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Accounting Information System at the Indonesian Architects Association of North Sumatra Province Using the Cash Basis Method

[1]Yudi Lizardi Mahna Siregar, [2]Raissa Amanda Putri, [3]Imam Adlin Sinaga
[1,2,3]Universitas Islam Negeri Sumatera Utara
Email: yudisiregar90@gmail.com[1], raissa.ap@uinsu.ac.id[2], imamadlin@gmail.com[3]

Keywords

Accounting Information System, Cash Basis, Financial Report, Indonesian Architects Association, Laravel

Abstract. The Indonesian Architects Association (IAI) of North Sumatra Province, is an organization engaged in the field of architecture and has an office in Medan. So far, the recording of all data and financial transactions is still done manually, processed based on the accounting cycle by handwriting and is difficult to find when preparing reports, so that preparing the financial reports needed by the organization will take a long time. The purpose of this study was to design and build an accounting information system at the Association of Indonesian Architects in North Sumatra Province. The research method used in this study is a qualitative approach. The method used in developing this application is the waterfall method, and for its design, the laravel framework was used along with programming languages such as PHP, HTML, JavaScript, and CSS. The database used is MySQL. The accounting method used is the cash basis method. The system is tested using black box testing. While the Unified Modelling Language (UML) is used as the modelling languange for software development. The implementation of this accounting information system is expected to improve the transparency of financial management, facilitate faster decision-making, and produce accurate financial reports.

1. INTRODUCTION

The advancement of technology brings about new innovations that simplify our lives. Information technology has an impact on the operational performance of organizations and can help minimize errors while enhancing its effectiveness. By implementing information technology in this research, the author focuses on improving the operational efficiency of the Secretariat Office of the Indonesian Architects Association of North Sumatra Province. Information technology can reduce errors and the time required for processing financial transaction data. This will enhance work productivity and provide benefits to the organization as a whole. The Secretariat Office of the Indonesian Architects Association of North Sumatra Province, located in Medan, conducted observations on December 14, 2022. Up until now, all financial data and transactions have been manually recorded through handwritten methods based on the accounting cycle. The accounting cycle can also be referred to as the recording process because this cycle is like a current issue. It has a beginning and an end, and it repeats from the start to the end, and so on [1]. This process has led to difficulties in retrieving necessary data when preparing financial reports and has consumed a significant amount of time to complete the required financial reports for the organization.

Organizations require an efficient accounting processing system to generate timely and accurate financial information necessary for decision-making. Every organization requires information to make decisions effectively [2]. Accounting information systems are highly essential for accounting users, including external parties (external) to the company organization and internal parties (internal) within the company organization [3]. An accounting information system is a system that manages transaction data and produces valuable information for the organization's organization, management, and operations [4]. Accounting Information System encompasses a series of processes, mechanisms, and systems that are designed to collect accounting data from business processes, record accounting data in appropriate ledgers, and process accounting data in a clear manner [5]. The financial department within the organization engages in various activities, such as collecting financial transaction data and generating financial reports through processes like journalizing, creating general ledgers, preparing balanced trial balances, and producing profit and loss statements or income statements. This is done to minimize the risk of errors or uncontrolled loss of financial data [6].

Accounting is a process of identifying, measuring, recording, and communicating economic activities (transactions) within an organization for the benefit of information users [7]. Accounting, as a set of procedures and techniques, is used to recognize, measure, and report relevant economic information that is beneficial for decision-making [8]. In this accounting information system, the researcher has chosen the Cash Basis method because it is the most suitable method for transactions at the Secretariat of the Indonesian Architects Association (IAI) North Sumatra, as these transactions are always based on real operational activities, According to Muhammad Risal [9] the cash basis method is an accounting transaction recording method where transactions are recorded at the time of cash receipt or disbursement. In the cash basis method, revenue is recognized only when actual cash is received, even if goods or services have already been provided to the customer. Meanwhile, expenses are recognized only when cash or money has been disbursed to pay for the goods or services. A system that collects, records, stores, and processes accounting data and other information to provide insights to individuals making decisions is known as an accounting information system [10]. Hence, an efficient financial management and reporting system is essential for an organization.

