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Development of a Web-Based Management Information System for Online Boarding House Reservations

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ABSTRACT

Objective: *This study aims to develop a web-based boarding house management information system for Kost Titik Kumpul, located in Griyo Mapan Sentosa AB-35, Sedati, Sidoarjo, to address existing issues related to manual data recording, payment verification delays, room availability tracking, and incomplete tenant documentation.* ***Method:*** *The research employs a system development approach using the waterfall model, including problem analysis, system design, implementation, and testing to ensure the system aligns with user needs.* ***Results:*** *The resulting system integrates automated tenant data management, online reservations, real-time room availability monitoring, and digital payment processing, which collectively enhance administrative efficiency, accuracy, and reporting capabilities to local authorities. System testing demonstrates improved processing speed, reduced recording errors, and higher reliability in payment verification compared to the previous manual system.* ***Novelty:*** *The study offers an integrated digital solution tailored to small-scale boarding house operations by combining reservation features, automated administrative workflows, and structured tenant reporting in one platform, representing a modernization approach that has not been widely applied in typical local boarding house businesses.*

INTRODUCTION

An important indicator for a country is its population, including Indonesia. A large population will be an effective resource for achieving a country's development goals if empowered and developed properly. However, due to limited economic carrying capacity, a large population is usually a problem for developing countries, including Indonesia. One cause of soaring unemployment in Indonesia is the large number of workers employed in the formal sector, making people reluctant to try to start their own businesses in the tourism industry when employment in the formal sector is not growing and developing [1]. Low productivity and educational attainment, as well as the uneven distribution of workers and the population regionally and sectorally, are also other problems. Indonesia and other developing countries often face the phenomenon of unemployment. The number of births exceeds the number of deaths, and the difficulty of finding work is a cause of the increasing unemployment rate [2]. The number of people wanting to enter the workforce is increasing at a rate that is not in line with the number of open job opportunities.

Titik Kumpul Boarding House, located in the Griyo Mapan Sentosa Housing Complex, Block AB-35, Sedati, Sidoarjo, is a boarding house rental service provider.

Currently, the payment system is monthly and still uses a manual recording method through a payment logbook. This manual data management creates various obstacles, one of which is the difficulty in checking the tenant's payment status, because it must be done one by one through the logbook [3]. This process is not only time-consuming but also prone to recording errors. Similar problems also occur in checking room and tenant data, which are all still carried out without the aid of a digital system. This makes it difficult for prospective tenants to obtain information quickly and accurately, especially regarding room availability and the facilities offered. In addition, the variation in facilities in each room that affects the rental price also adds to the complexity of management [4]. Boarding house owners also often face obstacles related to the completeness of tenant data, even though this information is needed for reporting to the local RT (Neighborhood Association). In the rental process, there is also a legal agreement between the boarding house owner as the lessee and the lessee as the party who receives the right to occupy the house for a certain period of time in exchange for payment of a certain amount of money as rent. This condition shows the need to develop an information system that can help the boarding house management process to be more effective, efficient and accurate [5].

Based on the problems described previously, a solution is needed in the form of a system that is able to overcome obstacles in boarding house management, especially in terms of recording tenant data, payments, and room reservations. Therefore, this study aims to design and develop a web-based boarding house management information system equipped with an online reservation feature. This system is expected to provide convenience for boarding house owners in managing data automatically, reducing the potential for recording errors, and increasing overall operational efficiency. With this system, the boarding house management process is expected to be more structured, fast, and accurate. This research is presented in the form of a final project with the title **"Development of An Online Boarding House Management Information System with A Web-Based Reservation Feature".**

RESEARCH METHOD

This research requires several methods related to the implementation of booking or reservation activities at the Titik Kumpul Boarding House as a basis for system development. The methods used are:

1. Interviews, a process of gathering information directly through interactions with parties involved in boarding house management to obtain a concrete picture of the activity flow and system requirements [6].
2. Implementation: This stage uses data from the interviews as the basis for designing flowcharts, data flow diagrams (DFDs), database relationships, and coding to produce an information system that meets field needs [7].

