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Design of Web-Based Menu Ordering Information System at Cafe Lintas Aceh

Ekklesia Nainggolan [1*], *Rijois Iboy E. Saragih* [2], *Eviyanti N. Purba* [3]

[1,2,3] *Program Studi D-III Komputerisasi Akuntansi, Fakultas Ekonomi, Universitas Methodist Indonesia*

ekklesianainggolan75@gmail.com

Abstract

The advancement of information technology has had a significant impact on various sectors, including the culinary industry. Café Lintas Aceh, as one of the businesses in this field, still uses a conventional ordering method by manually recording orders on paper. This leads to several issues such as recording errors, service delays, and inefficient data management. This study aims to design a web-based menu ordering system to improve efficiency and service quality. The system allows customers to order online using digital devices and helps the café manage orders and transactions more effectively. The development method used is the waterfall model. The result is a web-based ordering system that accelerates the ordering process, minimizes errors, and simplifies data management at Café Lintas Aceh.

Keywords: *Information System, Menu Ordering, Web, Café*

Introduction

Contemporary information technology evolution has catalyzed substantial transformations throughout diverse economic sectors, particularly within the food service and hospitality industries (Buhalis & Sinarta, 2023). Digital innovation fundamentally reshapes business operational paradigms, compelling organizations to adopt technology-enabled solutions maintaining market competitiveness amid intensifying digital disruption (Verhoef et al., 2021). Within this context, culinary enterprises increasingly recognize technological integration necessity for sustaining operational viability and achieving strategic differentiation (Gursoy & Chi, 2020). Among the most significant technological applications emerging within food and beverage sectors, web-based ordering platforms represent transformative innovations streamlining order placement processes, transaction management workflows, and customer-business interactions (Leung & Jiang, 2022).

Café Lintas Aceh exemplifies local culinary establishments continuing reliance upon traditional manual ordering methodologies, wherein service personnel transcribe customer requests using paper-based documentation systems. This conventional operational approach generates multiple operational deficiencies, including order transcription errors compromising delivery accuracy, service delays reducing customer satisfaction, inefficient data management complicating operational oversight, and challenges producing reliable financial documentation supporting strategic decision-making (Ozturk et al., 2020). Manual restaurant operations demonstrate significantly higher error rates, slower service delivery, and reduced customer satisfaction compared to digitally-enabled alternatives (Kim et al., 2020). Furthermore, during peak demand periods characterized by elevated customer volumes, manual processing limitations become particularly pronounced, manifesting through extended waiting periods, operational bottlenecks, and deteriorating service quality perceptions directly impacting customer retention and business reputation (Hwang & Park, 2021).

Addressing these operational challenges necessitates developing comprehensive web-based menu ordering information systems specifically tailored to local business operational contexts and customer preference patterns. Such technological solutions enable customers to submit orders electronically through personal devices including smartphones, tablets, or computers, delivering enhanced convenience, ordering flexibility, and transaction transparency throughout the service experience (Gong & Law, 2023). Simultaneously, these systems provide management teams with integrated platforms facilitating order processing automation, real-time transaction monitoring, inventory tracking capabilities, and automated reporting functionalities generating accurate operational analytics supporting evidence-based decision-making (Kimes, 2021).

This investigation aims to design and propose a customized web-based menu ordering system addressing the

specific operational requirements and contextual constraints characterizing Café Lintas Aceh's business environment. The proposed technological solution anticipates multiple strategic outcomes: enhancing operational efficiency through process automation and workflow optimization, reducing human error incidence through systematic data validation and processing protocols, improving service quality through accelerated order fulfillment and accuracy enhancement, and supporting broader digital transformation initiatives among small-to-medium culinary enterprises traditionally operating without sophisticated technological infrastructure (Verma & Jayaswal, 2020).

