

DESIGN AND DEVELOPMENT OF HELP PATIENT DATA MANAGEMENT INFORMATION SYSTEM AT SINERGI ATAP NEGERI FOUNDATION WEB-BASED USING CODEIGNITER

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ABSTRACT

The Sinergi Atap Negeri Foundation is a legal and independent non-profit social foundation with the goal of becoming a halfway house facilitator for needy patients and families. The purpose of this study is to create a data management information system for assisted patients to aid in data management, patient submissions, and data transactions at the Sinergi Atap Negeri Foundation, thereby making work more effective and efficient. The waterfall method is used in software development to collect data from previous studies through observations, interviews, and literature studies. The Sinergi Atap Negeri Foundation's patient data management system, according to the analysis, is still manual, whereas previously data management could only be managed by one foundation administrator and accessed by anyone. Given these concerns, researchers are encouraged to develop a web-based application using PHP, the Codeigniter 3 framework, and Mysql as a database. It is hoped that this information system will improve the performance of foundation employees by making data entry easier and faster, as well as avoiding data loss errors from a security standpoint.

Keywords: *Information Systems, Patient Data Management, Framework Codeigniter 3, UML*

1. Introduction

Indonesia's technological advancement is increasing, and the advancement of information technology is currently very rapid (Friandi, et al., 2021; Setyowati, et al., 2021; Hamzah, et al., 2022). Almost every industry relies on information technology to aid and facilitate human labor. The demand for information is high, and the data produced is true, transparent, and accurate. For an agency, institution, or foundation, data and information must be managed quickly, precisely, and efficiently (Bawono, 2021; Hamzah, et al., 2022).

The Sinergi Atap Negeri Foundation is a non-profit social foundation that is both legal and independent. One of its goals is to become a halfway house facilitator for patients and their families who require a proper place to stay when hospital rooms are limited and users are unable to afford to rent lodging due to economic circumstances. It also helps with the mentoring process, which includes patient pick-up, hospital treatment assistance, and consultation with doctors.

According to the investigation, the Sinergi Atap Negeri Foundation's patient data management system remains manual, despite the fact that previous data management could only be handled by one foundation administrator and viewed by anyone. Furthermore, patient reports are difficult to control and can lead to human errors. Given these concerns, researchers are encouraged to develop a web-based application using PHP, the Codeigniter 3 framework, and Mysql as a database. This information system is intended to improve foundation staff performance and make data submission easier so that it is faster and more detailed, as well as to reduce data loss problems from a security standpoint (Purnomo, et al., 2022).

This research will be used by the Sinergi Atap Negeri Foundation to design, implement, and evaluate a web-based data management information system. This program also aims to replace the current system with a new computerized system that will be more effective and efficient in managing data for all aided patients, recording patient administration, patient submissions, and producing reports online.

a. Understanding of Design

According to Soetam RW, "design is a process to specify something to be done in multiple ways, and it includes a description of the architecture and specific components, as well as the constraints that will be faced during the process." (Setiyanto et al., 2019).

b. Understanding Information Systems

Nurlalela stated "Information systems are systems that distribute information in such a way that it is valuable to recipients" in 2013 (Herliana & Rasyid, 2016) .

c. Understanding assisted patients

In Tursilarini's (2006) book explains that patients who require support or services from medical social workers are based on the findings of doctor's consultations, as well as when providing home care for the first time for patients. Of course, it is understood that the patient is in an unstable psychological state and requires the aid of a medical social worker for an indeterminate amount of time, depending on the patient's reaction pace and the underlying physical condition. The length of time that medical social workers offer support varies, but it is usually a considerable time until the patient is entirely cured and can return to his normal surroundings. For the past five years, medical social workers have carried out Home Care activities at a frequency of once every 1-2 weeks, as reported by their aided patients. Because they do not simply accompany one patient, medical social workers have highly hectic schedules, thus visits must be rigorously arranged. Medical social workers perform admirably in their roles, given that psychological help need progressive healing circumstances in order to motivate patients (Musfikirrohman & Rahmawati, 2014).

d. Understanding the foundation

Soeroredjo stated that "Foundations are social and humanitarian in nature as well as ideals and are absolutely not allowed to conflict with laws and regulations, public order and or decency" in 2005 (Anand, 2018).