Several system designs or application components will be implemented, including:

a. Flowchart (Admin)

A chart that provides an explanation of the sequence of steps in a system. These steps or flow are depicted in the form of diagrams and symbols connected by lines [8]. The following is a flowchart representing the sequence of processes from the administrator's perspective in a boarding house management system:

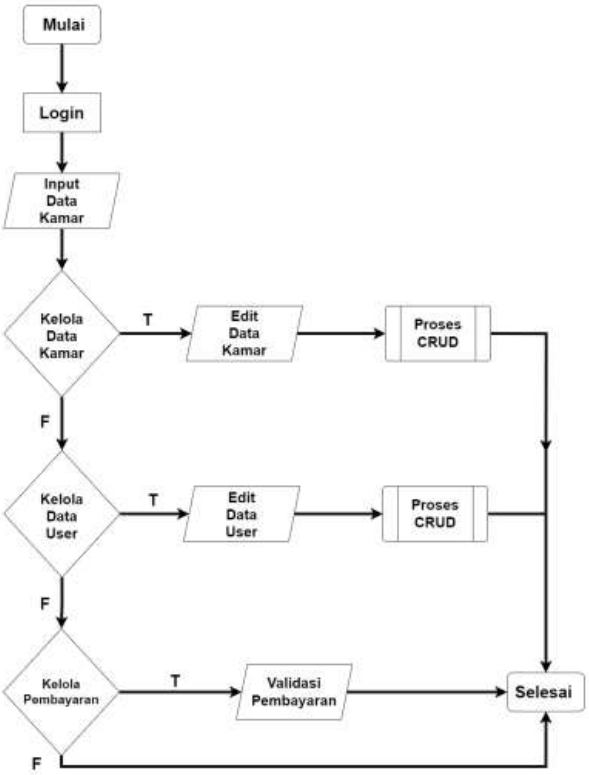

Figure 1. Flowchart Admin

A chart that provides an explanation of the sequence of process steps from the perspective of the user or users who have access to the system [9]. The following is a flowchart for user roles in the boarding house management system:

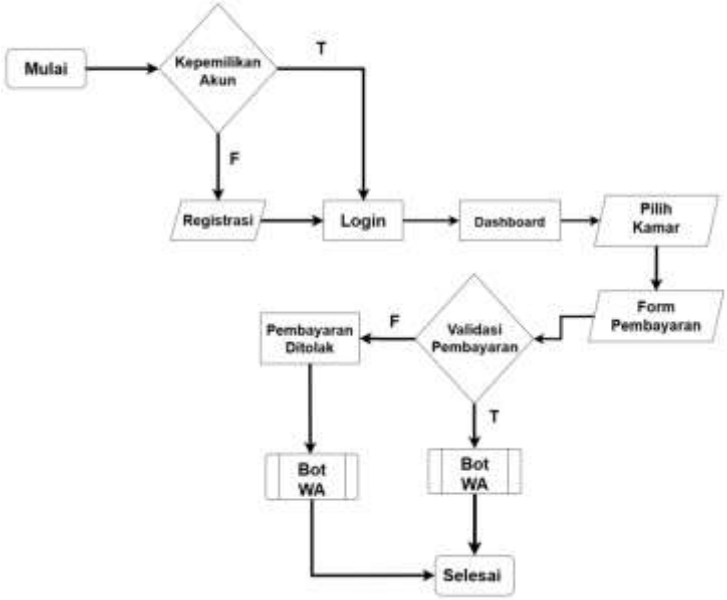

Figure 2. Flowchart User

c. Database Relations

The database relation table functions to provide an overview of the classes contained in a system and the relationships between these classes [10]. The relationship between each class entity in the boarding house management system can be seen in the image below:

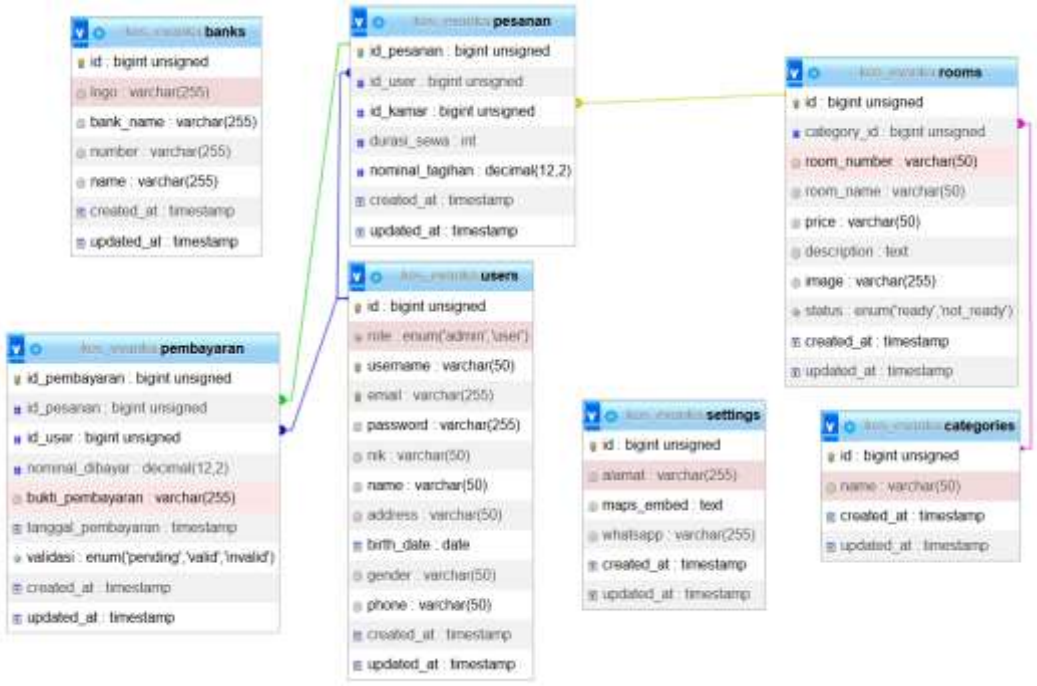

Figure 3. Database relations

d. Context Diagram

A diagram that can provide a clear picture of the system's interaction with external entities that have access or a relationship.[11] Each entity has its own limitations for data that can be input and data that can be received (output), for details see the image below:

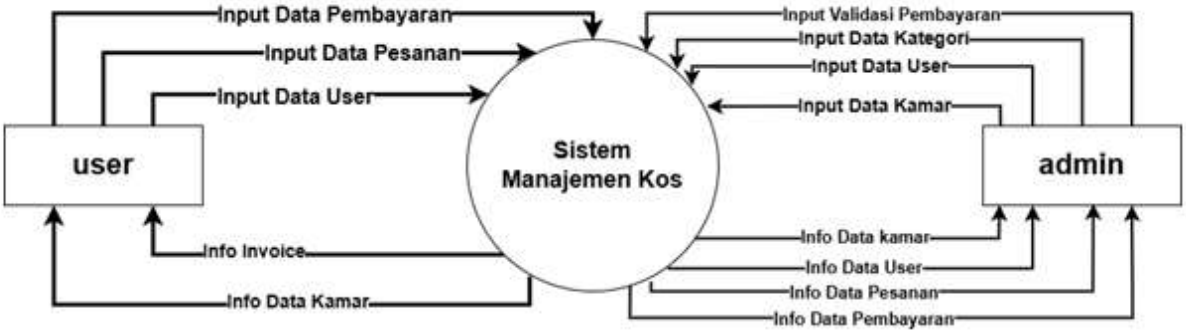

Figure 4. Context Diagram

e. Data Flow Diagram Level 1

Data Flow Diagram level 1 is a development of the context diagram that serves to provide an overview of the data flow in a system's running process.[12] And just like the entities in the context diagram, each entity in the Data Flow Diagram level 1 has its own data flow. The following is an image of DFD Level 1:

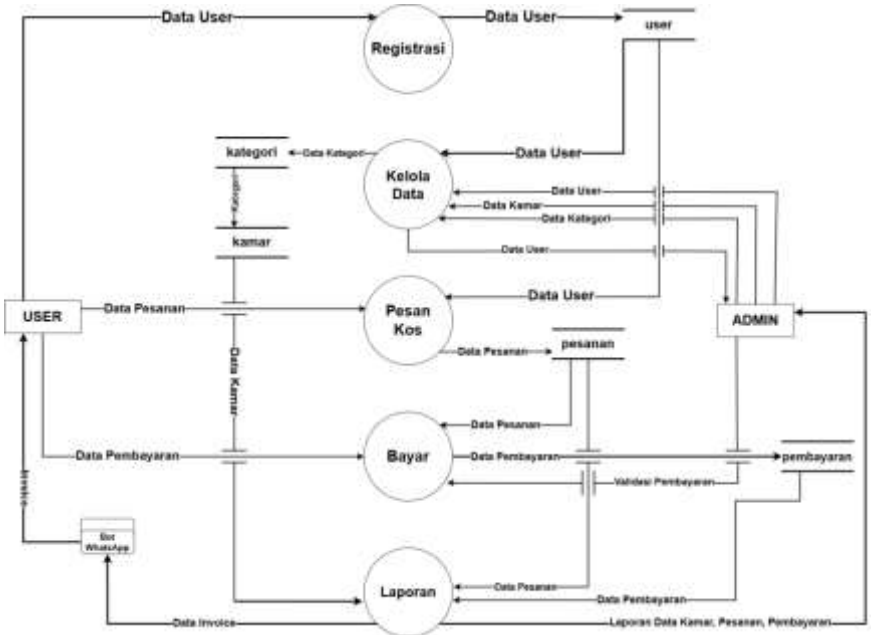

Figure 5. Data Flow Diagram

RESULTS AND DISCUSSION

1. Website Home Page

Figure 6. Main page

A partial test or t-test is used to identify whether each independent variable partially influences the dependent variable in a regression model. If the significance value (Sig.) is <0.05, On the main page of the e-kost website there is a welcome greeting and there is a button to log in at the top right by entering your email and password.

2. Admin Dashboard Page

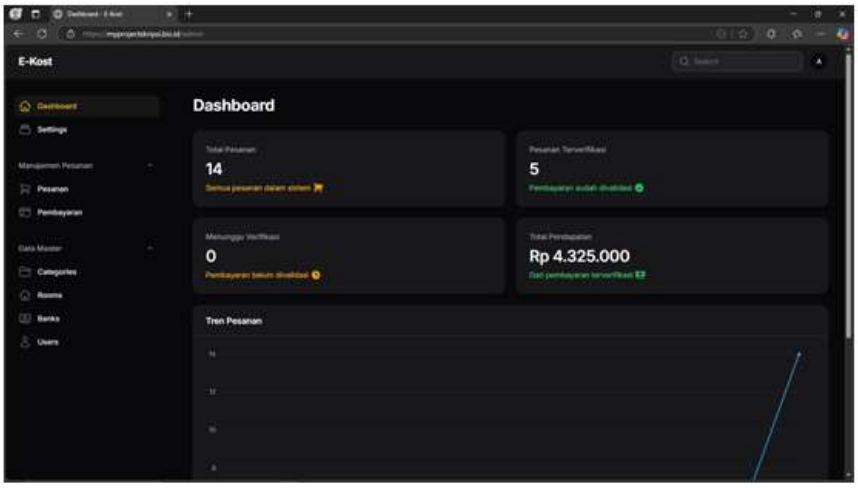

Figure 7. Admin dashboard page

The admin dashboard displays the total number of orders, verified orders, orders awaiting verification, and the total number of verified payments. Admins are also provided with settings, orders, payments, categories, rooms, banks, and users buttons to manage the data available on the website.