This research addresses practically significant challenges confronting numerous local culinary businesses wherein conventional manual operations constrain growth potential, service quality improvements, and competitive positioning. Small restaurant businesses face particular challenges adopting digital technologies due to resource constraints, technical knowledge limitations, and implementation cost concerns (Choi & Kandampully, 2021). The investigation's practical relevance derives from demonstrating how digital solutions can be effectively implemented within traditional service industry contexts, providing tangible operational improvements while maintaining implementation feasibility for resource-constrained small businesses. The system design developed through this study offers direct performance contributions to the focal business while simultaneously establishing a replicable implementation model adaptable for similar establishments confronting comparable operational challenges, thereby extending the research's practical impact beyond the immediate case context (Morosan & DeFranco, 2020).
The significance of this work extends beyond individual business improvement, contributing to broader understanding of digital transformation pathways accessible to traditional small-scale culinary operations. By documenting design considerations, implementation approaches, and anticipated outcomes associated with web-based ordering system adoption in resource-limited environments, this research provides actionable insights supporting technology diffusion throughout local food service sectors. The investigation responds to calls for research addressing practical technology implementation challenges faced by small businesses, particularly within developing economy contexts where digital infrastructure adoption remains uneven and technical support resources may be limited (Ali et al., 2021).

Literature review

System

A system is defined as a group of interrelated elements that work together to achieve a specific goal. In everyday life, numerous examples of systems can be observed. For instance, the human body's metabolic system regulates all the substances required for bodily functions. In the context of business, a store's sales system manages how it serves customers. Similarly, the banking service system is designed to facilitate transactions and meet the needs of its customers. These examples illustrate the diverse forms of systems implemented in different fields to ensure efficiency and goal achievement. (Wijayanti & Syahputra)

Information System

According to (Hutahaean,2015), an information system is a system within an organization that integrates the needs of daily transaction processing, supports operational, managerial, and strategic activities, and provides necessary reports to specific external parties.

Order

According to Edwin and Chris, a reservation is an agreement between two or more parties regarding the booking of a place. This reservation agreement can pertain to the booking of a room, seat, or other spaces at a specific time, accompanied by the related service product. The service product refers to the service offered as part of the reservation agreement, such as in the case of Bintang Utara company, which provides the transportation of people or goods from one point to another. (Sihombing et al., 2024)

Order Information System

A food ordering information system is a system designed to facilitate the process of ordering food, managing the food menu, and handling all related data in a computerized manner. (Rusydi, 2021).

Data Flow Diagram (DFD)
A Data Flow Diagram (DFD) is a method used to logically describe an application by illustrating how the application operates from one part to another. It uses symbols and arrows to represent the flow of data within the application. (Nurjani & Yuspita, s.d.)

Database Relationship Table
A relational database is a mechanism used to physically organize data on a disk (storage media), which also affects how we group and structure all related data within the system under review. A relational database can be defined as a database that adheres to the rules of relationships between tables, allowing it to represent a fully integrated and interconnected system. The relational database model organizes data into multiple two-dimensional tables. Each table consists of vertical columns, commonly referred to as attributes (columns/fields), and horizontal rows, referred to as data records (rows/records). To implement a relational database, a database management system (DBMS) is still used, but with attention to the relationships among all tables within the database. (Radliya, 2017)

Flowchart
A flowchart is a graphical representation that outlines the steps and sequence of a procedure within a program. It assists in the processes of analysis, design, and coding by breaking down a problem into smaller, manageable parts for execution. Flowcharts typically help simplify problem-solving and support further evaluation. (Ilmu et al., 2016)

Website
The website was initially a service for presenting information using the concept of hyperlinks, which made it easier for internet users or "surfers" to navigate and explore information on the internet. Information presented on the web adopts a multimedia concept, allowing content to be delivered through various media such as text, images, animations, audio, or video. (Susianto, 2019)

Programming Language
A programming language, also referred to as a computer language or computer programming language, is a standardized set of instructions used to command a computer. It comprises a collection of syntax and semantic rules used to define a computer program. A programming language enables a programmer to precisely specify which data should be processed by the computer, how the data should be stored or transmitted, and the exact

steps to be taken in various situations. Programming languages provide the means for instructing a computer to perform specific functions through a structured set of rules that govern program development and execution. (Saragih, 2018)

