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## Web-Based Laundry Service Information System Using Rapid Application Development Method

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### ARTICLE INFORMATION

#### Artikel History:

Received: March 5, 2024

Revised: March 15, 2024

Accepted: March 20, 2024

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#### Keyword:

RAD  
Information System  
Laundry  
Web-Base

### ABSTRACT

*In the current era of digitalization, human needs for time make all household and community activities want to be practical, especially such as washing clothes. Especially for people who have busy demands and do not have time to wash clothes, dry and iron so they prefer to entrust their laundry to the services of a laundry or laundry, for the reason of saving time and to concentrate more on completing their work. This study aims to design a service information system that can help in conveying information about laundry and knowing the valid and efficient website-based laundry service information system. This form of research uses the Rapid Application Development method to produce a product and uses a prototype model to design the system. This Information System is the best solution for solving problems in the management of laundry service systems. With the use of computer data technology that is managed becomes faster, reducing time inefficiencies and reducing the occurrence of errors in processing data.*

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### INTRODUCTION

Information technology in its development has become one of the effective and efficient business strategies. The development of technology today that is increasingly advanced and rapid in various fields will certainly affect the conveniences provided in everyday life so that every job will be easier and better organized. This makes more and more people take advantage of technological developments to create their own jobs where not only men can work but women or housewives also have the same opportunities for careers that can be developed at home so as not to leave obligations as a wife.

Along with the development of increasingly sophisticated times and the increasing human civilization itself, making humans always motivated to update how to convey information (communicate) well and easily accessible such as technology and informatics that exist today. Information systems make it very easy for someone to carry out or complete their work. This fast data search process certainly saves time and helps organizations in managing all information (Ramadani, Faisalariq, Alrijali, & Yul, 2023).

In the fast-paced era, human needs for time are very necessary for our effectiveness in managing and managing all household activities, making people want to be practical, for example daily activities such as washing clothes. Especially for people who have busy demands such as students, employees and housewives who do not have time to wash clothes, dry, and iron so they prefer to entrust to the services of a laundry or laundry for the reason of saving time and to concentrate more on completing their work. Laundry is a company that provides laundry services, in the past laundry services were only available at hotels as a complement to hotel facilities but over time to increase income Laundry spread widely among the middle to upper class people to help relieve household chores. Behind the advancement of information technology that has now grown rapidly, until now some laundry does not have its own information system and still uses a manual system such as the absence of customer data collection (name, number of kilos, date of entry, nominal to be paid), transaction data collection, and does not have an accurate database storage system so that all data is still stored in a book, even customers

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DOI: <https://doi.org/10.31294/p.v26i1.3231>



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both old and new also do not get up to date information about the various laundry services offered and customers are bothered when delivering even when they want to pick up laundry because they don't have information whether the laundry has been completed or not.

This laundry business as a business that runs in the service sector will be easier if you include elements of technology and information in it. This website is expected to help run the laundry business efficiently and provide convenience both to consumers and to admins to process data. This Laundry website was created with the hope of minimizing existing data so that it is not scattered or lost and can make it easier for laundry admins to easily access information about laundry consumer data, transaction data both the amount of money per day / month along with the amount of income and the number of clothes that enter every day. Also to provide name labels on receipts or notes used as evidence given to consumers. And can produce accurate transaction reports.

This research is inseparable from several supporting theories for ease of learning and designing information systems that are expected to function optimally. The ease of using an information system for each user will be very helpful in completing every job. Another advantage of an information system that is easy to use is that it minimizes the possibility of errors made by users when running the information system (Rudianto & Achyani, Rancang Bangun Sistem Informasi Simpan Pinjam Pada Koperasi Berbasis Web, 2022).

According to Fathurrahman (Fathurrahman, 2014) stated that : A website is a collection of pages that display text data, still or moving image data, animation data, sound, video, and or a combination of all of them, both static and dynamic that form a series of interrelated buildings where each is connected by a network of pages (hyperlinks).

Information system is a system that is integrated with each other and works together to collect, process, store and disseminate information to assist an organization in controlling the system to achieve organizational goals (Romadhon & Desmulyati, 2019). Meanwhile, according to Pamungkas explained that " Information Systems act as systems because they have a relatively wider scope and are more complex, so information systems will not be realized without involving databases." (Pamungkas, 2017).

