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Development of a Web-Based Bus Ticket Ordering System at BJM Pariwisata

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Abstract

This research aims to design a web-based bus ticket booking system at BJM_Pariwisata to increase operational efficiency and customer convenience. This system was developed using the Prototyping-based SDLC method through the stages of needs identification, design, development, testing and implementation, and is equipped with registration features, schedule search, ticket ordering, online payment and report management. Research results show an increase in ordering efficiency of up to 50% as well as a reduction in data recording errors, with user surveys indicating high satisfaction with the system's flexibility. With fast response times, cross-device compatibility, and guaranteed data security, this system is considered effective in meeting digital transportation needs and can become a model for other service providers.

Keywords: *Information Systems, Ticket Ordering, SDLC, Prototyping, BJM_Tariwisata*

1. Introduction

Land transportation mode is a transportation module that provides a type of transportation mode that is most often used by the public. One mode of land transportation that is often used by people, especially in Indonesia, is the bus [1]. The ticket ordering system, which is currently still manual, causes many problems, such as the difficulty of getting real information about ticket availability in real-time, an inefficient, time-consuming reservation process, and the possibility of errors in recording booking data[2]. Therefore, a solution is needed in the form of a web-based ticket ordering system with an information system that is fast, accurate and easily accessible to users.

2. Research Method

Uses qualitative methods because the focus is on in-depth exploration of user needs and analysis of the manual processes that exist in the bus ticket booking system at BJM_Pariwisata. A qualitative approach allows researchers to understand the perceptions, needs and challenges of various parties, including customers and operational staff, directly through interviews, observations and document analysis [3].

Figure 1: Research Method

2.1. Data Source

This research analyzes the ticket booking workflow at BJM_Pariwisata by observing manual processes, staff interviews, and reviewing SOPs and operational documents [4]. Analysis is carried out to identify bottlenecks, ordering patterns and operational trends to improve system efficiency.

3. Result and Discussion

The results of this system development were obtained through the stages of the System Development Life Cycle (SDLC) method using the Prototype approach [5]. The following are the steps that have been carried out :

3.1. Identify Problems

This analysis identified several main problems faced by bus users and operators, such as difficulty accessing schedule information and ticket availability, a complicated booking process because it has to be done at the counter, and a payment system that is not integrated. [6], making it confusing for users. In addition, manual management of booking data makes it difficult for bus operators and has the potential to cause errors.

3.2. Planning

After identifying the problem, a solution was designed with key features such as easier ticket search and booking, secure online payments, as well as ticket management to manage bookings efficiently.

3.3. Needs Analysis

The system must support registration, schedule searches, ticket reservations, digital payments, order history, and data management by admin [7]. The system must also be responsive, secure, compatible, and scalable. Flow diagrams and use cases are used to describe the ticket ordering process.

