The Accounting information system design of Avia Jaya Savings and Loans Cooperative Palu City

Kevin[1], Nina Yusnita Yamin[2*], Lucyani Meldawati[3], Muhammad Afdhal[4]
Tadulako University, Palu
kevinlensehe13@gmail.com, nyusnita2000@gmail.com, lm.akuntad@gmail.com,
afdhalafdhal499@gmail.com

Abstract. Accounting information systems are very important for a financial organization, one of which is a financial information system in cooperatives. Cooperatives that aim for the welfare of their members must pay attention to their accounting information system, so that it does not become an obstacle in the future. The design of an accounting information system in cooperatives is intended to help cooperatives carry out the process of cooperative activities easily. This study aims to design an accounting information system at the Avia Jaya Member Cooperative. This research is a qualitative research with a case study approach which includes system analysis and continued with the design of information systems. The system design method used in this research is the System Development Life Cycle (SDLC) method or the system development life cycle with the waterfall model. The design of information systems is made using flowcharts, Data Flow Diagrams and system implementation. The results of this study based on the system design using Microsoft Excel based on Visual Basic for Applications at the Avia Jaya employee cooperative, it was found that there was a process in the recording of deposit and loan transactions, as well as the resulting reports. The process of making an accounting information system is carried out based on the results of a case study by analyzing the Avia Jaya Employee Cooperative which does not yet have a system so that it hinders the process of running the accounting information system in the cooperative. The existence of this application design can make it easier for cooperative members to carry out the process of preparing financial reports which previously recorded manually into digital records and make it easier for users to make decisions.

Keywords: Cooperative, Design, Employee, Microsoft Excel, System

INTRODUCTION

Information systems have now become a necessity for the community to assist in completing various jobs (Mursyidah and Hidayat 2017). The development of information technology provides a stimulus in the process of human performance and the emergence of polemics in society. A logical consequence of the use of superior technology is the creation of advances in information technology in all fields (Sari and Kusrini 2011). Making an information system is based on what work or data processing needs to be done (Mursyidah and Hidayat 2017). The use of this accounting information system can assist users in conducting financial management and producing reports properly (Ramadhana and Fatmawati 2020).

Making financial reports, the system can process data quickly and accurately. Nurkamid et al., (2018) stated that the system can assist in processing data entered by users automatically so that data processing errors by users can be minimized. What's more (Ramadhana and Fatmawati 2020) emphasizes that processing financial data with a manual system should make users experience difficulties when entering formulas during calculations and users must work more carefully because the data entered is very large. Several studies have shown that accounting information systems have become an important component for cooperatives, MSMEs and other

*name of corresponding author

forms of business in all sectors to face intense competition and meet customer needs (Harash et al., (2016).

The accounting information system in Avia Jaya cooperatives is still implementing a semi-manual bookkeeping system that presents financial information using album books as a recording medium and using a computerized system through Microsoft Excel as a means of preparing financial reports.This phenomenon shows that semi-manual recording of cooperative accounting information systems is certainly still a problem. delays in finding transactions caused by archives piling up, still reporting separately, physical evidence that must be maintained so as not to be lost, and requires security and other accuracy (Sulina, et al. 2017). Human resources who have the ability in the field of accounting, lack of time allocation in preparing financial reports and other activities of cooperative members make the cooperative management ineffective.

Unlike the case with a computerized system. The existence of a computerized system can facilitate the preparation of reports, accurate and correct calculations and well-organized data, stored safely and easily traced (Hernando 2020). The waterfall technique is a systematic and sequential approach that starts from data collection, system analysis, system design, system implementation, and ends with system testing so that the output produced can be evaluated whether it is in accordance with the required specifications (Suwirmayanti et al. 2020) and (Ramadhana and Fatmawati 2020).

The importance of this research is to design an accounting information system in cooperatives aimed at helping cooperatives carry out the process of cooperative activities easily, so that they can be applied according to their goals. Based on this description, the motivation of this research is to present how to design the Avia Jaya Employee Cooperative Accounting Information System in Palu City.

