

Development of the Rad Method for Administrative Service Information Systems (Case Study: Jiwa Baru Village)

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Abstract

Administrative services in Jiwa Baru Village are still handled manually, causing delays, data errors, and inefficiency. This study aims to develop a web-based administrative information system using the Rapid Application Development (RAD) method. RAD was chosen for its speed and iterative approach involving active user participation. The system includes features for document requests and digital archiving. Data were collected through interviews and observations in Jiwa Baru Village. The system was evaluated using black-box testing. The results show that the system improves service efficiency, reduces errors, and provides easier data access for both village officials and residents. This system supports more modern and transparent public service delivery.

Keywords: Information System, Village Administration, RAD, Web

1. Introduction

In today's modern era, given the increasingly sophisticated technological advances, all matters related to information, both positive and negative, can be obtained quickly, precisely, and accurately. The advancement of technology has resulted in a large number of people using it. Likewise, government agencies require an information system that can facilitate an agency in managing information. "Information Systems (IS) are the foundation for the effective management and utilization of information to support decisions, control, and operations within an organization. This can help organizations improve efficiency, accuracy, and competitiveness[1]. The government agency at the lowest level is the Village Head's Office. The Village Head's Office functions as the center of village administration. It is led by a Village Head and assisted by several village officials to maximize protection for the community. Administrative services for a government begin at the Village Head's Office, the spearhead of population data collection. Population registration and processing then proceed to the Regency or City Government. Village administrative services, such as issuing certificates, cover letters, and other documents requiring acknowledgement from the village head's office, must be carried out quickly and accurately[2]. The Rapid Application Development (RAD) method is a method used in incremental software development where the development cycle is relatively short. RAD emphasizes short, concise, and rapid development cycles. Short time is an important limitation for this model. RAD uses an iterative method in developing a system where a working model of the system is constructed early in the development phase with the aim of determining user needs. The working model is used only occasionally as a basis for the design and implementation of the final system[3]. Jiwa Baru Village is equipped with adequate internet access. This allows for better and faster administrative services. Several services are available at the Jiwa Baru Village office, including certificates of poverty, domicile certificates, marriage certificates, death certificates, temporary ID cards, and other documents. Furthermore, to process any form of correspondence, residents must bring their identity documents, such as a KTP (Resident Identity Card) or KK (Family Card). However, the administrative process at the Jiwa Baru Village office still relies on paperwork. This is due to limited service time during office hours and the inability of village officials to process certificates. Consequently, residents must visit the Village Office repeatedly, which wastes a significant amount of time. Researchers will develop a website information system which is expected to help the Village Office overcome these obstacles.

2. Theoretical Basis

2.1. Understanding Development

Development is an effort to improve technical, theoretical, conceptual and moral abilities according to needs[4]. Development is an activity to increase the benefits and carrying capacity of science and technology whose truth and safety have been proven to increase its function and benefits[5].

2.2. Understanding RAD Method

Rapid Application Development (RAD) is a life cycle strategy aimed at providing much faster development and obtaining better quality results compared to the results achieved through traditional cycles[6]. The RAD method is one of the methods used to develop software and is able to reduce the time to develop software[7].

2.3. Understanding Information Systems

Information system is a system capable of producing information that effectively and efficiently meets needs and can be used as recommendations for decision-making in an organization at various levels[8]. An information system is a collection of several components that manage data so that the processed data can be converted into meaningful information and can help achieve organizational goals[9].

2.4. Understanding Service

Service is fulfilling the needs of others, such as when someone comes to buy something[10]. Service is the process of fulfilling needs through direct interaction[11].

3. Research Methods

3.1. Data Sources

1. Primary data is data obtained directly by the author, namely data from the author's interviews with the source, Mr. Adi Romansyah, as the village secretary and head of administrative services at the Jiwa Baru Village Office, Lubai District.
2. Secondary data is data obtained indirectly by the author from existing sources. This can be obtained through books, notes, journals related to the research, and archives or data from the Jiwa Baru Village Office, Lubai District.