e. Understanding Database

Says Andi "A database is a collection of data files that are interconnected and organized in such a way that it makes it easier to get and process data. The database system environment places a premium on independent data on applications that will use the data" in 2006 (Rahardjo, 1999).

f. Understanding Framework

According to Johnson R. and Foote B. "Framework is defined as a semi-complete application that can be reused and modified to produce certain applications" (Kamil, 2013).

g. Understanding CodeIgniter

Wardana says "CodeIgniter is an open source application in the form of a framework with an MVC (Model, View, Controller) model to build dynamic websites. When compared to creating web applications from scratch, using PHP CodeIgniter will make it easier for developers to create web applications quickly and easily" in 2012 (Asidhiqi & Hartanto, 2013).

2. Research Methods

a. Data Collection Methods

1) Observation

This method is carried out by conducting direct observations in the field and then collecting data through research and direct research on the problems under consideration.

2) Interview

An interview is a method of gathering information for research purposes by asking and answering direct questions of respondents. For data collection, researchers conducted direct interviews with the Sinergi Atap Negara Foundation's management.

3) Study of literature

Researchers conduct research by gathering references in the form of books, journals, papers, and various internet references related to the research title.

b. System Development Method

The system development method used by researchers is the waterfall method, "The

Waterfall Model is a method of sequential software development. This method was introduced by Royce in 1970 and was known as the classical cycle at the time, but it is now more commonly known as linear sequential" (Mekongga et al., 2019). because the system designed is a manual system or software system rather than the development of existing software.

This method uses common life cycle stages to guide developers from initial feasibility studies to full system maintenance. These stages are described as follows:

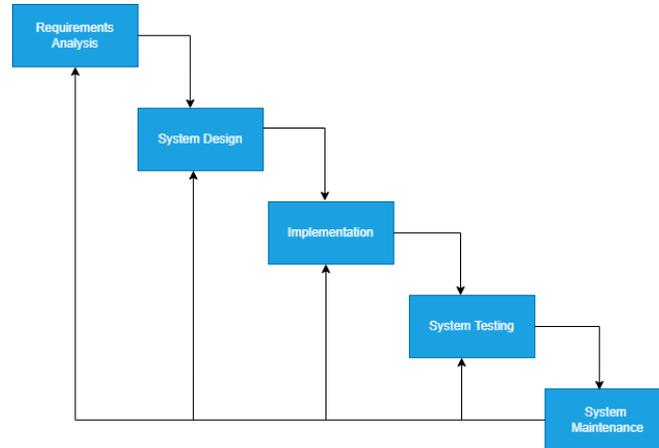


Fig. 1. Waterfall Model Methodology

1) Requirements Analysis

This initial step included an analysis of the constraints on the Sinergi Atap Negeri Foundation's recording and reporting method, which was still done manually.

2) System Design

The next step is to create an information system that uses software, specifically Xampp and Chrome, as well as the PHP programming language and the Codeigniter 3 framework with a Mysql database.

3) Implementation

The software is then realized into a program unit consisting of program code and display design in order to create input and output forms.

4) System Testing

Then, to avoid errors, a testing process is carried out using a blackbox that can be tailored to the user's preferences.

5) System Maintenance

The maintenance phase is the final step. This activity aims to improve the system's appearance and may lead to the development of a better system in the future.

3. Results and Discussions

The application developed in this study is an application for managing patient data, as well as submitting and reporting data, and all data recap is done automatically in this application to produce accurate reports.

The limitations of the problem in this study are:

- 1) This information system is used and accessed by the admin. Users are divided into two, namely admins and volunteers.
- 2) The old system, which is deemed less effective and efficient, still requires volunteers to come to the foundation to carry out the patient submission process.

