



Web-Based Design and Implementation of Service Systems for Public Health Centers

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Abstract

Information technology is now a necessity for society, including in the health sector at the Community Health Center (Puskesmas) information technology can be used to manage medical record data such as creating a web-based service information system. However, most of the management of puskesmas medical record units in Indonesia is still carried out using spreadsheet applications or still using paper records. The spreadsheet application also has drawbacks because the officers from the puskesmas also have to understand the formulas to use it even though they are not programmers. As in the Mardira Health Center, medical records are written on paper and recorded for archives, this is less efficient because data can be lost or damaged. Therefore this study aims to facilitate the process of managing medical record data such as storing and accessing data and reducing the risk of data damage due to disasters. This application is designed to be web based using the PHP (Pear Hypertext Preprocessor) programming language and MySQL as its database. In its manufacture, this application is tailored to the needs. The result of this application is a web-based health center service system that can search data quickly, modify data and generate reports easily. It is hoped that this application can facilitate the implementation of activities at the puskesmas and improve services to the community.

Keyword : *Health service, website, services management.*

1. INTRODUCTION

Academic Information Systems have an important role in various fields, one of which is in the health sector, the Mardira Health Center is a government agency in the health sector located in Bandung. Mardira Health Center which is one of the health service centers which is one of the health agencies that is currently developing. The large number of patients causes problems in managing patient queues, obtaining information about patients, patient medical records and also data on drugs that have been used by the puskesmas for patients/the public.

The Mardira Health Center has puskesmas services, namely: 1 Treatment Registration Room/counter, 5 poly rooms, namely: General Poly, Dental Poly, Tuberculosis Poly, Eye Poly, MCH Poly, Elderly Poly. Immunization Poly, Nutrition Poly. Patient registration and filing of patient medical records are still done manually, meaning that everything is still written on piles of paper and stored on storage shelves, so that when the puskesmas needs patient data, visit reports, and also used reports, it takes a long time to find where the data is stored.



To create sequenced queues, patient medication data collection, medical record filing, drug prescriptions, drug data and medical transaction data that are involved and good, good management is needed from the part that handles this. Apart from operational technical issues, good patient data management in a public health institution can be determined from good administrative mechanisms that will create convenience and efficiency in the process of recording and retrieving information. With ease and efficiency in the process of recording and retrieving information, it is hoped that the existing information can be used optimally, processed in such a way that it will be very helpful in determining the medical actions that must be performed. Therefore, based on the description of the background above, the researcher is interested in making an application that can help puskesmas officers in provide health services to the community.

2. METHOD

2.1. Methods of Data Collection

This research method uses the description method. The purpose of this descriptive research is to collect actual facts that are happening at this time. According to Sugiyono (2005: 21) states that the descriptive method is a method used to describe or analyze a research result but is not used to make broader conclusions.

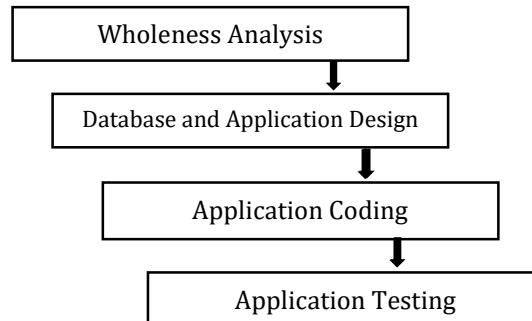
The queuing system contains many facts that exist in our environment. Currently there are still many Puskesmas whose medical records are written down on paper and recorded for archives, this is inefficient because data can be lost or damaged. With these facts, it can be concluded that the queue system for puskesmas with computers is still very minimally implemented.

2.2. System Development Method

The system development methodology used is the System Development Life Cycle (SDLC) which is often referred to as the waterfall development model. The waterfall method is a systematic and sequential information system development model (Sasmito, 2017). The research method used for software development is using the waterfall model. This model is an sequential software approach that starts from analysis, design, coding, testing and supporting stages (Rosa and Shalahudin, 2013).



Figure 1. Waterfall Model



Source : Rosa and Shalahudin (2013)

1. Needs Analysis, namely to analyze what needs will be needed when making the program, for example the hardware and software that will be used. In this case using the PHP programming language.
2. For database and application design, namely mapping what columns and attributes are used in the application and analyzing classes and methods in the application. The following is a brief description of the application design used.
3. The coding or application implementation stage uses the implementation of OOP or Object Oriented Programming.
4. The last stage is the application testing stage, where the application is used and checked whether it can run or not, there are errors or not. So that the output of the program can be useful.

3. RESULTS AND DISCUSSION

Use Case Diagrams

Use Case diagram is a sequence of interrelated interactions between systems and actors. The Use Case diagram above is an illustration of an information process that runs on a queuing system that is designed for how the system interacts with actors to present the whole system according to the needs analysis.