The implementation of an accounting information system is expected to enhance transparency in financial management, as inaccurate financial reports can lead to losses and fraud. It is crucial to avoid fraudulent actions in preparing financial reports, including the entrusted leadership roles, as this is emphasized in the Quran. Allah Subhanahu Wa Ta'ala states in Surah Al-Anfal, verse 27:

تَعْلَمُوْنَ نْتُمْ وَاَ اَمٰنٰتِكُمْ وَتَخُوْنُوْٓا لرَّسُوْلَ وَا اللّٰهَ تَخُوْنُوا لَا اٰمَنُوْا الَّذِيْنَ يٰٓاَيُّهَا

Which means: ”O you who have believed, do not betray Allah and the Messenger or betray your trusts while you know [the consequence]."

Source: (QS. Al-Anfal 8: Verse 27, via Al-Qur'an Indonesia https://quran-id.com)

The use of information technology in accounting information systems aims to enhance productivity through the collection, processing, analysis, and presentation of data to acquire new information. Implementing this can help improve productivity, reduce uncertainty, and enhance decision-making and activity planning capabilities [11]. Presence of information technology within an organization can design and develop quality information systems to support the performance of the organization [12].

The establishment of an accounting information system within the Indonesian Architects Association of North Sumatra Province, is expected to enhance the efficiency of financial reporting, generate high-quality information, improve transparency in the management of the Indonesian Architects Association of North Sumatra Province, and facilitate quick decision-making while producing accurate financial reports.

2. METHOD

The data collection method using a qualitative approach refers to a research method that utilizes descriptive data.

Data Collection Method

Here is the method used during data collection:

1. Observation

   Observation involves directly observing the conditions of the Indonesian Architects Association of North Sumatra Province, to understand the current financial system's working procedures within the organization. The goal of observation is to:

   1) To understand the existing financial system in place at the Indonesian Architects Association of North Sumatra Province.
   2) To ascertain the available accounting processes within the Indonesian Architects Association of North Sumatra Province.

2. Interview
   The interview is conducted through fact-finding, which refers to the researcher's effort to gather information from the interviewees through direct interaction to gain insights into the existing issues. In this phase, a question-and-answer session is held with individuals related to the research object. The goal of this stage is:
   1) To obtain information regarding the financial system at the Indonesian Association of North Sumatra Province.
   2) To explore the utilization of information technology in the financial department of the Indonesian Association of North Sumatra Province.
   3) Preparing for the implementation of a web-based Accounting Information System to support financial management at the Indonesian Architects Association of North Sumatra Province.
3. Literature Review
   Literature review involves gathering references by searching for sources in books and journals to be studied and analyzed, as well as finding data related to and relevant to the research problem. The goals of this stage are:
   1) Searching for literature or reference studies related to accounting.
   2) Searching for similar and relevant research on web-based accounting information systems.

System Development Method

The system development method used is the Waterfall model of the SDLC (Software Development Life Cycle). The Waterfall method is carried out systematically or sequentially in creating a system. The Waterfall method is a process that is centered around planning based on principles. In this approach, all relevant elements need to be planned and scheduled before the work begins [13].

The stages are as follows:

1. System Needs Analysis
   In the system needs analysis stage, data requirements can be collected through observation, interviews, and literature reviews. This is done to obtain the necessary financial information and data.
2. Requirement Design
   In the requirement design stage, design planning is done before coding, such as data structures, table relationships, software architecture, interface representation, system design, and requirements.
3. Program Coding
   In the program coding stage, the system is created according to the established design and implemented using programming languages such as PHP, JavaScript, HTML, CSS, and the MySQL database.
4. Testing
   In the testing stage, system testing is carried out and adjustments are made based on user feedback. This can be achieved by using the system over an extended period.