Unified Modelling Language (UML) is a modeling language that uses the concept of object orientation (Nazir, Putri, & Malik, 2022). UML can also be defined as a standard language for visualizing, designing, and documenting systems, or also known as the standard language for writing blueprints for software (Puspita, Lestari, & Amalia, 2019).

According to Sukamto dan Shalahuddin (Sukamto, 2018) explains that "Use case diagrams are modeling for the behavior of the information system to

be created. Use case describes an interaction between one or more actors with the information system to be created". While the activity diagram according to Nazir et al (Prasetya, Sintia, & Dewi, 2022) explains "Activity diagrams are techniques for describing procedural logic, business processes and work flows in many cases".

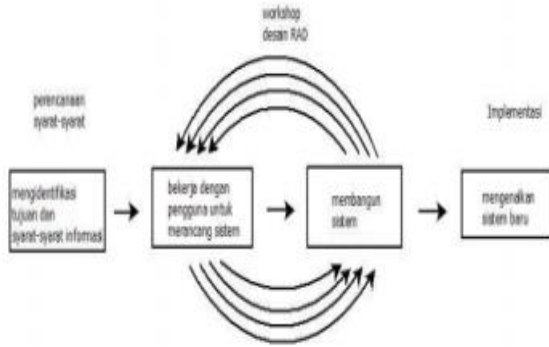
"PHP is a programming language for the web that adheres to client servers" (Winarno, 2015). So in order to practice this PHP, it is necessary to first prepare a web server that can run PHP and MySQL databases. "MySQL is a database". Database is a place to store various types of data. MySQL is a relational data type which means that MySQL stores its data in the form of interconnected tables" (Madcoms, 2016).

Several previous studies related to this research include: "Desktop-Based Services at Le Nori Laundry Depok" explained that the application of the laundry service system at Le Nori Laundry can improve the quality of service which results in an increase in income for Le Nori Laundry. In addition, this application can also speed up the administrative process so that laundry owners get accurate reports every month (Mazia, Hasanah, Pujiastuti, & A.R., 2021).

Another research was conducted by Biktra Rudianto and Yuni Eka Achyani on "Application of Rapid Application Development Method in Web-based Inventory Information System" shows that with this web-based information system, it can increase the effectiveness and efficiency of data processing, ranging from incoming goods, requests for goods, delivery of goods, returns of goods to making reports. And can avoid data shelling in the data processing process because of the code that has different characteristics from one data to another (Rudianto & Achyani, Penerapan Metode Rapid Application Development pada Sistem Informasi Persediaan Barang berbasis Web, 2020).

## RESEARCH METHOD

The method of system development that the author uses in this study is Rapid Application Development (RAD). RAD is an object-oriented approach to systems development that includes a development method as well as software (Widiyawati, Ahmad, & dkk, 2022). RAD aims to shorten the time normally required in the traditional system development life cycle between the design and implementation of an information system. At the end of the day, RAD is equally trying to meet rapidly changing business requirements. There are three phases in RAD that involve the analyst and user in the assessment, design, and implementation phases. The three phases are requirements planning, RAD design workshop, and implementation. In accordance with the RAD methodology according to (Widiyawati, Ahmad, & dkk, 2022), The following are the application development stages of each application development phase.



Source: (Widiyawati, Ahmad, & dkk, 2022)

Figure 1. RAD Method

Figure 1 describes the research flow using the Rapid Application Development method which consists of several stages, including:

1. Requirements Planning

In this phase, users and analysts meet to identify the objectives of the application or system and to identify the information requirements arising from those objectives. The orientation in this phase is to solve the problems of the company. Although information technology and systems may direct some of the proposed systems, the focus will always remain on achieving the company's goals.

2. RAD Design Workshop

This phase is the phase for designing and improving which can be described as a workshop. Analysts and programmers can work constructing and showing users visual representations of designs and work patterns. This design workshop can be done for several days depending on the size of the application to be developed. During the RAD design workshop, the user responds to the existing prototype and the analyst refines the module designed based on the user's response.

