

Development of a Web-Based Student SPP Payment Management System at Sabilul Muttaqin Prabumulih Islamic Boarding School

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ABSTRACT – The management of student tuition payments at the Sabilul Muttaqin Islamic Boarding School in Prabumulih is still conducted manually using logbooks. This practice can make payment records difficult to manage, retrieve, and report. This research aims to develop a web-based student SPP payment management system for recording payments, managing student data, storing payment data centrally, and presenting payment reports. The Rapid Application Development (RAD) method is used because it supports a relatively fast and flexible development process through requirements planning, user design, construction, and implementation. The developed system provides modules for login, class data, student data, billing data, payment data, and payment reporting. System functionality is evaluated using black-box testing based on functional test cases. The detailed test cases, actual results, and evaluation metrics are presented in the Results and Discussion section.

Keywords - Tuition Payment, Information System, Islamic Boarding School, Web, RAD.

Pengembangan Sistem Manajemen Pembayaran SPP Siswa Berbasis Web di Pondok Pesantren Sabilul Muttaqin Prabumulih

ABSTRAK – Pengelolaan pembayaran SPP santri di Pondok Pesantren Sabilul Muttaqin Prabumulih masih dilakukan secara manual menggunakan pencatatan di buku. Kondisi tersebut dapat menyebabkan data pembayaran lebih sulit dikelola, ditelusuri, dan disajikan dalam laporan. Penelitian ini bertujuan untuk mengembangkan sistem manajemen pembayaran SPP santri berbasis web untuk membantu pencatatan pembayaran, pengelolaan data santri, penyimpanan data secara terpusat, dan penyajian laporan pembayaran. Metode Rapid Application Development (RAD) digunakan karena mendukung proses pengembangan yang relatif cepat dan fleksibel melalui tahapan perencanaan kebutuhan, desain pengguna, konstruksi, dan implementasi. Sistem yang dikembangkan menyediakan modul login, data kelas, data santri, data tagihan, data pembayaran, dan laporan pembayaran. Fungsionalitas sistem dievaluasi menggunakan pengujian black box berdasarkan kasus uji fungsional. Kasus uji, hasil aktual, dan metrik evaluasi disajikan pada bagian Hasil dan Pembahasan.

Kata Kunci – Pembayaran SPP, Sistem Informasi, Pondok Pesantren, Web, RAD.

1. INTRODUCTION

Historically, manual tuition payment processes have frequently led to difficulties such as delayed reporting, recording errors, and difficulty accessing payment data. A recurring problem at Pondok Pesantren Sabilul Muttaqin Prabumulih is the continued reliance on manual record keeping using general ledgers. Payment recording, report preparation, and data storage therefore require administrative attention and make payment histories less convenient to retrieve. To address these conditions, a web-based tuition payment management system is proposed to organize

payment records, student data, billing data, and payment reports in one system.

The proposed system is developed as a management information system for SPP payments. A management system refers to the actions an organization takes to manage its structure, processes, activities, and resources so that its products or services meet organizational goals [1]. Meanwhile, a payment system is a system involving the transfer of monetary value from one party to another [2]. In this study, these concepts are applied to the administrative process of recording and monitoring student SPP payments.

The technical contribution of this study is the

development of a web-based SPP payment management system tailored to the administrative workflow described at the Sabilul Muttaqin Islamic Boarding School. The system integrates class data, student data, billing data, payment transactions, and payment reports within a single application. This integration provides a clearer workflow than separate manual records and makes the system features directly traceable to the administrative needs identified during data collection. The contribution is therefore positioned as a context-specific development of an integrated SPP administration system, rather than as a claim of superiority over all existing payment systems.

Implementing this web-based system at the Sabilul Muttaqin Islamic Boarding School offers an appropriate and innovative solution to the various issues associated with manual tuition payment processes. The system integrates the entire tuition payment workflow ranging from transaction recording and data management to automated, real-time reporting. This system facilitates faster, more accurate, and more efficient tuition payment processes while minimizing data entry errors. Furthermore, the web-based system enhances transparency and accountability in tuition payments, thereby supporting a management approach that aligns with the time-efficiency and flexibility demands of the digital era's information technology advancements[8], [9], [10], [15].