The objectives to be achieved in this study are:

- 1) Assisting the administrator with data entry and processing on assisted patients. This will make the data management process faster and more accurate, allowing it to be more effective.
- 2) Volunteers can access this application online without having to come to the foundation directly to carry out the patient submission process, which can save time and be more

efficient.

a. Requirement Analysis

User needs analysis is required because admin and volunteers must login using admin and volunteer usernames and passwords. After successfully logging in, the Sinergi Atap Negara application will display an admin homepage. There are several menus on the admin page, including Dashboard, Patient Data, DataType, Volunteer Data, Data Transactions, Reports, About Us, and Logout. There are several menus on the volunteer page, including Dashboard, Submission, Data Transactions, and Logout.

b. System Design

The researchers designed the system using the Unified Modeling Language to make it easier to create the Sinergi Atap Negeri application (UML). Mulyani S. says that "UML is a system development technique that uses a graphical language as a tool for documenting and performing specifications on the system" in 2016 (Julianti et al., 2019).

1) Use Case Diagram

In Figure 1, there are two actors: administrators and volunteers. Admins can log in, add volunteer accounts, manage volunteer data, and manage reports. Meanwhile, volunteers are almost identical to admins, with the exception that they cannot add accounts.

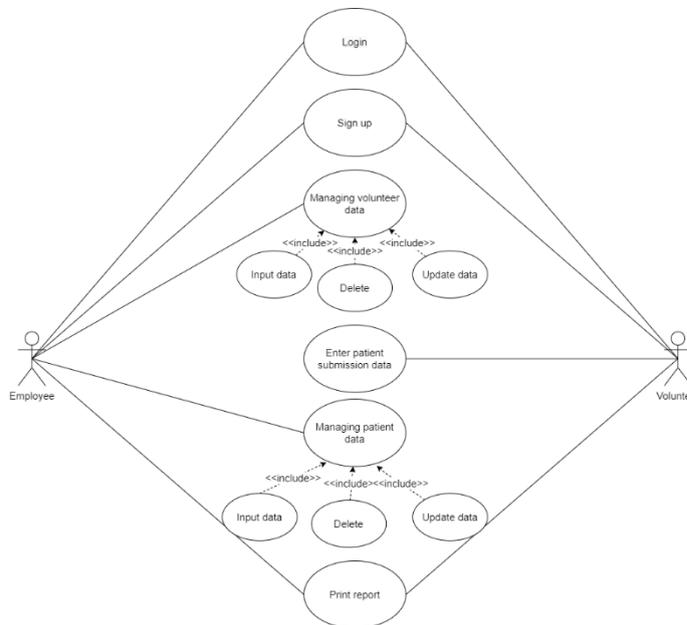


Fig. 2. Use Case Diagram

2) Activity Diagram

Figure 2 depicts the activity or work flow involved in entering patient data. Begin by logging in; if the login is successful, proceed to the dashboard display, where there is a patient data menu; the system then displays the patient data page. The administrator will then complete the patient data input form. The data will then be saved in the database by the system.

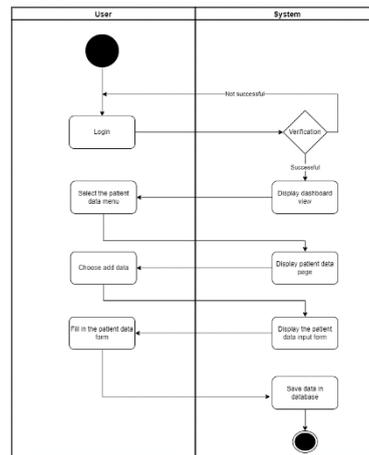


Fig. 3. Activity Diagram

3) Class Diagram

The web-based Sinergi Atap Negara foundation patient data management information system is represented by a class diagram. Figure 3 depicts the class diagram used to manage assisted patient data.

