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WEB-BASED MOBILE SERVICE HANDLING APPLICATION DESIGN

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Abstract

The use of internet technology has developed with the presence of web-based applications as a solution to a problem in an organization. CV. Dayla Cell is a business actor selling services for accessories and handling mobile phone service and as an object of research. The problem that exists in the object of research is the management of service data, which still uses paper records physically and is not yet supported by database data storage. The purpose of this study is to design and build a web-based application that can support the effectiveness and productivity of research object service handling activities, with the benefit of research being able to provide convenience and speed in searching for the required data because the data is stored properly in a database. This study uses the SDLC (Software Development Life Cycle) software development method with the stages of the waterfall method. The results of the study are that the applications built are able to properly support operational activities, especially mobile phone service on the object of research

Keywords: Mobile Service, Waterfall Method, SDLC

1. INTRODUCTION

Digitalization of the current system has entered various sectors in the world of business and industry, so that it has had a good impact in increasing effectiveness and productivity in managing existing data. One that can be seen is in the field of services, such as service of electronic devices and mobile phones. Service is an important segment in operational activities in selling services, and requires supporting digital technology-based information systems in terms of data management.

CV. Dayla Cellas an object of research is one of the service business actors in the Bekasi City area, engaged in selling accessories and handling mobile phone services. Services have various meanings ranging from personal service to services as products[1]. The focus of the problem that the researcher raises is on the service data management segment in handling services carried out on the object of this research. Data recording of service handling services still uses physical paper records with not yet supported data storage with a good database. This creates a gap in difficulty in finding data if needed, as well as having an impact when you want to recapitulate service receipts when making reports every month. Manual systems in data processing cause errors in calculating service costs that cause losses[2]

Researchers intend to provide solutions to problems that exist in the object of research. So the purpose of this research is to design a web-based application that can support the effectiveness and productivity of service management activities, especially the handling of mobile phone services on the object of research. As well as the benefits of research results, namely in addition to instilling the use of technology culture in operational activities on the object of research, as well as providing convenience and speed in terms of finding the data needed to be used in recapitulation of monthly reports or policy making.

In this research, the design is done on a web-based basis or utilizing web platform technology, which can be accessed via a web browser. Web applications are applications that are stored and executed on a web server environment. Every request made by the user through the client application (web server) will be responded to by the web application and the results will be returned to the user. With web

applications, the pages that appear on the web browser screen can be dynamic, depending on the data values or parameters entered by the user[3]. Web browsers such as Internet Explorer, Mozilla, Opera, are platforms on which to run web applications[4].

Inmaking a web application, first do the design of both the application and the database design that is made. Researchers use UML diagrams to describe the architecture of the application, and ERD for the design of the database that is built. UML (Unified Modeling Language) is a standard language that is widely used in the industrial world to define requirements, make analysis & design, and describe architecture in object-oriented programming. So it can be concluded that UML is a language based on graphics or images for visualizing, defining, building and documenting an object-oriented software development system (Object Oriented Programming).[5]. The Use Case diagram is a diagram that captures the business requirements for the system and to describe the interactions between the system and its environment[6].

The database design uses the ERD Entity Relationship Diagram (ERD) diagram or which has the meaning of a diagram that states data in the form of relationships between entities that have a set of attributes. Relations between data can be used as a basis for designing data storage both logically and physically[7]. A database is defined as a collection of interconnected data stored together in such a way and without unnecessary redundancy, to meet various needs.[8]. The database itself is one of the important components in an information system, because it is the basis for providing information[9]. DBMS (Database management system) rules make it easy to create programs and databases[10]

Framework can be interpreted as a set of basic commands or programs where these basic commands can be used again to solve more complex problems so that they can be used to help create new applications or complex applications without having to create programs from scratch.[11]. By using the principles of the MVC framework, an application can be developed according to the capabilities of the developer[12]. CodeIgniter is a PHP framework created based on the View Controller (MVC) model.[13]

