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Information System for the Recruitment of Facilitator Personnel for the Provision of Drinking Water and Sanitation Program

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Abstract

Community Based Drinking Water and Sanitation Provision (PAMSIMAS) is one the national prgrams to improve rural community access to clean drinking water facilities. The purpose of this study is to create a recruitment information system form community facilitators for the PAMSIMAS program in West Papua Province. Thes system development stages of this study use the Waterfall method, the stages stars from system needs analysis, design, coding, testing and improvement. So that the system implementation process can be impelemented according to the needs of system users. The result of this study produce an information system that is able to assist related parties in recruiting prospective PAMSIMAS facilitators in West Papua Province.

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Keywords: *Facilitator, PAMSIMAS, Waterfall, West Papua.*

1. Introduction

The government is implementing development in the provision of drinking water and sanitation for the community as stated in the National Long-Term Development Plan (RPJP) 2005-2025 [1]. Community-Based Drinking Water and Sanitation Provision (PAMSIMAS) has become one of the national flagship programs (central government and local government). The government program aims to increase access for rural residents to proper drinking water facilities to avoid various diseases such as cholera, diarrhea and other diseases [2]. The West Papua Regional Settlement Infrastructure Center through the West Papua Province Settlement Infrastructure Implementation Work Unit is one of the representatives of the central government assigned to manage the PAMSIMAS program, especially in West Papua Province.

In program management, there are several stages that are passed, including preparation, planning, implementation and post-implementation of recruitment of community facilitators. The PAMSIMAS program is organized by a procurement team appointed by the Head of the West Papua Province Settlement Infrastructure Implementation Work Unit. In the implementation of recruitment is still done manually, in the process of receiving files, applicants are asked to enter application files that are still in hardcopy form so that it results in excessive paper usage and also the accumulation of applicant files, this will also have an impact on the file selection process which requires a lot of time and energy because the process of inputting applicant file data is done manually to the computer. Considering the number of applicants who take part in the recruitment on average per year ± 300 people, this manual recruitment process is considered ineffective and inefficient and has an impact on the next program stages.

Information System is very important in decision making management, this system utilizes hardware and software, manual procedures and databases [3]. Based on previous research, the management information system for the management of drinking water supply and sanitation systems in Bintoyo Village is web-based, this system uses the waterfall software development method and uses the CodeIgniter framework, this research produces a system that is able to manage customer data, transactions, report data and several other features [4]. Research on the information system for payment of drinking water and sanitation bills based on the community based on client server using Embarcadero XE2, this research produces a client server-based system using the MySQL database, the data processed includes customer data, payment data, connection data, and repair data [5].

Research on the PAMSIMAS complaint information system for Podosugih housing, Pekalongan City, developed an android-based system designed using Entity Relationship Diagram (DFD) and using blackbox testing which stated that the functionality of the system was running well [6]. In addition, the research on the village PAMSIMAS management system using the codeigneter framework produced a system

that functions to process PAMSIMAS account payment data using the codeigneter framework with the development of a waterfall system, PHP programming language and MySQL as a database server [7].

Based on the background and previous research, this study aims to create a website-based recruitment information system for community facilitators for the PAMSIMAS program used by the procurement team at the West Papua Regional Settlement Infrastructure Center. This system is expected to assist the West Papua Regional Settlement Infrastructure Center in recruiting facilitators and facilitate the community in registering facilitators for Community-Based Drinking Water and Sanitation Provision.
The novelty of this research from previous research is that the research that has been designed produces a system that includes the recruitment of community facilitators for community-based clean water and sanitation provision programs, while previous research designed a system that can only manage provision data in the form of report data and payment data.

2. Research Methodology

In this research there are several stages, namely the data collection method stage, system development method and system development model [8].

