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E-POSYANDU: WEB-BASED MOTHER AND CHILD POSYANDU APPLICATION USING THE CODEIGNITER FRAMEWORK

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ABSTRACT

POSYANDU (Integrated Service Post) is a monthly activity post to monitor the health status of pregnant women and toddlers (children under the age of five). This activity is carried out to monitor the growth and nutritional status of children under five on a regular basis and to understand the situation of pregnant women who are at risk so that preventive measures can be taken to prevent the death of pregnant women and malnourished children. However, in practice there are some difficulties such as searching for data and recording the same name in different formats. This study uses a qualitative method with a cross-sectional approach, where the aim of this research is to design and build a system that can manage Posyandudata in an integrated and well-computerized manner based on WEB cloud computing. The result of this study is a posyandu application consisting of immune data, vaccine data, child data, mother data, officer data, and posyandu data. The accuracy of the application implementation based on the blackbox method by posyandu officers who focus on the functionality side, especially on the input and output of the application by the officers, results of the application running according to the design requirements.

Keywords: Toddlers, Mothers, Posyandu, Information Systems.

1. INTRODUCTION

1.1. Background of the problem

The Integrated Service Post (POSYANDU) is an activity carried out to monitor the health conditions of pregnant women and children under five years (toddlers) every month [1]. This activity is carried out with the aim of knowing the condition of pregnant women who have a high risk so that preventive measures can be taken to avoid maternal death, while monitoring for toddlers is carried out with the aim of monitoring the growth and nutrition of toddlers on a regular basis [2]. Bulakan village, Sukoharjo has nine posyandu groups. Each group conducts posyandu activities once a month. Posyandu activities are carried out by the cadres of each group and puskesmas officers in the Bulakan District who are usually coordinated by the village midwife. Posyandu activities consist of five steps or commonly known as five tables. The five tables are the registration table, the weighing table, the Towards Healthy Card (KMS) recording table, the counseling table, and the health service table. In its implementation, there are several problems, including in the registration process, the counseling process, and in the reporting process. In the registration process, cadres must record data on pregnant women and toddlers, resulting in long queues at the registration desk. While in the counseling process. This problem occurs because sometimes there are pregnant women or toddlers who lose their Health Towards Card (KMS). This causes the cadres to experience difficulties because they have to search for development data manually in the data archive handwritten register. The last problem occurs in the process of making posyandu activity reports. Activity Posyandu is always reported to the activity coordinator posyandu and puskesmas staff. Activity Report Posyandu that exists today is still being carried out in this way handwritten and archived reports piling up and still are mixed with other data archives. This resulted difficulties when searching for data if the data it is needed again. The reporting system as well making cadres have to record the same name on an equal basis repeated on registrant data, visitor data, and data registers that have different formats.

Based on some of these problems, the researchers designed and built a system that can manage Posyandu data in an integrated and computerized manner using a WEB-based system. The application was made with the hope of streamlining the work of cadres and reducing the risk of errors in data calculations as well makes it easier to monitor the condition of the mother pregnant and toddlers.

1.2. Identification of problems

Based on the background described above, it is necessary to formulate a problem that will be resolved in this design are as follows: There is often a loss of KMS so that the process of reading KMS becomes hampered because it has to be done; looking for data manually in the archives owned by posyandu cadres; Report archives pile up causing difficulties when searching for data.

1.3. Research purposes

Make an application that can provide information about data on the development of pregnant women and toddlers. Create an application that can store activity reports and posyandu data in a structured manner.

1.4. The scope of research

In order for this application to continue to follow the goal, it is necessary to design the application limits as follows: The application that will be built is based on data obtained from the Posyandu for Mothers and Children in Bulakan Village; The application to be built focuses on collecting immune data, vaccine data, child data, mother data, officer data, and posyandu data.

2. LITERATURE REVIEW

2.1. Definition of Posyandu

Maternal and infant mortality rates are one of the factors that can influence the development of the quality of human resources [3]. To improve the development of the quality of human resources, the government organizes posyandu activities that can monitor the growth of mothers and babies. Posyandu is a form of Community-Based Health Efforts (UKBM) that is managed and organized from, by, for and with the community in implementing health development, in order to empower the community and provide convenience to the community in obtaining basic health services, primarily to accelerate the reduction of mortality rates mother and baby [4].

All information or data needed for monitoring the growth of toddlers, basically comes from data on the monthly weighing results of toddlers which is entered into the KMS to assess whether it is rising (N) or not (T). Three important parts in monitoring growth are: there are regular weighing activities, there are activities for filling in the child's weight data into the KMS, and there is an assessment of the increase or decrease in the child's weight according to the direction of the growth line [5].

