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# Design of a Web-Based Ordering Information System for the Legendary Ketan Restaurant in Tegal City

**Ikbal Maulana [1]*, Mutiara Handayani Ujianti[2]**

[1,2]*Universitas Teknologi Digital*
Ikbalmaulana6035@gmail.com[1]*, mutiarahandayaniujianti@gmail.com[2]

**Abstract**

The owner of Ketan Legendaris Restaurant in Tegal City also operates two other businesses, Mie Ayam Jhaya Baroe and Cafe Kopi PDKT, all of which are located within the same area. This setup often leads to challenges during peak times, such as unorganized order queues, accumulated orders, and delayed deliveries. Additionally, the restaurant's ordering system remains manual, relying on conventional record-keeping methods, which results in inefficient service and prolonged waiting times for customers.
This research aims to design a web-based ordering information system to enhance the efficiency and effectiveness of the ordering process at Ketan Legendaris Restaurant. Data collection methods include direct observation, interviews, and library research. The analysis phase is conducted through several stages: surveying the existing system, analyzing survey findings, identifying information needs, and determining system requirements. The system design adopts the Waterfall model, utilizing UML diagrams as a tool for system modeling. MySQL is employed as the database, while the CodeIgniter framework is used to develop the web-based system using PHP. The research outputs a prototype of a web-based ordering information system designed to address the existing issues and improve the restaurant's operational performance. This system is expected to streamline the ordering process, making it faster, more organized, and accurate, thereby enhancing customer satisfaction and supporting the overall efficiency of the restaurant operations.

***Keywords***: *Information System, CodeIgniter Framework, Efficiency, Ordering System.*

## 1. Introduction

In the business world, excellent service is a fundamental element in achieving success. High-quality service that is fast, accurate, and efficient not only provides satisfaction to customers but also fosters sustained loyalty [1]. Internet technology, as one of the most significant innovations in the field of information technology, offers numerous conveniences in creating effective and efficient service systems. By leveraging this technology, businesses can enhance customer experiences while supporting more organized transaction processes [1].
Today, information technology has become an integral part of various life sectors, including the culinary industry [2]. Restaurants, as a key element of the culinary sector, benefit significantly from the utilization of technology to improve customer service [3]. Customers, as end-users, demand simplicity and speed in ordering food without the need for long queues or complicated processes. The use of technology enables restaurants to create more modern, effective, and efficient ordering processes [4].
Ketan Legendaris Restaurant, located on Jl. Kapten Sudibyo, Randugunting Subdistrict, South Tegal District, Tegal City, is one of the culinary businesses with great potential to adopt information technology. This restaurant operates three businesses simultaneously: Mie Ayam & Bakso Jhaya Baroe, Ketan Legendaris, and Cafe Kopi PDKT, all within the same location. However, the restaurant still relies on conventional methods for ordering, such as manual record-keeping using pen and paper, which has led to various operational issues, especially during busy periods [5].
Frequent challenges include overlapping orders, long queues, and incorrect delivery of orders to customers tables. These issues not only reduce the operational efficiency of the restaurant but also have the potential to decrease customer satisfaction. Therefore, a technology-based solution is required to address these problems, with one viable approach being the development of a web-based ordering system.
This study aims to analyze and design a web-based ordering system using the CodeIgniter Framework [6]. The proposed system is expected to integrate and streamline the food ordering process, eliminating manual inefficiencies. It is designed to facilitate customers in placing orders effortlessly while assisting restaurant management in real-time order tracking, inventory management, and generating sales reports more effectively [7].
The implementation of this web-based ordering system is anticipated to provide significant benefits for both customers and the restaurant itself. Customers can enjoy the convenience of ordering food without waiting in line, while the restaurant can enhance its operational efficiency and service quality. Thus, this research contributes not only to solving the challenges faced by Ketan Legendaris Restaurant but also offers new insights into the development of web-based information systems for the culinary sector [8].

