ON LINE TICKET SALES RESERVATION SYSTEM AT PO. SRIWIJAYA BENGKULU

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Abstract
The development of science and technology along with the times can support all activities carried out by humans. A computer is a set of electronic devices that are largely composed of hardware and software that work together in processing data provided or entered by the user. Computers have many features, namely being able to process data that are numbers, letters, images, sounds, symbols, and others. With computer technology, data processing will be easier and more efficient so that users do not need a long time to process data. PO. Sriwijaya Bengkulu is one of the service companies engaged in transportation. However, the processing of sales and purchase administration data at PO. Sriwijaya Bengkulu in booking tickets for this company is still using a manual system which makes it difficult for consumers to be able to order tickets so that consumers have to come to PO. Sriwijaya Bengkulu directly to do the ticket booking process. This research aims to create a new booking system that uses PHP software and MySQL database connected to internet technology at PO. Sriwijaya Bengkulu, so that booking tickets is easier and wider. The result of this research is an online sales system that is often called a reservation that can be accessed easily and efficiently.

I. INTRODUCTION

The rapid development of technology has increased the need for fast, accurate and relevant information. One technology that is widely used in various activities is the computer, which allows efficient access and processing of data, including in recording transactions in companies and government agencies. In this digital era, the use of computers and the internet as a medium for information services is increasingly widespread, especially in the application of reservation systems designed using web programming such as Adobe Dreamweaver, HTML, and Joomla.

PO.Sriwijaya Branch Bengkulu is a company engaged in land transportation. Currently, the ticket booking process is done manually at the branch office, which often causes problems, especially on holidays and holidays. In addition, sales data management has not been optimized, making it difficult to record and monitor transactions. With the development of online sales transactions through websites and other electronic media, the implementation of an online reservation system is expected to be a solution to overcome these problems.

An online reservation system not only simplifies the ticket booking process, but also helps PO. Sriwijaya Air in promoting their services more widely. Through the application of internet technology, PO. Sriwijaya can reach consumers more effectively and efficiently. This system also allows passengers to book tickets and choose destinations without having to come directly to the branch office, thus saving time and effort.

Research on the design of online ticket reservation systems has been widely conducted to improve service efficiency and management in the transportation sector. Web-based systems developed using PHP and MySQL have proven effective in automating ticket booking processes, reducing queues, and minimizing manual recording errors. A study by [1] demonstrated that the implementation of a web-based reservation system in transportation

companies enhances customer satisfaction and accelerates transaction processes. This aligns with the current research, which aims to build an online reservation system for PO. Sriwijaya Branch Bengkulu, enabling residents especially those in Bengkulu City to book tickets more practically and efficiently.

In addition to technical and practical benefits, this research also contributes to the development of knowledge in the field of information systems. According to [2], the development of online ticket reservation applications can serve as a case study in web-based system development courses, as it involves database design, business logic, and user interface integration. Therefore, the results of this study are not only useful for operational improvements at PO. Sriwijaya but also valuable as an academic reference for students and researchers interested in information system development within the transportation service sector.

II. LITERATURE

2.1. System

According [3], [4] the term system is often associated with computers, such as the IBM PC or Macintosh, but its meaning is much broader and can refer to big things like the solar system or more specific things like the respiration system in mammals. In general, a system can be defined as a collection of parts that work together to achieve a common goal. In every component in the world, there must be a system that operates it. For example, in a computer, there are elements such as input, process, and output that are integrated and work together to achieve certain goals. These elements do not stand alone, but are interconnected and influence each other to produce the expected function.

In general, there are several definitions of systems. First, a system can be defined as a collection of parts that work together to achieve a common goal. Second, the system can also be interpreted as a network of procedures that are interconnected and gathered together to carry out activities or achieve certain goals. Third, the system can be understood as a set of interrelated and interacting objects, where the relationship between these objects can be seen as a single unit designed to achieve the same goal. Thus, in simple terms, a system is a collection or set of elements or variables that are organized, interact with each other, and depend on each other.

According [5]–[8], a system can be defined as a set of objects and ideas that are interconnected (interrelated) in achieving a common goal or objective. This definition shows that the system is not just a collection of components, but also includes relationships and interactions between these components. Each element in the system plays an important role in supporting the overall function. If one element is not functioning properly, then the performance of the system as a whole may be

affected. Therefore, in analyzing a system, it is important to look at the linkages and interactions between each element so that it can be understood how the system works holistically.