SDLC or Software Development Life Cycle or often called System Development Life Cycle is the process of developing or changing a software system using models and methodologies that people use to develop previous software systems (based on best practices or ways that have been tested). good)[5]. Blackbox Testing is a type of testing that treats software with no known internal performance[14]. The SDLC waterfall methodology is very easy to understand and use, especially in the process of creating an information system[15]

2. METHOD

The methodology for developing software or web-based applications in this study uses the SDLC (Software Development Life Cycle) concept, with waterfall stages, namely:

2.1. Software Requirements Analysis

In this stage the researcher determines the focus of the research and finds the problems that exist in the object of research. Collecting the data needed to support the analysis of needs both in terms of hardware and software.

2.2. Design

Followed by designing the architectural design, both the database needed and the application side that was built. The design that is built must have an aspect of ease of use and be a solution to the needs that have been analyzed previously. Design using ERD and UML tools.

2.3. Program Code Generation

Writing program code into a text editor uses a programming language that supports the creation of web applications. Applications are built using a framework that can run for web applications.

2.4. Test

In the application testing phase, the researcher uses the blackbox testing method, which is to find out the gaps and errors that occur in the validations when the input process is carried out.

3. RESULTS AND DISCUSSION

3.1. Software Requirements Analysis

Taken from the problem at the focus of research, which is about the management of mobile phone service data, in the early stages the results obtained for software requirements analysis are as follows:

1. System Requirements
   a. The system has a security system in application access rights
   b. Rely on feature reliability in terms of ease of use
   c. Integrated into a database stored on a local server
2. User Requirements
   a. The use of the application is limited only to those who have access rights
   b. Handpone service data management via application
   c. Data management of spare parts and accessories available via the application
   d. Users can manage user account data to have access rights

3.2. Design

Based on the needs analysis that has been done, the following are some of the results of the application design and database that was built.