## 2. Research Methodology

This research methodology involves several data collection steps designed to understand the ordering and service information system at Restoran Ketan Legendaris. The first step is the **observation method**, which is conducted by directly observing the operational activities of the restaurant. Observation is the process of collecting data through the observation of an object. This method allows the researcher to obtain in-depth information about how the ordering and service systems are implemented and the problems that arise during their operation. The second step is the **interview method**, which involves direct conversations with the restaurant owner, Mr. Elang Merayu Sukma. This interview aims to gather accurate information about the obstacles faced in the ordering process. As stated by Saputri et al [9] interviews are a focused communication process designed to obtain relevant and valid data. Through this interview, the researcher gains a deeper understanding of the specific challenges the restaurant faces in serving its customers.
Additionally, this research also utilizes **library research** as an additional data collection method. The researcher reads and analyzes various sources such as journals, books, and online media to strengthen the theoretical foundation of the study. Library research helps provide a broader and deeper perspective on the issues being studied, particularly related to the need for an efficient and innovative ordering information system.
The analysis method used in this research is a **qualitative descriptive approach**. This approach aims to describe the phenomenon by comparing theory with the facts discovered during the study. The analysis process begins with a survey of the current ordering and service system. The manual system currently in use often causes overlapping orders, especially during peak hours, resulting in long waiting times for customers. This analysis aims to identify the main problems and find appropriate solutions.The survey results are then analyzed to identify the information needs and system requirements necessary for improvement. The main need identified is a more effective and efficient information system to enhance service quality and customer satisfaction. Based on this analysis, a report is prepared that contains recommendations for the development of a new system that can address the operational challenges faced by the restaurant. In the design phase, this research employs the **Waterfall method**, as described by Yolla Putri Ervanisari et al [10]. This method allows the system to be developed step by step, with each phase completed fully before moving on to the next. The system is designed using an object-oriented approach with support tools such as Unified Modeling Language (UML). Supporting technologies used include Xampp, PHP, Javascript, HTML, CSS, Bootstrap, CodeIgniter, and MYSQL. The proposed information system is a web-based ordering application with QR Code features. Customers can place orders for food and beverages by scanning a barcode, which will direct them to the online ordering form. This system is designed to be responsive for mobile viewing, making it easier for customers to place orders without having to wait in line to be served. With this system in place, it is expected that the ordering process at Restoran Ketan Legendaris will become faster, more efficient, and more satisfying for customers.

## 3. Result and Discussion

The analysis of the existing system at Restoran Ketan Legendaris in Kota Tegal reveals that the current system heavily relies on manual records for the ordering and transaction processes. This reliance on paper-based methods introduces the potential for errors and delays in processing orders, which can negatively impact the overall efficiency of the restaurant's operations. One of the key outputs of the current system is the purchase receipt, which serves as proof of transaction between the restaurant and the customer. Once the transaction is completed, the cashier provides the receipt, marking the completion of the order process. This process occurs with each purchase, and the format and details of the receipt are consistent across transactions. In terms of inputs, the order data recorded by either the cashier or waiters plays a crucial role in advancing the order through the system. The order details are recorded on duplicate forms, with one copy given to the cashier for transaction and sales report purposes, while the other is sent to the kitchen for food preparation. This process does not follow a fixed pattern in terms of frequency or volume, as it is directly dependent on the volume of transactions occurring in the restaurant.
Based on the observed process flow, every element in the ordering procedure—starting with the customer selecting menu items, followed by the waiters recording the orders, the cashier processing the payment, and the kitchen preparing the food—plays an essential role in ensuring smooth operations. Information flows seamlessly between these elements, though some challenges related to time efficiency and accuracy were noted, particularly during peak customer volume. These issues lead to delays in the order fulfillment process, with customers often having to wait longer for their meals.

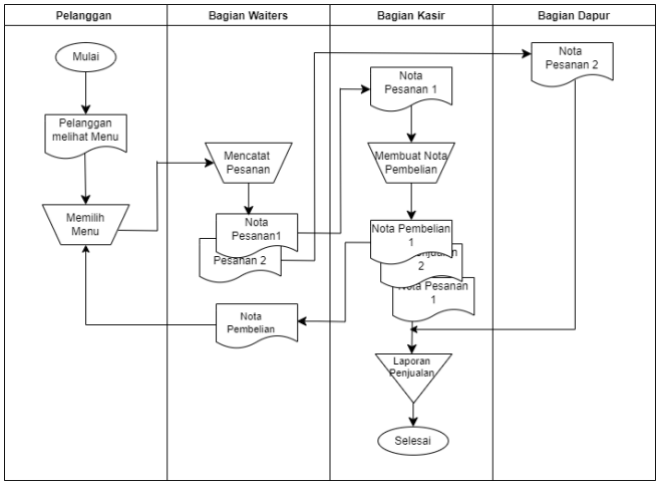


**Fig. 1:** Flow of Document Ordering Process

Figure 1, which illustrates the **Flow of Document in Ordering Process**, can be inserted in this section, following the explanation of the ordering procedure and transaction processes. The diagram will visually depict how documents and information are transferred from one

section to another in the current system, providing a clearer understanding of how each element interacts within the order management system.From the analysis, it is clear that there is a significant need for improvement in the current ordering system. The manual system leads to inefficiencies, especially when dealing with high customer volume, where delays and errors in order processing become more pronounced. The traditional paper-based system creates long queues and extended waiting times, negatively affecting the customer experience and satisfaction.

As a result of these findings, the researcher recommends the implementation of a web-based information system as a solution to the identified issues. A web-based system would allow customers to place orders online, directly reducing the chances of data entry errors and speeding up the transaction process. Furthermore, such a system would facilitate automatic sales reporting, offering significant benefits for restaurant management by enabling more accurate and efficient data handling.

