

Designing a Web-Based Financial Information System at GKS Palindi using the Rapid Application Development Method

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Abstract

In the rapidly evolving information age, technology plays an important role in improving the efficiency of data management, including in church institutions. The Church, as a religious institution with an important role in the spiritual and social life of the people, often faces challenges in financial management, especially in recording congregation donations, operational expenses, and making transparent and accurate financial statements. Good financial management is needed to ensure accountability and transparency, as well as facilitate reporting to the congregation and other related parties. GKS Palindi, a church in Kawangu District with 335 congregations, faces problems in the financial recording system that is still manual using books. This causes data corruption, which risks disrupting the smooth flow of the financial management process. Therefore, this church needs the implementation of a technology-based information system that can facilitate the recording and management of financial transactions efficiently, especially for the six main posts: tithe, thanksgiving, part (household worship), monthly dependents, offerings, and miscellaneous posts. With this system, the church can reduce the potential for human error, monitor cash flow more easily, and provide more accurate and timely financial reports. The right information system can help GKS Palindi in maintaining the continuity of church operations and increasing the congregation's trust in the transparency of financial management. The system development method used is Rapid Application Development (RAD), which allows the creation of a system quickly and responsively to user needs. The implementation of a technology-based recording system is expected to overcome existing problems, as well as support the smooth running of church activities in the long term.

Keywords: System, Website, Financial Record, Gks Palindi, Rapid Application Development (RAD).

1. Introduction

The development of information technology has an important role in increasing the effectiveness and transparency of financial management of institutions, including churches. However, GKS Palindi still faces obstacles because financial recording is carried out conventionally using a ledger, which is prone to errors, damages, and difficulties in recording and reporting data. This condition leads to a lack of optimal transparency and accountability to the congregation, especially in the management of various financial posts such as tithes, offerings, and operational expenses. In addition, the increasing number of transactions magnifies the risk of data mismatches and reporting delays. Therefore, a website-based financial information system is needed that is able to help the process of recording, processing, and reporting data more accurately, efficiently, and organized. This system is expected to increase transparency, facilitate access to information for the congregation, and support better decision-making in the management of church finances by using the Rapid Application Development (RAD) development method.

1.1. Literature Study

1.1.1. Finance

According to Ely Siswanto (2021), Finance itself comes from the root word money. In an organization, money is one of the resources owned in addition to other resources such as man, materials, machines, methods, and markets. Financial resources can be in the form of money in the true sense, namely cash, but it can also be in the form of assets that can be valued with money, both movable and immovable property. Assets that are worth money include inventory, machinery and equipment, buildings, and building land.

1.1.2. Information Systems

In everyday life, the word information is familiar to human ears. Information is a collection of news about something that has been proven to be true or false. We can find information on social media or through direct communication between humans and humans. However, in line with today's technological advancements, much information can be accessed quickly and accurately through social media platforms without involving direct interaction between individuals. The data described here refers to a collection of

information that has gone through an analysis process to produce a valuable output, facilitating the recipient of the information in receiving the content optimally (Sallaby & Kanedi, 2020).

1.1.3. Recording

Recording is defined as the process of collecting and recording company data using certain techniques, which are then processed in such a way that they can be compiled into systematic and informative reports. This process includes identifying, measuring, and classifying financial transaction data that occurred in a given period. Thus, recording plays a crucial role in producing accurate and relevant accounting information, which will later be used as the basis for managerial decision-making and financial reporting to interested parties Gunandi (2017:9).

1.1.4. Website

A website is a collection of documents that are stored on a server and can be accessed by users through a browser. This document can be made up of multiple pages, and each page provides diverse information and interactions. Such content can include text, images, sounds, animations, videos, etc.). This makes the Website a media that is rich in information and provides an interactive experience to its users Melishawati Choirun Nisa (2020).

2. Research Flow

The research flow in the creation of a System for Financial Information at GKS Palindi can be seen in the image below.

