototype, Kasir, Point of Sales.

Abstrak

Perkembangan teknologi saat ini berkembang sangat pesat. Sistem informasi kasir pada restoran sangat penting untuk memenuhi dan memudahkan kinerja kasir. Oleh karena itu penulis melakukan penelitian ini, Kedai Santai Cade dan Resto Milenial. Penelitian ini bertujuan untuk mengetahui aktivitas dan permasalahan apa saja yang terjadi pada saat melakukan transaksi pembayaran dan bertujuan untuk mengurangi jumlah kerugian restoran pada saat menghitung total kerugian pelanggan. Penelitian ini menggunakan analisis observasional dan wawancara. Metode perancangan yang digunakan adalah dengan menggunakan Metode Prototype sebagai landasan dalam merancang sistem informasi kasir yang sesuai dengan kebutuhan restoran dalam pengelolaan transaksi pembayaran. Hasil dari penelitian yang dilakukan adalah merancang sistem informasi kasir berbasis web pada casual cafe dan restoran milenial untuk memudahkan kinerja kasir dan mengurangi kerugian yang terjadi pada proses transaksi pembayaran manual. Penelitian ini dapat disimpulkan bahwa teknologi harus dikembangkan. Teknologi dapat membantu proses kinerja dan aktivitas seseorang seperti Sistem Informasi Kasir yang membantu kinerja seorang kasir dalam melakukan transaksi pembayaran dengan pelanggan.

Key Word:

Information System, Prototype Method, Cashier, Point of Sales.

Abstract

Today's technological development is developing very rapidly. The cashier information system in restaurants is very important to meet and facilitate the performance of cashiers. Therefore, the author conducted this study, Kedai Santai Cade and Resto Milenial. This study aims to determine what activities and problems occur when making payment transactions and aims to reduce the number of restaurant losses when calculating total customer losses. This study used observational analysis and interviews. The design method used is to use the Prototype Method as a foundation in designing a cashier information system that suits the needs of restaurants in managing payment transactions. The result of conducting this research is to design a web-based cashier information system at casual cafes and millennial restaurants to facilitate cashier performance and reduce losses incurred in the manual payment transaction process. This research can be concluded that technology must be developed. Technology can help process one's performance and activities such as the Cashier Information System which helps the performance of a cashier in making payment transactions with customers.

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INTRODUCTION

The rapid development of technology today aims to facilitate users in completing tasks within information systems. This technology enables various activities, both in daily life and work, to be carried out more efficiently. Information systems, which combine technology and organizational resources, play a crucial role in processing data into information to achieve specific goals. One significant application of information systems is in sales activities. For example, a cashier information system can help organizations manage sales data and transactions accurately, streamline accounting processes, and enhance productivity and operational efficiency (Laudon & Laudon, 2020; Stair & Reynolds, 2021).

Kedai Santai Café and Resto Milenial, a culinary business in Pabuaran, still uses manual methods in its services, from recording orders to managing stock and processing payments. This often leads to errors in order entry and billing calculations, as well as inaccuracies in financial reports. Therefore, the design of a web-based cashier information system is proposed to improve the efficiency and accuracy of sales processes. This system

will aid in stock management, recording sales transactions, and preparing detailed financial reports. Thus, the implementation of a web-based cashier information system is expected to increase efficiency, reduce operational costs, and enhance customer satisfaction at Kedai Santai Café and Resto Milenial (O'Brien & Marakas, 2018; Turban et al., 2018).

Laudon and Laudon (2020) emphasize the crucial role of information systems in enhancing the efficiency and effectiveness of business operations. They argue that information systems facilitate better decision-making, streamline business processes, and improve overall productivity. In the context of a café or restaurant, implementing an information system can significantly reduce errors in order processing, improve inventory management, and enhance customer satisfaction by providing timely and accurate service.

Stair and Reynolds (2021) highlight that information systems are integral to modern business practices, particularly in managing transactions and data. They discuss the advantages of automated systems in reducing manual errors and providing real-time data for better management decisions. In a café setting, a web-based cashier system can automate sales transactions, track inventory levels, and generate detailed financial reports, thus streamlining operations and reducing operational costs.