LITERATURE STUDY

Previous Research

Research is one of the important foundations in a study, where the results of the research have relevance or relevance to serve as reference material for future researchers. (Ramadhana and Fatmawati 2020) who conducted research and found *blackbox testing* at the adh-dhuha Islamic boarding school showed 100% that the system was running well and every button was running according to its function without any errors. In the *System Usability Scale* (SUS) test, a score of 74.25 was obtained so that the system was considered to work well and was feasible to be used in carrying out good financial management. In addition Rahmadani et al., (2020) stated that the existence of an accounting information system for white ivory car wash services can provide convenience in transactions, making income reports, salaries and making the process more efficient. (Mantovani and Gustina 2020) show that the test results use *blackbox testing*, indicating that the system's rule management*can*run according to its function and the system can manage school finances and provide good and accurate information.

METHOD

The research method used in this study is a qualitative research with a case study approach. Basuki (2016:22) states that the choice of a case study approach is caused by empirical investigations in contemporary phenomena and contexts, especially when the boundaries between phenomena and contexts are not clear. So that the use of this approach is expected to solve the problem of designing an accounting information system in the Avia Jaya employee cooperative..

This research designs and builds a computerized system, it takes a system development method that can help solve a problem or take advantage of an opportunity that arises with regular stages or steps. The system design method used in this research is the System Development Life Cycle (SDLC) method or commonly called the system development life cycle with the waterfall. In general, (Parassa, et al, 2018) and Jogiyanto (2010:59) state that the stages of the information system development cycle are grouped into 5, namely:
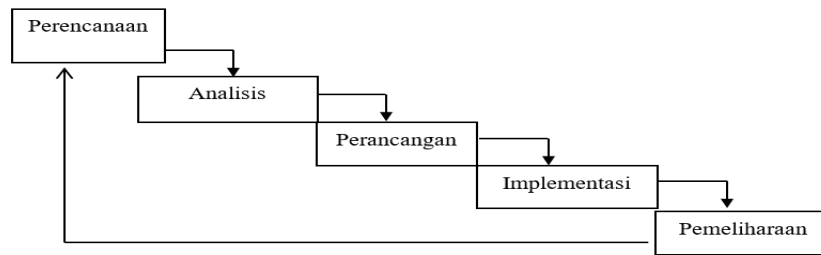
*name of corresponding author

Figure 1

Model SDLC Concept Waterfall
source: Parasa *et al*., (2018) and Jogiyanto (2010:59)

The SDLC cycle runs systematically, if the steps are used sequentially starting from the first step to the last step, where each step of the system testing is based on the function of each of these steps. The system development step requires some system planning so that the system built can be in accordance with what is expected by the developer.

RESULT AND DISCUSSION

System Analysis

Stage This stage identifies problems and determines the need for a new system that will address existing problems.

Problem Analysis

Stage In this stage the researcher describes the weaknesses and problems of the existing Avia Jaya employee cooperative and can help produce solutions to existing problems. The table of weaknesses, problems, solutions is as follows:

Table 1 Weaknesses, Problems, Solutions

No	Weaknesses	Problem	Solutions
1.	Productivity of Avia Jaya employee cooperative members who are not good at transaction services	Manual recording takes time and creates many problems such as inadequate transactions complete or missing transactions	Establish a transaction system that can be understood by users so as to make inputting data will be directly calculated, journalized, and posted into financial reports automatically.
2.	Inadequate time allocation. The lack	of knowledge of members in making financial reports results in delayed financial reporting.	Forming an automatic financial reporting system and financial reports that can be printed as desired
3.	Activities of the Avia Jaya employee cooperative cooperative which are still not paid attention by good members in transactions and financial reports.	Lack of attention by members results in less than optimal service to members. Making financial reports is hampered	Input transactions and outputs that are neat and easy to understand will help officers in operational activities and services to members.
4.	Financial reports produced are not timely, so that member meetings are often delayed	. Making financial reports with a manual system will take quite a long time so that year-end meetings can be held a few months after closing	the booksprinted and used anytime.