3.2. Data Collection Techniques

1. Observation
The observation method or observation method in this system is carried out by collecting data, information and studying the records at the Jiwa Baru village office.
2. Interview
Conducting direct Q&A sessions by interviewing the village secretary as head of administrative services.

4. Systems Analysis and Design

4.1. Proposed Class Diagram

A class diagram shows the interactions between classes in a system, by showing the classes in the system and the relationships between them. The class diagram for the administrative service information system at the Jiwa Baru village office is as follows:

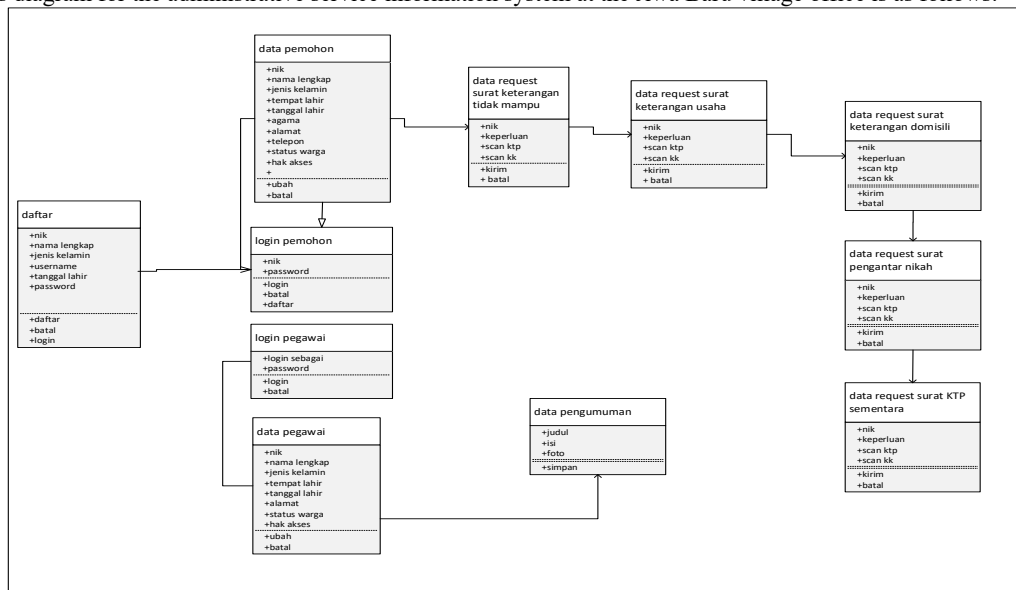


Fig. 1 : Proposed Class Diagram

4. Implementation and Testing

1. Interface Implementation

This page is the initial display of the Jiwa Baru Village online certificate application which provides login and registration access to submit certificates online.

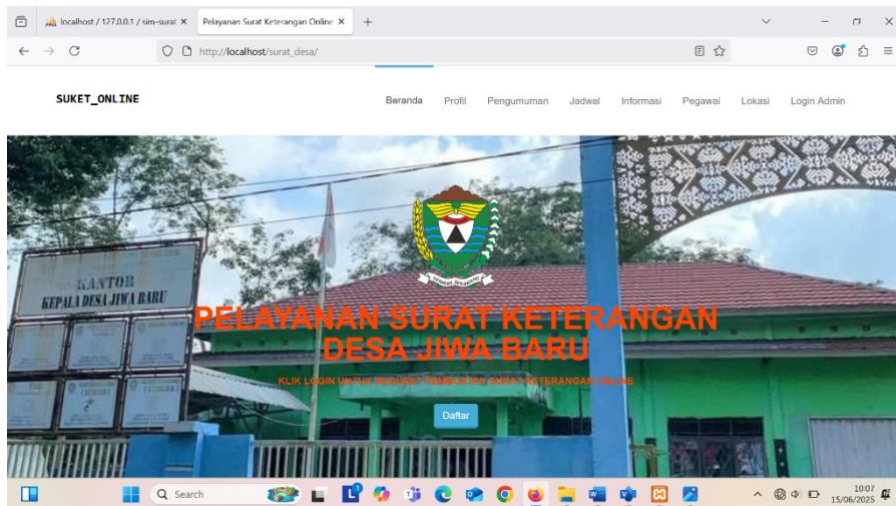


Fig. 2 : Home Page

This page is a special login form for Jiwa Baru Village employees to access the certificate service system.