Figure 2. Use Case Diagram

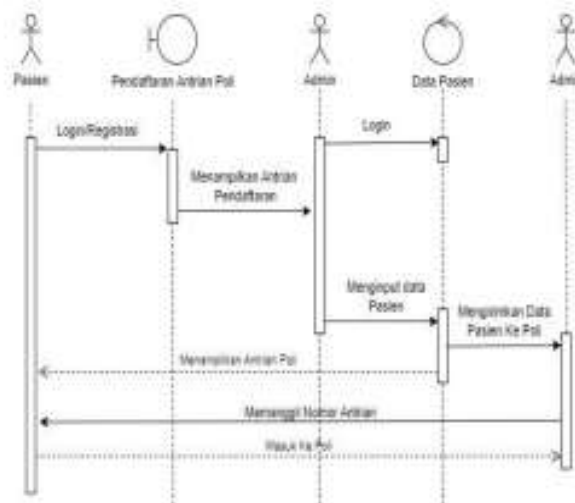


Source : Author (2022)

Sequence Diagrams

Sequence Diagram is a diagram that explains the interaction of objects and shows (gives signs or instructions) communication between these objects

Figure 3. Sequence Diagram



Source : Author (2022)

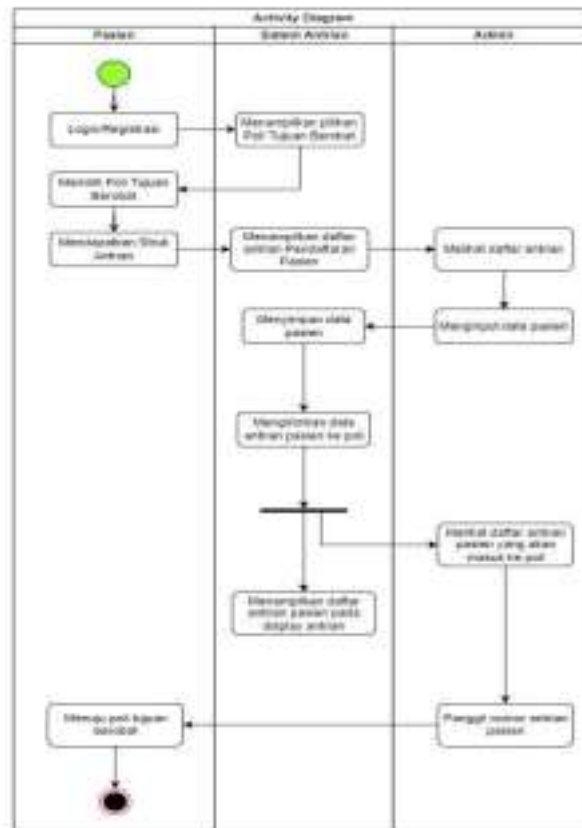


The image above illustrates the interaction process between the admin and the patient with the queuing system, as well as the feedback from this interaction. Patients are actors who require health checks at a health service such as a health center. Queue registration is a display feature for taking patient queue numbers to get a treatment queue receipt. Admin is an actor who controls and runs a queuing system, such as inputting patient data and printing reports. Patient registration is a feature to register patients at the poly destination for treatment.

Activity Diagrams

Activity Diagram is a visual form of workflow that contains activities and user actions in an application system.

Figure 4. Activity Diagram



Source : Author (2022)

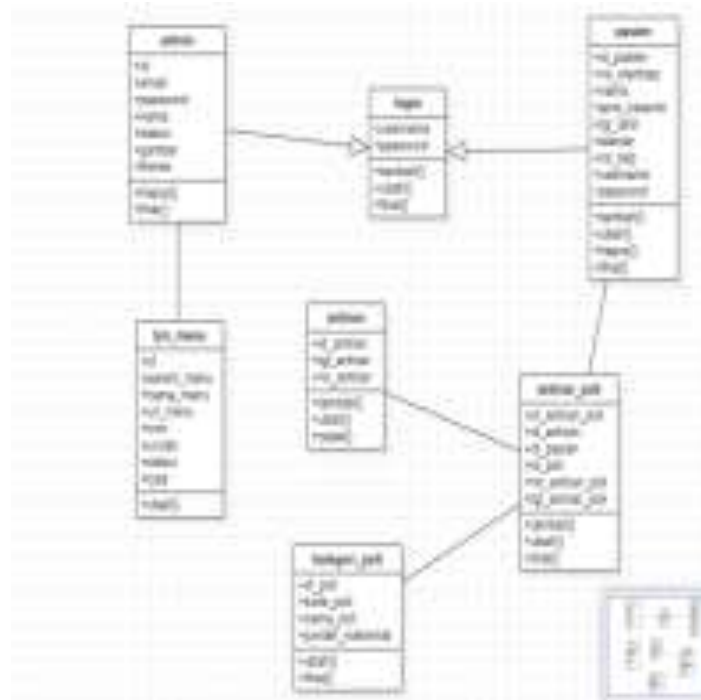
The picture above illustrates the processes or activities of patients and admins that occur in a queuing system where all these activities will always be repeated from start to finish.