O'Brien and Marakas (2018) discuss the role of information systems in creating competitive advantages for businesses. They explain that these systems enable businesses to respond quickly to market changes and customer demands. For Kedai Santai Café and Millennial Resto, a web-based cashier system can provide real-time insights into sales trends, customer preferences, and inventory status, allowing the business to make informed decisions and stay competitive.

Turban et al. (2018) explore the benefits of web-based systems in managing business operations. They argue that web-based systems offer accessibility, scalability, and integration with other technologies. For a café, a web-based cashier system can provide access to sales data from any location, support multiple users simultaneously, and integrate with other systems such as online ordering and delivery services.

Romero and Vernadat (2016) discuss the evolution of enterprise information systems and their impact on business efficiency. They highlight the transition from traditional to web-based systems, emphasizing the increased flexibility and reduced costs associated with web-based solutions. Implementing a web-based cashier system in Kedai Santai Café can reduce the need for physical infrastructure and maintenance, leading to cost savings and operational efficiency.

Chaffey and White (2019) examine the strategic role of information systems in business performance improvement. They emphasize the importance of real-time data and analytics provided by web-based systems. For Kedai Santai Café, a web-based cashier system can offer real-time sales tracking, inventory management, and financial reporting, enabling the business to optimize operations and enhance customer service.

Valacich and Schneider (2020) provide case studies on the implementation of information systems in various business contexts. They discuss how businesses have leveraged these systems to improve operational efficiency and customer satisfaction. In a café setting, implementing a web-based cashier system can streamline order processing, reduce wait times, and improve the overall customer experience.

Pearlson, Saunders, and Galletta (2019) explore strategic approaches to managing information systems. They present practical applications and success stories of businesses that have successfully implemented information systems. For Kedai Santai Café, adopting a web-based cashier system can provide strategic advantages such as better resource management, enhanced data accuracy, and improved financial oversight.

Bourgeois and Bourgeois (2019) offer insights into the practical applications of information systems in business. They highlight the benefits of adopting modern information systems, including increased efficiency, accuracy, and customer satisfaction. A web-based cashier system in Kedai Santai Café can automate routine tasks, reduce manual errors, and provide valuable data for decision-making, ultimately leading to improved business performance.

A website is a collection of web pages that are connected to each other and can be accessed via the internet network. Websites are used to convey information, display products or services, and facilitate interaction between users and the content provided. (Auliana, S., Pratama, G. U., Permana, B. R. S., Sunardi, & Firmansyah, O. 2024).

RESEARCH METHODS AND MATERIALS

The method used in this development is the Agile Software Development method. This method is considered appropriate because with this development method the system can adapt to all business changes that may occur. Remembering that the needs of a business can change over time. The following are the stages in the Agile Software Development method, including (Sunardi, S., Auliana, S., Pratama, G. U., Permana, B.

R. S., & Nugraha, A. D. 2024):



Figure 1. Agile Method

Agile methodology consists of several stages, often referred to as phases, that help guide the iterative and incremental development process. Here are the key stages in the Agile methodology: a) Requirements. This phase involves the initial steps where the development team and the client meet to discuss and outline the design, needs, and desired features of the software to be created; b) Design. In this phase, the development team creates a detailed design of the application based on the requirements and specifications identified in the previous stage; c) Development. This phase involves building the system, including writing code, to implement the design and requirements from the earlier phase, resulting in a functional software product; d) Testing. During this phase, the system undergoes thorough testing to identify and fix bugs, and to ensure that the inputs and outputs meet the expected criteria; e) Deployment. In this phase, the completed system is handed over for use by the end-users, which includes launching it and assigning a domain for the system; f) Review. This phase is dedicated to verifying that the system operates correctly and is free from bugs or security gaps, and making any necessary adjustments to ensure optimal performance.

RESULTS AND DISCUSSION

Current System Procedure Design

The design for the current procedure at Kedai Santi Café and Millennial Resto involves creating a cashier information system to facilitate the cashier's work in handling transactions and archiving. Therefore, the current system procedure design at Kedai Santai Café and Millennial Resto will be illustrated in the form of an activity diagram.