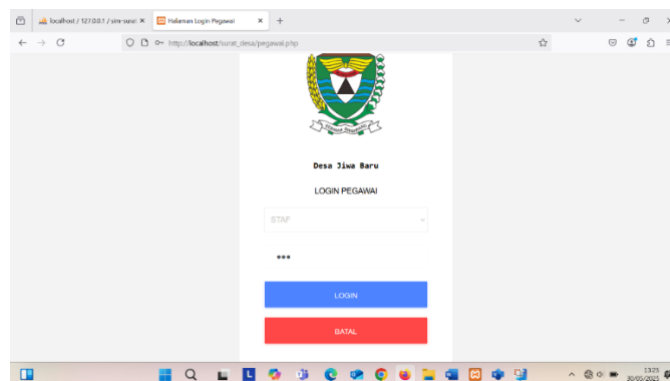


Fig. 3 : Staff login page

This page displays the staff dashboard to see the number of requests for certificates received from applicants.

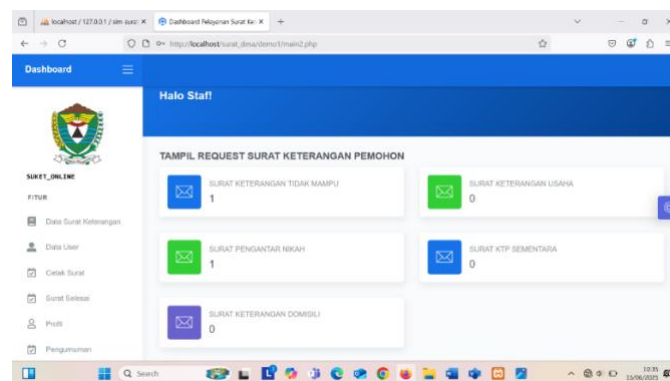


Fig. 4 : Staff page

This page displays data on approved applications for certificates of poverty, complete with applicant details and the option to view the letter.

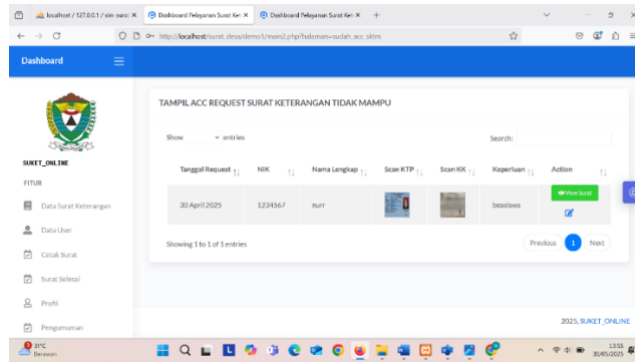


Fig. 5 : Staff check request page

This page is used to fill in and save the certificate number before it is approved and printed by the officer.

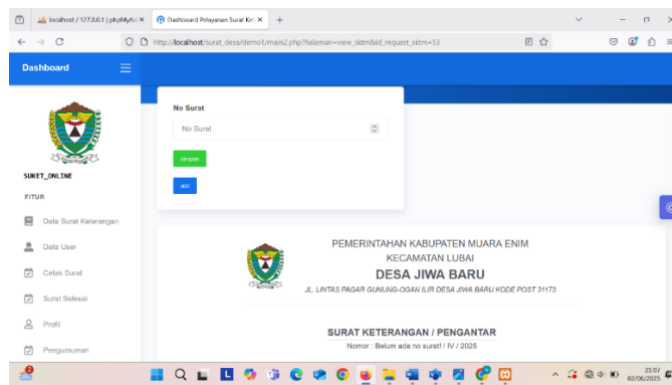


Fig. 6 : Page number of applicant's letter

This page is used by applicants to register an account by filling in personal data such as NIK, name, gender, address, date of birth, and password.