Class Diagrams

The class diagram is a visual of the structure of the program system on the types that are formed. Class diagram is the flow of the database on a system.



Figure 5. Class Diagram



Source : Author (2022)

The picture above illustrates several tables that exist on the system then each table has several queries to accommodate input from the system and functions where commands are executed. How the System Works.

- Page Before Main Menu The page that appears the first time when the program is run is Login page (enter the system).

Figure 6. Login Administrator



Source : Author (2022)



- User Main Page (Officer). On the main page, the officer has 4 sidebar menus, namely: Dashboard, queue for treatment, new patients, and patient data, has 2 displays for the number of data calculations, namely: the number of queues for treatment and the amount of patient data

Figure 7. Administrator Main Page



Source : Author (2022)

- New Patient Page. On the new patient page, the registration officer is used to enter the patient's personal data before registering the queue for treatment. The data contained on the new patient page is data added by the registration officer.

Figure 8. Page New Patient



Source : Author (2022)

- Medical Card page. In the print page display the queue number is used by the registration officer to print the queue number for treatment according to the patient's medication registration poly. The data displayed on the queue number print is a queue with a queue number based on the destination policy and the time the queue was made.



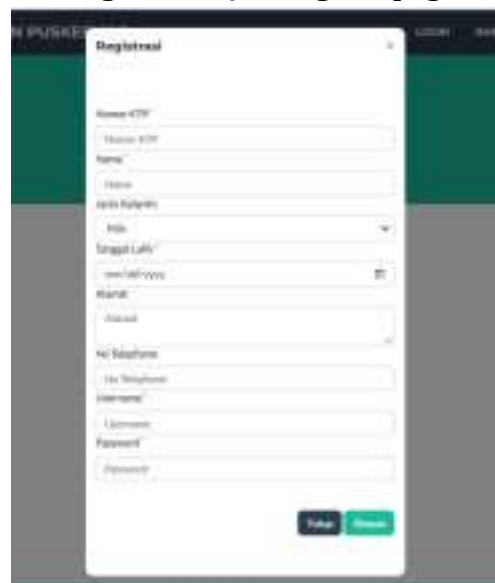
Figure 9. Medical Card page



Source : Author (2022)

- Queuing List page. On the poly queue registration page, the registration officer is used to add patient treatment registration data. Registration for treatment that will be carried out is registration that is carried out at the time of registration and in accordance with the poly that will be examined by a doctor. The time and queue number for treatment is valid at the time of registration for treatment. Before the registration officer adds the registration queue for treatment, the registration officer seeks treatment collect poly data for the purpose of examining patients.

Figure 10. Queuing List page

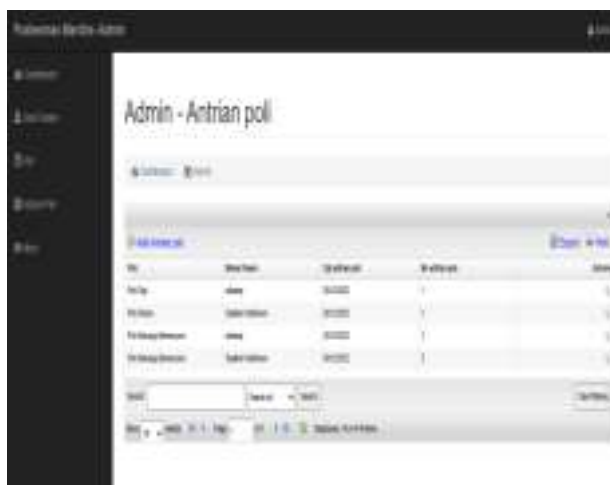


Source : Author (2022)



- Poly Queue page. Queuing data page in general poly is used to display queue data whose status is "checking" and "waiting". The data displayed on the general poly queue page is data added by officers at the general poly and within 1 working day. On the queue page for treatment at the intended poly, the registration data for treatment at the general poly is displayed containing patient data along with the date of registration and serial number of treatment registration.

Figure 11. Poly Queue page



Source : Author (2022)

- Patient Data Page. The patient report page displays patient data at the Temiang Island Health Center to the head of the Health Center. On the patient report page for the head of the puskesmas can print data on patients who have been treated at the puskesmas.

Figure 12. Patient Data Page



Source : Author (2022)



4. CONCLUSION

With the Queue Management Application at the Puskesmas, patients can take Puskesmas services remotely, then make it easier for Puskesmas staff to monitor and manage queues online. In addition, the application is also capable of handling emergency patients, non-bookings and bookings. This application can be implemented for Puskesmas in Indonesia. Through this application, it is expected to be able to answer problems and advance the existing queuing system at the health center in Indonesia.

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