Hyper Text Markup Language (HTML)
According to Sarwono, HTML is a data format in the form of a hypertext document that can be read from one system to another without requiring any changes, as HTML is essentially just a plain text document. The writings or text in HTML are referred to as a Markup Language because they contain specific symbols (tags, elements, attributes) used to display text through a browser. HTML is the language of the World Wide Web (WWW) used to create specific documents so they can be displayed and viewed through a browser. (Hidayat et al., 2019)

Hypertext Preprocessor (PHP)
Hypertext Preprocessor (PHP) is a server-side scripting programming language designed for web development. In addition to that, PHP can also be used as a general-purpose programming language. PHP was originally created by Rasmus Lerdorf in 1994. Today, PHP stands for "PHP: Hypertext Preprocessor," a recursive acronym—a wordplay where the abbreviation includes itself. PHP is free to use and is classified as open source. It is released under the PHP License, which is slightly different from the GNU General Public License (GPL) commonly used for other open-source projects. (Noviana et al., 2022)

My Structured Query Language (MySQL)

My Structured Query Language (MySQL) is a popular database management system (DBMS) that functions as a relational database management system (RDBMS). In addition, MySQL is an open-source software application, and its database server is known for being very fast, reliable, and easy to use. It operates using a client-server architecture or can be embedded into systems. Due to its open-source nature and widespread popularity, MySQL is well-suited for demonstrating database replication processes. (Yuliansyah, 2017)

Result And Discusstion

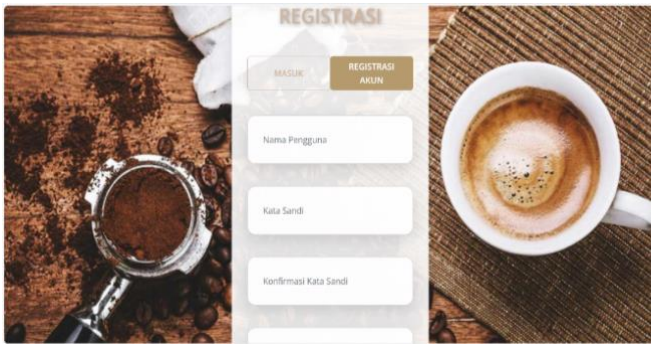
Main Page Display

The Main Menu is the homepage of the Menu Ordering System Design at Café Lintas Aceh. The main menu consists of account registration or login as a customer. The following is the display result of the main page.

Figures 1. Main Page Display

Customer Registration Page Display

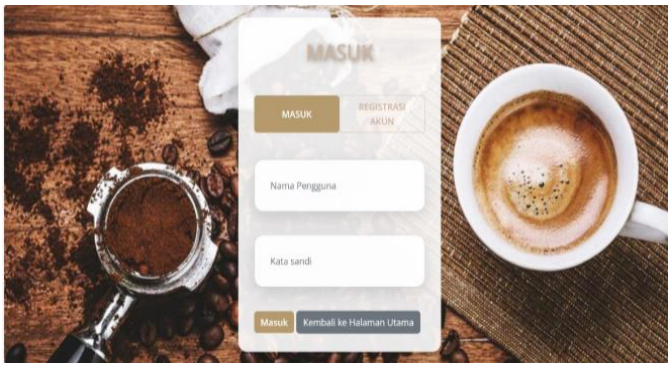
This form is used for customers to enter personal information such as username, password, and phone number in order to access features that are only available to registered users.



Figures 2. Customer Registration Page Display

Customer Login Page Display

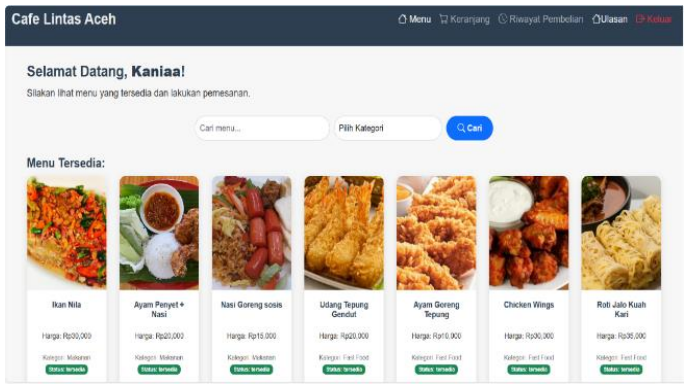
The customer login page is used to verify the user's identity in order to access features that are only available to registered users. By entering the correct username and password, the user will be granted access to the system. The following is the display result of the customer login page.