2. RESEARCH METHODOLOGY

The research method employed by the author is descriptive-qualitative. This method utilizes qualitative data and presents it descriptively, aiming to outline or describe the research findings[3], [11], [12].

A. Data source

The researcher utilizes two sources of data primary data and secondary data as explained below:

1. Primary Data Sources

Primary data constitutes the primary source of information collected directly by the researcher during the research process. This data is obtained from original sources specifically, respondents or informants associated with the research variables. Primary data may be derived from observations, interviews, and other instruments. Examples of primary data collection include interviews with research subjects and direct observation at the Sabilul Muttaqin Islamic Boarding School in Prabumulih[4], [13], [14].

2. Secondary Data Sources

Secondary data refers to research data obtained indirectly through intermediary sources. This means the data is not collected directly by the researcher but rather from pre existing sources, such as documents, literature, or data gathered by other parties. Examples of secondary data sources include books, academic journals, articles, financial reports, and census data collected by the government[5], [13], [14].

B. Data collection technique

The data collection techniques used to obtain information or data relevant to the research objectives are as follows:

1. Observation

Observation involves the direct monitoring of objects, phenomena, or activities in the field. This technique is frequently employed to gather factual and objective data relevant to the research conducted at the Sabilul Muttaqin Islamic Boarding School in Prabumulih[13], [14].

2. Interview

Direct interaction between the researcher and informants was conducted to gather in-depth information relevant to the study; specifically, interviews were held with the head of the Islamic boarding school, the treasurer, and students at Pondok Pesantren Sabilul Muttaqin Prabumulih[13], [14].

3. Literature review

In this literature review, the researcher gathered data and information from various sources including e-books, journals, and previous studies to serve as references for this research[11], [12].

4. Documentation

Utilizing existing written documents, archives, or other sources regarding student tuition payment data at the Sabilul Muttaqin Islamic Boarding School in Prabumulih.

C. System Development Method

A system development method is a structured approach or set of steps used to design, develop, implement, and maintain information systems. This study employs the Rapid Application Development (RAD) method. Rapid Application Development (RAD) is a software development method that compresses the software development

cycle into a short timeframe. Additionally, RAD is defined as a software development method that utilizes an object-oriented system development approach[6], [17].

The following is the cycle of the RAD method, as shown in the figure below:



Figure 1. RAD (Rapid Application Development) method

3. RESULTS AND DISCUSSION

The system development method employed by the researcher to build the student tuition payment management system at the Sabilul Muttaqin Islamic Boarding School in Prabumulih is Rapid Application Development (RAD). Using this method, the researcher first identified the issues present at the school, particularly regarding the student tuition payment process. The system development process remained focused on resolving practical challenges, such as the reliance on manual ledgers for recording payments and the generation of tuition payment reports[16], [18], [20].

A. Interface Implementation

The following is the implemented web-based interface for the student tuition payment management system at the Sabilul Muttaqin Islamic Boarding School in Prabumulih:

1. Login Page Display

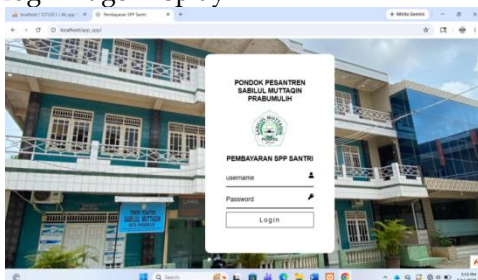


Figure 2. Admin Login Page Display

The login page is intended only for users who have been granted access to their respective pages as configured by the developer. Each user's access rights determine a unique interface tailored to their specific roles and responsibilities within the system.

2. Admin Home Page View

The admin home page is the main screen that appears after the administrator successfully logs into the system. It serves

to display key information and provides a navigation menu that facilitates data management and access to system features.