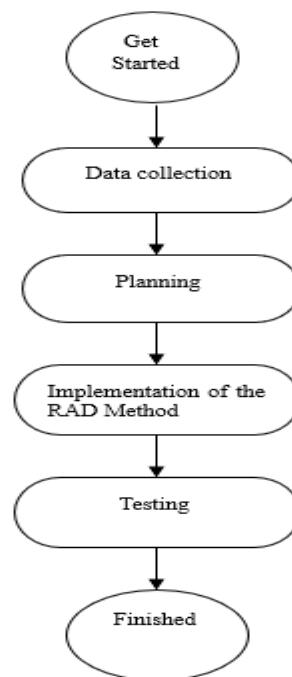


Fig. 1: Research Flow

2.1. Data Collection

Aims to collect information to support and solve problems. Data collection was carried out through interviews, observations, and documentation.

2.2. Implementation of the RAD Method

At this stage, the Rapid Application Development (RAD) method is applied to speed up the system development process. RAD prioritizes prototyping with fast iteration cycles, allowing for direct user feedback and the implementation of fixes or changes in a short period of time. This implementation will result in a system that can be tested and refined immediately based on user feedback.

2.2.1. Requirements Planning

This stage aims to identify system needs by collecting data through interviews, observations, and documentation. At this stage, the existing problems, the purpose of the system, and the needs of the user are also determined as the basis for development.

2.2.2. System Design (User Design)

At this stage, the system design is carried out jointly between the developer and the user, including the design of the interface (interface), the flow chart (UML), and the database structure. This process is iterative so that the design fits the user's needs.

2.2.3. System Development (Construction)

This stage is the process of creating a system based on an agreed design, including coding, system integration, and initial testing. Development is done quickly with repeated improvements according to user feedback.

2.2.4. Implementation (Cutover)

The final stage is in the form of applying the system that has been created to the real environment. The activities carried out include final testing, user training, and the use of the system directly to support operational activities.

2.3. Black Box Testing

Black-box testing is a method of software testing that is carried out by testing system functions without seeing or knowing the internal structure of the program's code. This test focuses on inputs and outputs to ensure that the system runs according to predetermined needs and specifications. In black-box testing, the tester simply provides a variety of input data and then observes the output results generated by the system. The goal is to find functional errors, ensure that each feature is running properly, as well as verify that the system is capable of handling various input conditions correctly.

3. Results and Discussion

3.1. Implementation

The system developed serves to facilitate the process of recording church finances digitally and in a structured manner. The application is specifically designed to manage the recapitulation of GKS Palindi's income and cash expenditure. The process begins with the recording of each financial transaction, where the treasurer can enter income data (e.g., offerings, collections, donations) and expenditure data (e.g., operational costs, church activities). All transaction data is neatly stored in the database. Through a simple and easy-to-use interface, the treasurer can access, change, or delete transaction data as needed. The system is also equipped with a feature to view financial recapitulation automatically, so that the treasurer can easily find out the cash balance, total income, and total expenses in a given period. The entire process is designed to run automatically and efficiently, so as to support the smooth financial administration of GKS Palindi and minimize recording errors.

1. Admin Login Page View

The Admin Login page, which is the main gateway for administrators to access the congregation's data collection system. The interface is designed to be simple and informative, equipped with username and password fields for the authentication process. This function aims to maintain the security of congregation data so that it can only be accessed by the authorities. After successful login, the admin will go to the main page to manage the congregation's data. The design of this page also prioritizes ease of use so that it can be accessed smoothly on various devices.