Figures 3. Customer Login Page Display

Menu Page Display

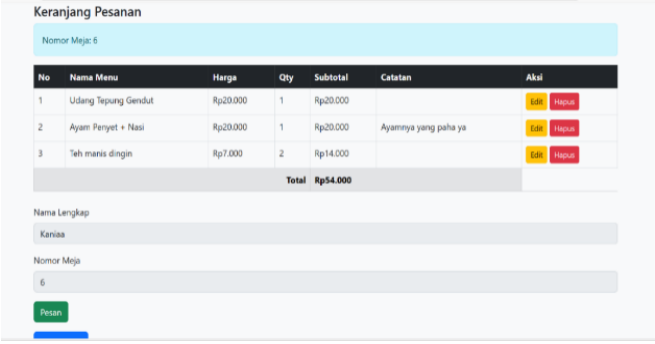
This menu page is used to allow customers to view and select food or beverage items they wish to order. The following is the display result of the menu page.



Figures 4. Menu Page Display

Cart Page Display

This cart page is used to store the customer's selected menu items before placing the order. In addition, on this form, the customer is required to enter the table number. The following is the display result of the cart page.

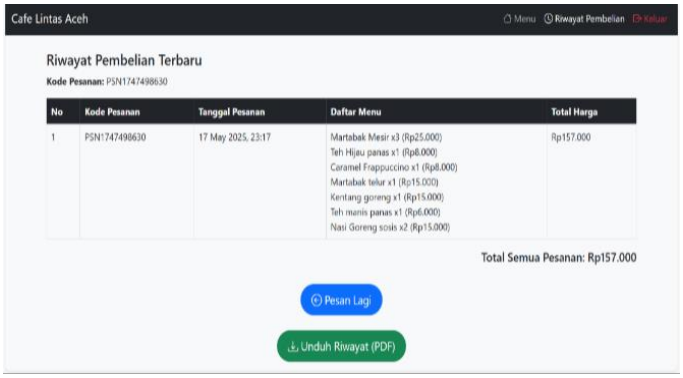


Figures 5. Cart Page Display

Purchase History Page Display

This page is used to store food or beverage menu items that have been ordered by the customer, allowing them to view their order history. On this page, customers can also reorder menu items if they wish to place another

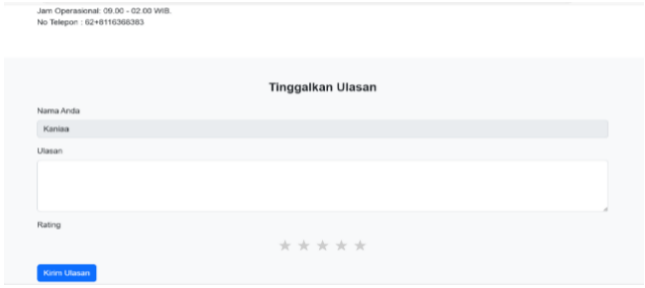
order, and they can download their purchase history. The following is the display result of the purchase history.



Figures 6. Purchase History Page Display

Customer Review Page Display

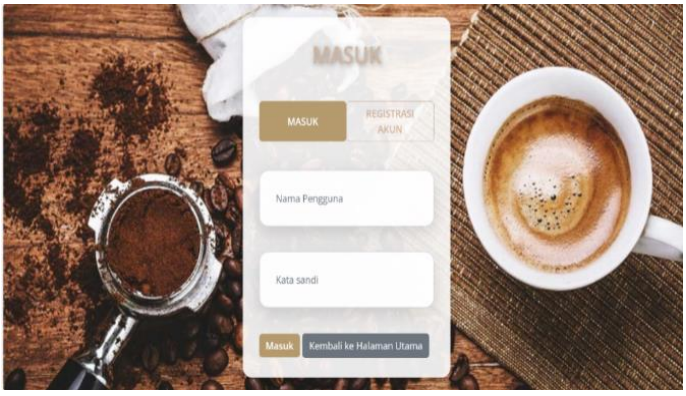
This page is used to allow customers to view all information about Café Lintas Aceh, including the establishment date, opening and closing hours, and the café's location on the map. In addition, this form allows customers to submit reviews about Café Lintas Aceh. The following is the display result of the review page



Figures 7. Customer Review Page Display

Admin Login Page Display

This page is used for the admin to enter their account credentials before accessing the admin dashboard. The following is the display result of the admin login page.



