Implementation of School Information System at Yaabunaya Fathul Khair Makassar Foundation

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Abstract

This research aims to evaluate the implementation of a school information system at the Yaabunaya Fathul Khair Foundation in Makassar and its impact on school management processes. The system is designed to enhance interaction between the school and various stakeholders while ensuring the generation of accurate information. The analysis employs the PIECES method, which examines Performance, Information, Economics, Control, Efficiency, and Service to identify and address issues within the foundation. The research utilizes UML for design, PHP for coding, and MySQL for database management. System testing was conducted using the Black Box method to verify functional performance. The results indicate that the developed system operates effectively and meets its intended functions. User feedback gathered from a questionnaire with 6 respondents answering 10 questions, revealed an average satisfaction score of 86.79%, demonstrating that the application performs well and meets user expectations. This research contributes to the field of educational technology by providing insights into the effective implementation and evaluation of school information systems, highlighting their role in improving school management and stakeholder communication.

Introduction

The increasing need for technology and information in all fields has made computer technology rapidly develop (Husain et al., 2020). One of the uses of technology is using information systems (Hutahaean et al., 2022). Information systems are computer system applications used to manage data (Muttaqin et al., 2022). Information systems play a very important role for companies, schools, and other fields, as information systems provide the information needed by each party as a basis for decision-making (Awaliah et al., 2022). The advantages obtained from processing data using information systems are that they can process data quickly and accurately, can process data in large capacities, and can store archives or files well without using much space (Jimenez et al., 2019). For an institution or company, especially in the field of education, it is a must to use information systems both in terms of administrative services and in the learning and teaching process (Martins et al., 2019). An application with the help of accounting theory is a process of recording and analyzing transaction data and activities related to finance so that the information generated can be used as a basis for decision-making (Salam, 2022).

According to the foundation's treasurer, the accounting information system implemented at the Yaabunaya Fathul Khair Foundation in Makassar still uses an uncomputerized system, such as the absence of a data storage media, and financial data that is not integrated with asset inventory. This makes it possible for data redundancy to occur, and the data storage media still uses a document archiving system, which requires a significant amount of time in the data search process and is unable to produce high-quality information. This leads to the possibility of damage or loss of accounting data at the foundation, especially considering the large amount of financial data and asset inventory that the foundation has, which takes a lot of time to perform accounting records. In addition, it is difficult to obtain a high-quality accounting report because the accounting record-keeping administration is not well organized (Shaikh et al., 2022).

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Therefore, to facilitate accounting management, a system is needed that can help the management process starting from cash receipts and expenditures and asset inventory by applying strict foundation administration rules in recording from storage, borrowing, and returning, to compiling reports and data recapitulation. Thus, the purpose of this research is to design and implement an accounting theory-based information system application at the Yaabunaya Fathul Khair Foundation in Makassar. Schools as an organization have very complex needs, with multiple levels of management hierarchy, starting from the foundation to the school, from the school to students and guardians to the school to employees and teachers. Managing such a complex organization cannot be done carelessly with conventional management patterns. A breakthrough is needed, a tool that can connect all levels of management hierarchy in the school.

The information system is a well-organized combination of people, hardware, software, communication networks, and resources that collect, transform and distribute information within an organization (Xu, 2020). In addition, information systems are a combination or integration of people, hardware (hardware), software, and data resources capable of collecting, processing, transforming, and disseminating information in an organization (Yusuf et al., 2022). Education Management Information System is a combination of human resources and information technology applications to select, store, process, and retrieve to support the decision-making process in the field of education. By utilizing information technology and its advancements, school management can be carried out more effectively, efficiently, accountable, and transparent.

All activities carried out by each level of the school hierarchy require information. Similarly, all activities generate information, both useful for the school that carries out the activity and for other departments outside the concerned school, therefore information is useful for all kinds and forms of activities in the school. If the education management information system application is designed and implemented well, then there will be many benefits that can be obtained by the school management, such as facilitating management and helping and supporting the decision-making process of management. Because the education management information system provides information for each level of the management hierarchy where the information system is implemented (Shim & Jo, 2020). In addition, the school can also improve operational and management performance, all information needs from each level of management will be met.

