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# Car Rental Service Website “Edo Rent Car” East Java and Bali Area

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## Abstract

This research was conducted in order to improve the quality of the Company's services in meeting consumer demand in car rental activities. Especially this company also has a strategic operating area, namely Java and Bali, of course this affects the demand for car units to be rented. With this increasing demand, many car rental companies face challenges in terms of managing operations and providing fast and efficient services. The unexpected increase in demand has overwhelmed many car rental companies, especially if they are not supported by an efficient system. One of the reasons is the increasing number of domestic and international tourists who require a vehicle to explore tourist destinations in these two provinces. By simplifying the car booking process and providing the ability to provide transparent information, information on available car units, rental price transparency, detailed information about the car unit to be rented, customer service in the form of live chat that can be accessed whenever and wherever the customer is, and information about the driver who will accompany your trip later. The implementation of the website as an information system solution will support the progress of the car rental industry, increase the competitiveness of the company, and at the same time provide better service to customers.

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## 1. Introduction

The vehicle rental industry has experienced significant growth in recent years, driven by the increasing demand for efficient mobility and adaptable transportation systems that cater to diverse needs, including tourism and business activities. Regions with high tourism intensity, such as East Java and Bali, have become focal points for the development of this sector. East Java offers various prominent destinations, including the iconic Mount Bromo, the natural beauty of Malang, and the exotic charm of Banyuwangi. Meanwhile, Bali has long been recognized as a world-class tourist hub that attracts visitors from across the globe. These areas provide fertile ground for rental car businesses to respond to rising consumer demand for flexible and comfortable transportation solutions. In addition to tourism, rapid urbanization and the growth of economic activities serve as major contributing factors to the increasing demand for vehicle rental services. According to data from the Indonesian Car Rental Association (ARMINDO), demand trends have consistently risen over the past five years, with an estimated annual growth rate of 15–20% in East Java and Bali, reflecting a continuously expanding and promising market.

The surge in demand, however, presents challenges for car rental companies in terms of operational management and service delivery efficiency. Unexpected spikes in customer requests often overwhelm providers, particularly those lacking well-structured systems. The increase in domestic and international tourists seeking transportation to explore various destinations, alongside the needs of local communities and businesses for personal, corporate, or event-related purposes, underscores the urgency for more effective

management solutions. Without efficient systems, delays, errors, and inefficiencies in rental processes are inevitable, potentially reducing customer satisfaction and weakening competitiveness.

To address these challenges, the implementation of an information system through a web-based platform is considered a strategic solution. Such a system can simplify the booking process, provide transparent access to vehicle availability, rental pricing, and detailed unit information, and enhance customer service through features such as live chat support and driver information. By integrating these features, rental companies can not only streamline operations and improve reporting processes but also increase competitiveness in the growing market. Ultimately, adopting a digital-based rental management system is expected to enhance service quality, meet the evolving expectations of customers, and support the sustainable development of the car rental industry in East Java and Bali.

### **1.1 Literature Review**

Previous studies related to the development of web-based information systems for car rental services provide valuable insights into the impact of digital transformation on operational efficiency, customer satisfaction, and business competitiveness.

Fauzi et al. (2021) developed a web-based information system for Sembodo Rent Car using the Waterfall method. Their study highlighted significant improvements in efficiency and accuracy of employee tasks, as many administrative processes and data management activities that were previously handled manually became automated and structured. The system not only reduced the likelihood of errors but also enhanced the company's market appeal by providing customers with clear and accurate information regarding vehicle details, estimated costs, and available options. Moreover, operational costs decreased as manual promotional activities, such as distributing brochures, were replaced by digital platforms, ultimately leading to an increase in company revenue.

Similarly, Panesa (2022) designed a web-based car rental information system for RIZ RENT CARS, which also demonstrated substantial benefits in terms of service quality and operational efficiency. Through the system, owners were able to manage vehicle reservations, check availability, and oversee customer data more effectively via an intuitive dashboard. Customers benefited from easier access to detailed information such as rental prices and vehicle specifications, along with the ability to complete reservations online. This digital approach streamlined administrative tasks, reduced errors, and improved the company's image in the competitive market, positioning RIZ RENT CARS as a more modern and customer-oriented service provider.

In addition, Nur Ali (2022) developed a web-based rental application for CV Tsabitah Rent Car in Bandar Lampung, which addressed various operational challenges previously encountered by the company. The system allowed customers to book vehicles remotely, improving convenience and flexibility, while also enhancing operational efficiency by automating data processing and record-keeping. A notable feature of this system was the integration of a GPS tracker, which enabled real-time monitoring of rental vehicles, thereby strengthening both company security measures and customer trust. The system was tested using the black-box method, confirming its reliability and effectiveness in managing reservations, payments, and reporting. This innovation not only improved service quality but also enhanced the company's competitiveness in the increasingly demanding car rental market.

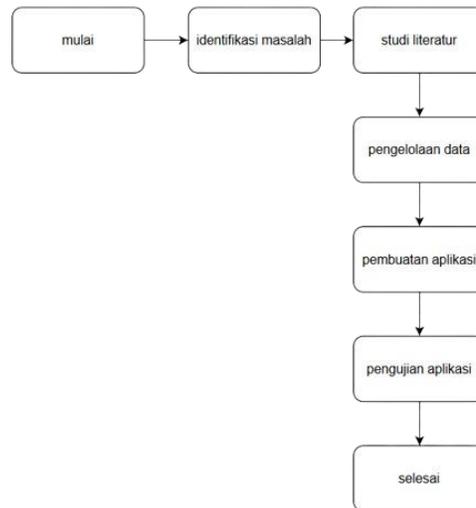
Collectively, these studies underscore the pivotal role of web-based information systems in modernizing car rental services. They highlight how automation, transparency, and digital accessibility can resolve operational inefficiencies, minimize human errors, and improve customer experiences, thereby fostering sustainable business growth.