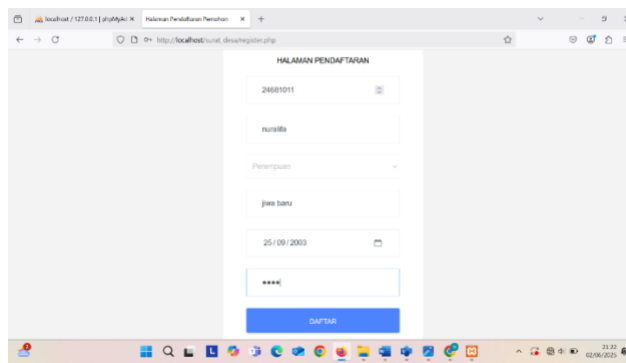


Fig. 7 : Applicant list page

This page is the applicant login form for the Jiwa Baru Village suket_online system.

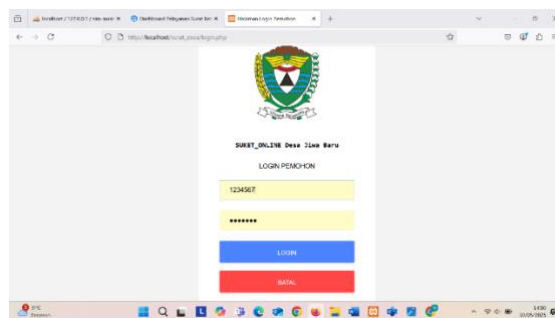


Fig. 8 : Applicant login page

This page is the applicant dashboard in the Jiwa Baru Village suket_online system.

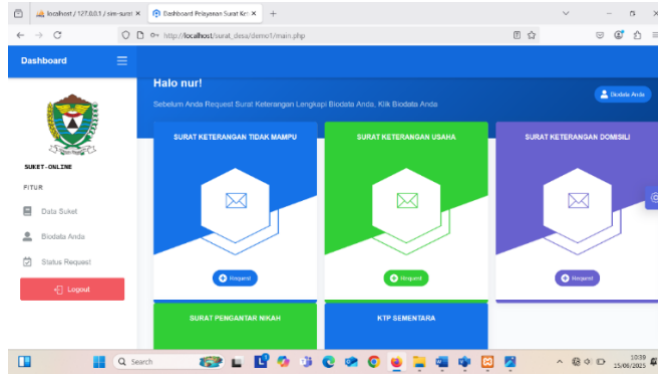


Fig. 9 : Applicant dashboard page

This page is a form for adding a request for a certificate to the suket_online system. Users fill in the request data.

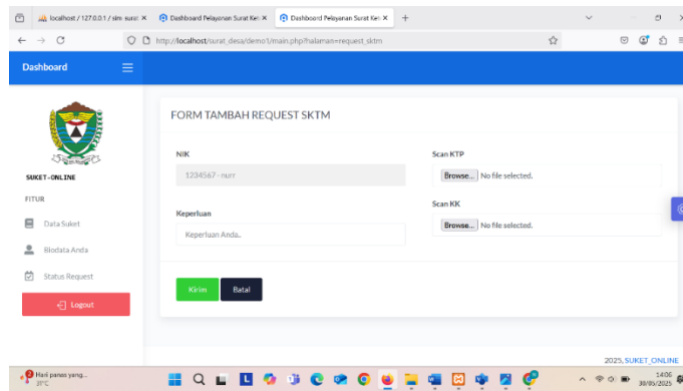


Fig. 10 : Suket request page

This page displays the applicant's complete biodata. Users can click the "change biodata" button to edit the information.