Table source: Data Processed by Researchers (2022)

*name of corresponding author

System Requirements Analysis Phase
1. Identification of data requirements

Input is an important procedure of a system. Following are the input procedures through *forms* the required *User* Data Input Procedure, Member Data Input Procedure, Member Deposit Transaction Input Procedure and Loan Transaction Input Procedure.
2. Identification of Information Needs

At this stage, identify the required outputs from processed inputs, the outputs include: Reports of Operating Results, Balance Sheet Reports and Cash Journal Reports.
3. Identification of System

Requirements The need for information systems needed are: Hardware Requirements (Hardware), Software Requirements (Software) and Human Resource Requirements (Human Resource)

System Design

Phase This design phase is the process of translating software requirements. The stages in this design include Flowcharts, context diagrams and Data Flow Diagrams. The following are the software requirements used in designing the accounting information system of the Avia Jaya Employee Cooperative:

Flowchart Savings

Loan Procedures of the Avia Jaya Employee Cooperative are:

Cooperative members make deposits to the cashier by carrying a membership card. Then the cashier makes a proof of incoming money deposit (BSU) and records the savings in the member book and deposit book (BS). The cashier provides proof of deposit of incoming money to the treasurer to be signed with the membership card (KA) and then the document is returned to the cashier. The cashier submits proof of deposit for incoming money to the member for signature and also returns the member's book then the cashier keeps the BSU archive in the deposit archive.

Flowchart Loan

Procedures from the Avia Jaya Employee Cooperative are as follows: Members come to the cashier with a member's book to apply for a loan. The cashier checks the member's book with member data and loan data in the loan archive. If they do not meet the requirements, the application is rejected and the member's book is returned to the member, if accepted, the member is given a loan application and forwarded to the next stage. Members make a loan application to the cashier and the cashier provides a loan application (PP) along with a member card (KA) to the Chairman. The chairman analyzes the member's loan application which, if rejected, the member's book is returned to the cashier which is then forwarded to the member. However, if the loan application is accepted, it is signed to be forwarded to the next stage through the cashier. The cashier provides a loan application for members to sign and record the loan in the member's book and proof of deposit money out (BSU). The member's book, and proof of cash out deposit (BSU) is submitted to the treasurer to be signed and then given back to the member along with the approved loan while the loan application (PP) is in the archive. Members sign the BUK and return it to the cashier and file in the BK file.

Context Diagram

In the context diagram of the Avia Jaya Employee Cooperative savings and loan system there are three entities involved, namely the member entity, the treasurer entity and the chairman entity. Each entity has incoming and outgoing data as shown in the following figure:
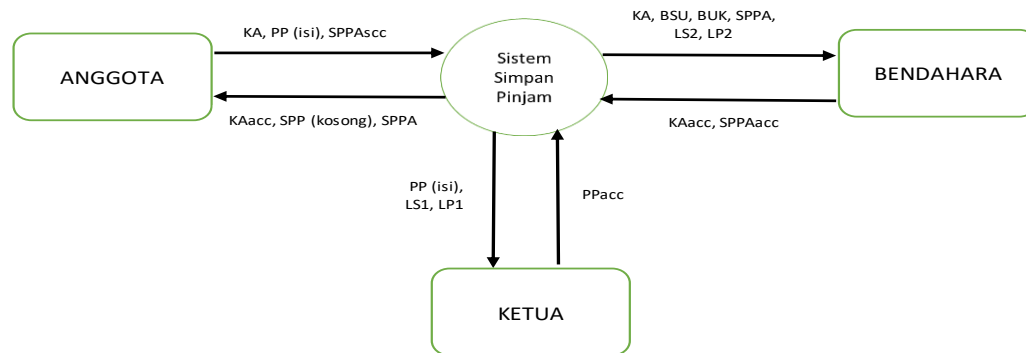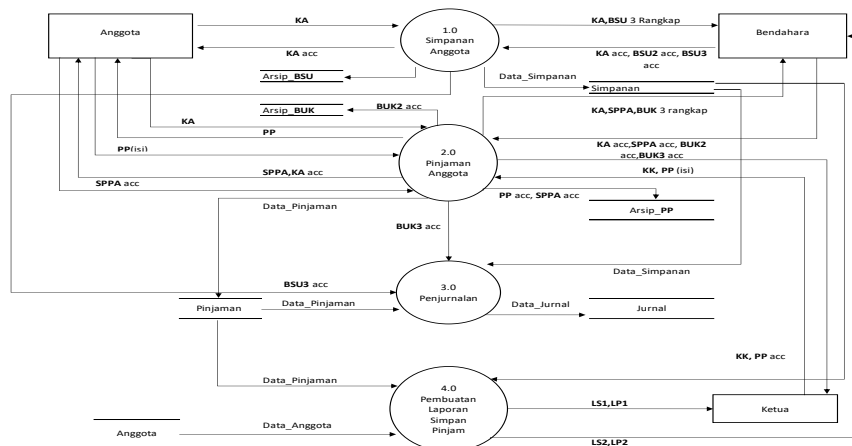
*name of corresponding author