2.1. Data Collection Method

The first stage of research is to identify the problem in the research to be studied, then find a problem formulation that is in accordance with the problem identification. After that, look for literature studies or references to be used as reference material in the research. Next, observation by interview and conducting questions and answers to the village apparatus. The results of the interview are then analyzed and processed so that the identified problems can be concluded to become a system design [9]

2.2. System Modelling

The system development method used is the waterfall method. The Waterfall method is a structured system development method where each stage is carried out gradually and should not be continued until the previous stage is complete. This method has several advantages, including making the system design process easier because these stages must be carried out gradually until completed so that the research process is not disturbed [10].

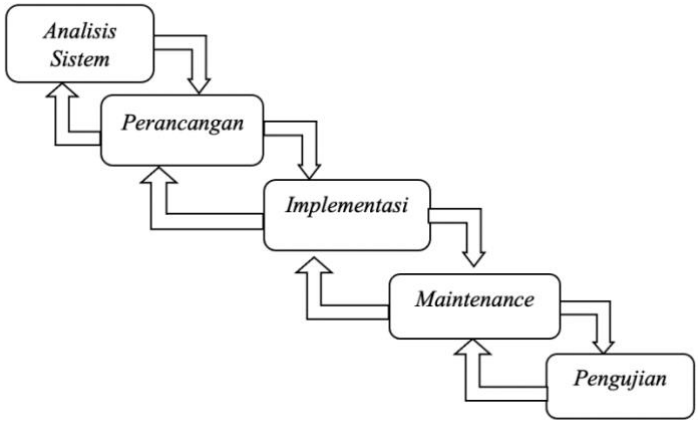

Figure 1: Waterfall Method

The steps of the waterfall method carried out in this study are [11]:

1. Needs Analysis, starting from the stage of describing a system which will then be designed according to what is needed by the system design.
2. Design, the stage after the analysis that has been previously determined as a whole based on the needs which then carries out the system design process which will then be applied.
3. Coding, this coding stage is adjusted to the needs of creating an information system that will be implemented by utilizing the PHP programming language.
4. Testing, conducting testing using blackbox testing
5. Repair (Maintenance), making repairs if there are errors after testing.

2.3. System Modeling

UML (Unified Modeling Language) is one of the most reliable tools in the world of object-oriented system development. This is because UML provides a visual modeling language that allows system developers to create a blueprint of their vision in a standard form, easy to understand and equipped with effective mechanisms. A modeling language such as UML has become the standard language for planning an application [12].Designing and building applications or software based on objects or Object Oriented Analysis and Design (OOAD) considers everything to be an object and the system is viewed as an interaction of many objects modeled using UML. The latest version of UML consists of fifteen diagrams divided into two groups, namely structure and behavior diagrams. Structure diagrams describe data and static relationships in an information system, while behavior diagrams describe dynamic relationships between objects that represent

information systems [13].he UML modeling used in this study is Usecase, Class diagram, Activity Diagram, Sequence Diagram. The diagrams described include all the activities of each actor who has an interest in the system.

3. Results and Discussion

3.1. Analysis of the Running System

Observation of the process of ongoing recruitment activities is intended to obtain analysis that will be used as initial data for the web-based information system update plan. The following is the system currently running at the West Papua Province Settlement Infrastructure Center.

