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Design Of a Web-Based School Operational Assistance (Bos) Management Information System at SMA Negeri 1 Nggaha Ori Angu

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Abstract

The management of School Operational Assistance (BOS) funds is an annual obligation for educational institutions. The Treasurer is responsible for this activity, which is overseen by the Principal. However, at SMA Negeri 1 Nggaha Ori Angu, the School Operational Assistance (BOS) fund management system is still conducted using a physical ledger. This process has encountered several challenges, including the difficulty in calculating the total funds managed and the lack of efficiency in managing the School Operational Assistance (BOS) funds. The process of utilising the ledger currently results in the unnecessary expenditure of time and effort, in addition to a considerable risk of errors and inaccuracies in the recorded data. In light of the challenges encountered in the management of School Operational Assistance (BOS) funds at SMA Negeri 1 Nggaha Ori Angu, this research aims to develop an Information System for the Management of School Operational Assistance Funds (BOS) using the Rapid Application Development (RAD) method. The web development in this research will employ the Hypertext Preprocessor (PHP) programming language with the CodeIgniter framework, which implements the Model-View-Control (MVC) concept. This technology has the potential to optimize and enhance the quality of School Operational Assistance (BOS) fund management at SMA Negeri 1 Nggaha Ori Angu.

Keywords: *Information System, School Operational Assistance, Fund Management, SMA Negeri 1 Nggaha Ori Angu*

1. Introduction

School operational assistance (BOS) is a government program that basically provides funding for operating costs for an education as the implementation of the compulsory education program. The source of the BOS funds comes from the State Budget (APBN), therefore the provisions of the financial implementation that include the distribution, management, use and accountability must be in accordance with the applicable regulations. These BOS funds provide assistance for schools to waive the cost of education for students who are unable to afford it and ease the burden on students in order to support the achievement of compulsory education and further ease the burden on parents. The school principal and all teaching staff also felt that it was easy to only implement and manage the existing funds in accordance with the rules and instructions for use from the government regarding school operational assistance funds. The amount of funds given to all schools is the same because it will be calculated based on the number of students each school has. The timing of the distribution of BOS funds to schools is done per semester. In managing BOS funds, schools must refer to or be guided by the BOS technical guidelines. There are several types of BOS funds, namely regular BOS funds and performance BOS funds. Regular BOS funds are used to finance the routine operational activities of education units in organizing education. Meanwhile, performance BOS funds are intended for schools that are considered to be performing well in organizing education services. The management of School Operational Assistance (BOS) funds is one of the activities that must be carried out by schools every year, in this case usually done by the Treasurer and monitored by the Principal. However, at SMA Negeri 1 Nggaha Ori Angu, the system for managing School Operational Assistance (BOS) funds is still carried out conventionally, namely by writing all records using physical ledgers.

This process suffers from various obstacles, including the difficulty in recapitulating the overall funds managed, as well as the lack of efficiency in the management of School Operational Assistance (BOS) funds. This conventional process causes a waste of time and effort that should not have to occur at this time, as well as a high risk of errors and inaccuracies in the data recorded. In this case, there is a need for a system that can manage School Operational Assistance (BOS) funds more efficiently, accurately, integrated and easily accessible. By utilizing web technology, a system can be designed that utilizes modern features such as recording the flow of fund receipts and expenditures, management of the school year period, and integrated fund recapitulation for all data. From the problem of managing School Operational Assistance (BOS) funds at SMA Negeri 1 Nggaha Ori Angu, this research will develop a School Operational Assistance Fund Management Information System (BOS) using the Rapid Application Development (RAD) method. The web development in this research will use the Hypertext Preprocessor (PHP) programming language with the CodeIgniter framework which applies the Model-View-Control (MVC) concept. The use of this framework will speed up the development time of the information system needed.

2. Research Methods

This research was carried out based on several stages of research, which are steps to solve research problems. This research uses the Rapid Application Development (RAD) method, whose stages can be seen as follows:

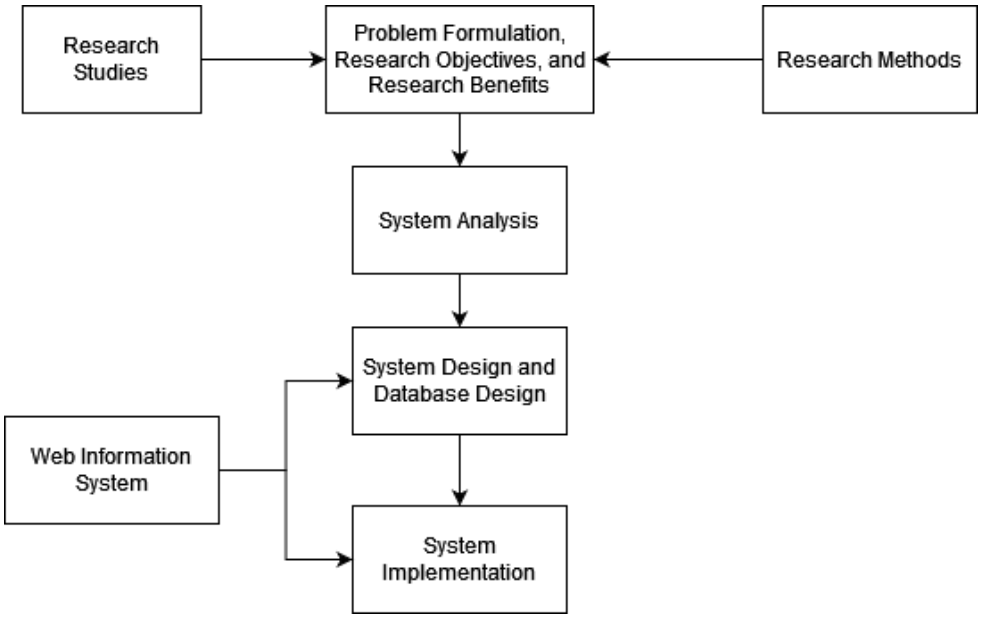

Fig. 1: Research Stages

The explanation of each stage above is as follows:

a. Determine the problem formulation, research objectives and research benefits.
b. Conducting a research study, in this case the research location is SMA Negeri 1 Nggaha Ori Angu and the object of research is the management system of school operational assistance funds (BOS).
c. Applying research methods, in this case the methods applied are development methods and testing methods.
d. Perform system analysis, both analysis of the current system and analysis of the system to be proposed.
e. Create a system design and database design for the proposed system.
f. Working on system implementation, in the form of working on the web-based information system, as well as testing the system.

2.1. Field Study

Field studies are carried out by conducting direct studies to the research location to collect the required data. The data collection techniques used in this study are:

a. Observation, carried out to study the system process by direct observation to the research location, in this case, the research location is located at SMA Negeri 1 Nggaha Ori Angu.
b. Interviews, conducted with the parties responsible for the management system of school operational assistance funds (BOS) at the research location, in this case, the Principal and Treasurer.

2.2. Development Method

This research uses Rapid Application Development (RAD) as an application development method, and uses the Unified Modeling Language (UML) as a method of modeling the system to be developed.

2.3. Testing Method

Testing in this study uses the Black Box Testing method. The system will be tested to find out if there are parts that have errors or discrepancies from what was previously designed. This test will be carried out for each feature on each user role in the developed system..

2.4. System Analysis

System analysis discusses the work process of the old system that is currently running at the research location, and the work process of the new system proposed in this study.

2.5. System Design

The system design in this study uses the Unified Modeling Language (UML) modeling language which consists of Use Case Diagrams, Activity Diagrams, Sequence Diagrams and Class Diagrams.

2.6. Use Case Diagram

Use case diagrams are used to describe the system's business processes in outline. There are 2 user roles in this system, namely the Principal and Treasurer (Admin), this use case diagram will describe the two user roles, namely as follows

Fig. 2: *Use Case Diagram*

In the use case above the admin has the right to access the Login page, View Dashboard, View and Change Profile, Manage Users, Manage Fiscal Year, Manage Fund Types, Manage Incoming Funds, Manage Outgoing Funds, View and Print Report Recapitulation. While the Principal can only access Login, View Dashboard, View Profile, and View Report Recapitulation.

3. Results and Discussion

The Information System for the Management of School Operational Assistance Funds (BOS), which has been designed in the previous chapter, will be implemented in the development of the web system. There are several pages generated by the entire menu on the web, both for the role of Treasurer (Admin), and the role of Principal. The following are the results of the implementation.

3.1. Home View

On the home page below, the Principal or Bursar (Admin) role will see the home page, where there is a Start button, to be able to access the Login page.

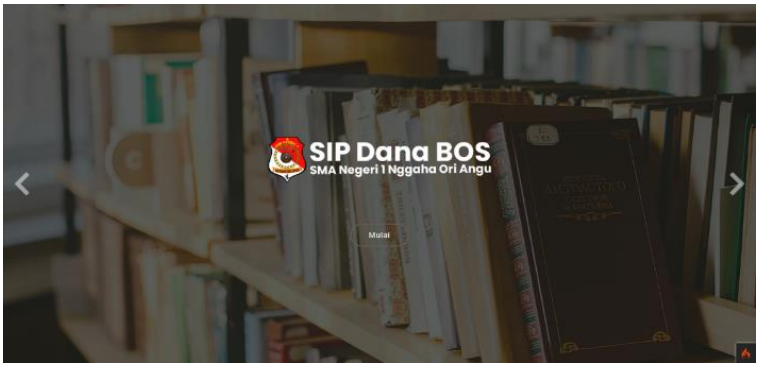

Fig. 3: Home Page Display

3.2. Principal Role Home Page

On the dashboard page below, the principal role will see the dashboard page, where there is a button to edit the profile, and a graph of the income and expenditure of BOS funds.