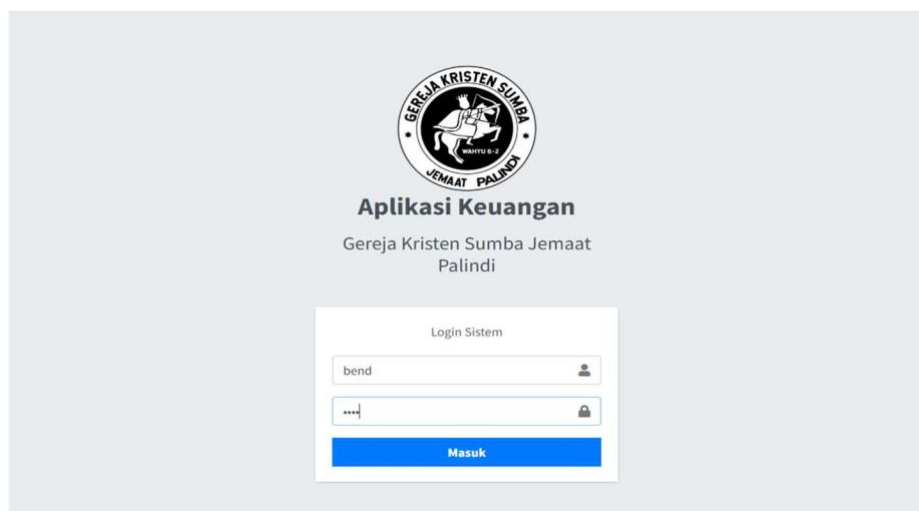


Fig. 1: Admin Login Page View

The Admin Dashboard page, which becomes the main control center for administrators after successfully logging into the GKS Palindi financial recording system. This dashboard is designed to present information in a concise and structured manner. Not only does it feature a navigation menu to manage income and expense data, it also integrates a brief profile of the church. In the main part of the dashboard, a glimpse of the history of GKS Palindi and the Vision and Mission of the church is displayed. This is so that every

user (especially the treasurer) not only focuses on financial management, but also always keeps in mind the purpose and background of the church ministry in every transaction recorded.

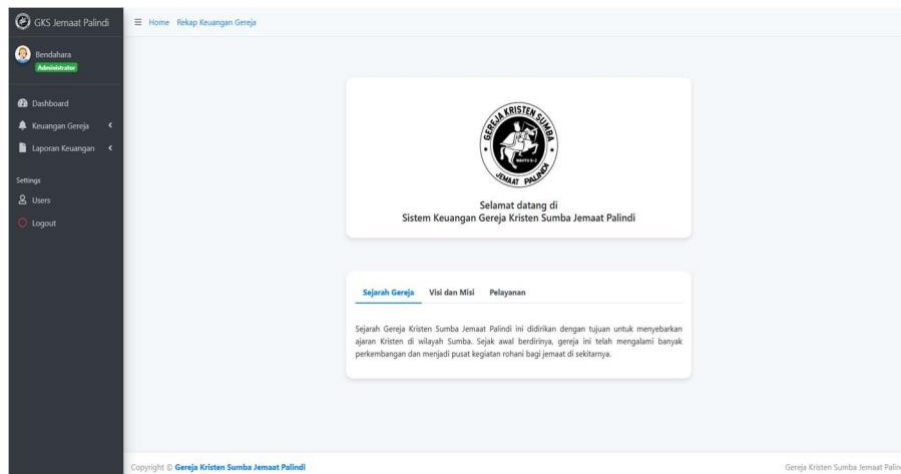


Fig. 2: Admin Dashboard Page

2. Admin Revenue Menu View

Admin Income Menu page, which is the main feature for the treasurer to record all GKS Palindi cash income. On this page, there is a recording form that comes with pre-defined income category options. The types of income are grouped into two main headings: General Revenue (e.g., weekly, collectible, and general donations) and Special Income (e.g., church building offerings, diakonia funds, or Christmas/Easter offerings). With this grouping, the recording process becomes more structured and makes it easier to make financial statements based on funding sources.

The screenshot displays the 'Admin Revenue Menu Display' page. At the top, it shows the total church income as 'Rp 24.920.000,00'. Below this is a table of transactions with columns for 'No', 'Tanggal', 'Jenis', 'Deskripsi', 'Jumlah', and 'Akai'. The table contains 8 rows of data representing various income sources.