Research Framework

Here is the flow or thought process followed during the research :

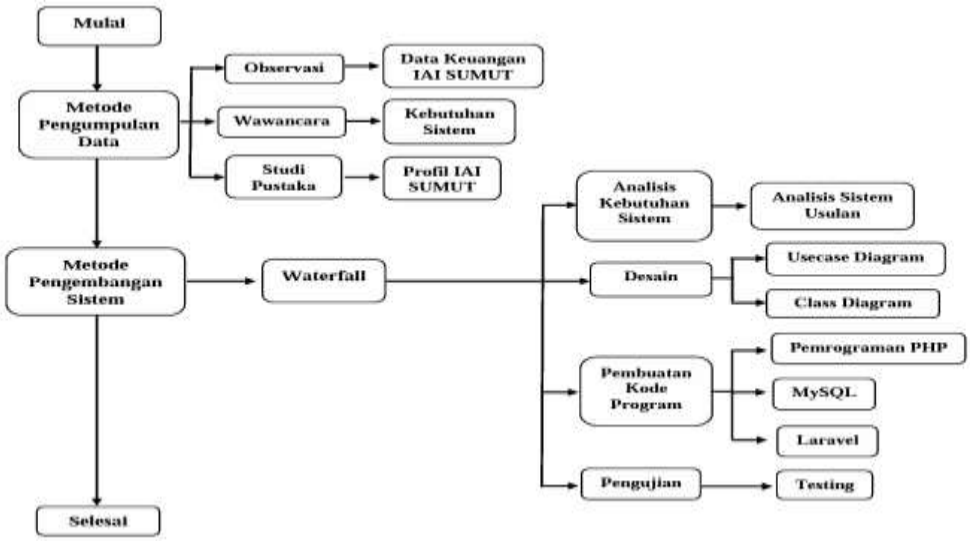

Figure 1 Thinking Framework

3. RESULTS AND DISCUSSION

The following are the stages that the researcher follows in designing and building a web-based cash basis accounting information system :

System Requirements Analysis

In this research, the author obtained the necessary data for designing and developing a cash basis accounting information system. During the data collection phase, the author established a system planning stage, which includes the proposed system analysis, as follows:

Proposed System Analysis

The results of the observation propose the construction of an accounting information system to improve the previous system, making it more user-friendly, efficient, and fast.

The overview of the system to be developed is as follows:

1. The proposed system by the author is a web-based accounting information system (AIS) application.
2. It will assist the Indonesian Architects Association of North Sumatra Province, in preparing various financial reports, such as daily journals, adjusting journals, trial balances, income statements, and ledgers.
3. The system will have three levels of users with different access privileges.
4. Administrators will manage account data and perform input-output processes, which will be reviewed by treasurers.
5. Treasurers will manage general journal and special journal data, perform input-output processes approved by the chairman.
6. Chairmen will review and approve the data and print various reports, including general journals, adjusting journals, ledgers, income statements, and trial balances.
7. Automatic calculations for the general and special journals when generating reports will be performed by the system.
8. Ledger reports will be generated automatically from summarized end data obtained from the general journal.
9. Trial balance reports will be automatically accumulated by the system.
10. Income statement reports will be reset every month automatically by the system.
11. Accounting reports can be downloaded and printed by the chairman.

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Here is a flowchart describing the proposed system :

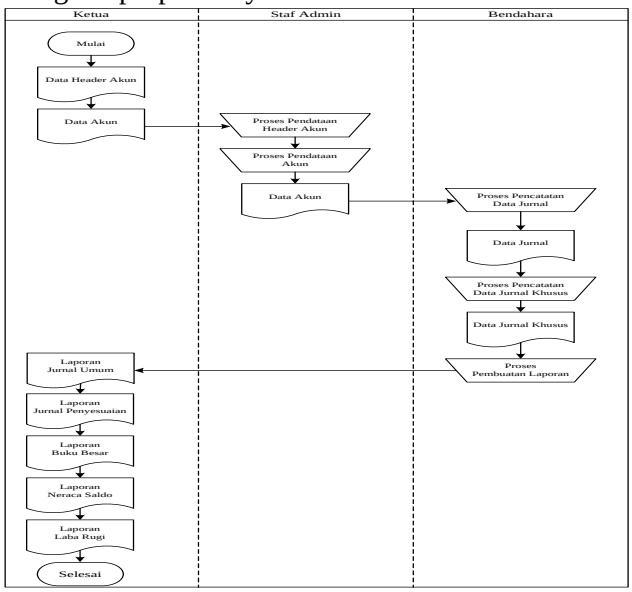

Figure 2 Proposed System Flowmap

Design

During the system development process, the researcher requires a system design plan as follows:

Use Case Diagrams

The use case diagram is a diagram created to describe the interactions between actors and a system responsible for forming a software in the process [14]. There are three actors with entry points into the system: the admin staff, treasurer, and chairman of the Indonesian Architects Association of North Sumatra Province. The admin staff can manage account header data and account data. The treasurer is responsible for the journaling process and managing general journal and adjusting journal data. The chairman can view all financial reports, download them, and print them. Based on this information, we can depict each user's interaction with the system as follows:

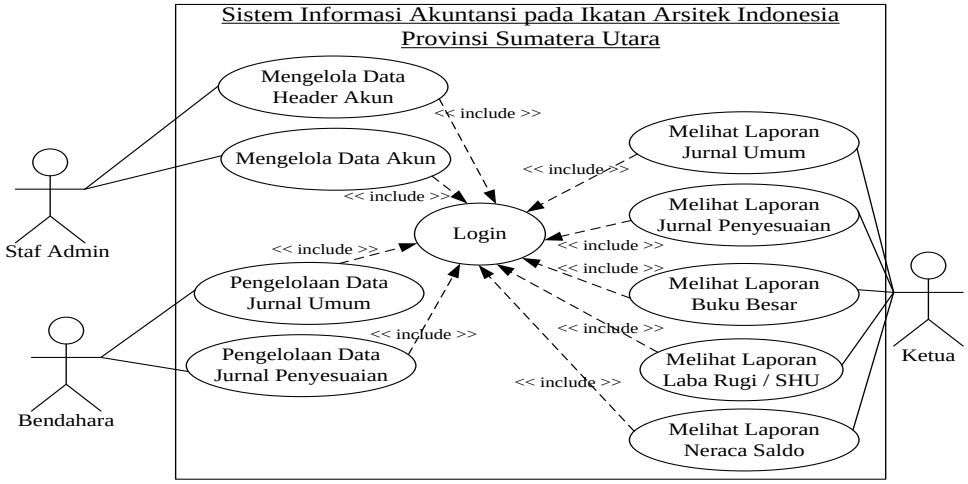

Figure 3 Use Case Diagrams

Class Diagrams

Class diagrams is a description of the relationships between tables or classes used when forming a system [15]. Class diagrams is a type that describes the structure and representation of classes and can connect between other classes. The class diagram explains the types used in designing

attributes and functions that will be used to create a new system [16]. The class diagram for the accounting information system at the Indonesian Architects Association of North Sumatra Province, can be illustrated as follows :