Figure 2. Activity Diagram of the Current System

Procedure Design

Based on Figure 2, there is one initial node that represents the beginning of the activity diagram for the current system. There are four actions performed by the customer: ordering the menu, paying the bill, receiving the ordered items, and receiving the receipt as proof of payment. The cashier performs seven actions: recording orders, calculating the total bill, providing the total bill to the customer, receiving payment from the customer,

delivering the customer's order, creating a duplicate receipt, and preparing the financial report. The cook performs two actions: preparing the customer's order and informing when the order is ready. The owner performs one action: receiving the report prepared by the cashier. Finally, there is one activity final node that marks the end of the ongoing activity diagram.

Problems Encountered

The problems encountered in the manual transaction process are: 1) Orders at Kedai Santai Café and Millennial Resto are still recorded on paper; 2) The stock of available menu items is unknown, resulting in offered menu items being unavailable; 3) Payment transactions are done manually, and receipts are written on paper notes; 4) Financial reports are recorded in a ledger.

Alternative Solutions

To address the encountered problems, there are alternative solutions as follows: 1) Using a cashier information system can reduce errors in order entry and pricing. This system can also quickly and accurately calculate the total price and easily generate financial reports; 2) These alternative solutions cover all the problems faced and aim to improve accuracy and data processing in the still-manual cashier process.

Proposed System Procedure

Based on the analysis of the proposed system, it was found that the current system still uses manual methods, making the payment transaction process inefficient and potentially causing losses for the restaurant. Once the system requirements are identified, the next step is to design a cashier information system to facilitate the cashier's work in handling payment transactions effectively and avoiding calculation errors.

The proposed system is designed using UML (Unified Modelling Language) with visual paradigm software through the following processes: Use Case Diagram, Activity Diagram, and Sequence Diagram. This cashier information system design aims to streamline the cashier's work in processing payments and generating reports efficiently. The proposed system procedure based on access rights is as follows: 1) Users with access rights (cashier and owner) log into the cashier information system using a computer or mobile device; 2) Users enter their username and password to access the system; 3) Users select the menu items ordered by the customer; 4) Users input the quantity of items ordered by the customer; 5) The system automatically calculates the total bill based on the customer's order; 6) The system displays the total bill for the customer's order; 7) The customer makes the payment; 8) Users enter the amount paid by the customer; 9) The system displays the customer's change; The system generates a payment receipt detailing the order, total bill, amount paid, and change; 10) The system saves the transaction data; 11) Transaction data is used for sales reporting; 12) Users can log out of the system once all transactions are completed and the restaurant closes for the day.

Use Case Diagram of the Proposed System

The use case diagram is illustrated to understand the interaction between actors and the system. Below is the use case diagram of the proposed system:

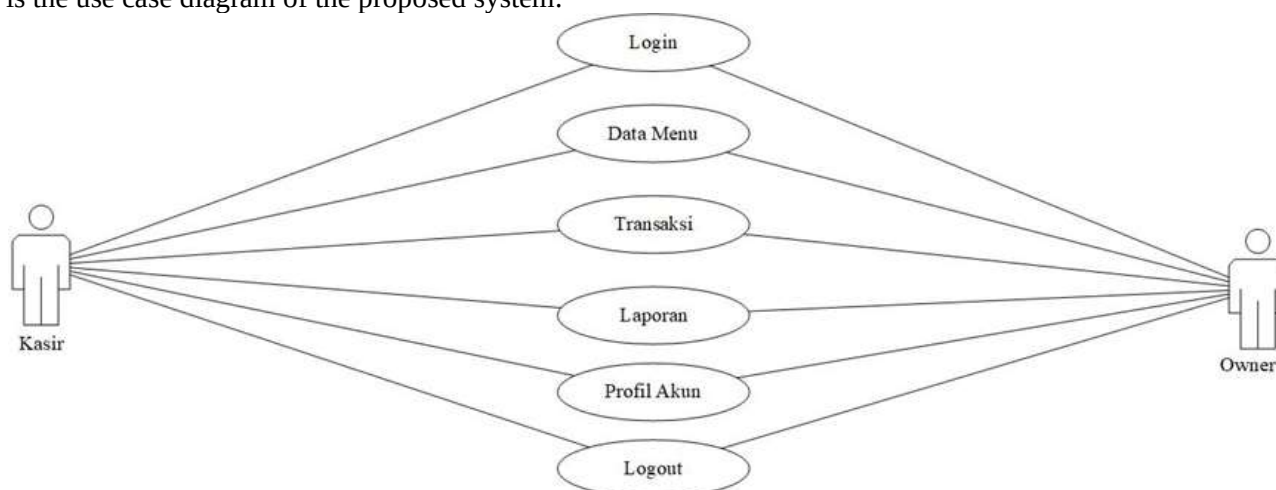


Figure 3. Use Case Diagram

Activity Diagram of the Proposed System

The activity diagram is drawn to display the flow of activities within the proposed system and to understand how the flow begins, the decisions made, and how the flow ends. Below is the proposed activity diagram for Kedai Santai Café and Millennial Resto.

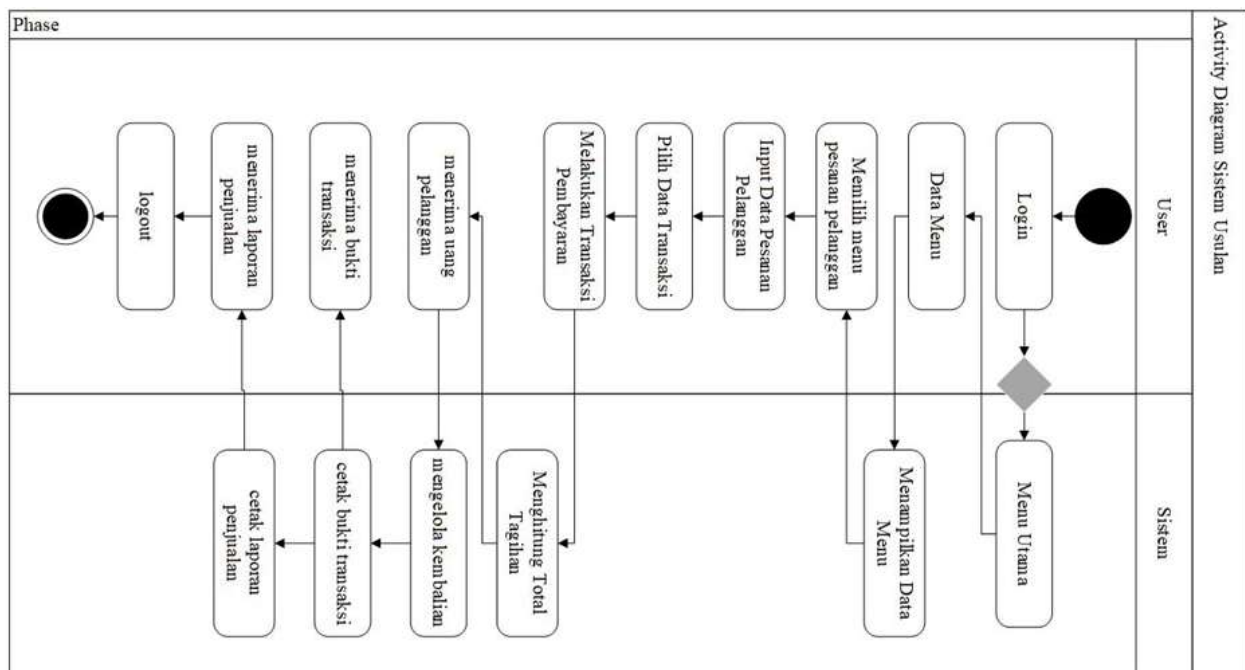


Figure 4. Activity Diagram

Sequence Diagram of the Proposed System

The sequence diagram shows the initial steps when users start using the cashier information system. Below is the sequence diagram for the cashier information system:

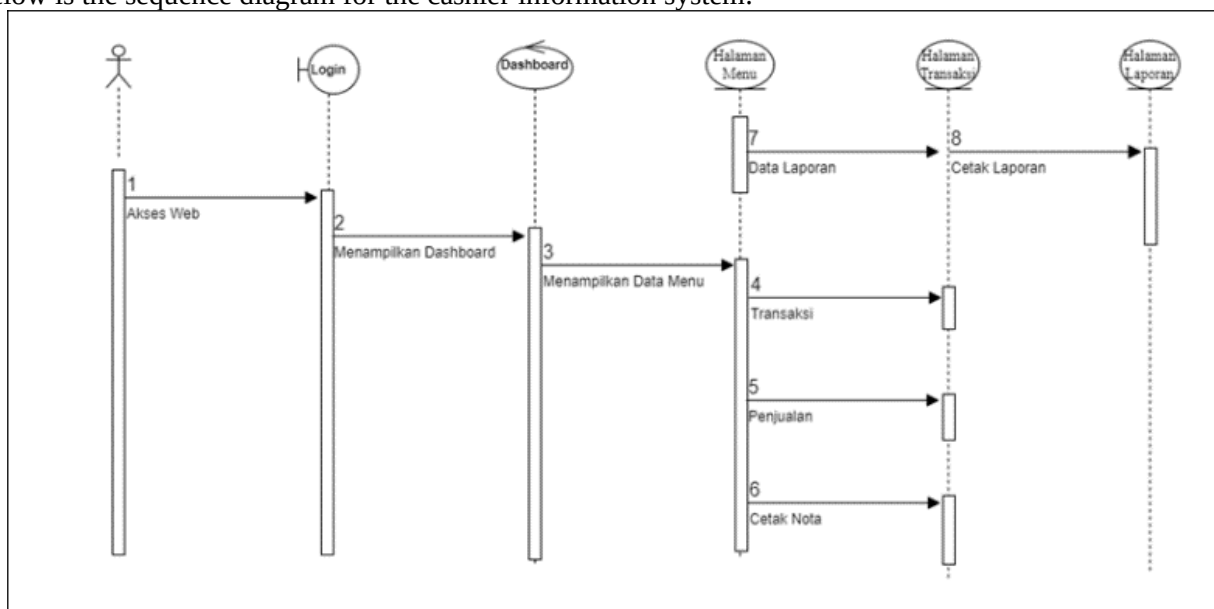


Figure 5. Sequence Diagram

Comparison Between Current System and Proposed System

No	Current System	Proposed System
1.	Customer orders are still recorded manually on paper.	Customer orders are input into the system, only adding the items ordered.
2.	Payment transactions are still calculated on paper and with a calculator.	Payment transactions are processed automatically within the system, with the bill calculated based on the customer's input orders.
3.	Receipts as proof of transaction are manually written in a receipt book.	Transaction receipts are automatically generated within the system according to the orders and total bill, allowing the cashier to print the receipt directly.
4.	Sales reports are recorded in a ledger and then input into Excel.	Sales reports are automatically generated within the system, allowing the owner to print the reports directly.
5.	The stock of menu items is unknown in terms of inflow and outflow.	Menu stock is automatically updated whenever a transaction is made.