No	Tanggal	Jenis	Deskripsi	Jumlah	Akai
1	10/Jul/2024	Tanggungan	Ibu Font	Rp 1.000.000,00	✓
2	09/Jul/2024	Syukuran	YAKUB HIDARINDU	Rp 150.000,00	✓
3	14/Jun/2024	Persembahkan	Kisah	Rp 20.000.000,00	✓
4	12/Jun/2024	Syukuran	Syukuran Ulah	Rp 70.000,00	✓
5	12/Jun/2024	Tanggungan	Syukuran Ulah	Rp 70.000,00	✓
6	08/Jun/2024	Huluhasil	Syukuran Ulah	Rp 230.000,00	✓
7	05/Jun/2024	Tanggungan	Bapa Anni	Rp 230.000,00	✓
8	05/Jun/2024	Part	Mama Tiwadihingan 1)	Rp 230.000,00	✓

Fig. 3: Admin Revenue Menu Display

3. Add Admin Revenue Menu Display

Add Admin Income Menu, which is a form page to input new income transactions. This page provides complete fields of filling, starting from the date of the transaction, category selection (General/Special) through the dropdown menu, activity description, to nominal money. Once all the data is filled in, the treasurer simply presses the "Save" button to update the financial data. This simple yet informative form design aims to speed up the data entry process while maintaining consistency in church financial records.

The screenshot shows the 'Add Admin Revenue Menu Display' form. It includes a sidebar with navigation options and a main form area with the following fields: 'Jenis Pendapatan' (dropdown menu), 'Pendapatan' (text input), 'Deskripsi' (text input), and 'Tanggal' (date picker). There are 'Simpan' (Save) and 'Batal' (Cancel) buttons at the bottom.

Fig. 4: Admin Add Revenue Menu DisplayAdmin Revenue Edit Menu Display

Admin Income Edit menu, which is the page used to change existing income data. This page can be accessed by clicking the icon or edit button on the list of revenue transactions. The edit form displays old data that the treasurer can modify, including dates, income categories (general or special), description, and nominal. Once the data is fixed as needed, users can simply press the "Update" button to save the changes to the database. With this feature, recording errors or changes in transaction details can be corrected immediately without the need to delete and re-record from scratch.

Fig. 5: Admin Revenue Edit Menu Display

4. Delete Admin Income Menu Display

This feature functions to delete income transaction data that is no longer relevant or double-recorded. However, to prevent accidental data deletion, the system is equipped with a confirmation mechanism in the form of an alert confirmation dialog box. When the treasurer presses the delete button or icon on one of the revenue entries, the system does not immediately delete the data from the database. Instead, a pop-up window will appear asking if the user is sure they want to delete the data. This window usually displays a message like "Are you sure you want to delete this data?" with two button options: "Yes" (to proceed with the deletion) and "No" or "Cancel" (to cancel the action). With this confirmation feature, the risk of data loss due to user error (human error) can be minimized, so that the security and integrity of church financial data are maintained.

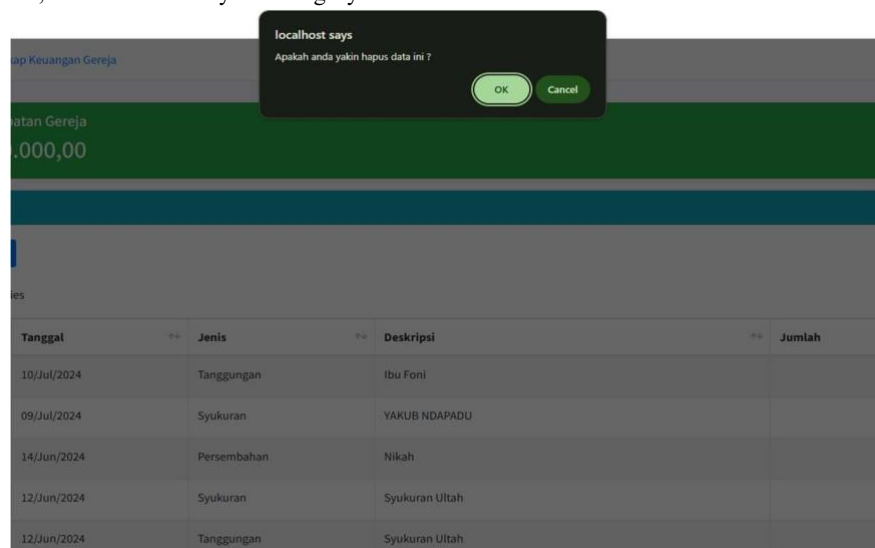
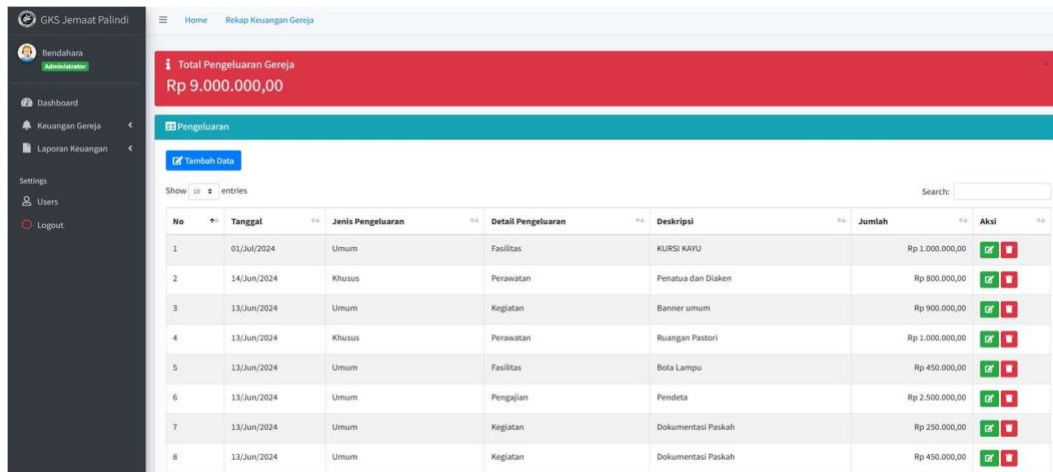