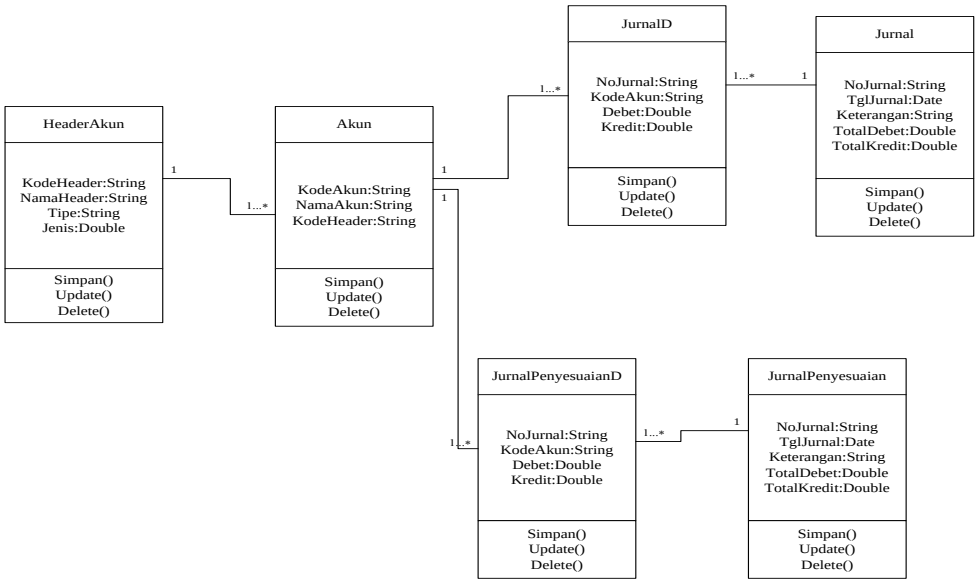

Figure 4 Class Diagrams

Program Code Creation

In the programming code development stage, the researcher implements the system to be built according to the adjusted design using programming languages such as PHP, JavaScript, HTML, CSS, with the Laravel 7 framework. The software tools used include Visual Studio Code, GitBash, Composer, and the database used is MySQL. Here is the interface of the system implementation:

Login Page

Here is the display of the login page used by all users of the accounting information system at the Indonesian Architects Association of North Sumatra Province. On this login page, each user enters their User ID and respective password. If the User ID or password entered is incorrect, the system will display the message "User ID or Password is Incorrect!".

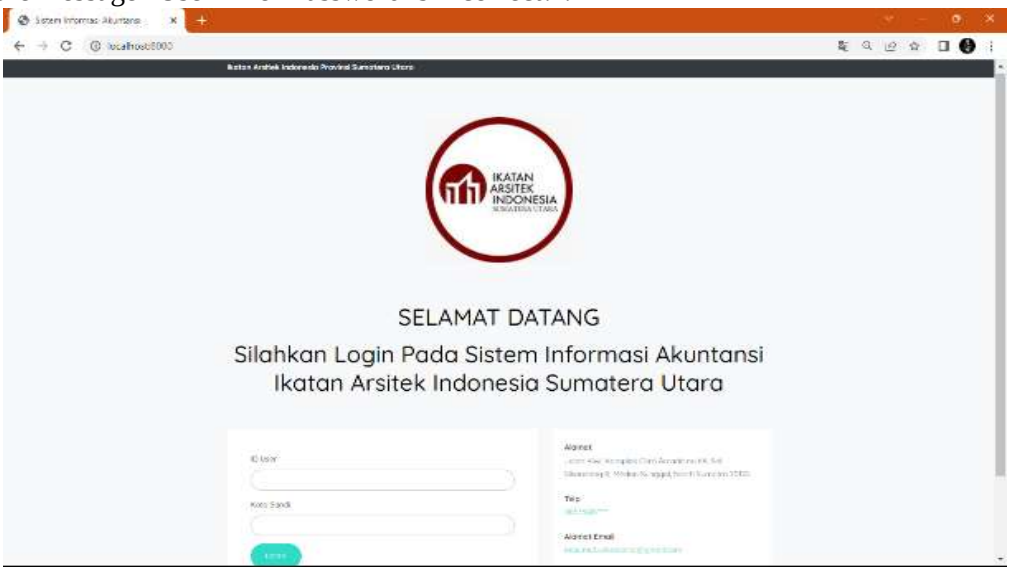

Figure 5 Login Page Display

Home Page

Here is the dashboard view of the accounting information system at the Indonesian Architects Association of North Sumatra Province. In the background menu, there is a button to directly input general journal data, which will display the general journal list page. In the header menu, there are options to return to the main page, add journal data (both general journal and adjusting journal), and logout from the system.