3. Instruction

The Construction Phase is the execution phase in the form of creating program scripts and is a continuation of the second phase. This phase also shows the platform, hardware, and software used. Any designs created in the previous phase, will be improved using RAD devices. Once the new functionality is available, the new functionality is shown to the user for interaction and revision, then the analyzer will make changes in each application design based on instructions from the user.

4. Implementation

In this implementation phase, the analyst works with users intensely during the workshop and designs the business and non-technical aspects of the company. As soon as these aspects are approved and systems are built and screened, new systems or parts of the system are tested and then introduced to the organization.

In collecting the data needed in writing this study several steps were used, including: (a) Observation Method, (b) Literature Study Method, (c) Data Analysis.

RESULTS AND DISCUSSION

In this study, the author analyzes system needs first to find out what is needed by the system. Analysis of required system requirements include:

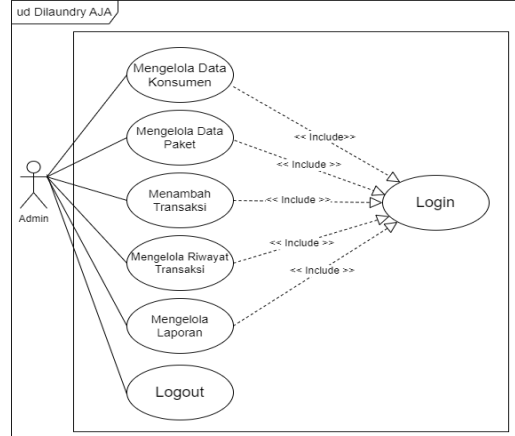
1. Admin Needs Analysis

Analysis of system requirements for this web-based laundry service information system is:

- a. Admin Manage customer data
- b. Admin manages plan data
- c. Admin performs transactions
- d. Admin manages Transaction reports

2. System Modeling

a. Use Case Diagram



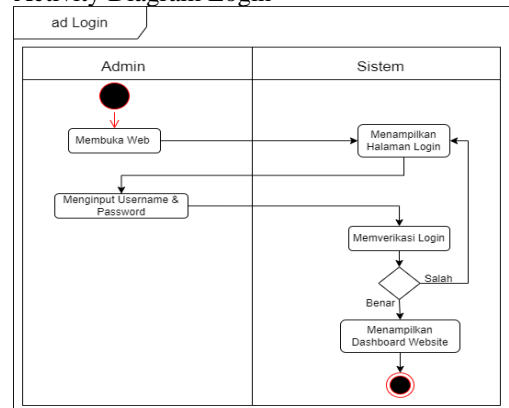
Source: (Aulianita & Achyani, 2023)

Figure 2. Use Case Admin Page Diagram

Figure 2 shows the use case diagram of the admin page, which shows that there are menus that can be accessed by admins.

b. Activity Diagram

1) Activity Diagram Login

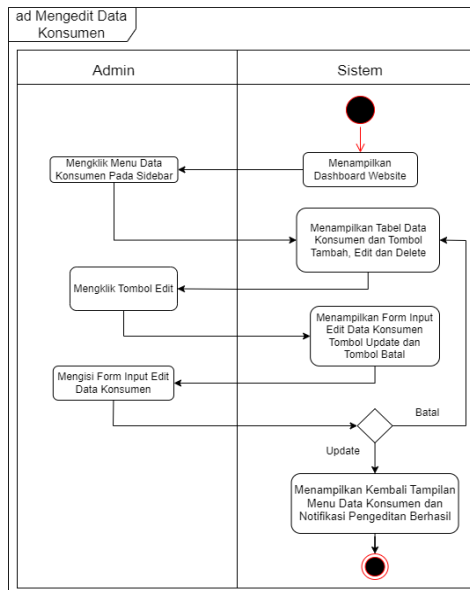


Source: (Aulianita & Achyani, 2023)

Figure 3. Activity Diagram Login

Figure 3 shows the login diagram activity that users perform while using the application.