The main characteristics of the system consist of four main things. First, the system operates in an environment, meaning that every system is always in a context or environment that affects and is affected by it. Second, the system consists of elements or components that work together. Third, the system is characterized by a relationship between components that are interrelated and influence each other. Fourth, the system has the same function or purpose, which is the reason for the existence and operation of the system. Based on the system model which consists of four main components, namely input, processing, output, and feedback/control, it can be concluded that each system does not only work linearly but also involves feedback which is used for evaluation and continuous improvement of system performance[7].
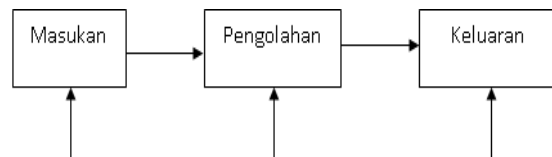
Picture 1 System Models

2.2. Database Concepts and Design

According [9][10], [11], a database is a set of data groups (archives) that are interconnected and organized in such a way that they can be reused quickly and easily. The main purpose of a database is to manage data effectively so that information can be accessed and processed efficiently. In this context, the data stored in the database does not stand alone, but is interconnected and forms a well-structured whole. This enables quick and accurate information retrieval, which is crucial in supporting the decision-making process in an organization.

In databases, there are several important terms that need to be understood. Entities are real objects such as people, places, events, or concepts whose information is to be recorded. Attributes are characteristics or traits that represent the entity, such as the name and address of a customer entity. Field (column) is used to store attributes or characteristics of an object, while Record (row) stores one complete data entity, for example, one row of customer data. File is a collection of similar records that have the same elements and attributes, but differ in terms of content. Relationships are relationships between tables in a database that allow logical integration of data. These relations can be one-to-one, one-to-many, many-to-one, and many-to-many, linking information from various tables efficiently.

Furthermore, a database is a collection of files that are interrelated and form one data building that stores information in an organized manner. Screen is a screen that is used to display data and make it easier

for users to input and view information stored in the database. This display is designed to be easy to use and resembles a printed form in digital form. Report is a medium to display the results of data processing, which can be in the form of hardcopy (printed) or softcopy (not printed). This report is designed to provide clear and structured information to users, making it easier to analyze and make decisions. By understanding these terms, users can optimally manage and utilize databases in various applications, ranging from information management to more complex data analysis.

2.3. Data Flow Diagram (DFD)

Data Flow Diagram (DFD) is a versatile tool for creating diagrams that describe the flow of data in a system. According to [10], [12], DFD is a graphical representation that shows the components of the system and the flow of data between these components. DFD consists of four main elements: Entity (external entity) which represents the input source or output receiver of the system, Process (attribute) which shows data processing activities, Data Flow (data flow) which describes the flow of data in (input) and out (output), and Storage (storage) which shows where data is stored such as files or databases in computers.

For ease of understanding, DFDs are divided into three levels. A Context Diagram is the topmost level that depicts the global scope of the system, showing all the inputs and outputs of a system. Level 0 diagrams are one level below the context diagram and describe the main processes in the system, serving as a bridge between the context diagram and more detailed diagrams. Detailed diagrams show the details of each process until it cannot be broken down anymore, thus providing a complete picture of the data flow in the system.

By dividing the DFD into these three levels, the mapping of data flow in the system becomes more structured and easy to understand. DFD helps system analysts and software developers design efficient and effective systems, as it provides a clear visualization of the interactions between components and the flow of data that occurs.

2.4 Entity Relationship Diagram (ER-D)

Entity Relationship Diagram (ERD) is a network model used to abstractly represent data structures in a system. ERD describes the relationship between data in the form of a data flow diagram, which facilitates understanding of the relationship between elements in the information system. In its implementation, ERD uses various notations or symbols to show relationships between data, such as entities, attributes, and relationships. By using ERD, system designers can identify data requirements and database structures in a clearer and more organized manner[13]–[16].

There are several degrees of relationship in ERD that show how entities are related, namely One to One, One to Many, and Many to Many. One to One describes that one member of entity A can only be connected to one member of entity B, for example the relationship between employee identification number and employee personal data. One to Many indicates that one member of entity A can be connected to many members of entity B, for example a lecturer can teach many courses. While Many to Many indicates that many members of entity A can be connected to many members of entity B, for example the relationship between students and courses taken.

In ERD, there are several important symbols used to represent its components. Entities are real objects or individuals that are distinct and fully defined in the system, for example the entity "Student" or "Course". Relations describe the relationships between entities, such as the relationship between students and courses taken. Attributes show the characteristics or traits of the entity, for example the attributes "Name" and "NIM" on the Student entity. In addition, there are connecting lines that link entities, relations, and attributes to each other. With this structure, ERD helps the designer in understanding the data requirements and designing the database logically before the technical implementation is done.