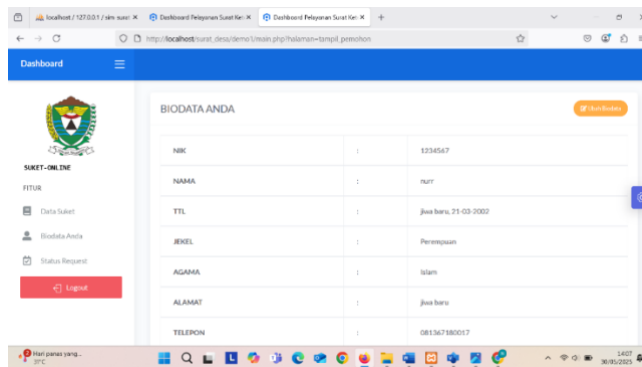


Fig. 11 : Applicant biodata

This page displays the status of a Certificate of Inability request. Users can view request details, such as the date, purpose, uploaded files, and the processing status (printed or not yet printed).

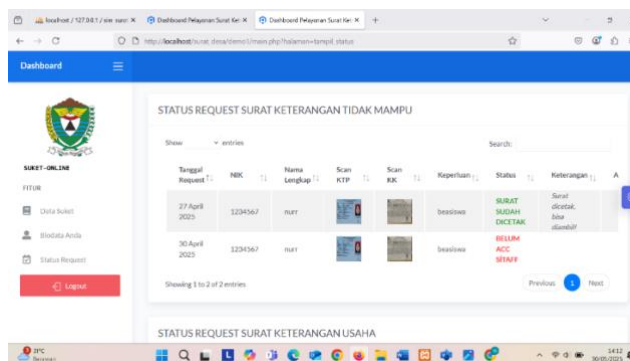


Fig. 12 : Request status page

This page is the employee (village head) login form for the Jiwa Baru Village mail service system. Employees select their position and enter a password to access the system.

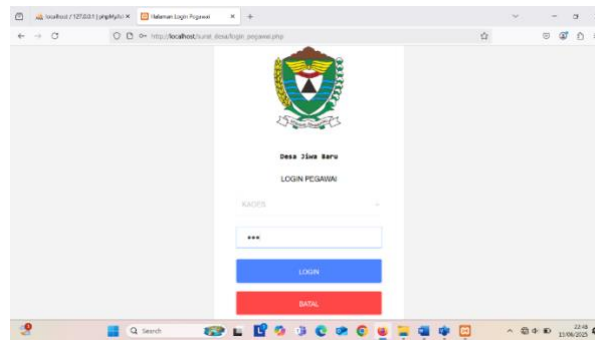


Fig. 13 : Village head login page

This page is the employee (village head) dashboard which displays greetings and access to the Report menu to view data or mail service status.

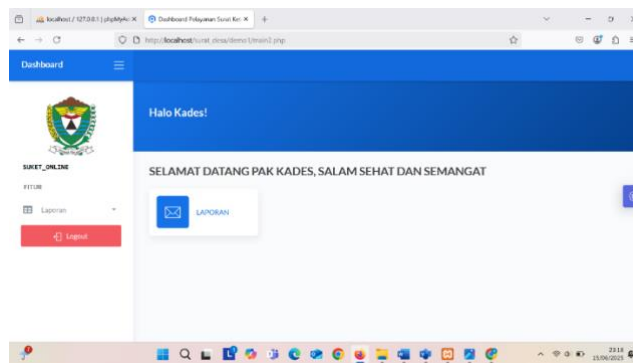


Fig. 14 : Village head's page

2. System Testing

Table. 1 : Black box testing

No	Test Item	Input	Expected Result (Output)	Remarks
1	Login	Enter valid NIK and password	Successfully logged in to the dashboard	Succeed
2	User/applicant	Users fill in the personal biodata form completely	The system validates all entries	Succeed
3	Letter Submission Form	All columns are filled with valid data	Data saved successfully	Succeed
4	Letter Verification by Staff	Staff click "Approve" on the letter request	The letter status changes to "Approved"	Succeed
5	Logout	User clicks logout button	The user is redirected to the login page.	Succeed