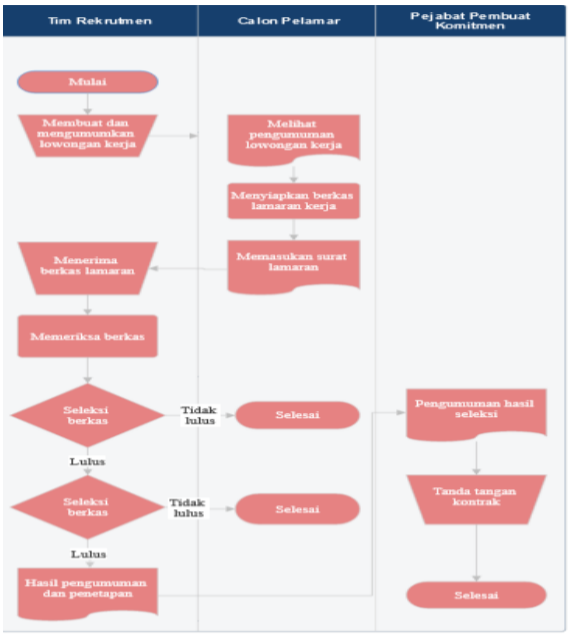

Figure 2: Analysis of the Running System

3.2. Analysis of The Proposed System

System design is designing or designing a good system, the contents are the operational steps in data processing and procedures for system operations. In the proposed system design using use cases, where Use cases are a set of scenarios tied together by users to achieve goals, Use cases support software developers in understanding interactions. Actors in a system perform many use cases, and use cases may have many actors. Between use cases and actors or with use cases there are several links of relationships include, extend, generalization and others [14].

Use Case diagram of admin in the proposed system as follows:

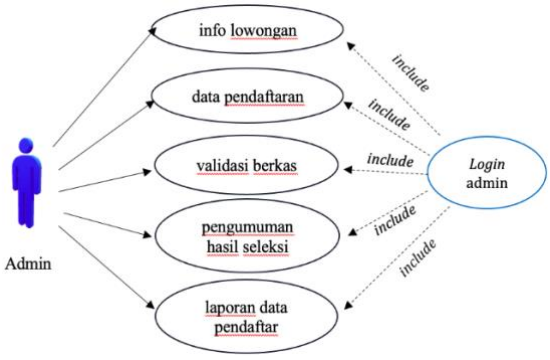

Figure 3: Use case Diagram Admin

The admin's duties as in the picture above are: The Admin actor has full access to the system, where the admin can manage admin/user data, manage vacancy information, manage registration data, manage file validation, announce selection results and report registration data.

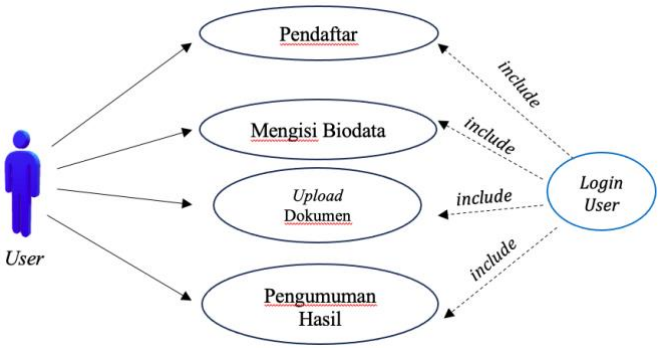

Figure 4: Use case Diagram User

User actors can access the registration page, fill in biodata, upload documents, and announce results.

In the design of this system there is also a class diagram design, where the class diagram is the most important and most widely used description of an object-based system. The class diagram shows the static structure of the core classes that build the system. The class diagram displays the attributes and methods of each class, in addition the class diagram also displays the relations between each class [15]

Figure 5: Class Diagram

3.3. System Implementation

Implementation is a stage in designing a software. The implementation stage is carried out after the analysis and design process is completed. In the implementation stage, things related to the device will be discussed.

3.3.1. Login Form

On the login page, the username and password are entered by either the admin or the user to enter the system.

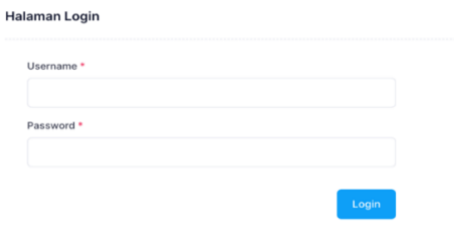

Figure 6: Login form

3.3.2. Admin Dashboard Page

On the admin dashboard page, master data and reports are displayed as shown in the image below.

