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IMPLEMENTATION OF DRUG DATA PROCESSING APPLICATION INFORMATION SYSTEM IN COMMUNITY HEALTH CENTER USING CODEIGNITER FRAMEWORK

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Abstract: *Kelambir Lima Health Center has an important role in providing health services to the community, one of which is efficient and accurate drug management. However, drug data management at this Health Center is still done manually, causing various problems such as errors in stock recording, delays in drug distribution, and difficulty in obtaining fast and accurate information regarding drug availability. This study aims to design and implement a web-based drug data processing application information system at Kelambir Lima Health Center by utilizing the CodeIgniter framework. The CodeIgniter framework was chosen because of its ability to support the development of lightweight, fast, and easy-to-implement applications. This system is designed to handle drug stock management, recording incoming and outgoing transactions, and providing integrated reporting features. The results of this study are a web-based information system that is able to facilitate drug data management at Kelambir Lima Health Center in a more structured, efficient, and real-time accessible manner. The implementation of this system is expected to increase the operational effectiveness of the Health Center, minimize recording errors, and accelerate the process of drug distribution to patients.*

Keywords: *Information System, Drug Data Management, Health Center, CodeIgniter, Web*

Abstrak: Puskesmas Kelambir Lima mempunyai peranan penting dalam memberikan pelayanan kesehatan kepada masyarakat, salah satunya adalah pengelolaan obat yang efisien dan akurat. Namun pengelolaan data obat di Puskesmas ini masih dilakukan secara manual sehingga menimbulkan berbagai permasalahan seperti kesalahan pencatatan stok, keterlambatan distribusi obat, dan sulitnya memperoleh informasi yang cepat dan akurat mengenai ketersediaan obat. Penelitian ini bertujuan untuk merancang dan mengimplementasikan sistem informasi aplikasi pengolahan data obat di Puskesmas Kelambir Lima berbasis web dengan memanfaatkan framework CodeIgniter. Framework CodeIgniter dipilih karena kemampuannya dalam mendukung pengembangan aplikasi yang ringan, cepat, dan mudah diimplementasikan. Sistem ini dirancang untuk menangani pengelolaan stok obat, pencatatan transaksi masuk dan keluar, serta menyediakan fitur pelaporan terintegrasi. Hasil dari penelitian ini adalah sistem informasi berbasis web yang mampu memudahkan pengelolaan data obat di Puskesmas Kelambir Lima secara lebih terstruktur, efisien, dan dapat diakses secara real-time. Penerapan sistem ini diharapkan dapat meningkatkan efektivitas operasional Puskesmas, meminimalkan kesalahan pencatatan, dan mempercepat proses pendistribusian obat kepada pasien.

Kata kunci: Sistem Informasi, Pengelolaan Data Obat, Puskesmas, CodeIgniter, jaring

INTRODUCTION

Kelambir Lima Health Center is one of the health facilities that plays an important role in providing health services to the community. One of the vital tasks carried out by the Health Center is the management and provision

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of appropriate and adequate medicines for patients. However, currently the management of drug data at the Kelambir Lima Health Center is still done manually, both in recording drug stock, recording drug distribution to patients, and reporting to interested parties.. (Izhari & Dhany, 2023)(Hendrawan, Perwitasari, & Ritonga, 2023)(Syahputra Novelan & Putra, 2020)

This manual process often causes various problems, such as errors in recording, delays in data processing, and inaccuracies in calculating existing drug stock. In addition, the difficulty of accessing the latest information on drug availability causes the decision-making process to be slow and inefficient. This can have a direct impact on the quality of health services provided, which ultimately harms patients and hinders the operation of the Health Center.. (Rizal & Fachri, 2023)(Rizal et al., 2022) (Septian Hardinata et al., 2022)(Supiyandi et al., 2022)(Bangun Sistem et al., 2019)

In today's digital era, the use of information technology is an urgent need to overcome these problems. A web-based information system can be the right solution in managing drug data at the Health Center. One of the technologies that can be used to build this system is the CodeIgniter framework, which is known for being lightweight, fast, and easy to develop. (Hendrawan, Perwitasari, & Arifin, 2023)(Tasril, 2018)(Hasan Putra & Syahputra Novelan, n.d.)