Some benefits of information systems:

1. Improving accessibility of data that is presented in a timely and accurate manner for users, without requiring an intermediary information system.
2. Developing effective planning and management activities.
3. School efficiency needs.
4. Data security and security guaranteed.
5. Improving productivity and performance at each level of the management hierarchy.
6. Schools use information systems to process transactions, reduce costs, and generate revenue as one of their products or services.
7. Supporting Managerial Decision Making.
8. Supporting the achievement of Strategic Excellence.

There are many types and types of information systems in society, the most popularly used is the web-based school management information system, which is considered easy to use and does not require a high-specification computer. At the university level, we all know the Academic Information System system is the same, only the level of needs differs. In essence, a school information system application can help improve the quality of services in schools and can also help decision-makers carefully formulate strategic policies used to achieve the goals of the school.

Foundation accounting information system

The accounting information system is a form of information system aimed at maintaining records, improving control, and internal accounting checks for business activity managers. The accounting information system is a system that collects, records, stores, and processes data into useful information in helping the decision-making process. The accounting information system is a collection or group of interrelated sub-systems that work harmoniously to process financial transaction data into financial information. Based on this definition, it can be concluded that the accounting

information system is a sub-system of the information system that collects, records, stores, and processes data into information for business activity managers.

Cash receipt is a transaction that increases cash balance, such as product sales, receipt of accounts receivable, and other transactions. The cash receipt system is a procedure for tracking money coming in from various sources, such as cash sales, asset sales, loans, and new capital deposits. Cash disbursement is a purchase or cash payment transaction that reduces a company's cash balance. This includes activities such as distributing goods or services to other companies and paying for raw materials, supplies, or services. Therefore, cash disbursement is a transaction that reduces a company's cash balance, including cash purchases, debt payments, transfer disbursements, and other disbursements.

The capital or wealth of a company is established to seek great profits so that one or more people are willing to provide their wealth as initial capital in the company. Foundations have social activities and therefore do not aim to seek profits. The founders of the foundation or organization will finance the initial activities of the organization. After the organization obtains a legal entity, all wealth or assets as the capital of the organization are known as Net Assets. The founders of the foundation or organization will finance the initial activities of the organization. After the organization obtains a legal entity, all wealth or assets are considered the capital of the organization.

Profit earned by the company can be claimed by its owners based on their ownership proportion in the capital. In foundations, profit sharing is not allowed by anyone. The company focuses on efforts to generate income by utilizing the resources available in the foundation. The income generated can come from activities that have been planned or from other sources that were not previously planned. The income in foundations varies widely and income must be categorized based on the existence of restrictions from the source of income itself.

Method

The research was conducted at the Yaabunya Fathul Khair Foundation located at Jl. H. Kalla 2 No. 37, RT. 6/RW. 3, Panaikang, Kec. Panakukkang, Makassar City, South Sulawesi 90233. The method used in this research uses PIECES. The data collection technique uses interviews, observations, and documentation. The system design method uses UML and Use Case.

Unified Modeling Language (UML)

In the development of the object-oriented programming technique, a standardized modeling language emerged for software development built using the object-oriented programming technique, which is the Unified Modeling Language (UML). UML emerged due to the need for visual modeling to specify, depict, construct, and document software systems. UML is a visual language for modeling and communicating about a system using diagrams and supporting texts. Analogously, if we use the language we use every day, the delivery of language with poetry may not be wrong.

Sistem informasi bukanlah ilmu pasti, sehingga variasi dan interpretasi dalam bidang sistem informasi adalah hal yang wajar. UML (Unified Modeling Language) adalah bahasa pemodelan untuk sistem dan perangkat lunak yang berorientasi objek. Pemodelan ini biasanya digunakan untuk mempermudah permasalahan yang kompleks sehingga lebih mudah dipahami dan dipelajari. Berdasarkan pengertian tersebut, dapat disimpulkan bahwa UML adalah bahasa pemodelan berbasis grafik atau gambar untuk menampilkan sistem pengembangan perangkat lunak yang berorientasi objek.