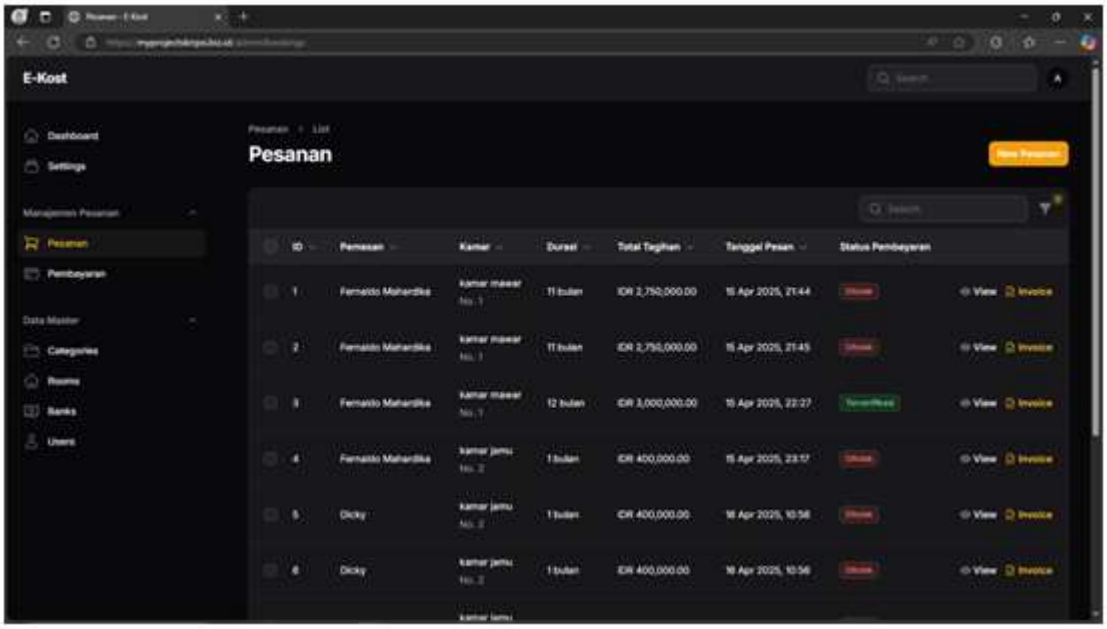

Figure 8. Order Page

The order page displays orders that have been made by users and contains data on users who have made room reservations, so that the admin can see the payment status that has been made by the user.

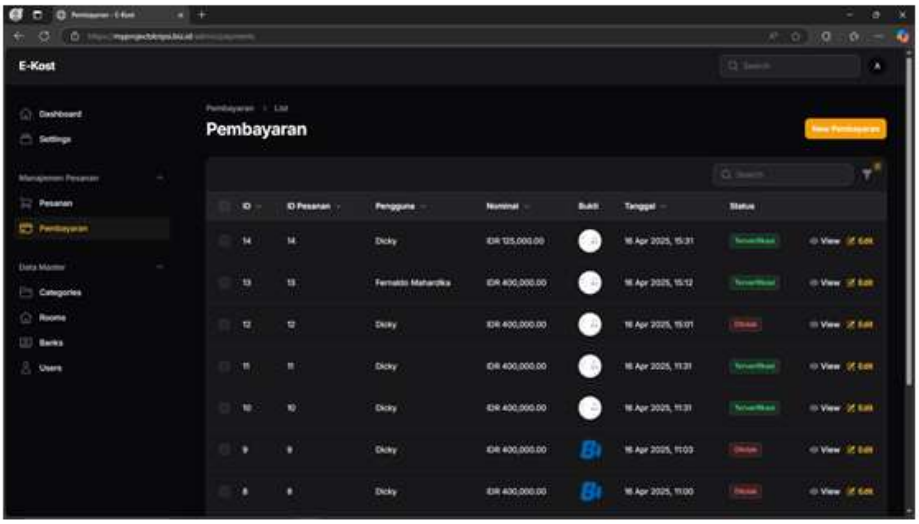

Figure 9. Payment Page

The payment page displays user data who have made payments according to the room orders available on the website.

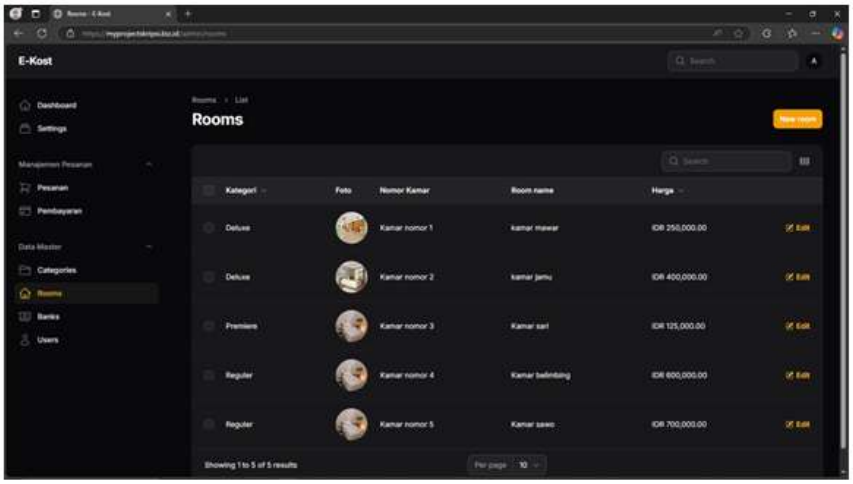

Figure 10. Rooms page

The rooms page displays available room data and there is a separate category for the rooms. Only admins with access can delete or add rooms available on the website.