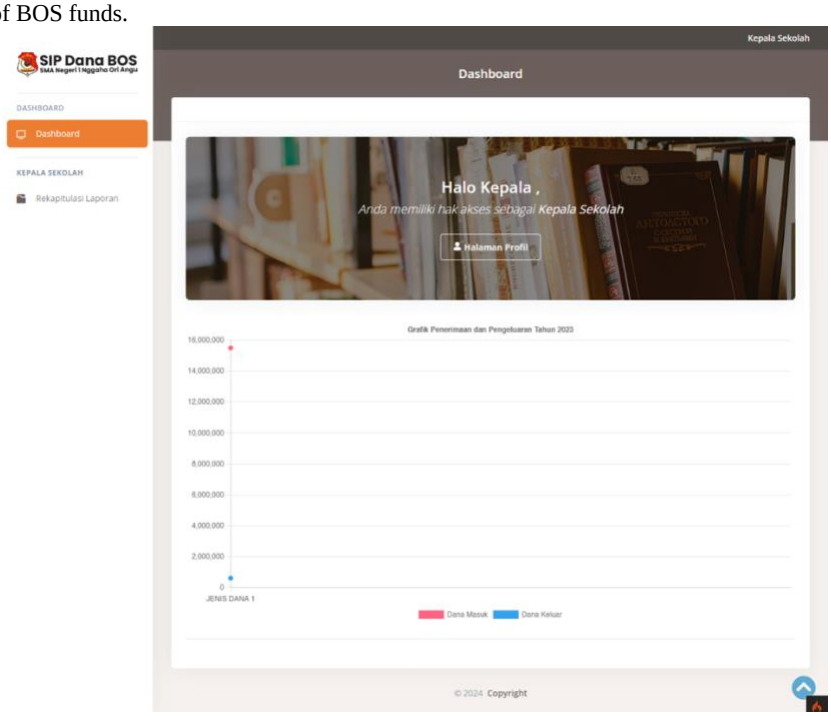

Fig. 4: Principal Dashboard Page Display

3.3. Principal Role Report Recapitulation - View Report

On the report recapitulation page - view report below, the principal role will see the report recapitulation page, where there is detailed information from all reports.

NO	TANGGAL	BUKTI KAS	URAIAN	PENERIMAAN (RP.)	PENGELUARAN (RP.)	SALDO (RP.)
1	16-06-2024		DANA MASUK 1	Rp. 500.000	-	Rp. 500.000
2	29-06-2024		DANA MASUK 2	Rp. 15.000.000	-	Rp. 15.500.000
3	11-06-2024	02	- Barang 1 1 Pcs @Rp. 113.121 = Rp. 113.121 - Barang 2 10 Dus @Rp. 10.000 = Rp. 100.000	-	Rp. 213.121	Rp. 15.286.879
4	16-06-2024	01	- Barang 1 20 Kotak @Rp. 12.000 = Rp. 240.000 - Barang 2 11 Pak @Rp. 15.000 = Rp. 165.000	-	Rp. 405.000	Rp. 14.881.879
JUMLAH				Rp. 15.500.000	Rp. 618.121	Rp. 14.881.879

Fig. 5: Principal Role Report Recapitulation - View Report

3.4. Treasurer Role (Admin) Dashboard Page Display

On the dashboard page below, the Treasurer (Admin) role will see the dashboard page, where there is a button to edit the profile, and a graph of the income and expenditure of BOS funds.