Use Case Diagram

A Use Case Diagram is a technique for recording the functionality of a system (Iskandar et al., 2022)s. Use Cases describe the typical interaction between the system and its users. Before directly describing the use case, it is easier to elaborate on the scenario. A scenario is a series of steps that outline an interaction between a user and a system. The accounting information system application for the foundation, if viewed from the perspective of the application user, namely the class guardian, treasurer, and headmaster, treasurer and head of the foundation, as well as parents. In the Use Case, the class guardian actor logs in, accesses the main menu, and inputs student data. The school treasurer manages the SPP payment data per student, inputs teacher data, and creates a student SPP report. The headmaster actor logs in and accesses the SPP, BOP, BOS, and asset reports. Meanwhile, the Foundation Treasurer actor logs in, accesses the main menu, manages asset data, manages BOS, BOP, and foundation assets, and can view the student SPP report.

The head of the foundation logs in and accesses the financial report. The parent actor enters through the main menu and views the student payment and prints it.
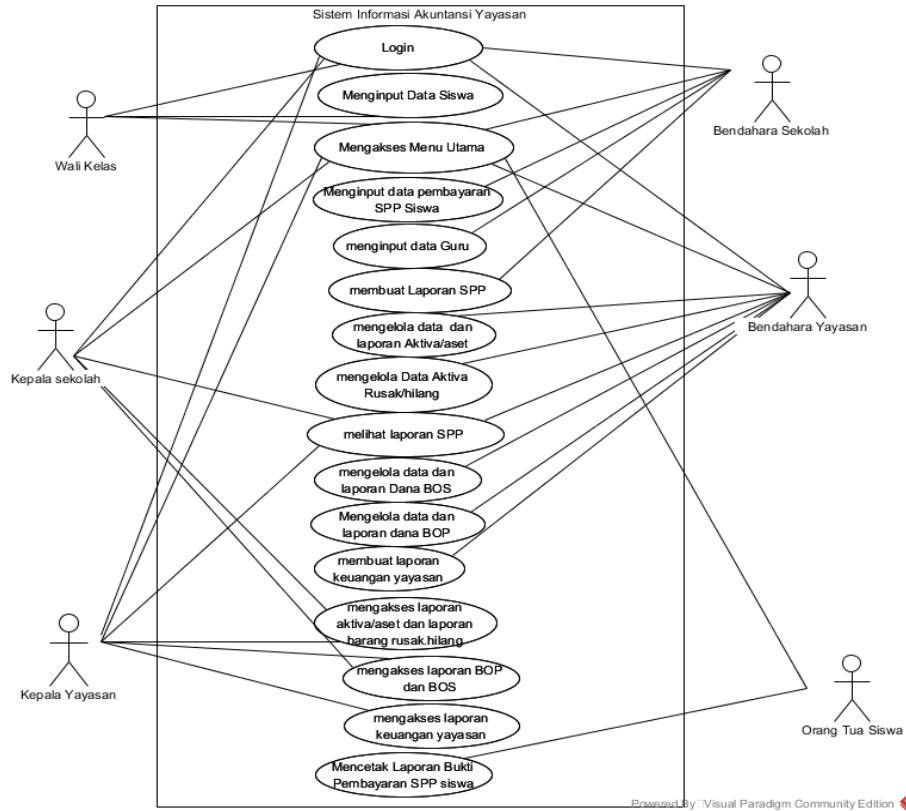

Figure 1. Use Case Diagram.

Black Box Testing

Black Box testing is a method that focuses on the fundamental aspects of a system without considering the internal logic details of software (Aman & Mustika, 2019). This method is used to verify whether the software works according to the specified specifications. Black Box testing is one of the data design testing methods based on the software specification.

