WATERFALL METHOD IN WEBSITE-BASED MOTORCYCLE RENT INFORMATION SYSTEM DESIGN AND SERVICES

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ABSTRACT
A lease is an agreement in which a payment is made for the temporary use of an item or property by another person. Berkah Bersama Motor is a business engaged in the service sector. However, in the data collection process at Berkah Bersama Motor, they still use manual processes such as recording customer personal data in books. In this research, the software development method used is the Waterfall method. Waterfall has the advantage that it can produce a fast and quality system so it was chosen in this study. The result of this web-based motorcycle rental management and service design program is that it can simplify the process of collecting customer personal data so as to reduce the risk of data loss because the storage media is still recorded in the book.

Keywords: Design, Management, Service, Web, Waterfall.

I. INTRODUCTION
The development of science and technology has impacted the increasingly fierce competition. Advances in science and technology, of course, also come into contact with computers. The computer system can reduce the error rate in data processing compared to manual data processing. The development of science and technology also encourages companies to improve company performance [1].

Information systems [2-3] can be interpreted as various components (humans, computers, information technology, and work procedures) that are connected and process various kinds of data into information to achieve a goal [4]. Defines the system [5] as a collection of elements that are integrated and independent in a dynamic environment to achieve certain goals.

II. LITERATUR REVIEW

1. Waterfall Method
The hallmark of the waterfall method is the development of a systematic and sequential information system [6]. The waterfall method provides a sequential or sequential software life cycle approach starting from analysis, design, writing code and ending with testing [7].

The Waterfall method has the following stages:
1) Requirements analysis and definition
   Stages of defining problems and analyzing problem-solving solutions based on the needs of system users.

2) System and software design
   This stage is the design of the system and software according to the needs in the first stage. Where software design involves identifying and delineating abstractions of the basic system.

3) Implementation and unit testing
   The next stage is the system is implemented and tested based on the system requirements criteria to find out how well the system is in overcoming problems.

4) Integration and system testing
   The next stage is merging and testing the program into a complete system to determine whether the software requirements are appropriate or not. If it is appropriate, then the software can be provided to the customer.

5) Operation and maintenance
   The next stage is merging and testing the program into a complete system to determine whether the software requirements are appropriate or not. If it is appropriate, then the software can be provided to the customer.

2. System Design
System design as the basis of system user needs in alternative information system designs provided to customers for consideration [9].
3. Website
A website is an application that consists of several pages and contains multimedia documents, information, advertisements and others that can be used by users.

III. RESEARCH METHODS
The research methods and data collection techniques used in this study:
1. Software Development
   a. Research methods and software development techniques in this study use the waterfall model. The Waterfall model is often called a linear sequential model or a classical life cycle [10]. The waterfall model is sequential or sequential software starting from analysis, design, writing of program code, testing units and supporting stages, including:
   b. Software Requirements Analysis
      At this stage, several aspects of program requirements are considered, starting from the text editor used, local server and database selected according to the program requirements desired by the customer.
   c. Design
      At this stage, the design is divided into two aspects, namely system design using Unified Modeling Language (UML) and database design using Entity-Relationship Diagram (ERD) and Logical Relational Structure (LRS).
   d. Program Code Generation
      In making the program code, a programming language that is suitable for system needs and interface design is determined. The selection of the right programming language can determine the success of the desired system.
   e. Testing
      At this stage, testing is carried out that focuses on program design and whether it is in accordance with what is expected using the Blackbox Testing method.
   f. Support (Support) or Maintenance (Maintenance)
      This stage is no less important than the previous stage, namely the selection of computer specifications in accordance with the specifications of the program made so that the use of the system can run optimally. Maintenance is carried out periodically, starting from the interface database to the program code.
2. Data collection technique
   a. Observation
      Researchers made direct observations of motor vehicle rental service providers in Berkah Bersama Motor.
   b. Interview
      Researchers also conducted interviews with owners and employees on how the business processes were running
   c. Literature review
      In addition to carrying out the above activities, the author also conducts library research through references in the library and on the internet.

IV. RESULTS AND DISCUSSION
1. Entity Relationship Diagram
   ![Figure 1. Entity Relationship Diagram](image-url)
The picture above is a database design using an Entity Relationship Diagram (ERD), which has five entities that are related to other entities and have cardinality of relationships between entities.

2. Logical Record Structure

![Figure 2. Logical Record Structure](image)

The picture above is a Logical Record Structure design which is a derivative of the Entity-Relationship Diagram design, which is described in detail the attributes that are accompanied by their respective data types.

3. Program Specifications

![Image 3. Program Specifications](image)

The picture above is a program specification designed using a Navigation Structure with a Composite type that describes the flow of each page on a website-based program.
4. Implementation
   a. Login Page

![Image of Login Page](image)

Figure 4. Login Page

The picture above is a login page interface design used by admins and users before entering the system. This login is needed so that every transaction process on the system is clearly recorded who is running it.

b. Dashboard Page

![Image of Dashboard Page](image)

Figure 5. Dashboard Page

The picture above is the Dashboard page or the main page on the system, which consists of the main page containing information such as motor data, customer data, and order data. On the left side, there is a Side Bar which contains menus to enter these pages.
c. Motor Data Page

The image above is a motor data page that displays motor data that is already in the database and a page for entering new motor data. Access rights on this page can only be used by administrators.

![Motor Data Page](image)

**Figure 6. Motor Data Page**

The image above is a motor data page that displays motor data that is already in the database and a page for entering new motor data. Access rights on this page can only be used by administrators.

d. Order Data Page

The picture above is an order data page that contains order data that has been stored in the database, as well as a page to fill in new order data. This page can be accessed by administrators and ordinary users.

![Order Data Page](image)

**Figure 7. Order Data Page**

The picture above is an order data page that contains order data that has been stored in the database, as well as a page to fill in new order data. This page can be accessed by administrators and ordinary users.
V. CONCLUSION

From the discussion regarding the design of motorcycle rental management and service programs at Berkah Bersama Motor, it can be concluded that:

a. From the discussion regarding the design of motorcycle rental management and service programs at Berkah Bersama Motor, it can be concluded that.

b. This system still focuses on backend services in the sense that only system users can operate it.

REFERENCE