User Interface

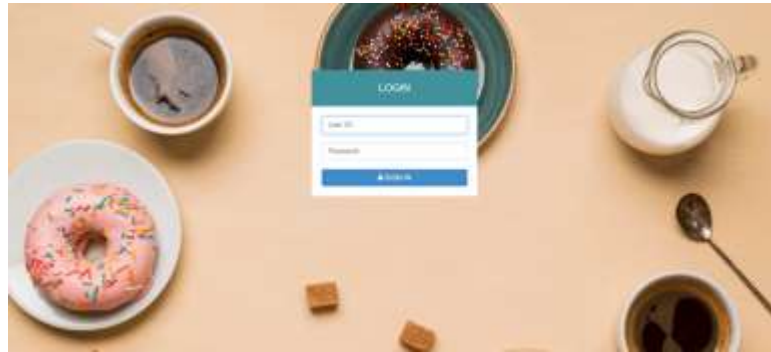


Figure 6. UI Form Login



Figure 7. UI Dashboard Page

Data Barang

Refresh Data Sortir Stok Kurang Insert Data

Show 10 entries

No.	ID Barang	Kategori	Nama Barang	Stok	Harga Beli	Harga Jual	Satuan	Aksi
1	BR002	Minuman Dingin	ES JERUK	40	Rp.5,000,-	Rp.10,000,-	Porsi	Detail Edit Hapus
2	BR001	Minuman Dingin	es teh	47	Rp.3,000,-	Rp.8,000,-	Porsi	Detail Edit Hapus
Total				87	Rp.435,000,-	Rp.778,000,-		

Showing 1 to 2 of 2 entries

Previous 1 Next

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Figure 7. UI Item Data

Data Kategori

Masukkan Kategori Barang Baru Insert Data

Show 10 entries

No.	Kategori	Tanggal Input	Aksi
1	Minuman Dingin	9 June 2023, 22:53	Edit Hapus
2	Makanan Berat	9 June 2023, 22:57	Edit Hapus
3	Rasa	9 June 2023, 22:57	Edit Hapus

Showing 1 to 3 of 3 entries

Previous 1 Next

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Figure 8. UI Category Data

Kelola Pengguna

Nama

 Gita Oktaviani

Email

 gitaoktaviani299@gmail.com

Telepon

 0895385132150

NIK (KTP)

 14021900082

Alamat

serang

 Ubah Profil

Ganti Password

Username

 admin

Password Baru

 Enter Your New Password

 Ubah Password

Figure 9. UI Profile Edit

Keranjang Penjualan

Cari Barang

Masukan : Kode / Nama Barang [ENTER]

Hasil Pencarian

KASIR

[RESET KERANJANG](#)

Tanggal: 3 July 2023, 18:07

Show 10 entries

No	Nama Barang	Jumlah	Total	Kasir	Aksi
1	ES JERUK	5	Rp 50.000,-	Gita Oktaviani	Update X

Showing 1 to 1 of 1 entries

Previous 1 Next

Total Semua: 50000 Bayar: [Bayar](#)

Kembak: [Print Untuk Bukti Pembayaran](#)

Figure 10. UI Cart

Data Laporan Penjualan Juli 2023

Cari Laporan Per Bulan

Pilih Bulan
Pilih Tahun
Aksi

Bulan
Tahun
[Cari](#) [Refresh](#) [Excel](#)

Pilih Hari
Aksi

03/07/2023
[Cari](#) [Refresh](#) [Excel](#)

Show 10 entries

No	ID Menu	Nama Menu	Jumlah	Modal	Total	Kasir	Tanggal Input
No data available in table							
Total Terjual			0	Rp 0,-	Rp 0,-	Keuntungan	Rp 0,-

Showing 0 to 0 of 0 entries

Previous Next

Figure 11. Reporting Date

Table 1. Black Box Testing

No	Testing Scenario	Expected Result	Conclusion
1.	Data is entered using an incorrect username and password.	The system will reject the login and display the message "Login Failed."	Valid
2.	Data is entered using the correct username and password.	The system will accept the login, allow the user to enter the system, and display the message "Login Successful."	Valid
3.	Data entered during input is incomplete.	The system will reject the input and display the message "Please fill out this field."	Valid
4.	Data entered during input is complete.	The system will accept the input and display the message "Data successfully added."	Valid

Evaluation

After conducting testing using the black box method on the cashier information system by providing input to the program, as in the testing of each menu, the following observations were made: 1) If the input is incomplete, the system does not function and will display a message to inform the user of the input error; 2) The system provides helpful messages to guide the user when an input error occurs. Subsequently, the system processes the input according to the functional requirements and produces the appropriate output.

CONCLUSION

Based on the discussion in the previous chapters and the observations and testing of the cashier information system, the following conclusions can be drawn: 1) The cashier information system can assist and simplify the payment transaction process, addressing errors in calculation and receipt writing as proof of payment; 2) The cashier information system at Kedai Santai Café and Millennial Resto facilitates the creation of sales reports and helps avoid errors in data entry and calculation in sales reports.

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