The CodeIgniter framework allows the development of a more structured and efficient information system, with features that can be customized according to needs. By utilizing this framework, drug stock management, drug in and out transactions, and reporting can be done automatically and integrated, thereby minimizing errors and accelerating the data management process. Therefore, this study aims to implement a web-based drug data processing application information system at the Kelambir Lima Health Center by utilizing the CodeIgniter framework. With this system, it is hoped that the drug management process at the Health Center can run more efficiently, accurately, and support the improvement of the quality of health services to the community. (Fachri, 2018)(Informatika & Hasan, n.d.)(dan Pembuatan Aplikasi Manajemen Peminjaman Kendaraan Berbasis Web Dengan et al., n.d.)

METHOD

The research methodology for designing a drug data processing information system at a health center can involve several steps including planning, development, implementation, and evaluation. Here are some research methodologies that you can consider. (Rahmat et al., 2019)

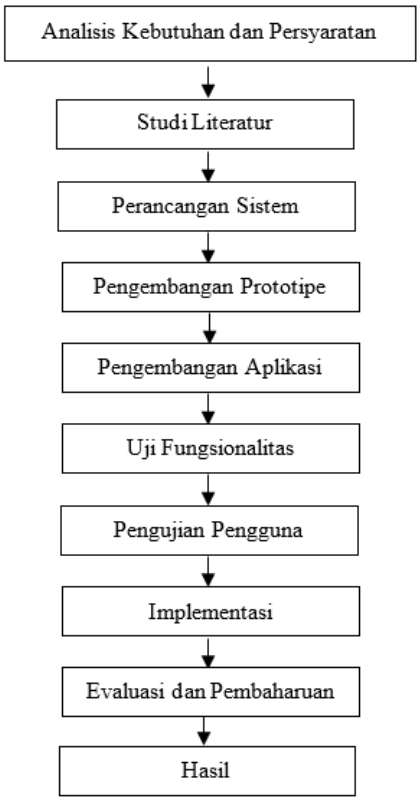

Figure 1. Research Stages

Based on Figure 3.1, the following is an explanation of each process of the research stages, including:

1. Needs and Requirements Analysis
   Identify application needs and requirements by communicating with

principals and potential users. Determine key features, data security, and desired user scale.(Penjualan Online Berbasis Website et al., 2019)

2. Literature Study
   Conduct a literature study to understand the current trends in drug data processing applications in health centers and relevant technologies, such as websites. And the challenges they face in adopting digital technology. (Fauzi Siregar & Sari, 2018)
3. System Design
   Create an application system design, including application architecture, user interface, and integration with Firebase Realtime Database and Cloud Computer. Determine how data will be stored, managed, and accessed.
4. Prototype Development
   Build a prototype of your app to test your concept and get feedback from potential users. Make sure the prototype includes the key features you have identified.
5. Application Development
   Implement applications based on tested prototypes. Integrate database systems for data storage and Cloud Computer to improve scale and performance.
6. Functionality Test
   Perform functional testing to ensure that all application features are working properly. Identify and fix any bugs or technical issues that may arise.
7. User Testing
   Perform functional testing to ensure that all application features are working properly. Identify and fix any bugs or technical issues that may arise.
8. Implementation
   After passing the test and testing, implement and launch the application publicly. Ensure adequate technical support is available.
9. Evaluation and Update
   Conduct a post-launch evaluation to identify potential improvements or enhancements. Get feedback from users and make updates as needed.
10. Result
    In this application, an explanation will be given about the drug data management application design system at the health center.