2) Activity Diagram Add Customer data

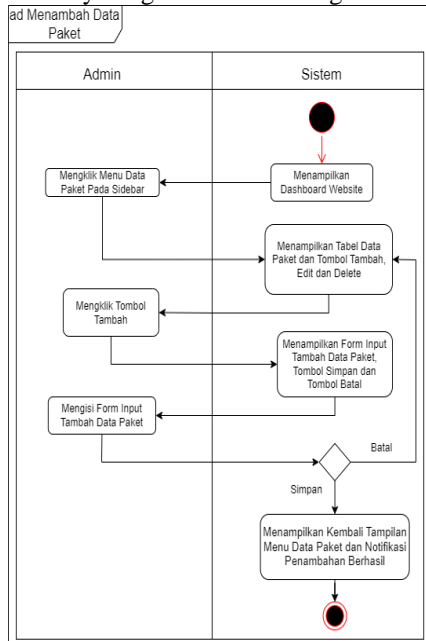


Source: (Aulianita & Achyani, 2023)

Figure 4. Activity Diagram Add Customer Data

Figure 4 shows the activity diagram of the process of adding customer data carried out by users. In addition to adding, users can also change and delete customer data.

3) Activity Diagram Adds Package Data

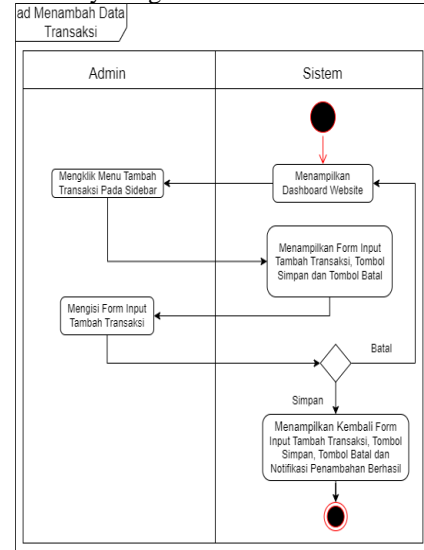


Source: (Aulianita & Achyani, 2023)

Figure 5. Activity Diagram Adds Package Data

Figure 5 shows the activity diagram of the process of adding any packages in this laundry service. In addition to adding, users can also change or delete package types.

4) Activity Diagram Transaction

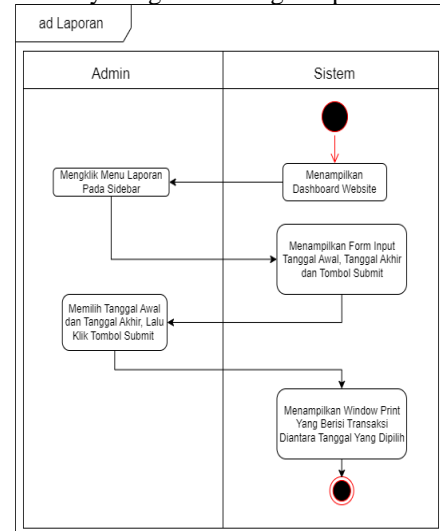


Source: (Aulianita & Achyani, 2023)

Figure 6. Activity Diagram Transaction

Figure 6 shows the activity of the transaction diagram, including the recording of transactions made by users.

5) Activity Diagram Manage Reports



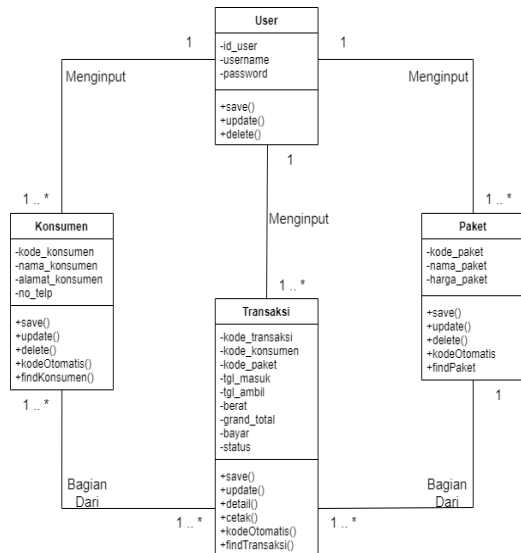
Source: (Aulianita & Achyani, 2023)

Figure 7. Activity Diagram Manage Reports

Figure 7 describes the process of users managing reports that will be displayed based on the date entered by the user.

c. Class Diagram

The following is a class diagram of the laundry service information system.