3. User Dashboard Page

Figure 11. User dashboard page

The User Dashboard page displays a welcome message and provides users with home, category, and about us buttons. Users can make room reservations using the category buttons to select from available news.

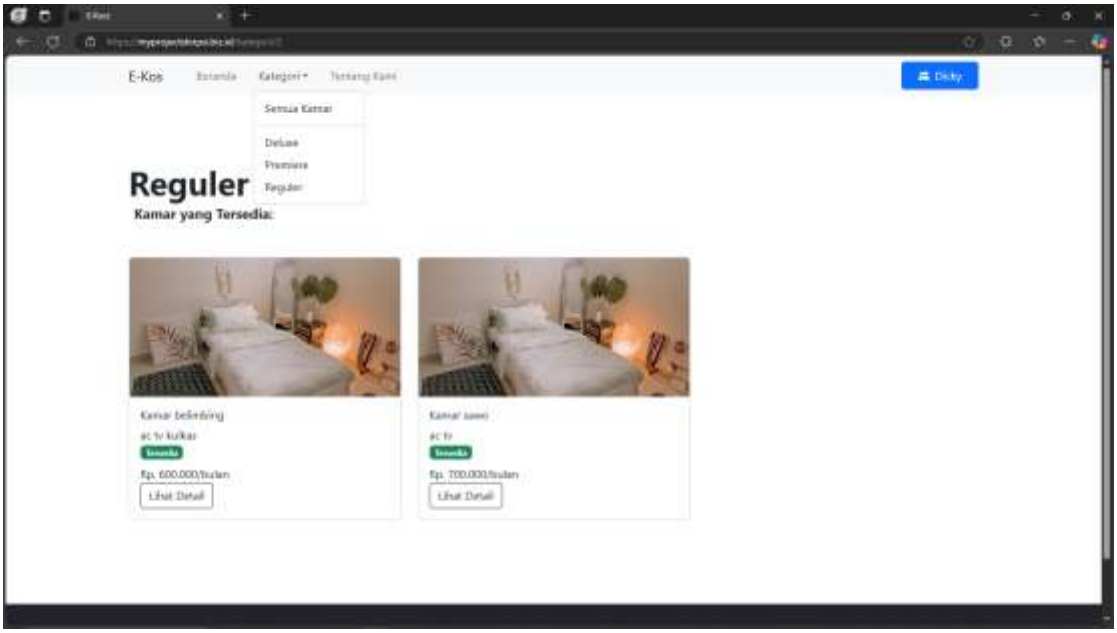

Figure 12. Room Category Page

The Room Categories page displays All Rooms, Deluxe, Premiere, and Regular. Users can select the room they require, and a "view details" button allows them to view the available room amenities.