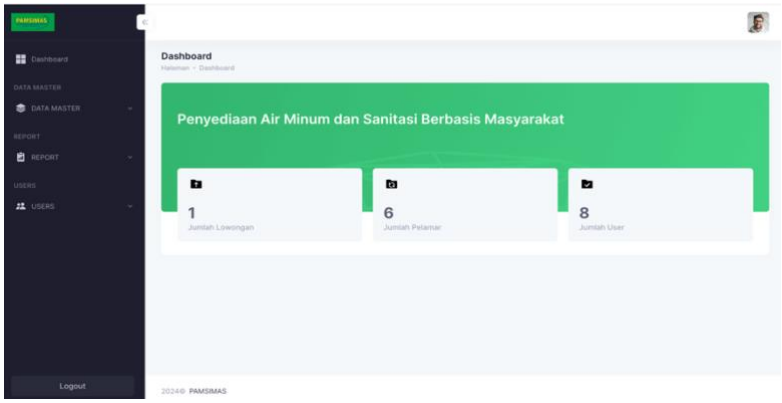

Figure 7: Admin Dashboard Form

3.3.3. PAMSIMAS Vacancy Data Page

The PAMSIMAS data display includes the vacancy name, registration date, selection announcement date, graduation announcement date and active status.

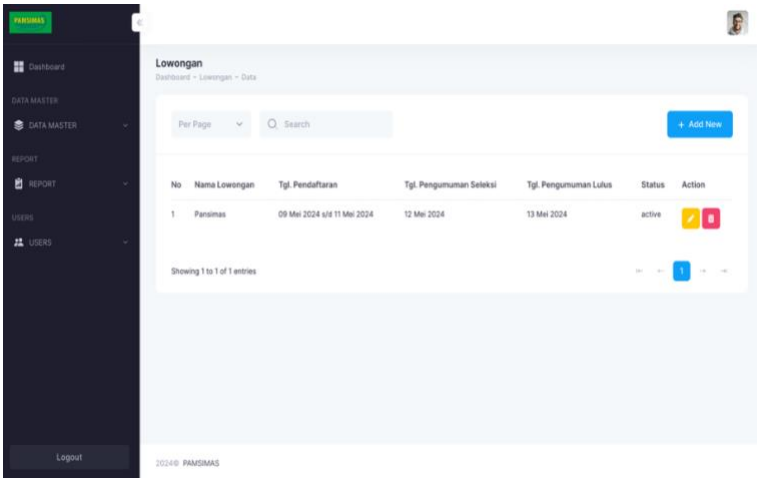

Figure 8: PAMSIMAS Vacancy data display

3.3.4. Vacancy Input Form

The vacancy input form display contains the vacancy name, vacancy description, vacancy requirements, age, address and supporting documents in the form of images.

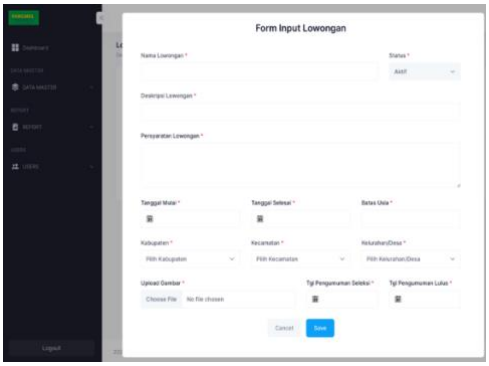

Figure 9: Vacancy input form

3.3.5. Applicant Data Form

The applicant data display contains the applicant's name, applied position, registration date, file status and passed status.