Source: (Aulianita & Achyani, 2023)

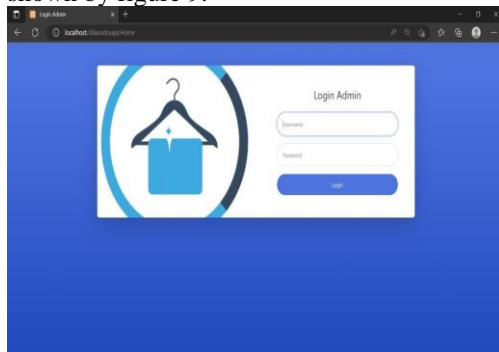
Figure 8. Class Diagram Laundry service system

Figure 8 shows the class diagram that the author uses in making laundry service information system applications.

### 3. Implementation of Laundry Service System

#### a. Login View

Admin must log in first to be able to use the available menus. If the login is successful, then the menus will be displayed. How it looks is shown by figure 9.

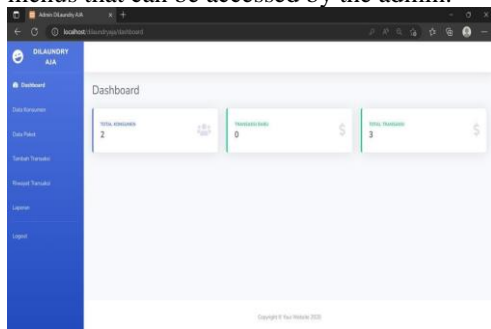


Source: (Aulianita & Achyani, 2023)

Figure 9. User Interface Login Page

#### b. Dashboard View

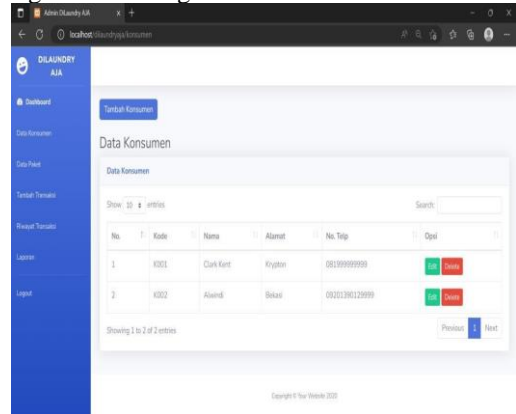
The dashboard view is shown by Figure 10, After logging in, the admin will enter the dashboard page, where the page contains menus that can be accessed by the admin.



Source: (Aulianita & Achyani, 2023)

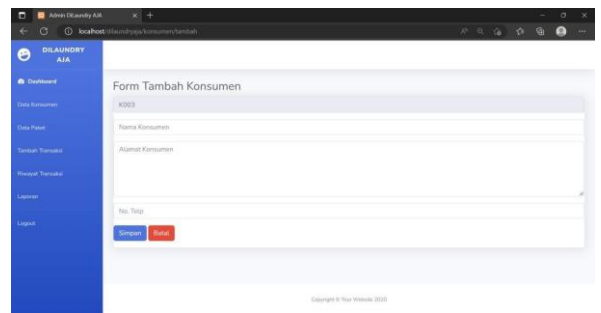
Figure 10. User Interface Dashboard Page

- c. Display Customer Data and Add Customer  
This page contains customer data that has been entered by the Admin. How it looks shown by figure 11 and figure 12.



Source: (Aulianita & Achyani, 2023)

Figure 11. User Interface Customer Data Page

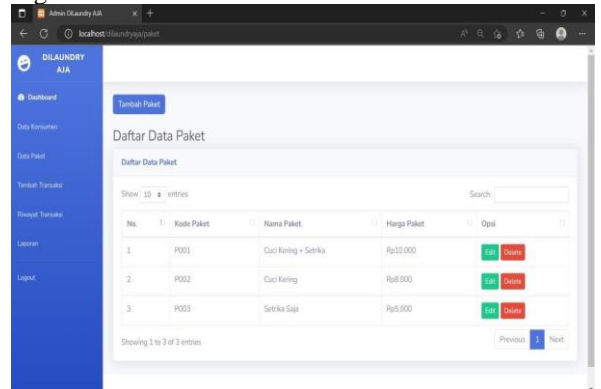


Source: (Aulianita & Achyani, 2023)

Figure 12. Add Customer Page User Interface

- d. Package Data View

This page contains package data available on the laundry service information system. as Figure 13 follows.