Overall, the analysis indicates that implementing a web-based information system is essential for improving the operational efficiency of the restaurant, particularly in the areas of ordering and transactions. This system is expected to enhance customer satisfaction by reducing wait times and streamlining the ordering process.

### 3.1. Usecase Diagram

A *Use Case Diagram* is a tool used to describe the interaction between external actors and the system being analyzed. *Use case diagram* is a set of interconnected elements that form a structured system, which is executed or supervised by an actor. This diagram illustrates the functions that the system can perform and how actors interact with these functions. In the context of the ordering system at Restoran Ketan Legendaris, this diagram is essential for illustrating the flow of processes and the functions to be implemented by the system, as well as the actors involved in each step.

In the proposed ordering system at Restoran Ketan Legendaris, there are several actors who interact with the system: the buyer, cashier, waiter, and kitchen staff. The buyer is the actor who initiates the ordering process by selecting items from the menu and confirming the order. The cashier processes the payment transaction and records it in the sales report. The waiter serves as the link between the buyer and the kitchen, ensuring that orders are properly processed. The kitchen staff receives order details and begins preparing the food as requested by the buyer.

The system includes several key use cases that support the ordering and service processes. These use cases include: "Add Menu Item," "Delete Menu Item," and "Edit Menu Item," which allow the management of the menu items offered at the restaurant. Additionally, there is the "Order" use case, which describes the process of placing an order by the buyer, as well as the "Report" use case, which is used to record and generate sales reports. The system also features "Login" and "Logout" use cases for access security, ensuring that only authorized users can access and manage the system's data. The *Use Case Diagram* shown in Figure 2 illustrates how each actor interacts with these functions to support the smooth operation of the restaurant.

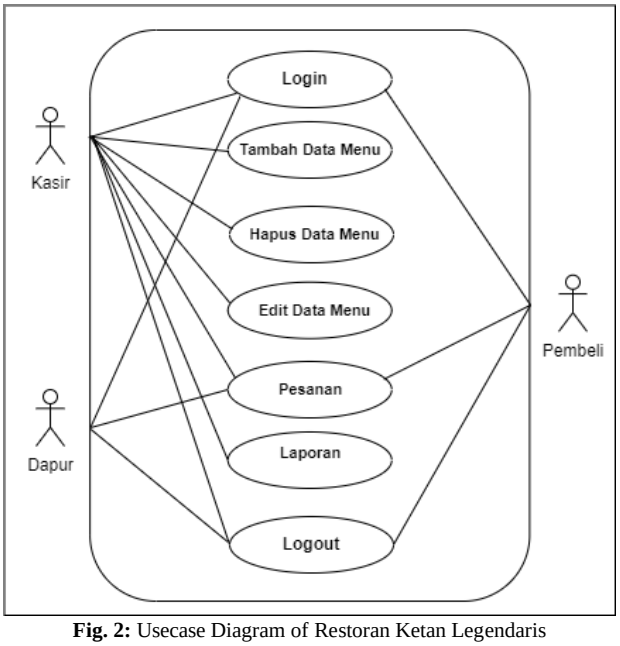


**Fig. 2:** Usecase Diagram of Restoran Ketan Legendaris

### 3.2. Class Diagram

A Class Diagram is a type of diagram in system modeling used to represent the static structure of a system by showing the classes within the system and the relationships between these classes. This diagram helps describe the main elements of the system and the relationships among them. A class diagram illustrates the structure of objects interacting within a system, as well as how information and tasks are distributed among these objects.

In the context of the food ordering system at Restoran Ketan Legendaris, the class diagram is used to depict the relationships between the various entities within the system. Some of the main classes in this system are *Menu*, *Order*, *Transaction*, *User* (for login), and *Report.* Each class has attributes that define the data it stores, along with methods that represent the actions that can be performed by the class. For instance, the *Menu* class includes attributes such as *menu_id*, *menu_name*, *price*, and *description*, along with methods for adding, editing, and deleting menu items.

Furthermore, the class diagram also illustrates the relationships between the classes. For example, the *Order* class is related to the *Menu* class, where each order references the menu items selected by the customer. The *Order* class also connects with the *Transaction* class, which manages payments and records sales transactions. The *User* class handles the login and logout processes to access the system, while

the *Report* class is responsible for generating sales reports based on recorded transaction data. These relationships between the classes show how data flows through the system to support restaurant operations.

The resulting class diagram will make it easier to design and build a structured and efficient food ordering information system. With this class diagram model in place, system development becomes more organized and clear, minimizing potential errors and speeding up the system development process.