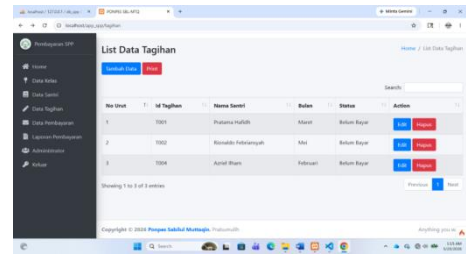


Figure 3. Admin Home Page View

3. Class Data Page View

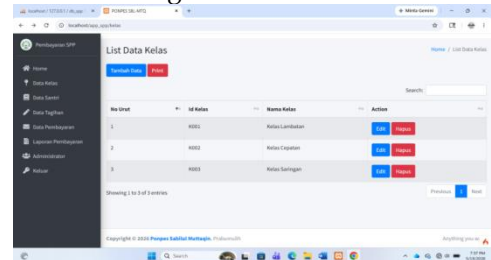


Figure 4. Class Data Page View

The class page interface is used to display and manage class data within the system. On this page, administrators can view class information, add class data, modify data, and delete class data as required by the system.

4. Student Data Page View

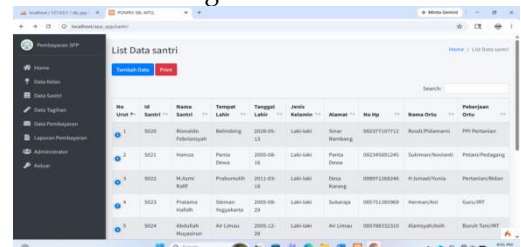


Figure 5. Display of the Student Data Page

The student page is used to display and manage student data within the system. On this page, administrators can view student information, add student data, modify data, and delete class data as required by the system.

5. Billing Data Page View

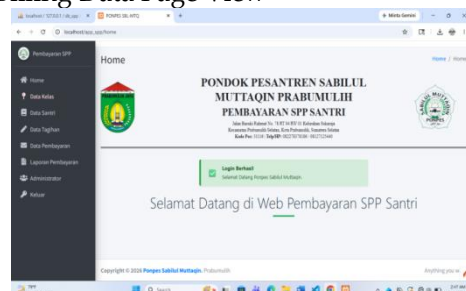


Figure 6. Billing Data Page View

The billing page is used to display and manage billing data within the system. On this page, administrators can view billing information, add billing records, modify data, and delete records as required by the system.

6. Payment Data Page View

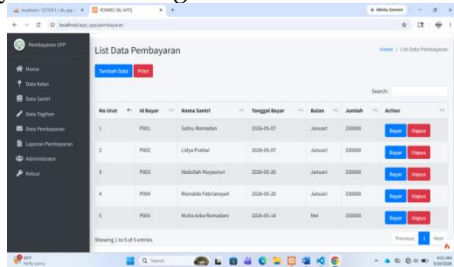


Figure 7. Payment Data Page View

The payment data page is used to display and manage payment data within the system. On this page, the administrator can view payment information, add payment data, modify data, and delete data as required by the system[9], [10], [19].

7. Payment Report Page View

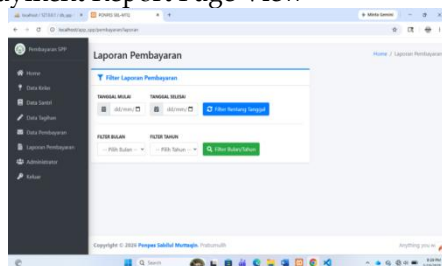


Figure 8. Payment Report Page View

The payment report page displays data regarding student tuition payments, such as the student's name, payment date, and payment amount. This page enables administrators and leadership to easily view and print payment reports.

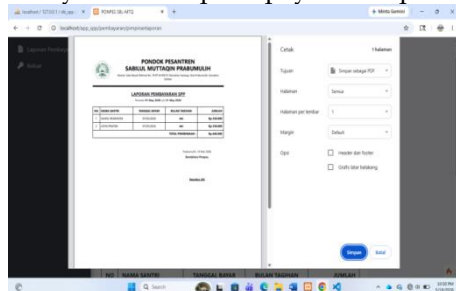


Figure 9. Payment Report Page View

B. Black Box Testing

Black Box testing verifies application execution results based on provided inputs (test data) to ensure that the

application's functionality aligns with the requirements. This testing method focuses on the application's interface and functional aspects, as well as the alignment of functional workflows with user needs. Black Box testing does not involve testing based on the program's source code [7].