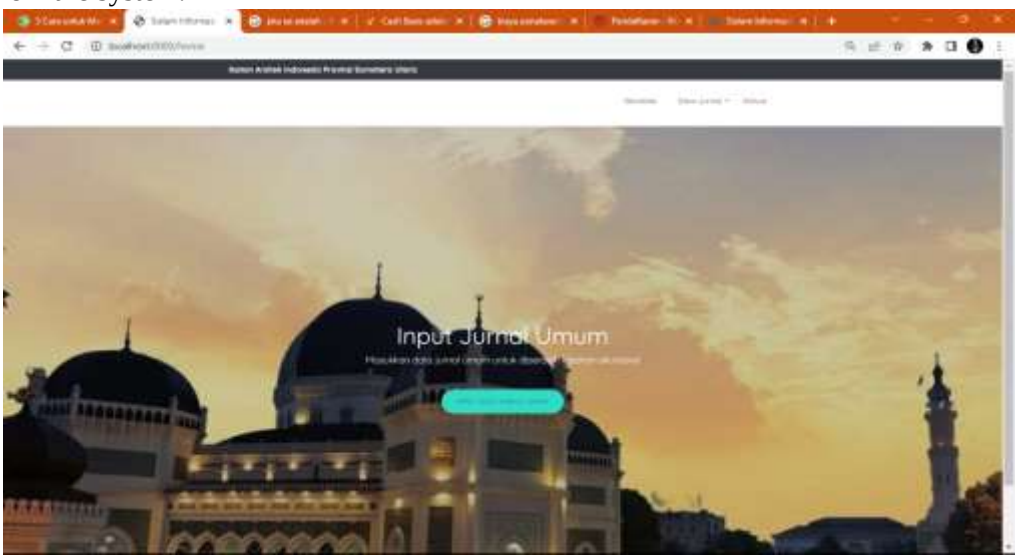

Figure 6 Home Page View

General Journal Data Input Interface

The interface for inputting general journal data as the treasurer of the accounting information system at the Indonesian Architects Association of North Sumatra Province, allows the treasurer to create general journals. It consists of the following elements: Journal Number, Journal Date, Description (for organizational purposes), "Add Journal Data" button, which includes account code fields and fields to input debit or credit financial positions when creating the journal. "Add" button to save the data and "Cancel" button to go back. Debit and credit fields are preformatted with Rp. 0, making it easier without having to input zero again for either the debit or credit position. "Delete" button to remove incorrectly entered journal data. "Save" button to save all the added journal data.

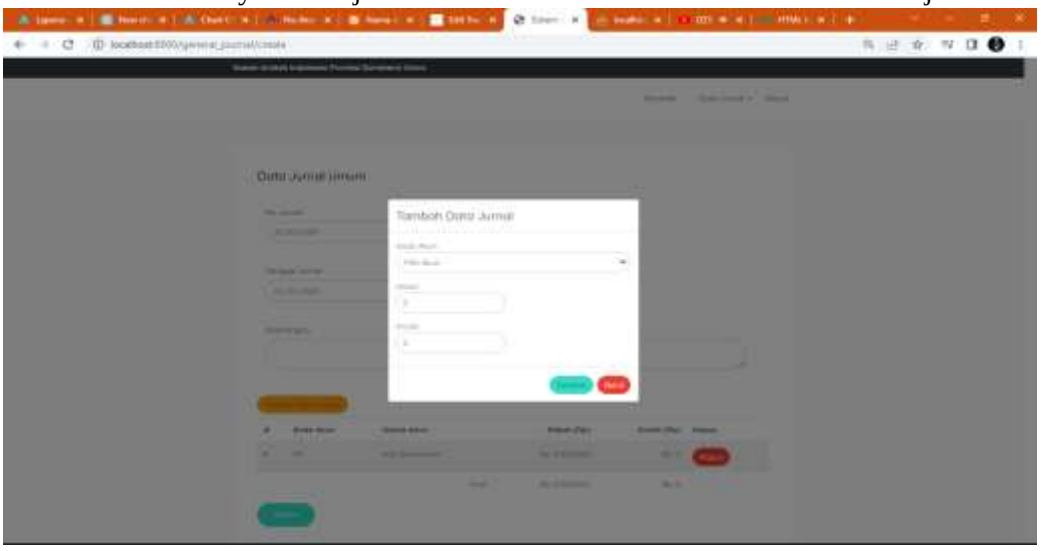

Figure 7 General Journal Data Input Interface

Period Filter Interface

Here is the period filter interface of the accounting information system at the Indonesian Architects Association of North Sumatra Province. On this page, the chairman must select a period filter before viewing each of their accounting reports. The filter includes a period form to select the desired month and transaction year, and clicking "Save" will display the reports for the chosen period.