System Design

Use case is a modeling that displays the flow of the application system for processing drug data at the Kelambir Lima Health Center. Figure 2 is a use case design for the information system research that was built.

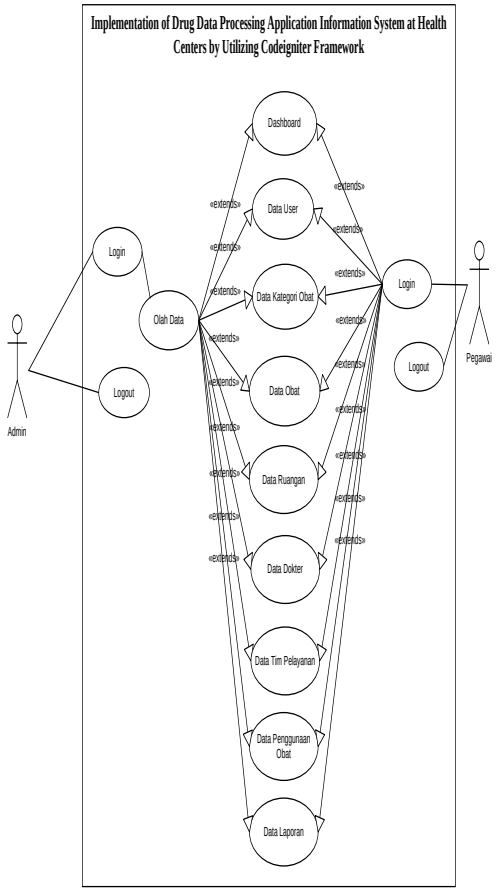

Figure 2. Research Use Case Diagram

1. *Activity Diagram*

Activity Diagram explains the activities carried out by the user on the system. For this Activity Diagram will explain how the Admin process interacts with the designed system. Figure 3 is the

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Admin Activity Diagram of the designed system.

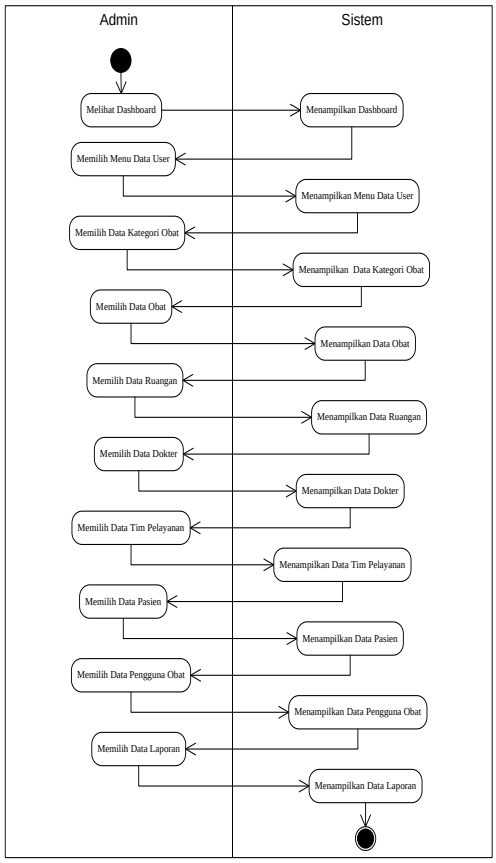

Figure 3. Activity Diagram

2. Sequance Diagram

Sequence Diagram is a sequence of activities carried out by the admin in running the web-based data processing application for the Seberang Perak sub-district health center. Figure 4 is the admin sequence diagram used in this study.