Tabel 1.Blackbox Testing

No	Fitur	Skenario Pengujian	Hasil yang Diharapkan	Hasil Pengujian
1	Login	Username dan password valid	Pengguna berhasil masuk ke sistem	Berhasil*
2	Data Kelas	Menambahkan data kelas baru	Data kelas tersimpan dan tampil pada daftar kelas	Berhasil*
3	Data Kelas	Mengubah data kelas	Data kelas berhasil diperbarui	Berhasil*
4	Data Kelas	Menghapus data kelas	Data kelas berhasil dihapus	Berhasil*
5	Data Santri	Menambahkan data santri baru	Data santri tersimpan dan tampil pada daftar santri	Berhasil*
6	Data Santri	Mengubah data santri	Data santri berhasil diperbarui	Berhasil*
7	Data Santri	Menghapus data santri	Data santri berhasil dihapus	Berhasil*
8	Data Tagihan	Menambahkan data tagihan	Data tagihan tersimpan dan tampil pada daftar tagihan	Berhasil*
9	Data Tagihan	Mengubah data tagihan	Data tagihan berhasil diperbarui	Berhasil*
10	Data Tagihan	Menghapus data tagihan	Data tagihan berhasil dihapus	Berhasil*
11	Pembayaran	Memasukkan data pembayaran	Data pembayaran tersimpan dan status pembayaran diperbarui	Berhasil*
12	Pembayaran	Mengubah data pembayaran	Data pembayaran berhasil diperbarui	Berhasil*
13	Pembayaran	Menghapus data pembayaran	Data pembayaran berhasil dihapus	Berhasil*
14	Laporan Pembayaran	Menampilkan laporan pembayaran	Laporan tampil sesuai data transaksi	Berhasil*
15	Laporan Pembayaran	Mencetak laporan pembayaran	Laporan dapat dicetak dengan format sesuai	Berhasil*

C. Discussion

The results demonstrate that the developed application covers the main administrative functions identified in the study, namely class management, student management, billing management, payment recording, and payment reporting. This result is consistent with previous studies that developed web-based information systems using RAD or related

development approaches [9], [10], [15], [19]. The present study differs in its specific focus on SPP administration in an Islamic boarding school and in the integration of class, student, billing, payment, and reporting functions within one application.

The research implication is that the proposed system can serve as a digital administrative tool for organizing SPP payment information and making payment records easier to manage within the institution. However, the current manuscript does not provide a controlled comparison of processing time, error rate, or report-generation time before and after system use. Consequently, the study does not claim a quantified improvement in efficiency or accuracy.

Future research can evaluate the system using measurable indicators such as transaction-processing time, data-entry error rate, report-generation time, user satisfaction, and usability scores. Additional development may also consider online payment integration, automated notifications, audit trails, stronger access control, and broader evaluation involving more users, provided that these features are implemented and tested.

4. CONCLUSION

Based on the results of the research and implementation, it can be concluded that the web-based student tuition payment management system at Sabilul Muttaqin Islamic Boarding School in Prabumulih was successfully developed and implemented to support the management of student tuition payment administration. The system provides several features, including administrator login, class data management, student data management, billing data management, payment transaction recording, and payment report generation. The implementation of the Rapid Application Development (RAD) method supported the development process through a relatively fast and flexible approach, allowing the system to be developed according to the needs of the users. The resulting system helps reduce errors in manual payment recording, facilitates the storage and retrieval of payment data, and accelerates the preparation of payment reports. Overall, the implementation of this web-based system makes the management of student tuition payments more organized, effective, efficient, and transparent. The

system also facilitates administrators and school management in monitoring payment information and generating reports. Therefore, the developed system can serve as an alternative solution to replace the previously manual tuition payment administration process at Sabilul Muttaqin Islamic Boarding School in Prabumulih[9], [10], [19].

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