Fig. 6: Delete Admin Revenue Menu Display

5. Admin Expense Menu View

The Admin Expenses menu is designed to give full control to the treasurer of GKS Palindi in managing cash outflow. This page presents expense data in a structured manner, allowing users to monitor each transaction easily. Through the expense list view, the treasurer can quickly see the chronology of the use of funds, identify the largest expenditure items, and detect potential irregularities or waste. Each expense entry comes with complete details, making it easy to audit both internally and externally. This page also serves as a gateway for various other expense management functions. By providing direct access to the add, edit, and delete data features, the system ensures that any changes to expense data can be made quickly and efficiently, yet remain under the full supervision of the treasurer as the church's financial manager.



No	Tanggal	Jenis Pengeluaran	Detail Pengeluaran	Deskripsi	Jumlah	Aksi
1	01/Jul/2024	Umum	Facilitas	KURSI KAYU	Rp 1.000.000,00	[Edit] [Hapus]
2	14/Jun/2024	Khusus	Perawatan	Penata dan Diaken	Rp 800.000,00	[Edit] [Hapus]
3	13/Jun/2024	Umum	Kegiatan	Banner umum	Rp 900.000,00	[Edit] [Hapus]
4	13/Jun/2024	Khusus	Perawatan	Ruangan Pastori	Rp 1.000.000,00	[Edit] [Hapus]
5	13/Jun/2024	Umum	Facilitas	Bola Lampu	Rp 450.000,00	[Edit] [Hapus]
6	13/Jun/2024	Umum	Pengajian	Pendeta	Rp 2.500.000,00	[Edit] [Hapus]
7	13/Jun/2024	Umum	Kegiatan	Dokumentasi Paskah	Rp 250.000,00	[Edit] [Hapus]
8	13/Jun/2024	Umum	Kegiatan	Dokumentasi Paskah	Rp 450.000,00	[Edit] [Hapus]

Fig. 7: Admin Expense Menu Display

6. Add Admin Expense Menu Display

Add Admin Expenses menu, which is a form page to input new GKS Palindi expense transactions. This page provides complete filling columns, starting from the transaction date, selection of spending posts through the drop-down menu, activity description, to nominal money. The available expenditure posts have been grouped based on the needs of the church, such as Operational Posts, Diakonia Posts, Development Posts, Activity Posts, and Ministry Posts. With this system, the treasurer can easily categorize each expense according to its type. After all the data is filled, users can simply press the "Save" button to update their financial data.