1. Use Case Research

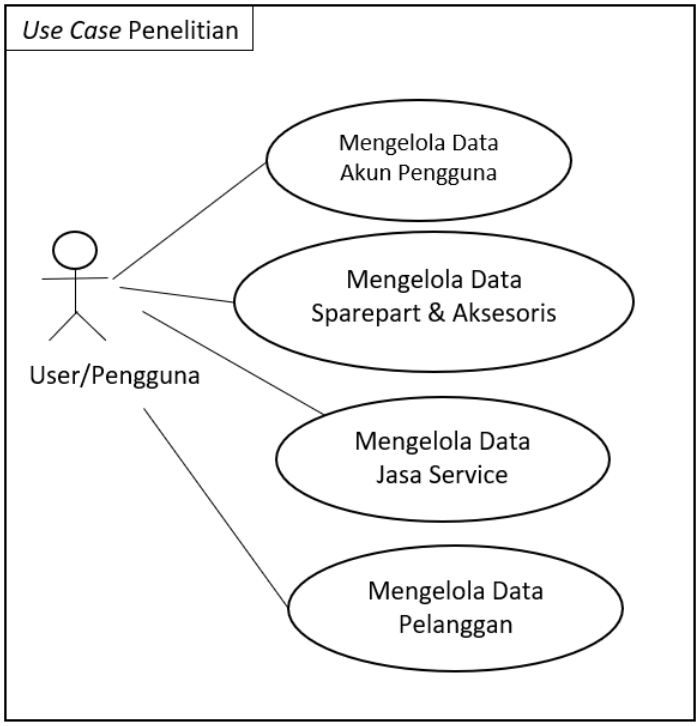

Figure 1. Use Case Research

2. Activity Diagram Login System

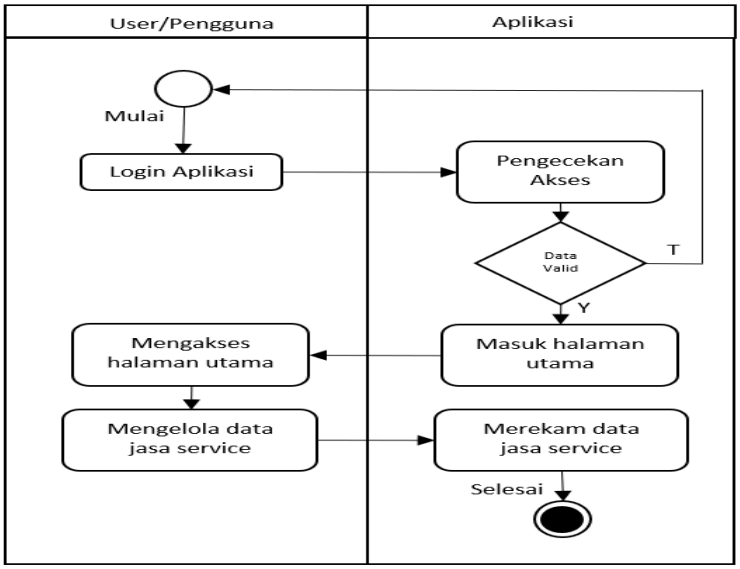

Figure 2. Activity Diagram Login System

3. Service Activity Diagram

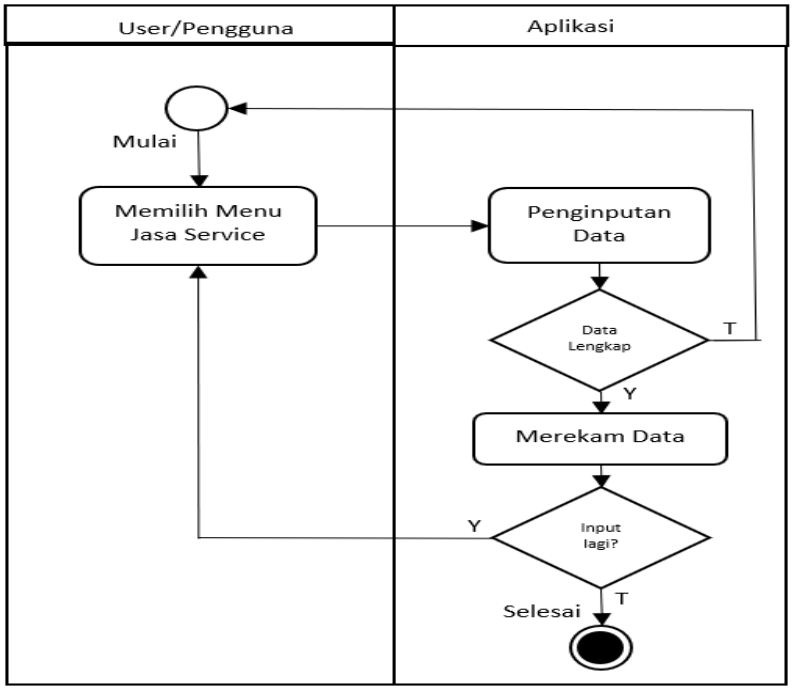

Figure 3. Activity Diagram Login System

4. Entity Relationship Diagrams

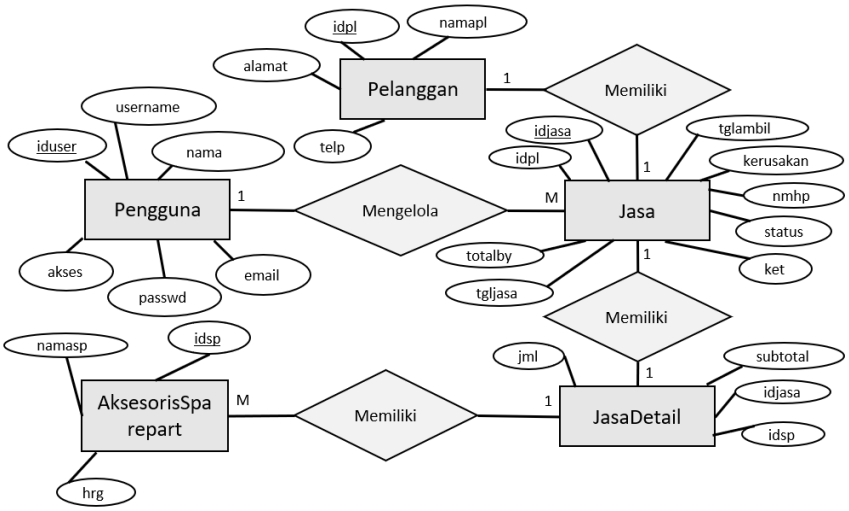

Figure 4. Entity Relationship Diagram System

3.3. Program Code Generation

Making program code is written through a text editor, in this case the researcher uses Visual Studio Code, along with the writing done in the text editor and the CodeIgniter framework, along with the user interface produced in this study:

Figure 5. Writing Code in the Text Editor

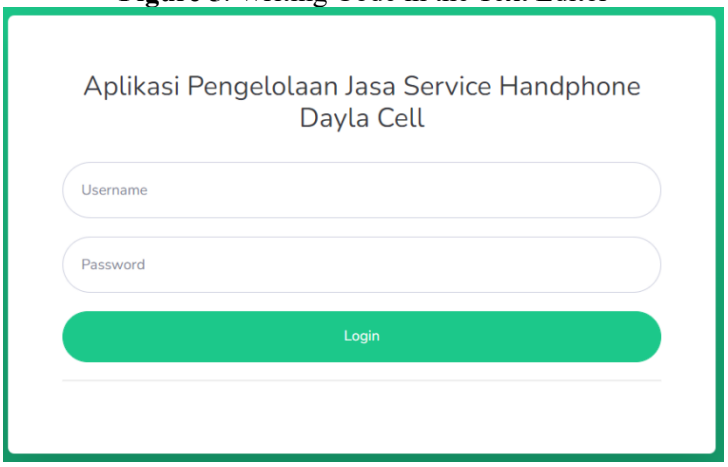

Figure 6. User Interface Login System

Figure 7. User Interface User Home

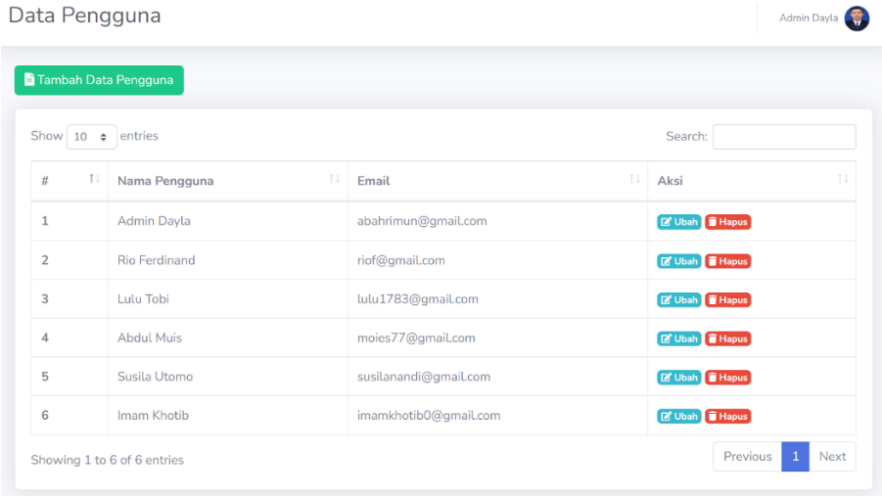

Figure 8. User Interface User Data

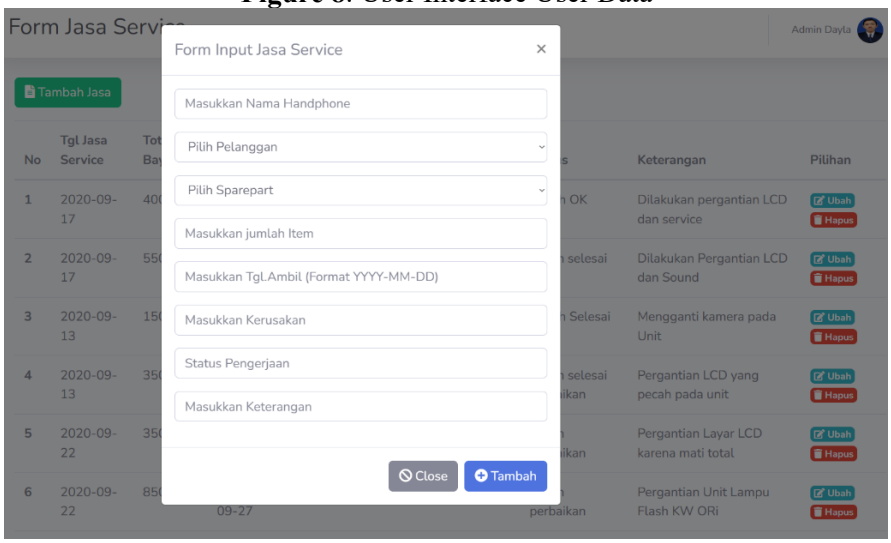

Figure 9. Service User Interface

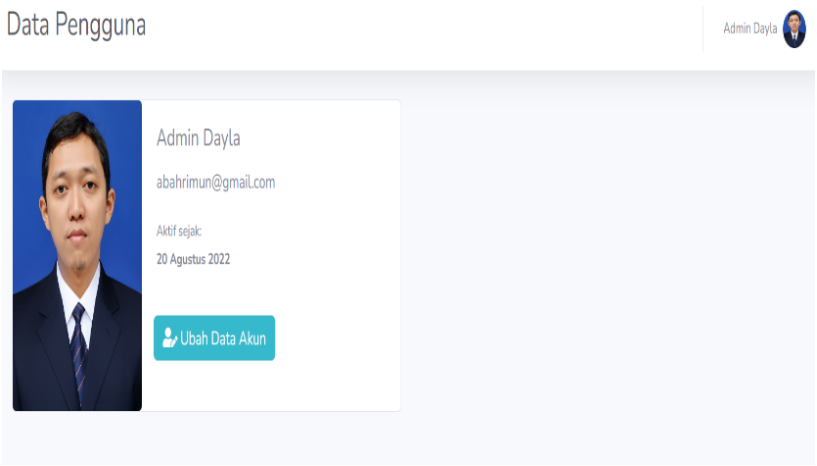

Figure 10. User Interface Change User Data

3.4. Test

The following are the results of application testing using the black box testing technique that was carried out in the study:

Table 1. Application Testing Using The Black Box

NO	TESTING SCENARIO	TEST CASES	EXPECTED RESULTS	TEST RESULT	CONCLUSION
1	Enter all Service data fields completely and correctly	Open the Service Input Form and enter all Service data fields completely and correctly	Data can be saved into the system and displays a successful notification	Valid	According to expectations
2	Entering Service data is incomplete or incorrect	Opening the Service Input Form but Entering Service data is incomplete or incorrect	The system will refuse to process the input and display an error notification	Valid	According to expectations
3	Haven't entered the fields at all and immediately click the Save button	Open the Service Input Form but have not entered any fields and immediately click the Save button	The system will refuse to process the input and display an error notification	Valid	According to expectations

4. CONCLUSION

Based on the results of the research that has been done, it is concluded that the use of technology in the form of web-based mobile phone service handling can support the storage and management of service data. Data can be stored neatly through a database that is integrated with the application, making

it easier to find the data needed. Recording of user data, accessories and spare parts, customers, and service transaction transactions is computerized, to prevent data damage that often occurs in physical files that have been running. Application development can be carried out further by prioritizing reliability and ease of use for users, so that it can match the needs that continue to grow.

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