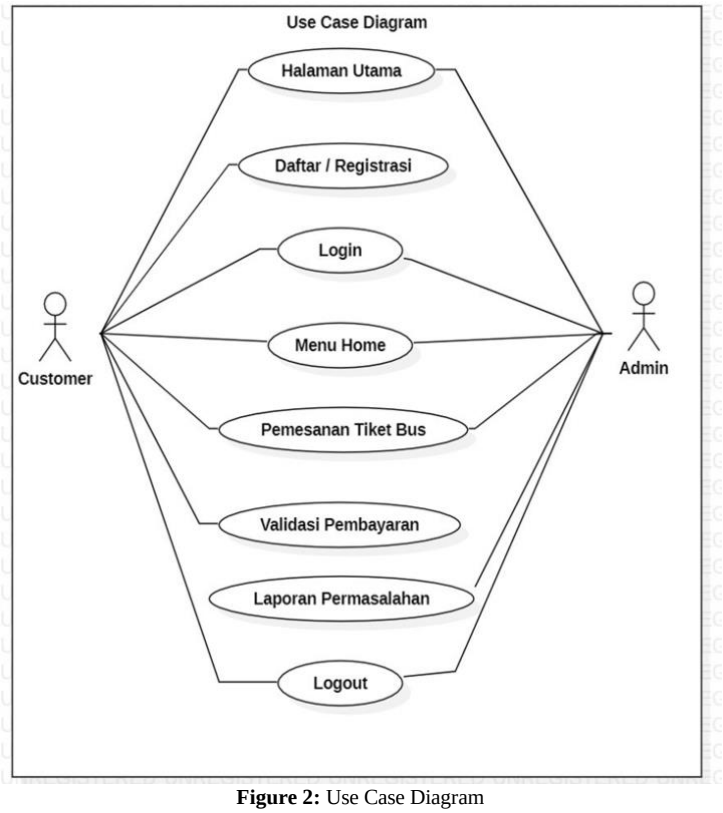


Figure 2: Use Case Diagram

3.4. Database Design

The display design of the BJM_Pariwisata ticket booking system includes the main page, registration, login, ticket ordering and payment validation [8]. The booking process consists of selecting the date, destination, seats and payment method (BRI, BCA, Mandiri). The system was built with a web-based architecture using PHP (backend) and HTML, CSS and JavaScript (frontend). The database consists of main tables such as Routes, Schedules, Orders, and Users to manage travel, booking, and user data[9].

Table 1: User

Nama	Tipe Data	Ukuran	Key
Id	Int	-	Primary key
Name	Varchar	100	-
Email	Varchar	```100	-
Password	Varchar	255	-

3.5. Interface Design Display

a. Main Page
The main page is the initial display of the web-based bus ticket booking system on BJM_pariwisata.

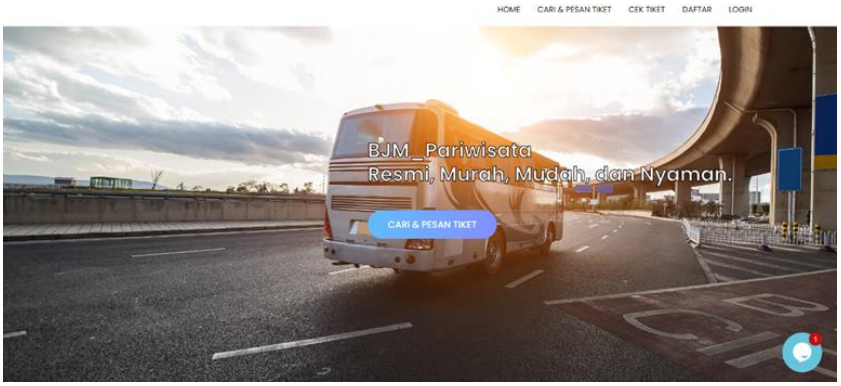


Figure 3: Main Page

b. Register Menu
In the registration menu, the user fills in the data according to the provisions, then presses the register button to register an account.

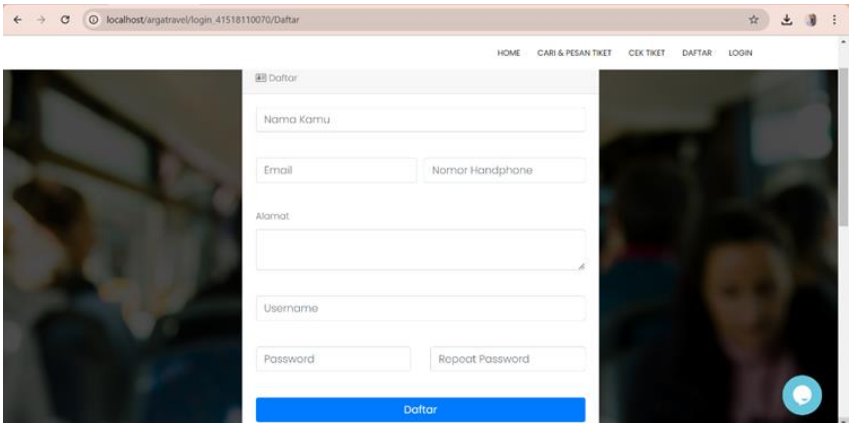


Figure 4: Register Menu

c. Login Menu
The login display allows customers to order bus tickets by entering the registered username and password. After logging in, users will be directed to the BJM_Pariwisata ticket ordering menu.