Figures 8. Admin Login Page Display

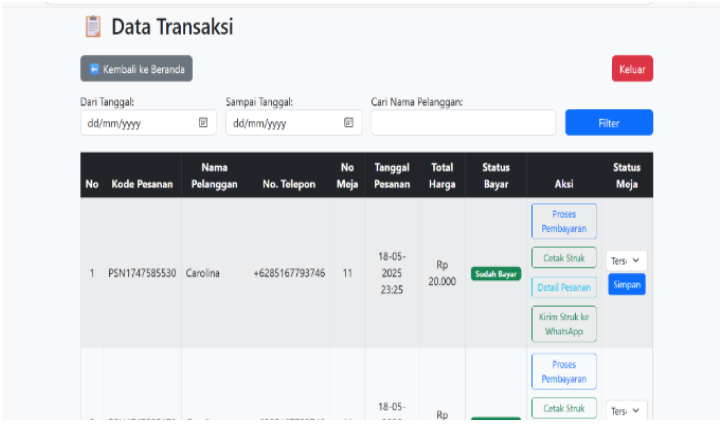
Admin Dashboard Page Display

The dashboard page is the first page the user sees when opening the website. It usually contains links or menus to access other sections. On this page, the admin also receives notifications when new orders are placed

Figures 9. Admin Dashboard Page Display

Transaction Page Display

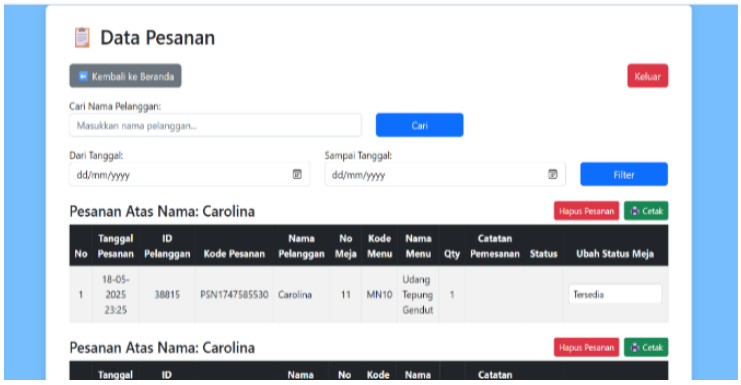
This page is used by the admin to record and manage the payment process of customer orders, including the payment status (paid or unpaid), total price, order date, and receipt, which can be printed or sent directly to the customer's WhatsApp. Below is the resulting display of the transaction page.



Figures 10. Transaction Page Display

Order Page Display

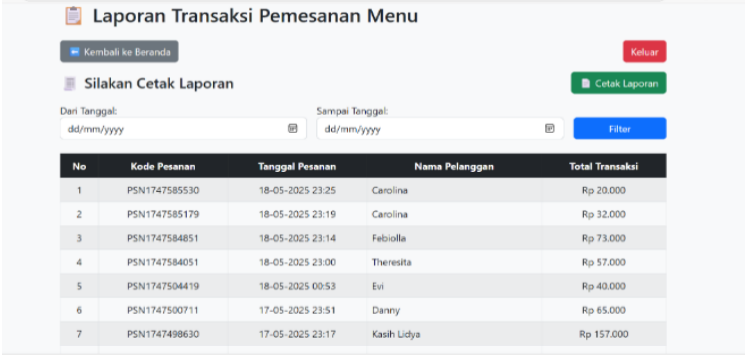
This page allows the admin to view orders placed by customers. When a customer places an order, the admin page will automatically receive a notification, allowing the admin to be immediately informed of any new customer orders. Below is the resulting display of the order page.