## **2. Research Methods**

The research method applied in this study follows a systematic process aimed at solving the identified problems and achieving the defined objectives. The approach involves system analysis, design, implementation, and testing of a web-based information system for car rental services.

## Problem Identification and Solution Framework

The first step is identifying the problems encountered in the current car rental process, such as lack of transparent information, inflexible booking procedures, management errors, and limited customer support. These issues were analyzed using a cause-effect framework to determine the impacts and formulate corrective objectives. The solution framework is visualized in a problem-solving diagram that illustrates the structured steps undertaken in this research.



*Fig 1. Problem identification*

## System Design

To address the identified problems, the system is designed by modeling user interactions and data structures that will support the operational needs of a car rental service.

## Use Case Diagram

The use case diagram describes the functional requirements of the system by showing interactions between users and the system. Two main actors are involved:

User/Customer, who can register an account, log in, view available cars, make bookings, and upload payment proofs.

Admin, who manages car data, car types, customers, drivers, and transactions. The admin is also responsible for validating payments and generating reports.

This interaction model provides a clear overview of how system functionality aligns with user needs.

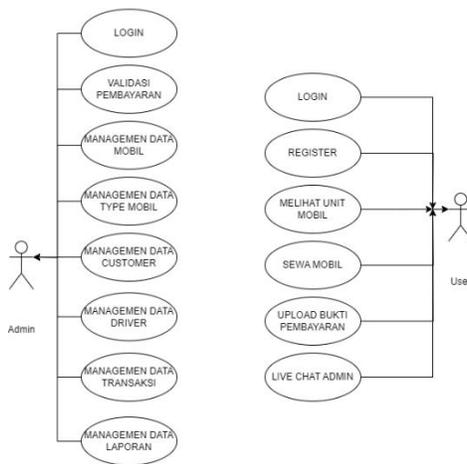


Fig 2. Use Case Diagram

### Class Diagram

The class diagram illustrates the system's structure in terms of classes, attributes, methods, and relationships. It helps ensure that the data entities—such as car data, customer data, booking data, and payment validation—are well-structured and interrelated to support smooth system operations.

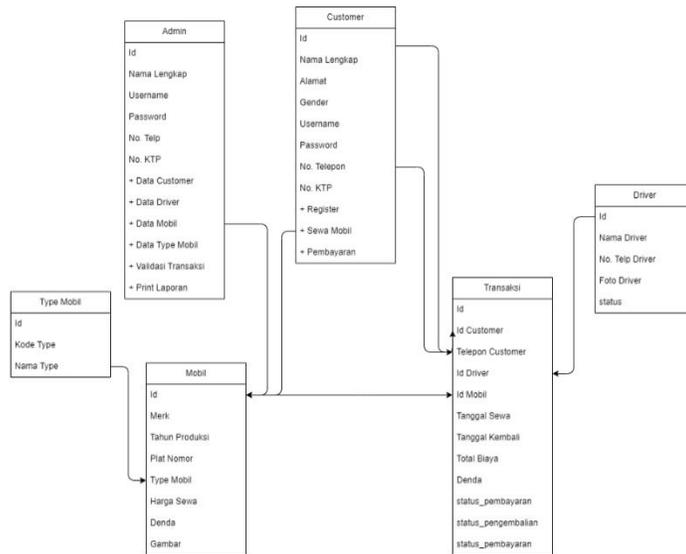


Fig 3. Class Diagram

### Implementation and Testing

After system design, the next step is system implementation using web-based technologies. The development process follows the principles of structured programming to ensure scalability and maintainability.

The system is then tested using the black-box testing method, focusing on verifying whether each function—such as login, booking, availability checking, and live chat—works as expected according to the defined requirements. This ensures the system delivers transparency, flexibility, and improved customer service.

### 3. Result and Discussion

The development of the car rental information system produced several significant improvements compared to conventional manual processes. First, the application simplified the booking process for customers, making it more efficient in terms of both time and effort. The system reduces the possibility of human error, particularly when customers input personal data such as full name, phone number, ID number, and residential address.

Second, the integration of a database allows real-time updates of vehicle availability. Customers can directly check whether a car is available or not, while the rental company can manage vehicle inventory more effectively. This feature significantly minimizes booking conflicts and improves overall service reliability.

Third, the system provides transaction transparency by enabling customers to view detailed payment information. This includes the start and end date of the rental period, offering customers better clarity and confidence in their transactions. The findings indicate that the implemented system not only increases customer satisfaction but also enhances the company's operational efficiency by centralizing data management and automating repetitive tasks.

### 4. Conclusions

The implementation of a web-based car rental application successfully addressed key challenges in the rental process. It provides a more efficient booking mechanism, minimizes manual errors in customer data entry, and ensures real-time vehicle availability updates through the use of a structured database system. Additionally, the system offers transparent transaction details that strengthen customer trust.

However, this application is still in its early stage of development and requires further research and refinement. Future improvements should focus on enhancing system stability, expanding service features, and increasing user engagement, thereby making the website more competitive and attractive for potential customers.

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