III. RESEARCH METHODS

An online reservation system simplifies the ticket booking process while also helping PO. Sriwijaya Air to promote its services more effectively. By utilizing internet technology, the company can reach a broader consumer base more efficiently. This system allows passengers to book tickets and select destinations without the need to visit the branch office, thus saving time and effort. The implementation of this system not only enhances customer convenience but also optimizes the management of ticket sales.

The purpose of this study is to use PHP programming and a MySQL database to build and install an online ticket reservation system at PO. Sriwijaya Branch Bengkulu. This system, which was created especially for Bengkulu City clients, is anticipated to increase service effectiveness and simplify ticket handling. This study intends to offer important insights into the use of information technology in the transportation industry in addition to meeting academic criteria for Dehasen University Bengkulu's Information Systems Study Program. It also acts as a guide for future advancements in online reservation systems within the information systems domain.

IV. RESULTS
4.1. Black Box Testing

In testing which aims to find out whether the system runs as designed or validation. Successful testing is testing that reveals all errors that have never

been found before. In software testing in this system, the Black Box testing method will be used, the testing process will focus on the software interface. System validation can be seen in Table 1.

Table 1. Description of Menus in the PO Sriwijaya Ticket Reservation System

No	Interface	Picture	Sub Interface	Result
1	Home Page		Access the main page	Good
2	Fleet Page		Fleet page access	Good
3	Promo Page		Access the promo page	Good
4	Confirmation Page		Confirmation Page Access the confirmation page Confirm	Good
5	Ticket check page		Access door Perform text search	Good

Based on the test results with the example test cases above, it can be concluded that the system validation table is in accordance with what is designed and runs as expected. Admins can enter the system with the correct username and password, exit the system, click on the menu as needed.

4.2. Analysis of Research Results

The testing phase conducted in this research aimed to validate whether the online ticket reservation system at PO. Sriwijaya Branch Bengkulu functions in accordance with its initial design. Using the Black Box testing method, the focus was directed toward the system's interface, particularly in validating the functionality of each feature without involving internal code structures. The test results, as shown in Table 1, indicate that all system menus and functions-including ticket booking, user registration, payment confirmation, and report generation-performed as expected without critical errors. This

suggests a high level of reliability and readiness for implementation.

This finding is consistent with several previous studies. For instance, [17] emphasized that Black Box testing is effective in identifying interface-level errors in web-based applications. Similarly, research by [18] found that successful system validation through Black Box testing ensured that all user inputs and expected outputs aligned correctly, thus enhancing user experience. Another study by [19] on a bus reservation system also confirmed the effectiveness of Black Box testing in verifying functional requirements, particularly in ensuring the completeness of the ticket booking flow and data integrity. Additionally, [1] noted that user satisfaction significantly increases when systems undergo rigorous interface-level validation. Lastly, [20] highlighted that Black Box testing helped minimize post-deployment system failures in transport reservation applications, confirming its relevance in real-world implementation.

Based on these test results and supporting literature, it can be concluded that the PO. Sriwijaya ticket reservation system is feasible to be deployed for public use. The system has passed functional testing and demonstrated reliability in supporting reservation transactions. Furthermore, the alignment of the testing approach with prior research strengthens the credibility of the validation process, ensuring that the system can effectively support service improvement and digital transformation in the transportation sector.

V. CONCLUSION

From writing this research report, starting from the stages of analyzing existing problems to testing new system applications, several conclusions can be drawn. First, the PHP programming language makes it easy to create an online ticket booking website. Secondly, the use of MySQL database is effective in accommodating information and data on the ticket booking website of Kota Bengkulu. Third, based on the results of the tests that have been carried out, each menu in this application has been running as it should. Fourth, this application provides convenience for users to purchase tickets online more practically and efficiently. In order for the proposed system to be used more optimally and run as expected, there are several suggestions that can be taken into consideration for PO. Sriwijaya Pratama. Firstly, the system that is built is essentially limited to the website PO. Sriwijaya Pratama, so further development is expected to expand the scope of the system to meet more complex needs. 1`Secondly, regular maintenance of the application program that has been made is needed so that it can be used sustainably and remains relevant to the information needs at PO. Sriwijaya Pratama. By doing regular maintenance, the system will keep running well and be able to adapt to changing user needs.

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