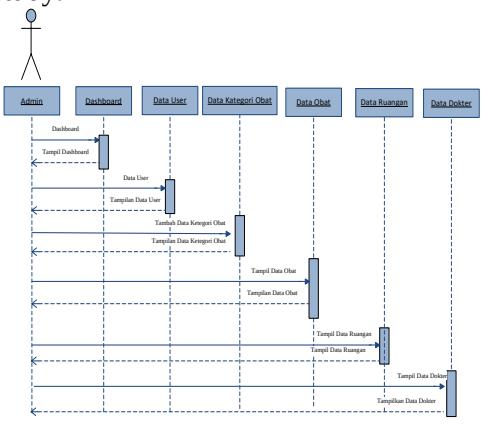

Figure 4. Sequance Diagram

RESULTS AND DISCUSSION

The results and discussion are the results of the implementation of the Web-Based Drug Data Processing Information System for Kelambir Lima Health Center. The author conducted a trial using data provided by the company. However, before conducting the test, there are several device requirements for the information system.

Admin Login Menu Display

On the admin login menu display, it is a display if the admin or user wants to enter the Hamparan Perak District Health Center Drug Data Processing Information System Based on the Web. The login menu display can be seen in the image below.

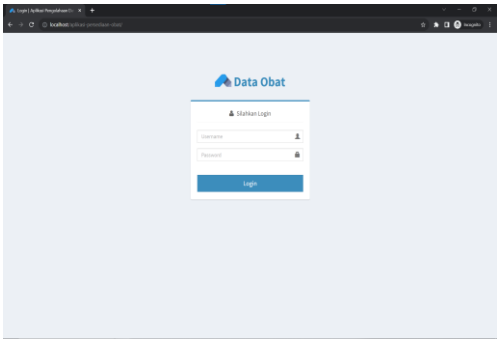

Figure 5. Login Page View

Dashboard Menu Display

On the dashboard page is the main page if the admin has logged in. For the dashboard page can be seen in the image below.

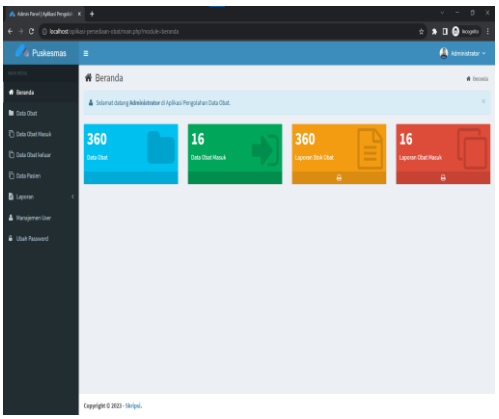

Figure 6. Dashboard Menu View

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Add Drug Data Menu Display

On the display of the add new drug data menu, it is a display where the admin if he wants to add new drug data, there are several forms that need to be filled in, for example, the drug code, drug name, purchase price, selling price, stock, units and action buttons. For the display of adding new drug data, it can be seen in the image below.

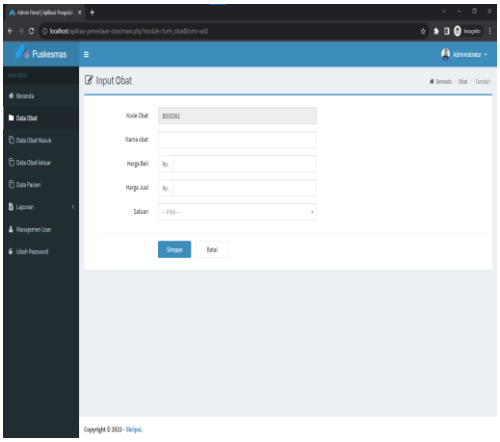

Figure 7. Add Drug Data View

Display of Incoming Drug Data

On the incoming drug data page is a page where the admin can manage or input incoming drug data, the inputted data is in the form of transaction code data, drug entry date, drug code, drug name, number of drugs entered and drug units. The display of incoming drug data can be seen in the image below.