Monitoring the growth of mothers and toddlers carried out by the posyandu by recording the results of regular weighing is very important for determining nutritional status [6]. The results of weighing must be recorded correctly, because they influence decision making so that there are no mistakes in determining policies and preparing program planning. In addition, the data and information generated also serve as the basis for human resource development. So the quality of data and information must be good and can be accounted for so that its management and development is something that is very important [7], [8].

2.2. Posyandu Implementation Steps

Posyandu has five main activities. This activity is commonly referred to as the five tables activity. These activities include [9]:

1. Table One (Registration)

Table one has activities related to registration. Cadres register babies/toddlers and pregnant women. In this activity, babies and Toddlers who have just registered are given a Towards Healthy Card (KMS).

2. Table Two (Weighing)

On table two, cadres will weigh babies/toddlers and pregnant women. After being weighed, the cadre will record the results of the weighing on a slip paper tucked in the KMS.

3. Table Three (KMS Filling)

The cadre will ask the baby/toddler to submit the KMS and the weighing result note paper. The cadre will move notes from paper to KMS.

4. Table Four (Counseling)

At table four, cadres will read and explain the data in the KMS. Cadres then give good advice with refers to observations of children.

5. Table Five (Health Services)

Table five is health services. Activities on table five are carried out by health workers.

The services provided include immunization, administration of iron tablets, administration of vitamin A, and other medicines system [10].

2.3. Waterfall Model

In designing and building applications using the waterfall method which includes [11]:

1. Analysis

In this stage, activities are carried out to analyze what is needed from the system, starting from the functional requirements of the system and non-functional requirements. The analysis phase begins with observation and data collection.

2. Design

The design stage is an advanced stage of the analysis stage where in this stage the design of the application is presented, such as interface design, data base design will be applied to the system.

3. Coding

At this stage, the data base design and interface design are applied to the programming language used is the PHP programming language for websites.

4. Testing

The test phase is the final stage in the waterfall method where in this stage the blackbox testing technique is used.

3. RESEARCH METHODOLOGY

3.1. System Analysis

The development of a system or application can be carried out after the system analysis process is based on the facts of the existing system. System analysis is the decomposition of a complete information system into its component parts with a view to identifying and evaluating problems, opportunities, obstacles that occur and expected needs, so that improvements can be proposed [12]. An application or system to be built will refer to the system analysis that has been carried out. Therefore system analysis is a very important first step because if there is an error in this stage it will affect the next stage. In this section, the analysis will be discussed Posyandu application system for mothers and children to be built using UML as well as procedures and document flows will be built described in the form of a flowmap. For document analysis used and system analysis is running, the author gets the data by the way interview with Posyandu officers in Bulakan village.

3.2. Use Case

Use case diagrams are one of various types of UML (Unified Modeling Language) diagrams that describe the interaction between the system and actors. Use cases can describe the type of interaction between the system user and the system, in Figure 1 below is the researcher's use case diagram design [13].