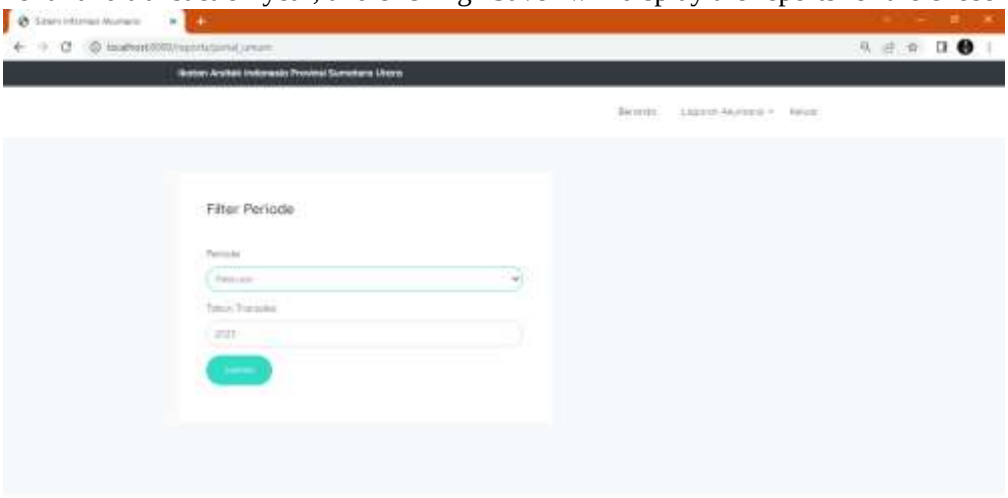

Figure 8 Period Filter Interface

General Journal Report Page

Here is the general journal report page of the accounting information system at the Indonesian Architects Association of North Sumatra Province. On this page, the system displays the general journal report with the selected month and year period, as chosen previously. There is also a header menu and a "Print Report" button to access the PDF report page.

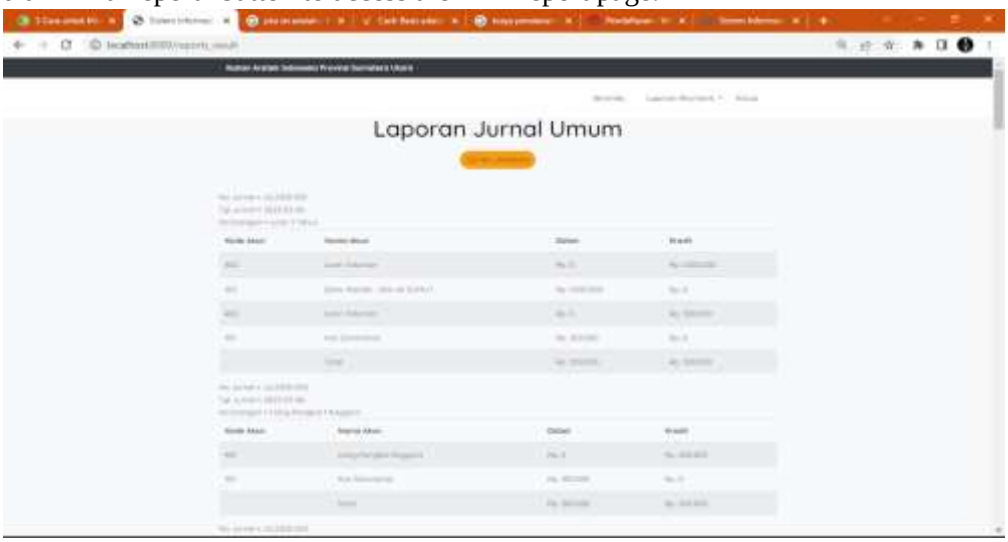

Figure 9 General Journal Report Page

Ledger Report Page

Here is the ledger report page of the accounting information system at the Indonesian Architects Association of North Sumatra Province. On this page, the system displays the ledger report with the selected month and year period, as chosen previously. There is also a header menu and a "Print Report" button to access the PDF report page.