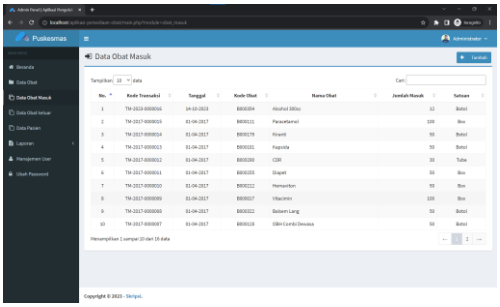

Figure 8. View Incoming Drug Data

Display of Outgoing Drug Data

In the display of outgoing drug data, it is a display where if the admin manages outgoing drug data, the admin can fill in the form, namely the drug code, the date the drug was issued, the patient's name, the treating doctor, the drug given or the dose, and the payment. The display of outgoing drug data can be seen in the image below.

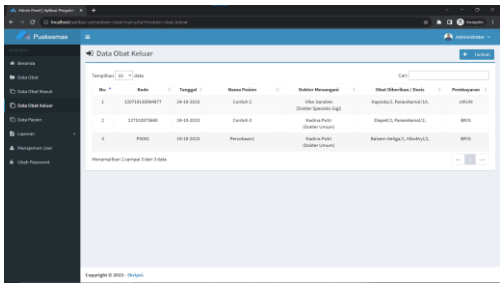

Figure 9. Display Outgoing Drug Data

Patient Data Display

In the patient data display is a display where the admin can manage patient data in the form of input data, namely patient code, patient name, gender, date of birth, patient address, category and action buttons in the form of edit, delete and add buttons. For the patient data display can be seen in the image below.

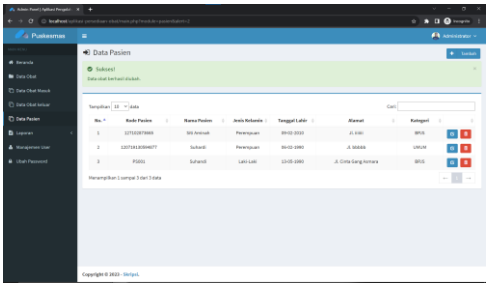

Figure 10. Patient Data View

Report View

On the report display, the admin can print a report in the form of drug stock. The report is in the form of drug code, drug name, purchase price, selling price, stock, and drug units. The report display can be seen in the image below.

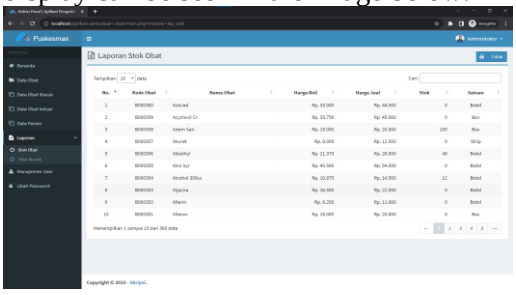

Figure 11. Report View

User Management View

On the user management display is where the admin can manage accounts that want to get access to the drug data management application. For user management can be seen in the image below.

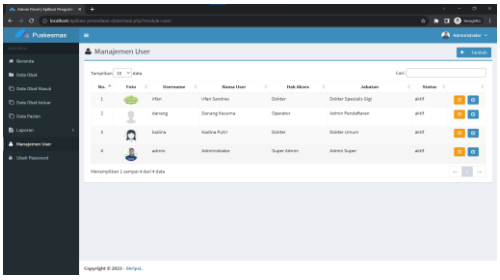

Figure 12. User Management View

CONCLUSION

The implementation of the design of a drug data processing information system at a community health center has several conclusions that can be presented, including:

1. Web-based information system developed with the CodeIgniter framework is able to increase the efficiency of drug data management at the Kelambir Lima Health Center. The management process that was previously done manually can now be done automatically, structured, and faster.
2. With this system, information related to drug stock can be accessed in real-time, which allows the Health Center to monitor drug availability more easily and accurately. This helps in making faster and more precise decisions regarding drug management.
3. The implementation of this system has successfully minimized errors in recording and processing drug data that often occur in manual systems. With integrated recording and reporting features, this system provides more accurate and reliable results in drug management at the Health Center.

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