Black Box testing is as follows

a. The Black Box method allows software engineers to obtain a series of input conditions that fully use all the functional requirements for a program.
b. b. Black Box can find errors in the following categories:
   - Incorrect or missing functions
   - Interface error
   - Errors in data structures or external database access
   - Initialization and errors
   - Functional validation
   - System sensitivity to specific input values
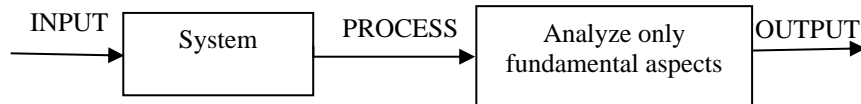
Figure 2. Black Box Testing Techniques

Results and Discussion

Result

The result of the design process or system design that has been realized in the form of an application is the Login display. This login display is used by the admin to access the accounting information system. In addition, there are also specific login displays for class supervisors, school principals, and finance. Each login display has different accesses according to the role played by each actor. Figure 3 shows the Login display in detail.
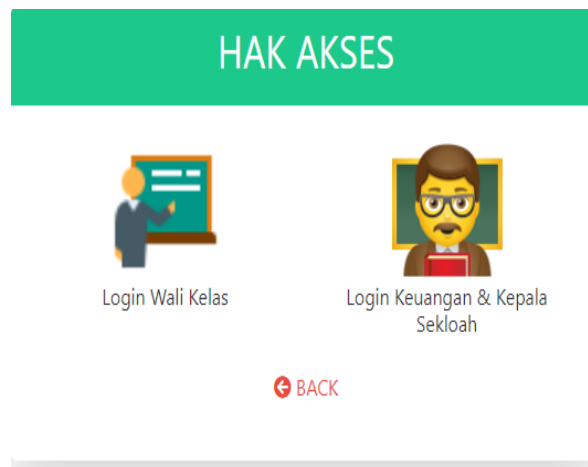
Figure 3. Login View

The main menu displays various important features and menus in the accounting information system of the Yaabunaya Fathul Khair Foundation. Using this view, actors such as the admin, class guardian, headmaster, finance, and foundation treasurer can easily access and manage data related to the foundation's accounting. This view is crucial to facilitate the accounting process and maintaining organized foundation data. Figure 4 shows the main menu view in detail.

Figure 4. Main Menu

The student data display is important in the Yaabunaya Fathul Khair foundation accounting information system. This display is used by actors such as the admin or class advisor to input and display student data. The displayed student data includes information such as name, student ID, address, and other related information. This display helps in managing student data easily and efficiently. For more details, the student data display can be seen in figure 5.

The teacher data display is one of the important displays in the accounting information system of the Yaabunaya Fathul Khair foundation. This display is used by actors such as the admin or the school treasurer to input and display teacher data. The displayed teacher data includes information such as name, employee number, address, and other related information to the teacher. This display helps in managing teacher data easily and efficiently. Further, the teacher data display can be seen in figure 5.

Figure 5. Teacher Data Menu

The asset data display is crucial in the Yaabunaya Fathul Khair foundation accounting information system. This display is used by actors such as the foundation treasurer or the head of the foundation to input and display the foundation's assets. The displayed asset data includes information such as the item code, asset name, date, amount, total, and asset image. This display greatly helps in managing the foundation's assets and ensuring that the data remains organized. More detailed information on the asset data display can be found in figure 6.

Figure 6. Asset/Asset Data Menu

The damaged/lost item display is important in the Yaabunaya Fathul Khair foundation accounting information system. This display is used by actors such as the foundation treasurer or head to input and display data on damaged or lost items. The displayed item data includes information such as item code, asset name, date, price amount, and image. This display helps in managing damaged/lost item data and ensuring that the data remains organized. Further, the damaged/lost item display can be seen in figure 7.

Figure 7. Damaged and Lost Assets Menu

The SPP data display is an important view in the Yaabunaya Fathul Khair foundation accounting information system. This view is used to facilitate the payment process for the students in the school. It contains comprehensive and detailed information such as the student's NIS, name, class, month, year of payment, the amount paid, and payment status. It greatly helps in managing the student's SPP payment data easily and efficiently. Further, the SPP data display can be seen in figure 8

Figure 8. SPP Cash Menu

The Class Guardian Data Display is a critical view of the Yaabunaya Fathul Khair Foundation Accounting Information System. This view is used by actors such as administrators to input and display data on class guardians in the school. The displayed data includes information such as the name of the teacher serving as the class guardian, the name of the supervised class, and the level of the school (junior high school, Kindergarten, or elementary school). This view helps in managing class guardian data easily and efficiently. Further details on the class guardian data display can be seen in figure 9.