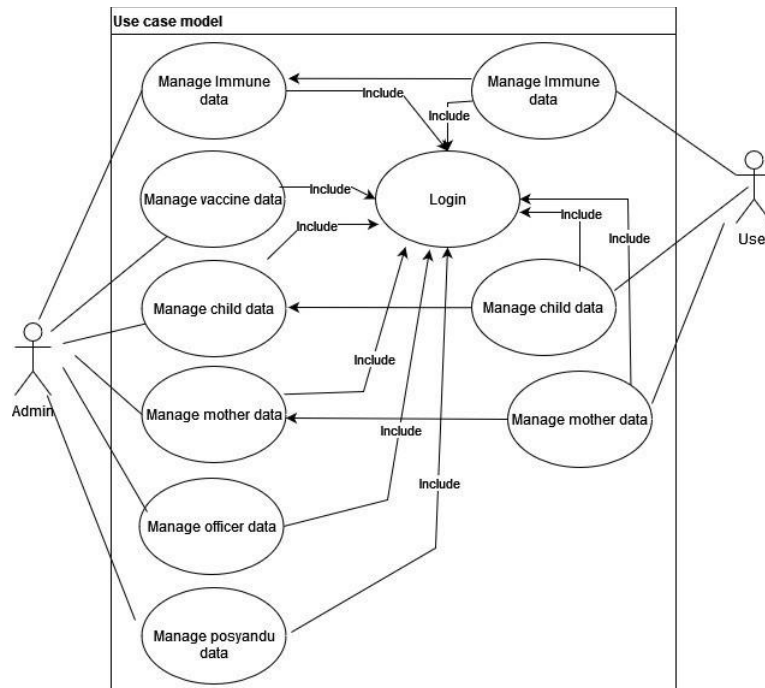


Figure 1. Use Case Diagram

3.3. Definition of Use Cases

Table 1. Definition of Use Case

No	Use case	Description
1	Login	Is a process to identify system users by entering a username and password
2	Input immune data	Input immune data child to system
3	Vaccine data input	Enter vaccine data to system
4	Enter child data	Enter child data to system
5	Enter mother's data	Enter mother data to system
6	Enter officer data	Enter employee data to system
7	Posyandu data input	Enter posyandu data to system
8	Manage immune data	Manage immune data that has been registered and input immune data if it is not already in the system
9	manage vaccine data	Manage vaccine data that has been registered and enter vaccine data if it is not already in the system
10	manage child data	Manage registered child data and input child data if not already in the system
11	manage mother data	Manage registered mother data and input mother data if it is not already in the system
12	manage employee data	Manage registered officer data and input officer data if not already in the system
13	manage posyandu data	Manage Posyandu data that has been registered and input Posyandu data if it is not already in the system

4. RESULTS AND DISCUSSION

4.1 Implementation

Implementation is the stage where the system is ready operated so that it will be known whether the system is it has been designed and made exactly to that planned. On the implementation of this software will explained how this system program works, with provides a view of the forms created. The implementation phase is carried out after all processes system creation is complete. Implementation can carried out as a measure of success in implement the results of the design with identify and perform analysis.

4.2 Analysis of Implementation Results

The mother and child posyandu application aims to register for posyandu online or be registered by the admin, store posyandu register data without the need to record names repeatedly in different formats, provide information about mother and child development data, and store results reports posyandu activities in a structured manner. In the posyandu application there is an officer page used by posyandu officers and an admin page used by posyandu cadres.

The Admin page is used to manage Posyandu data such as data on vitamins and immunizations to be given, user data, Posyandu participant data, and view reports on the results of Posyandu activities. Meanwhile, the user page is used to register children, pregnant women, and immune data to Posyandu. Based on the design that has been made for the interface, the results obtained from the implementation consist of several page snippets which are presented in the following figure 2-10.

4.3 Login Page



Figure 2. Login Page

The login page is used by admins and posyandu officers to enter the system, and admins or officers can carry out activities in the system.

4.4 Admin Dashboard



Figure 3. Admin Dashboard

On the admin dashboard, several menus can be seen, where each menu has its own function according to the name of the menu, shown in the picture 3.

4.5 Vaccine Data

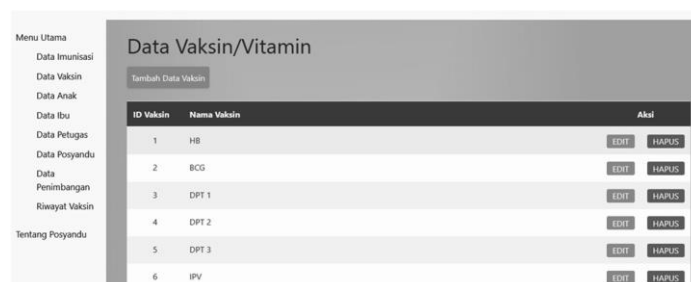


Figure 4. Vaccine Data Page

On the vaccine data page, a menu appears for adding, editing, or deleting vaccine data according to figure 4.

4.6 Child vaccine history



Figure 5. Child vaccine history

On the Child Vaccine History page, information regarding child vaccine data can be seen. This page makes it easier for officers to track the history of the child having received any vaccines. The child vaccine history page is shown in the figure 5.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

Design and manufacture of E-POSYANDU: WEB-BASED MOTHER AND CHILD POSYANDU APPLICATION USING THE CODEIGNITER FRAMEWORK successful in carrying out the expected goals. The conclusions obtained are as follows:

- Applications can register posyandu online online can be done by officers or through admin;
- The application can save the result register data inspection on posyandu activities;
- Posyandu participants and cadres can view the information patient progress online and can downloaded or printed;
- This application can store registrant data, data register, and other posyandu data without the need Enter the name repeatedly in the different;
- Posyandu cadres can view activity results reports posyandu online.

5.2. Recommendations

Further suggestions on designing and development of E-POSYANDU: WEB-BASED MOTHER AND CHILD POSYANDU APPLICATION USING THE CODEIGNITER FRAMEWORK is as following:

- It is expected that applications that have been developed in a wider scope;
- It is hoped that the application that has been made can developed in the form of an android application.

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