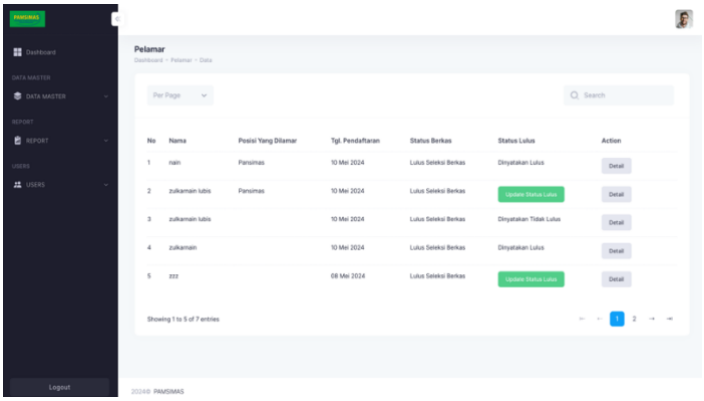

Figure 10: Applicant data form

3.3.6. File Input Form

The file input form display is a display for inputting ID cards, application letters, curriculum vitae and diplomas.

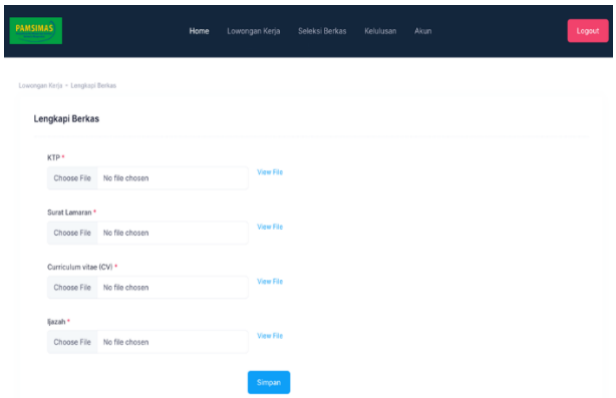

Figure 11: File input data form

3.3.7. Graduation Announcement Form

On the graduation announcement display, the form displayed is the position applied for, placement location, announcement date and a document in pdf format containing a list of names of those who passed and failed.

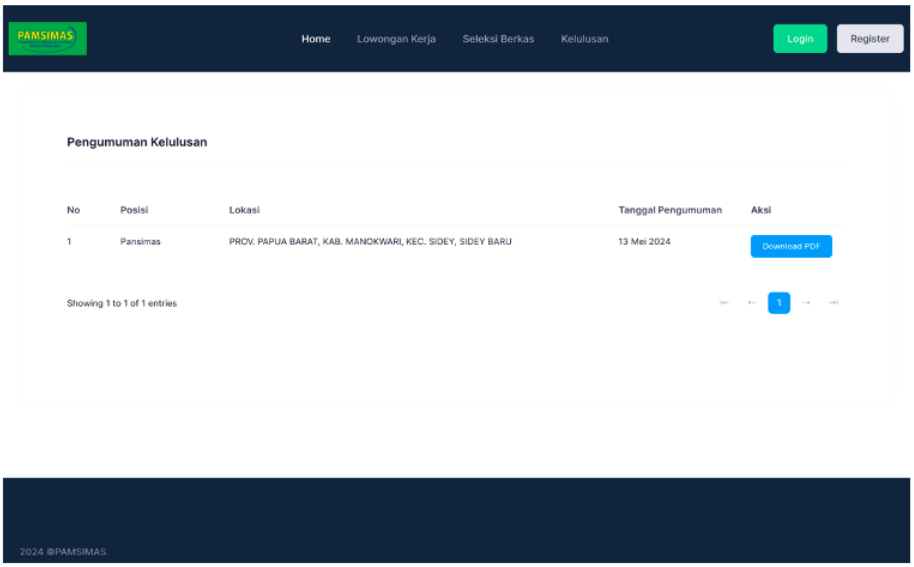

Figure 12: Graduation announcement form

3. Conclusion

Based on the results of the research conducted, it can be concluded that the information system for recruiting community facilitators for the drinking water and sanitation program based on the web is built using the waterfall model. The system that is built can facilitate applicants in registering online. The system is equipped with registration features, vacancy information, file graduation information, selection graduation information, applicant data management and report management. The information system is tested using the black-box testing method. For further development, it is expected that the system built will pay attention to the security system.

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