Figure 9. Homeroom Menu

Other pages included in the accounting information system of the Yaabunaya Fathul Khair Foundation are the SPP Printout, Asset/Asset Report, Operating Assistance Fund Report, BOP Report, School Assistance Fund Report, Financial Position Report, Cash Flow Report, Activity Report, Notes on Financial Report. The SPP Printout page allows the user to enter NIS data, choose the level, choose the class, enter the month, and enter the year. Meanwhile, the other pages display reports related to the foundation's accounting and financial position.

Table 1. Black Box Testing.

Page Testing	What to expect	Observation
Login	Can log in and enter the main menu	Succeed
Manage data Student	Can input and save student data	Succeed
Manage data Teacher	Can input and save teacher data	Succeed
Manage SPP report	Can make student tuition reports	Succeed
Managing Asset Reports	Can Manage Asset Statements	Succeed

Table 1 shows the results of the feature testing in the accounting information system of the Yaabunaya Fathul Khair Foundation. The Login feature has been successful, allowing users to log in and access the main menu. The Manage Student Data feature has also been successful, allowing users to easily input and save student data. The Manage Teacher Data feature has also performed well, enabling users to input and save teacher data. The Manage SPP Report feature has also been successful in generating student tuition reports. Lastly, the Manage Asset Reports feature has been successful in managing asset reports.

Discussion

In related research, several studies show the implementation of school fee payment and school fee information systems is important to assist the school financial management process. The research by (Mersita et al., 2022) shows that the SPP payment system still uses manual processes and is not computerized, requiring the development of information systems to increase efficiency and effectiveness in processing SPP payments.

The research by (Isnain et al., 2022) mentions that SMK Pangudi Luhur Lampung Tengah still uses manual systems for SPP and enrollment fee payments, making it important to develop information systems to facilitate payment transactions and improve accuracy and speed in creating reports. The research by (Oscar et al., 2019) states that an effective SPP payment information system will improve the performance of the school. In this research, the SPP payment information system at Mts Al-Ihsan Pondok Gede Bekasi still uses manual processes, requiring the development of information systems to increase efficiency and effectiveness in processing SPP payments.

The research by (Wibowo et al., 2021) shows that SMK Santo Petrus Ketapang still experiences challenges in the SPP, UPS, and PnD payment process due to manual methods. Therefore, the development of a web-based school fee payment information system is necessary to facilitate payment transactions and speed up data processing. The research by (Astriyani et al., 2020) also mentions that the SPP payment process still experiences challenges, such as data collection and manual payment information processing. Therefore, the development of SPP payment information systems and SMS gateway is necessary to assist the school financial management process and provide payment information to

parents/guardians. In overall related research, it can be seen that the implementation of SPP and school fee payment information systems is crucial to assist the school financial management process.

Conclusions and Suggestions

Conclusions
Implementation of the school information system at the Yaabunaya Fathul Khair Foundation in Makassar and its impact on the school management process. The school information system is expected to facilitate interactions between the school and various parties and produce accurate information. The analysis method used is the PIECES method, which uses six variables: Performance, Information, Economy, Control, Efficiency, and Service, to identify and resolve problems at the foundation. The research design uses UML, programming using PHP, and a database using MySQL. The system test is performed using the Black Box method to determine whether the system runs functionally or not. Results show that the developed system can run well according to its function. User responses to the built information system, based on questionnaire results from 6 respondents with 10 questions, showed an average score of 86.79%, indicating that the application functions well and meets expectations.

Suggestions
As a suggestion for further research, the implementation of school information systems in other schools with different conditions can be exemplified. This will help to compare the effectiveness and efficiency of the school information system in different environments. Additionally, a case study of the implementation of a school information system on a larger scale can be conducted to understand how the implementation of a school information system on a large scale affects the management process of the school.

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