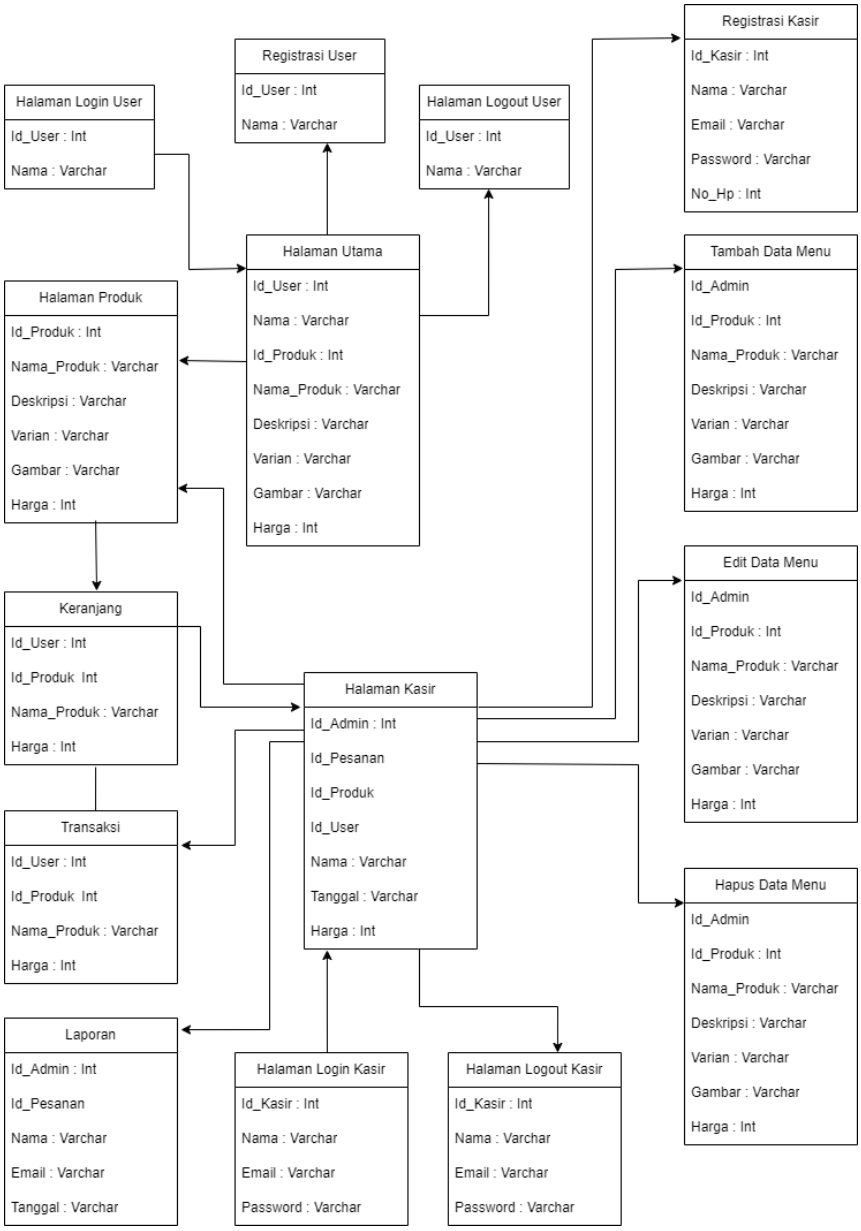


**Fig. 3:** Class Diagram of Restoran Ketan Legendaris

## 4. Conclusion

Based on the research conducted, several key conclusions can be drawn regarding the operational issues and proposed solutions for Restoran Ketan Legendaris. First, it was observed that the location of the restaurant, sharing space with two other businesses, results in a disorganized order-taking system. This leads to congestion and delays in food delivery, especially during peak hours when the restaurant experiences a high volume of customers. The lack of a streamlined system for managing orders under such conditions significantly impacts the overall customer experience.

Second, another challenge faced by the restaurant is the reliance on a manual, non-computerized order-taking method. This conventional system causes delays and inefficiencies in serving customers, with patrons having to wait for extended periods before placing their food orders. The absence of an automated system contributes to the slow pace of service and potential errors in order processing, further affecting the restaurant's ability to manage customer expectations and satisfaction effectively. To address these issues, the implementation of a web-based information system for order management was proposed. This new system aims to modernize the ordering process by integrating a digital platform that facilitates smoother order-taking, tracking, and processing. By transitioning from the traditional manual system to a more efficient digital solution, the restaurant can significantly improve the speed and accuracy of service.

Ultimately, the designed information system is expected to enhance operational efficiency, starting from the ordering phase all the way through to service delivery. By automating key processes, the restaurant will not only minimize delays but also improve overall customer

satisfaction, creating a more organized and effective workflow. This research highlights the importance of adopting technology to optimize business operations and overcome existing challenges, making it a critical step towards achieving greater success in the competitive food service industry.

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