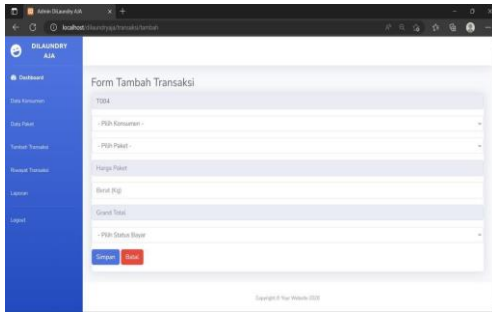


Source: (Aulianita & Achyani, 2023)

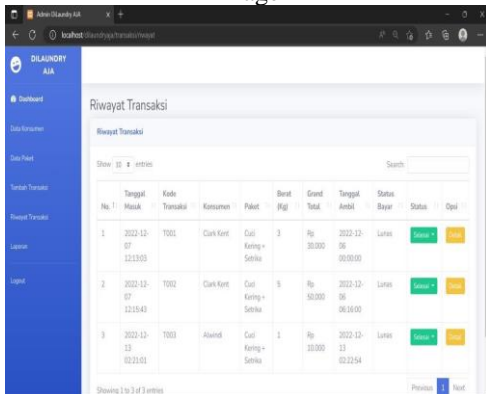
Figure 13. Package Data Page User Interface

- e. Add Transaction and Transaction History View

On this page the Admin can input transaction data and see the history of transactions that occur. Figure 14 for adding transactions and figure 15 for transaction history view.

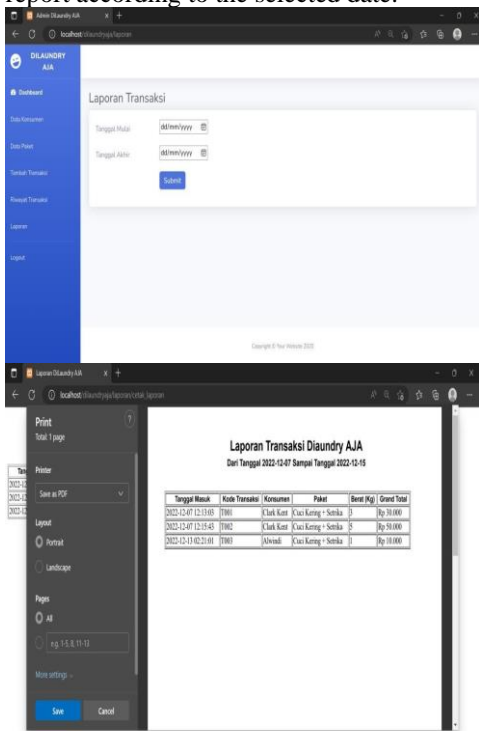


Source: (Aulianita & Achyani, 2023)  
Figure 14. User Interface Add Transaction Page



Source: (Aulianita & Achyani, 2023)  
Figure 15. User Interface Transaction History Page

- f. Report Menu Display  
Figure 16 shows the Admin can access the report according to the selected date.



Source: (Aulianita & Achyani, 2023)  
Figure 16. User Interface Report Menu

## CONCLUSION

Based on the discussion that has been described by the author in this web-based laundry system design research, it can be concluded that this laundry website is the right medium in data storage and even making reports will be more efficient, accurate, and timely. The media used for storage is also less (not wasteful). Computerized systems can improve services to each related employee. And in the end this website can increase the effectiveness and efficiency in processing laundry transaction data.

The author hopes that the use of this computerized technology can create quality and quality human resources in their fields, therefore training or training is needed for employees to introduce and help them to the new system, and regular supervision is needed in system maintenance.

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