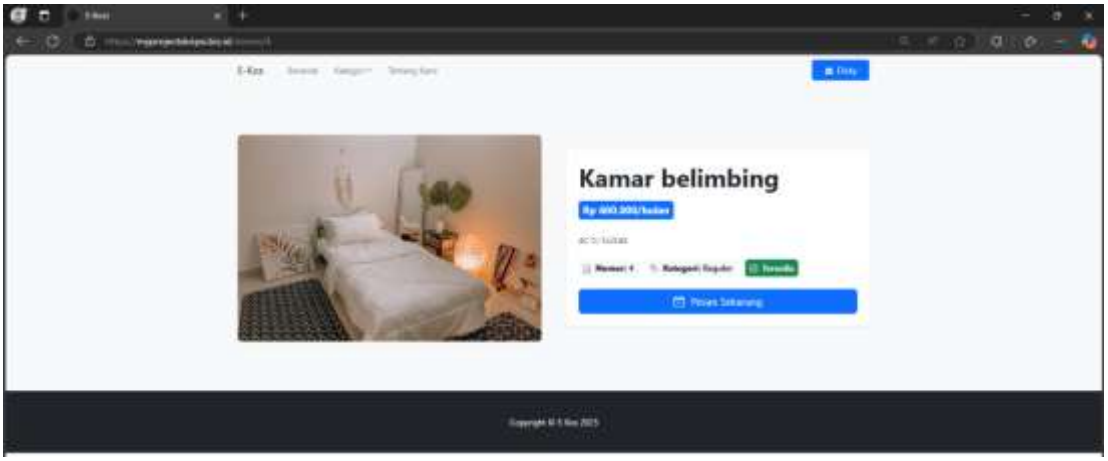

Figure 13. Order Page

The Order page displays the room prices and facilities provided, so that users can double-check before placing an order.

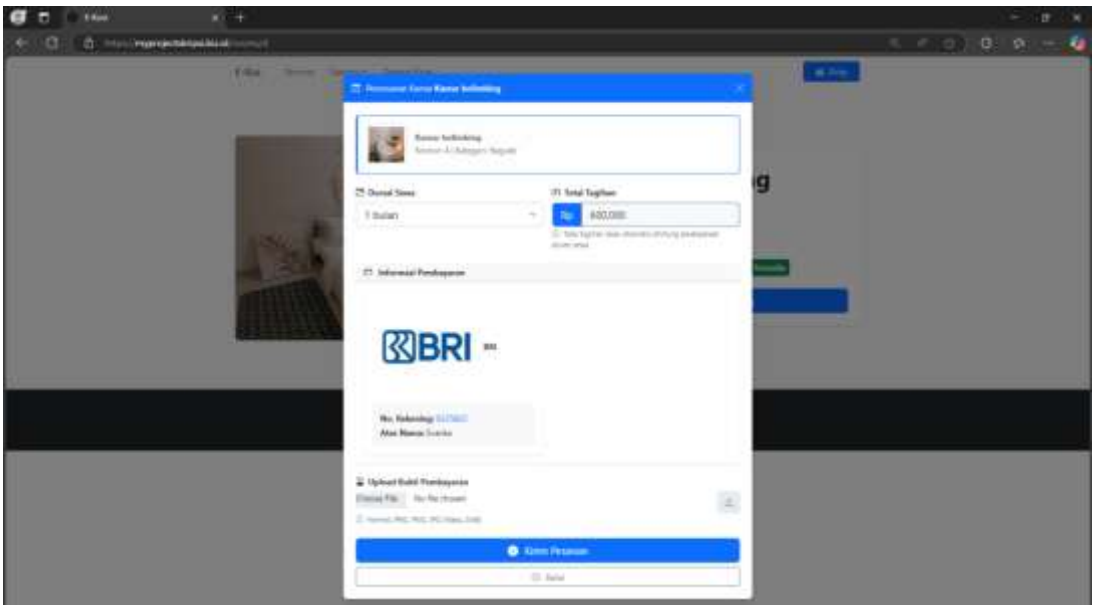

Figure 14. Payment Page

The Payment page displays the total order and admin data information for making payments and the user adds proof of the transfer that has been made.

B. Black-Box Testing Results

The Black Box Testing method is a software testing technique that focuses on evaluating the functionality of a system without requiring an understanding of its internal mechanisms [13]. This testing is carried out by providing various inputs to features or forms in the application to ensure that the output produced is in accordance with the planned specifications [14]. In the context of this research, Black Box Testing is used to identify errors or faults in the system, so that it can be ensured that the system being developed functions properly before it is officially used [15].

CONCLUSION

Fundamental Finding : The development of a web-based boarding house management information system at Titik Kumpul successfully demonstrates that integrating digital technology can significantly enhance operational efficiency, accuracy, and service quality compared to previously manual processes. **Implication :** The system's implementation provides practical benefits for boarding house managers, including streamlined administration, improved data reliability, and better decision-making support, while also contributing to the broader digital transformation of micro and small enterprises. **Limitation :** However, the system is currently limited to core administrative functions such as reservations, tenant data management, and payment processing, and has not yet incorporated advanced features such as predictive analytics, multi-branch integration, or mobile application support. **Future Research :** Further studies are recommended to expand system functionality through integration with IoT-based room monitoring, development of mobile platforms for improved user accessibility, and evaluation of system performance in larger-scale boarding house settings to strengthen its sustainability and scalability.

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