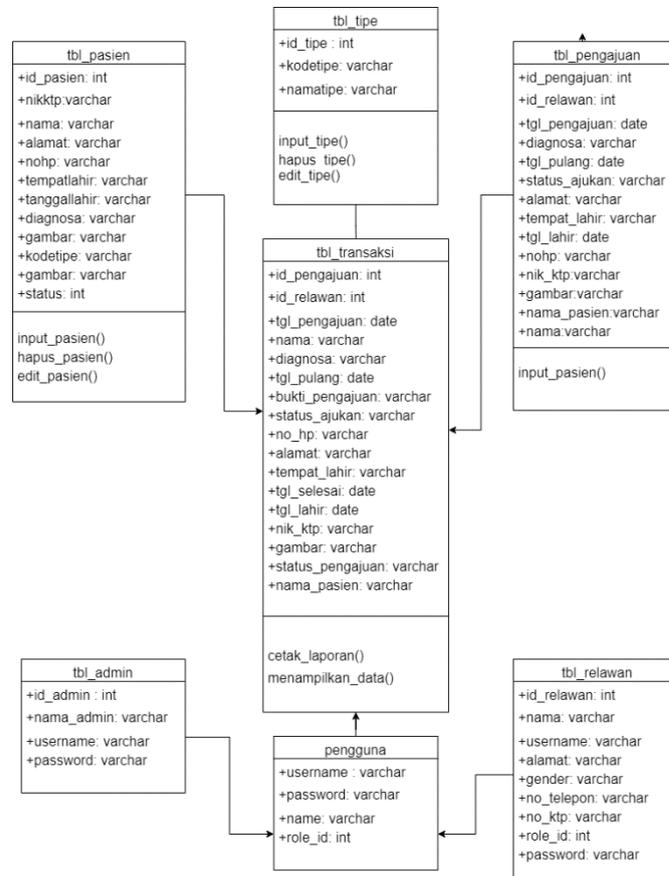


Fig. 4. Class Diagram

c. System Implementation

At this stage of implementation is an overview of the system that has been designed, as follows:

- 1) Login Menu Page

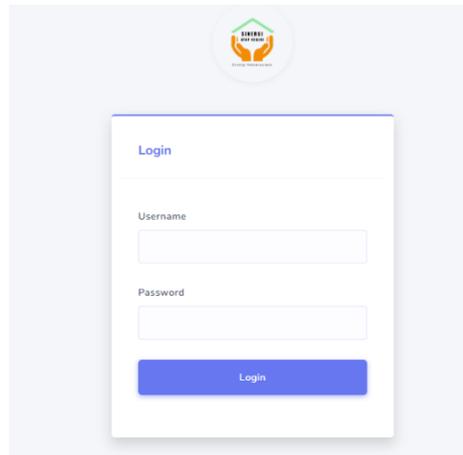


Fig. 5. Login Menu Page

Figure 5 depicts the first screen that appears when the application is launched. The user logs in by entering their username and password, then clicking the login button.

2) Dashboard Menu Page

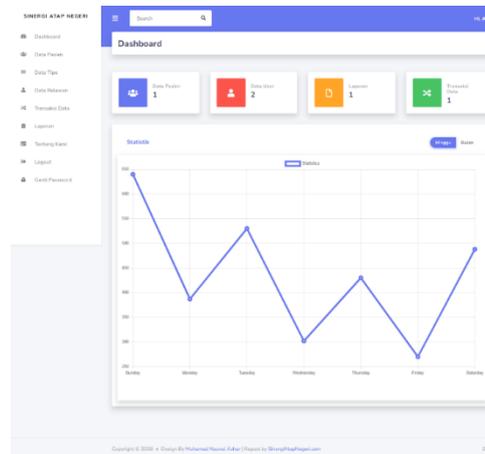


Fig. 6. Dashboard Menu Page

Figure 6 shows the admin dashboard, which appears after the admin has completed the login process and displays table and diagram statistics.

3) Patient Data Menu Page

No	Tipe	Nama	Alamat	No Hp	Diagnosis	Gambar	Status	Aksi
1.	PS	Yudi Nurrafi	J. Raya Timur GG Sukabung II no. 136, Desa Cakarti, Kec. Candi, Kota Candi, Prov. Jawa Barat	081289202881	Demam dengan batuk ampuks		Terselesa	

Fig. 7. Patient Data Menu Page

Figure 7 depicts additional patient features as well as patient data. If you want to add patient data, go to the add patient menu, and if you want to change, view, or delete patient data, go to the edit menu, detail menu, and delete menu.

4) Data Transaction Menu Page

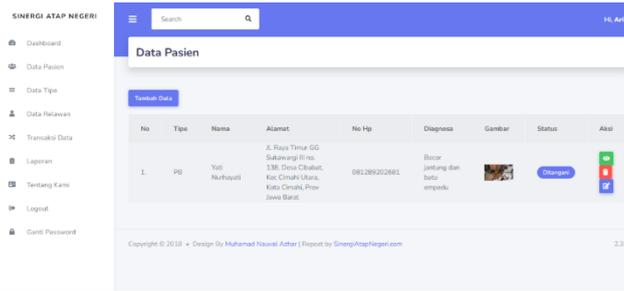


Fig. 8. Data Transaction Menu Page

Figure 8 depicts data from previous volunteer-submitted patient submissions. If the administrator wants to confirm the submission from the volunteer, choose the submission confirmation menu. If the administrator wants to complete the submission, choose the completed patient submission menu.