5. Conclusion

Based on the research that has been conducted, several conclusions can be drawn, namely as follows :

1. Administrative services in Jiwa Baru Village are still conducted manually using bookkeeping. This results in slow, inefficient mail processing and a risk of errors or data loss.
2. The design of the Jiwa Baru Village mail administration service information system application was built using the PHP programming language and supported by XAMPP as a database manager. To simplify this application, the development method used is the RAD (Rapid Application Development) method using the UML design model, namely use case diagrams, activity diagrams, class diagrams and using the Visual Studio Code text editor. And for the approach method, a qualitative descriptive research method is used to describe the condition of administrative services in Jiwa Baru Village.
3. This online certificate application was built to make the service process more efficient, reduce queues, and minimize recording errors.

References

- [1] E. Widarti *et al.*, *BUKU AJAR PENGANTAR SISTEM INFORMASI*. PT. Sonpedia Publishing Indonesia, 2024. [Online]. Available: <https://books.google.co.id/books?id=4kLsEAAAQBAJ>

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- [2] D. D. S. Fatimah, Y. Paryatin, and N. Nurhasanah, "Rancang Bangun Sistem Informasi Pelayanan Administrasi Surat Desa Berbasis Web Menggunakan Metode Unified Approach," *J. Algoritm.*, vol. 18, no. 2, pp. 376–384, 2021.
- [3] M. K. Pradana, A. Andrianto, and Y. A. Auliya, "Pengembangan sistem informasi desa terpadu menggunakan metode rapid application development (RAD) studi kasus desa Arjasa," *INFORMAL Informatics J.*, vol. 7, no. 2, pp. 64–73, 2022.
- [4] M. P. Turno *et al.*, *PENGEMBANGAN ORGANISASI*. CV Rey Media Grafika, 2024. [Online]. Available: <https://books.google.co.id/books?id=UJYREQAAQBAJ>
- [5] M. Dimiyati, *Metode Penelitian untuk Semua Generasi*. Universitas Indonesia Publishing, 2022. [Online]. Available: <https://books.google.co.id/books?id=hCxeEAAAQBAJ>
- [6] W. Yulianti, A. R. Kardian, and K. Rokoyah, "Penerapan Metode Rapid Application Development (RAD) pada Aplikasi Informasi Pendidikan Pengembangan Spesialisasi (Dikbangspes) Polri," *SIKOMTEK*, vol. 12, no. 1, pp. 1–18, 2022.
- [7] Y. D. Wijaya, "Penerapan Metode Rapid Application Development (RAD) dalam pengembangan sistem informasi data toko," *J. SITECH Sist. Inf. dan Teknol.*, vol. 3, no. 2, pp. 95–102, 2021.
- [8] S. S. T. M. P. H. Santy Irene Putri and S. S. T. M. P. H. Prima Saultoni Akbar, *SISTEM INFORMASI KESEHATAN*. Uwais Inspirasi Indonesia. [Online]. Available: <https://books.google.co.id/books?id=RZyxDwAAQBAJ>
- [9] M. Maydianto, "Rancang Bangun Sistem Informasi Point of Sale Dengan Framework Codeigniter Pada Cv Powershop," 2021, *Prodi Sistem Informasi*.
- [10] N. S. Putri, "Peranan Kualitas Pelayanan Terhadap Kepuasan Pelanggan di Indomaret Dadi Kusmayadi," *Inisiat. J. Ekon. Akunt. dan Manaj.*, vol. 3, no. 1, pp. 12–20, 2024.
- [11] S. E. M. S. Dr. Kiki Farida Ferine and S. E. M. M. Juniarti, *Pelayanan SDM*. Selat Media, 2022. [Online]. Available: <https://books.google.co.id/books?id=Q8CfEAAAQBAJ>