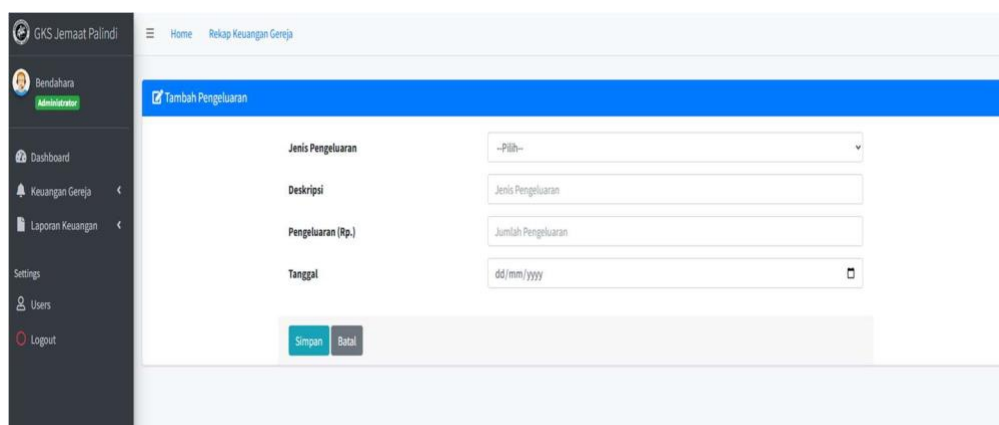


Figure 8: Add Admin Expense Menu Display

7. Admin Expense Edit Menu Display

Admin Expense Edit menu, which is the page used to change existing expense data. This page can be accessed by clicking the icon or edit button on the list of expense transactions. The edit form displays old data that can be modified by the treasurer, including dates, outposts (Operational, Diakonia, Development, etc.), description, and nominal. Once the data is fixed as needed, users can simply press the "Update" button to save the changes to the database. With this feature, recording errors or changes in transaction details can be corrected immediately.

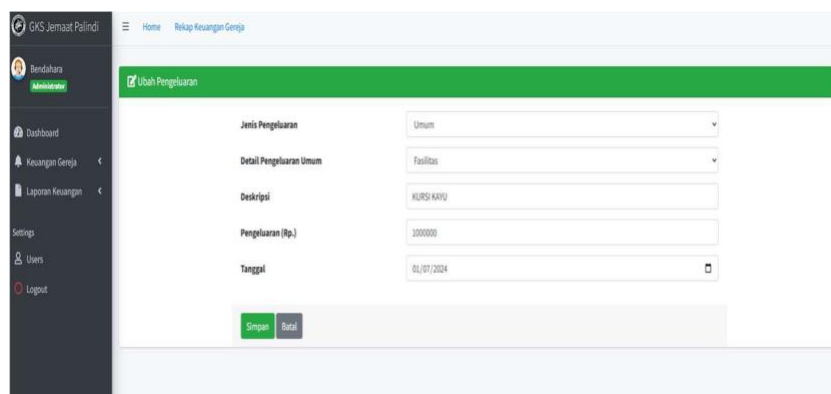


Fig. 9: Admin Expense Edit Menu Display

8. About Menu Display

The Delete Admin Expenses feature not only serves to delete data, but is also equipped with a security system in the form of confirmation of awareness of financial impacts. Given that any expenditure affects the church's cash balance, data deletion should be done with great care. When the treasurer clicks the delete button, the system will display a firm confirmation dialog box, for example: "CAUTION: Deleting expense data will change the church's cash balance. Continue?" This message reminds users that the delete action will not only eliminate the data rows, but will also recalculate the total spend and final balance. With this explicit confirmation mechanism, the treasurer is invited to always re-verify every deletion action, so that the integrity and accuracy of GKS Palindi's financial statements can always be maintained.