5) Report Menu Page

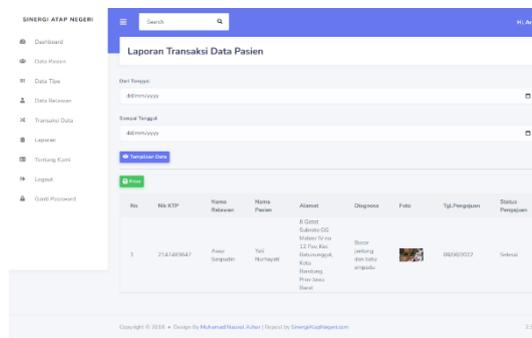


Fig. 9. Report Menu Page

Figure 9 shows a submission report with a feature to display patient submission data on the report page. Furthermore, the admin can view patient data that is entered on a monthly basis, and reports can be printed in pdf format.

6) Volunteer Dashboard Page



Fig. 10. Volunteer Dashboard Page

Figure 10 depicts a volunteer dashboard display that appears after the volunteer has completed the login process and displays articles, about us, and contact information.

7) Application input form page

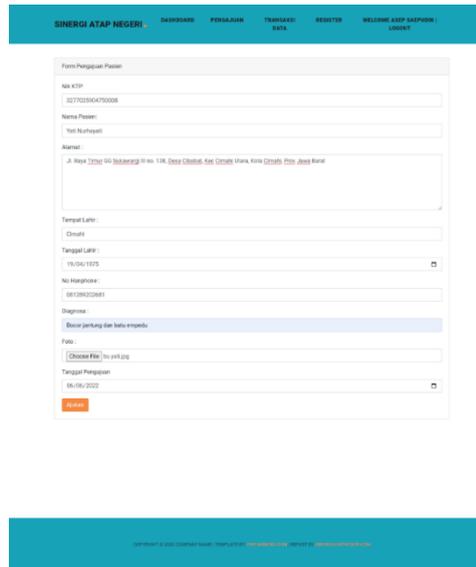


Fig. 11. Application input form page

Figure 11 depicts the screen that appears when the volunteer clicks on the submission menu on the dashboard page, in this view the user enters patient data.

8) Application input form page

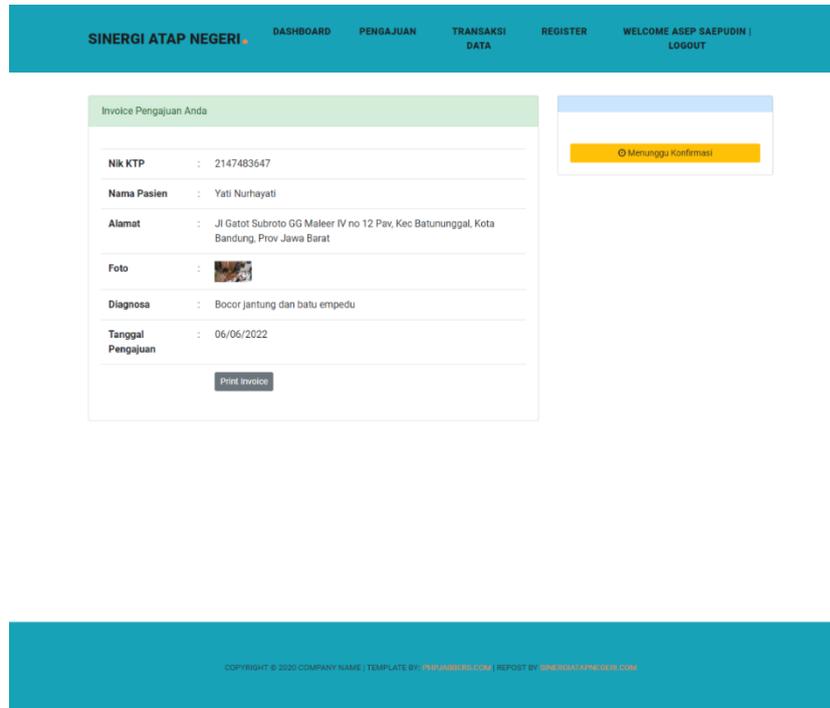


Fig. 12. Application input form page

Volunteers wait for confirmation from the admin in this form on the printed menu of the assisted patient submission report, admin and verifiers can view and print reports in word, excel, and pdf formats.