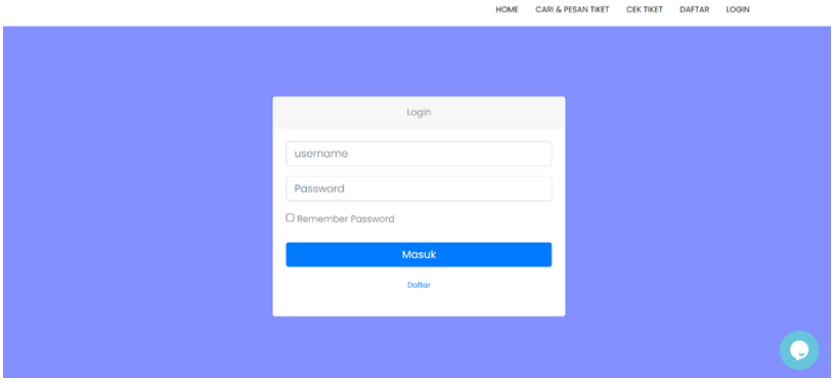


Figure 5: Login Menu

d. Ticket Order Display Results
The ordering menu can only be accessed by the owner to order bus tickets. In the first step, the customer selects the departure date, origin location and destination.

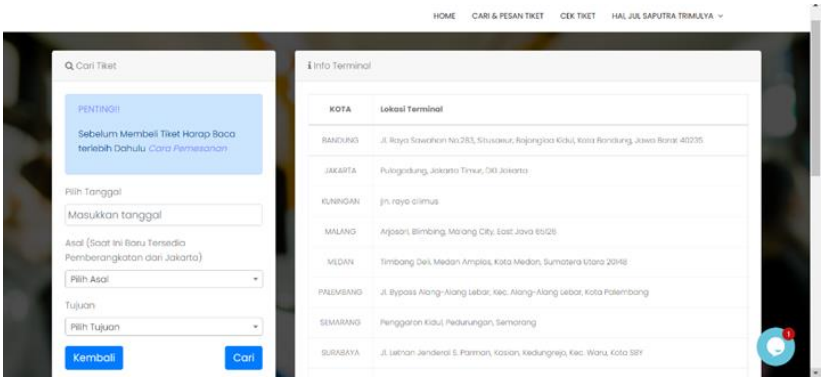
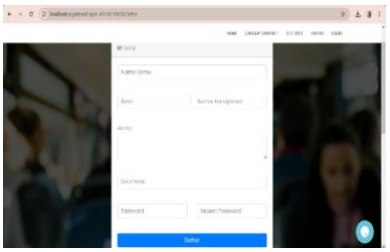
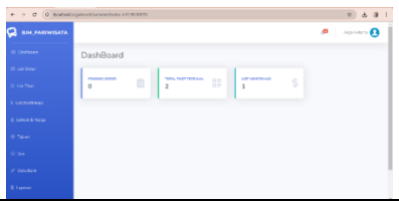


Figure 6: Ticket Order Display Results

3.6. Results and System Testing

Testing using the black box testing method is carried out by observing the execution results through test data to check system functionality [10]. This method is used in a web-based bus ticket booking system. As follows:

Table 2: Testing Using Black Box

No.	Test Scenarios	Expected Results	Results
1.	Login to the main page		Valid
2.	Go to the login page		Valid
3.	Go to registrati on page		Valid
4.	Go to home page		Valid

4. Conclusions and Suggesstions

The web-based bus ticket booking system at BJM_Pariwisata has been successfully developed with features that make reservations easier, displaying schedules, prices and seat availability in real-time [11]. For further development, it is recommended to add discount

features, social media integration, reminder services, as well as routine maintenance and periodic evaluations to improve service quality and user experience.

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