Figure 10 Ledger Report Page

Balance Sheet Report Page

Here is the balance sheet report page of the accounting information system at the Indonesian Architects Association of North Sumatra Province. On this page, the system displays the balance sheet report with the selected month and year period, as chosen previously. There is also a header menu and a "Print Report" button to access the PDF report page.

Figure 11 Balance Sheet Report Page

Income Statement Report Page

Here is the income statement report page of the accounting information system at the Indonesian Architects Association of North Sumatra Province. On this page, the system displays the income statement report with the selected month and year period, as chosen previously. There is also a header menu and a "Print Report" button to access the PDF report page.

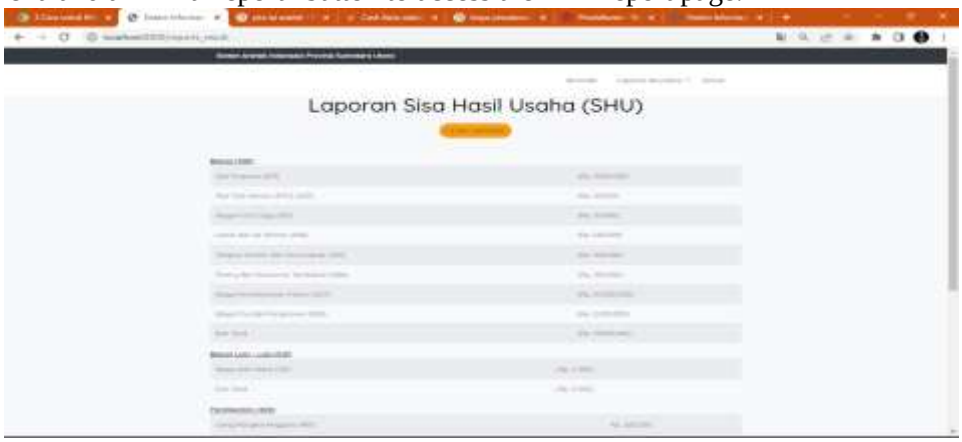

Figure 12 Income Statement Report Page

System Testing

The accounting information system at the Indonesian Architects Association of North Sumatra Province, that has been developed undergoes system testing to assess how well the system aligns with its design and to conduct checks on its functionality and performance.

Table 1. Black Box Testing

No	Tested function	How to test	Interfaces	Results
1.	Login	To log in, please enter the correct User ID and Password, then click the "Login" button.	The system will direct you to the user's main page according to your access rights.	Valid
2.	Input General Journal	Click the 'Add New' button to add a new general journal entry.	The system will display the general journal data input form, and then it will save the journal data into the database.	Valid
3.	Period Filter	Select the month filter for the report and then click 'Save' to display it	The system will display the general journal report based on the selected month	Valid
4.	General Journal Report	Click on the 'General Journal Report' submenu, choose the report month filter, and then click 'Save'	The system will display the results of the general journal report, which can be printed or downloaded in PDF format.	Valid
5.	Ledger Report	Click on the 'Ledger Report' submenu, select the report month filter, and then click 'Save'.	The system will display the results of the ledger report, which can be printed or downloaded in PDF format.	Valid
5.	Balance Sheet Report	Click on the 'Balance Sheet Report' submenu, select the report month filter, and then click 'Save'.	The system will display the results of the balance sheet report, which can be printed or downloaded in PDF format.	Valid
6.	Income Statement Report	Click on the ' Income Statement Report' submenu, select the report month filter, and then click 'Save'.	The system will display the results of the income statement report, which can be printed or downloaded in PDF format.	Valid

4. CONCLUSION

Based on the research conducted, the conclusions are as follows : The development of a web-based accounting information system has provided convenience for the finance department in completing its tasks of managing finances at the Indonesian Architects Association of North Sumatra Province. This system can facilitate the treasurer of IAI North Sumatra in managing financial data and generating journal reports. With the system that has been built, the Chairman of IAI North Sumatra can easily and flexibly access all financial reports, from anywhere and at any time. This facilitates decision-making.

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