9) Report data transaction page

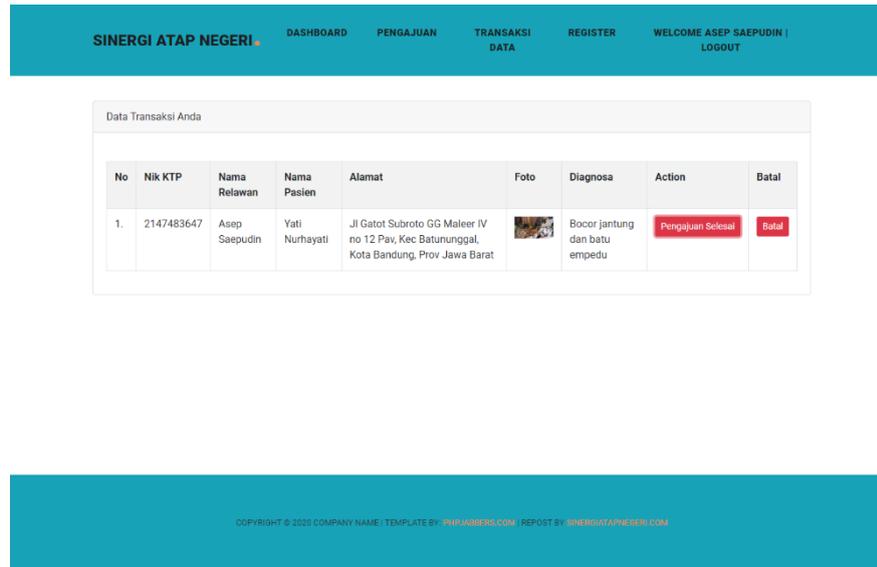


Fig. 13. Report data transaction page

The patient submission process has been completed and forwarded to the foundation for further processing on this page.

d. Integration and System Testing

The Blackbox method is used for testing after the system has been completed. Pressman says that "The focus of testing is on the functional requirements of the software, in other words testing whether the output produced by the system is in line with expectations without regard to the internal structure of the system" in 2010 (Ketut et al., 2022).

The following is a picture of the test results:

Test Factor	Results	Description
If you enter the wrong username and password	✓	If the username and password do not match, then the login is not successful
Test result		

Fig. 14. Blackbox login page

Test Factor	Results	Description
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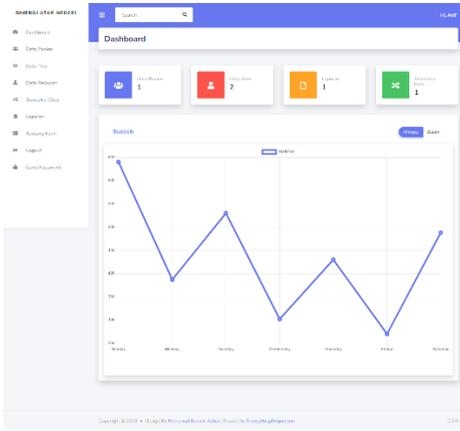
If the username and password entered are correct	✓	Successful because it can display the admin dashboard page
Test result		
		

Fig. 15. Admin dashboard blackbox

Test Factor if the username and password entered are correct	Results ✓	Description successful because it can display the volunteer dashboard page
Test result		
		

Fig. 16. Volunteer dashboard blackbox

4. Conclusion

With the Sinergi Atap Negeri Foundation's application system for managing patient data and patient submissions, data storage will always be well controlled in terms of accuracy, data can be accounted for so that the information produced is faster and more accurate, especially for the needs of the foundation's management. The application simplifies and expedites the process of submitting patients in need of a halfway house, as well as providing transparency on identity data reports and hospital financing.

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