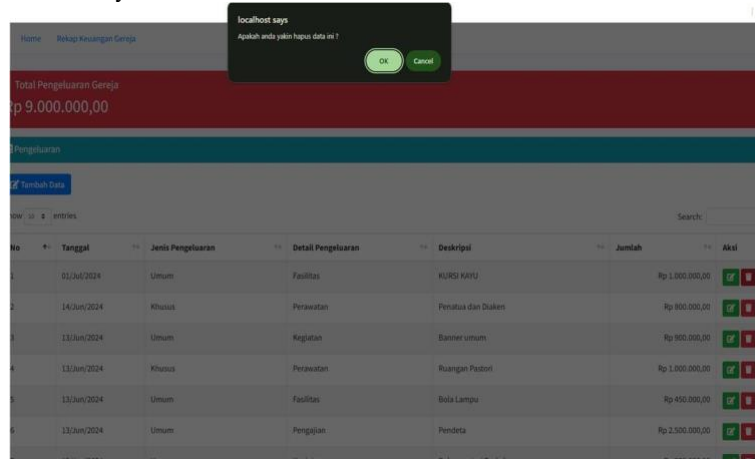


Fig. 10: Delete Admin Expense Menu Display

9. Admin Financial Data Recap Menu Display

Admin Expenses and Income Recap Menu Page. This page serves to present a summary of GKS Palindi's financial statements in an integrated manner, covering all income and expense transactions that have been recorded in the system. On this page, the treasurer can see the church's total revenue, total expenses, and cash balance automatically. The recap page comes with a time period filter feature, so users can select a specific date range according to their reporting needs. Once the recap data is displayed, the treasurer can print the report directly through the print feature or export it to PDF format for archival and documentation purposes. This feature is very helpful in the preparation of financial accountability reports to church assemblies and congregations.

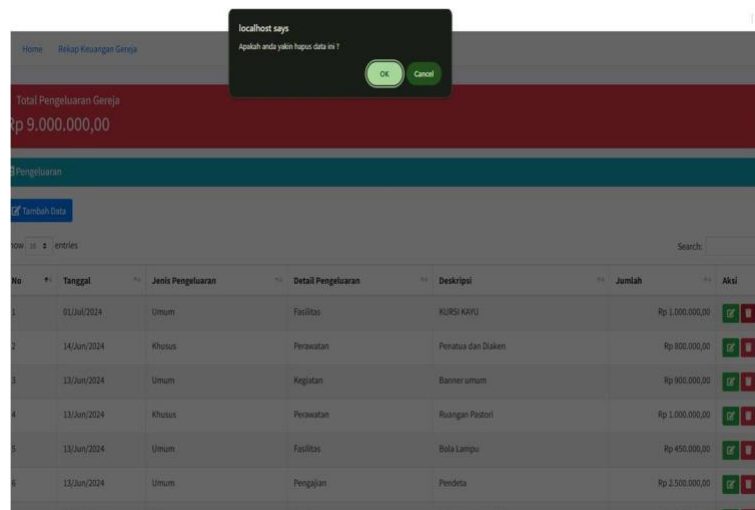


Fig. 10: Admin Financial Data Recap Menu Display

4. Conclusion

Based on the results of the research and tests conducted, it can be concluded that GKS Palindi's financial recording information system has been successfully developed and functions as expected. This system provides increased efficiency in the management of church income and expenditure data and offers a higher level of accuracy than previous manual recording methods. Testing using the Black Box method proves that all features, from transaction recording, income and expense post management, to the creation of recap reports in PDF form, work according to the specifications that have been set. In addition, the evaluation through the System Usability Scale (SUS) resulted in a score of 82, which indicates a good level of user acceptance, with a grade B category and included in the "Excellent" adjective classification. However, there are still shortcomings, especially in the transaction data search feature which is not fully optimal. Therefore, further development is needed to improve user performance and comfort on the feature, as well as add a data backup feature for the security of church financial records.

Suggestions

For the development of the GKS Palindi financial recording system in the future, it is recommended to improve the search feature and filter transactions based on dates, posts, or keywords so that the treasurer can more easily search for data during verification or audit. The mobile version of the application also needs to be developed so that access and recording transactions can be done anytime and anywhere flexibly. On the evaluation side, more diverse testing methods need to be applied by involving more respondents, such as church assemblies and congregations, to obtain more representative data on technical performance and user experience. In addition, it is important to add data backup and restore features to keep financial records safe from the risk of data loss. This development is expected to improve the quality of the system in a sustainable manner.

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