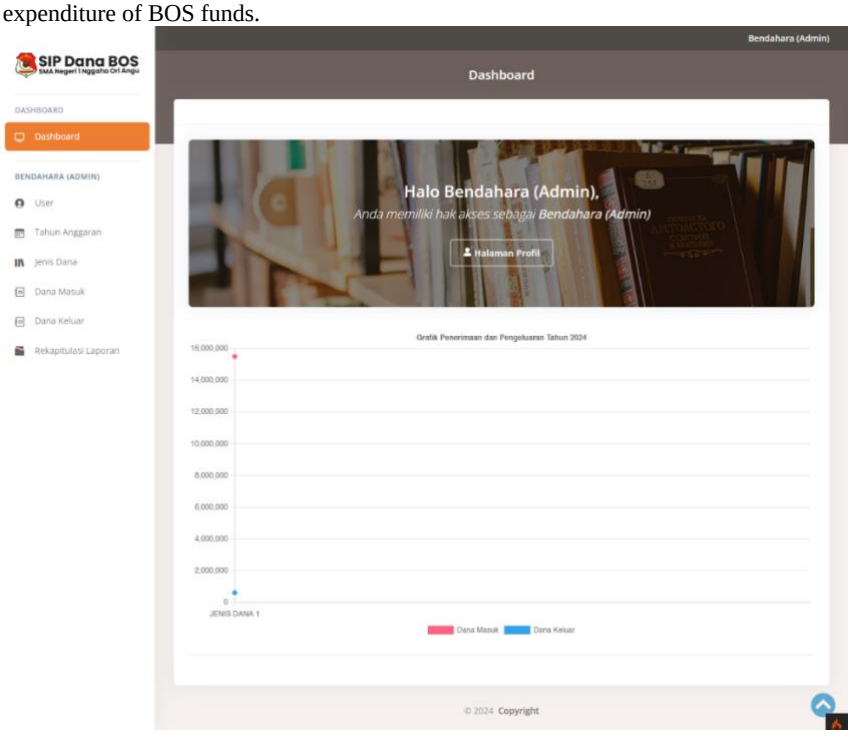

Fig. 6: Treasurer Role Dashboard Page Display

3.5. Treasurer Role (Admin) Report Recapitulation Page - Results Download PDF Report + Signature

On the report recapitulation page - pdf report download results with signature below, the Treasurer (Admin) role will see the report recapitulation page, where the pdf report download results will appear with his signature.

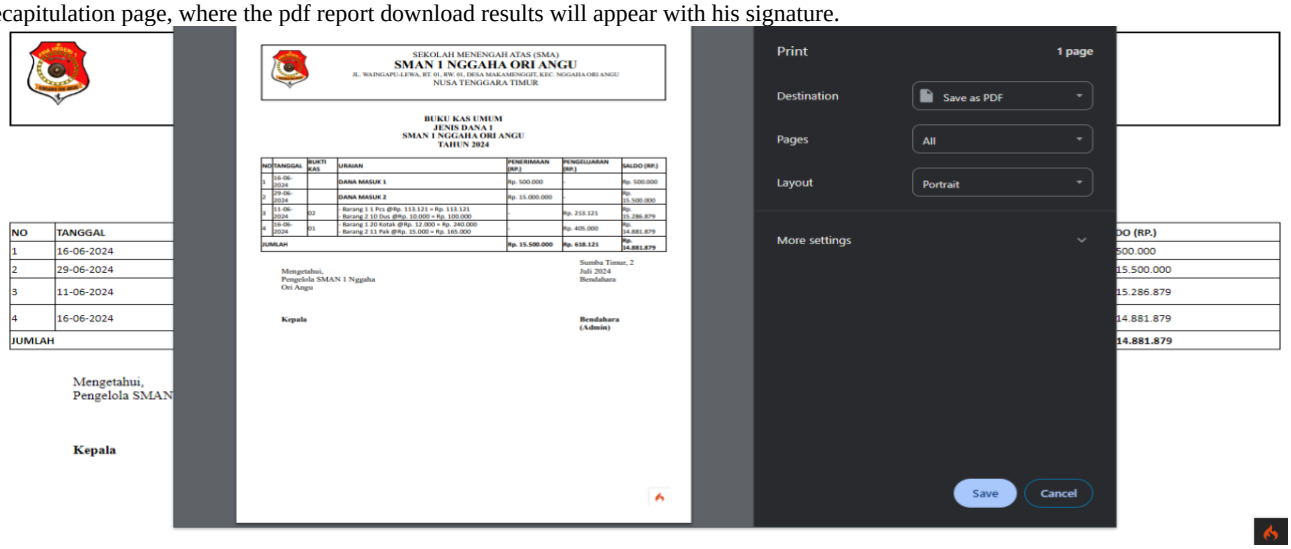

Fig. 7: Treasurer Role Report Recapitulation Page - Results Download PDF Report + Signature

4. Conclusion

Based on the research that has been done, the conclusions obtained from the results of this study are as follows:

1. The Information System for the Management of School Operational Assistance Funds (BOS) has been successfully built with a web-based and can facilitate users in supporting the process of managing school operational assistance funds (BOS).
2. The Information System for the Management of School Operational Assistance Funds (BOS) can increase efficiency in management because the system has been integrated for all the needs of managing school operational assistance funds (BOS).

5. Suggestions

The suggestions that can be given based on the results of this study are as follows:

1. The system can be further developed by adding several other functional features, such as features for asset management, and so on.
2. There needs to be an increase in security on the web system, in order to avoid cybercrime.
3. Currently the web system is mobile friendly (friendly to be opened via mobile devices), in the future it is hoped that this application can be developed in its mobile application version for Android and Iphone.

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