Figures 11. Order Page Display

Report Page Display

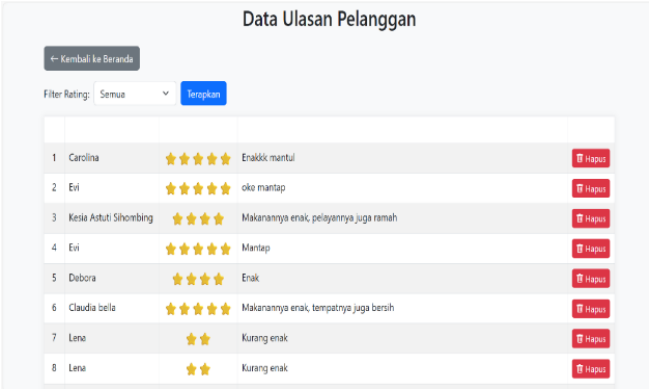
This page is used by the admin to compile a summary of customer order data for analysis and financial reporting, whether on a daily, monthly, or yearly basis.



Figures 12. Report Page Display

Admin Review Page Display

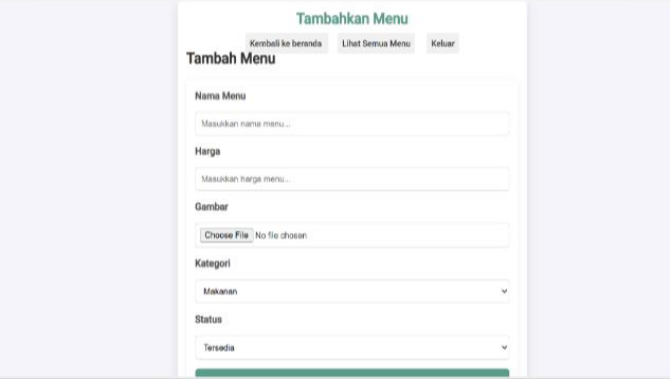
This page is used by the admin to view the feedback or reviews provided by customers regarding the food and beverage menus or about Café Lintas Aceh.



Figures 13. Admin Review Page Display

Menu Management Page Display

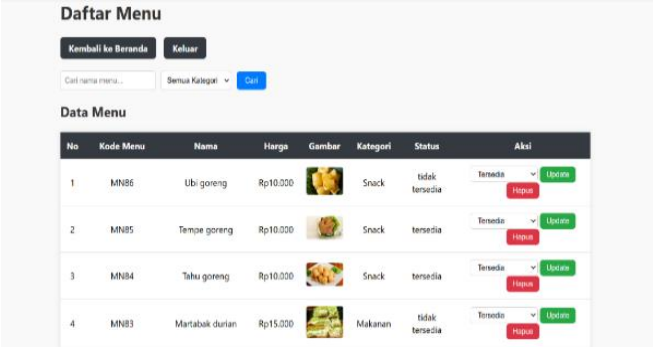
This page includes features for adding and viewing menus, allowing the admin to add new menu items or delete existing ones. In addition, the admin can also view menus that have been added or removed. Below is the result of the menu management page display



Figures 14. Menu Management Page Display

Admin Menu Page Display

On this page, the admin can view the added menu items and change the status of each menu item to available or unavailable. Below is the display of the admin menu page.



Figures 15. Admin Menu Page Display

Conclusion

Based on the results of the design of the web-based menu ordering information system at Café Lintas Aceh, the following conclusions can be drawn:

1. The web-based menu ordering information system at Café Lintas Aceh can increase efficiency in the ordering process by simplifying the recording of orders directly into the system.
2. This menu ordering system is capable of storing order data, transactions, and sales reports in a structured manner. This facilitates the café management in monitoring and evaluating sales and menu inventory.
3. With real-time order management and transaction report features, the admin can easily monitor ordering activities and obtain detailed sales reports.
4. Customers can easily view menu information, including prices and menu availability, which helps them in selecting items before placing an order.
5. Customers can place orders directly through the website without having to wait for direct service from the waiter, thus reducing wait times and improving customer satisfaction.
6. Customers receive a complete order receipt including item details, quantity, total price, and payment status.

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