Figure 2 Context Diagram Image
source: Data Processed by Researchers (2022)

Data Flow Diagram (DFD) Level 0

DFD level 0 at the Avia Jaya Employee Cooperative is presented below:

DFD level 0 describes the savings and loan system at the Avia Jaya Employee Cooperative which is more specific, such as the purpose of the data, the process of a data that will produce and the form of the entity based on the context diagram. Process DFD level 0 data which describes where the data comes from and its destination, so that it can find out input to output in a system in detail. DFD level 0 consists of several levels, the higher the level it requires clearer system details.

Data Flow Diagram Level 1

DFD level 1 describes the sub-sub of DFD level 0 in detail and separately, DFD level 1 is divided into 4 processes which provide details about the savings and loan process to the reporting of the Avia Jaya Employee Cooperative. The following is an overview of the level 1 DFD:

DFD Level 1 Process 1

DFD level 1 process 1 explains how the process flow when members want to make deposits. The process flow and pictures of DFD level 1 process 1 are as follows: Members give the member's book to the cashier by bringing the Member's Book (KA) and Proof of Deposit (BSU) in 3 copies. The BSU and member's book are submitted to the treasurer. The treasurer signs the member book and cash entry slip (BSU), after that the member book, entry money slip 2 (BSU2) and entry money slip 3 (BSU3) are returned to the cashier while entry money slip 1 (BSU1) is archived by the treasurer as proof of incoming money . The cashier returns the member's book that has been initialed by the treasurer to the member. Then the cashier files the entry slip 2 (BSU2) in the BSU file and gives the entry slip 3 (BSU3) to the bookkeeping department.
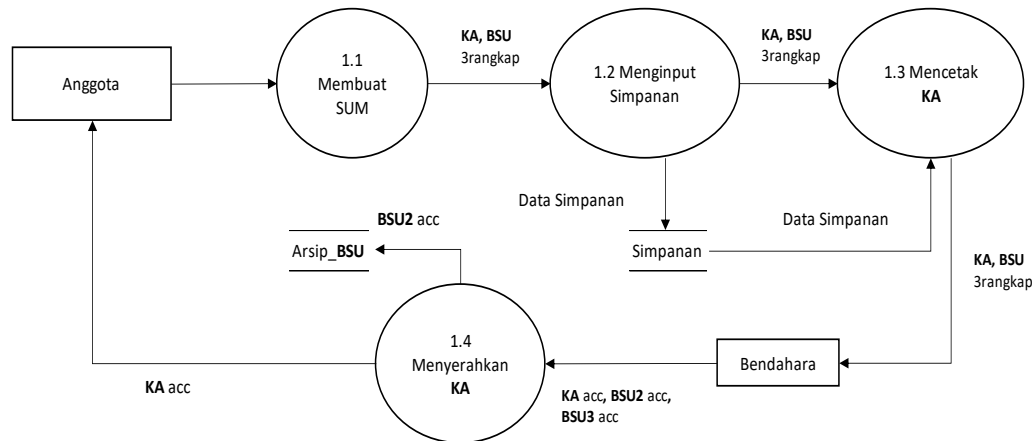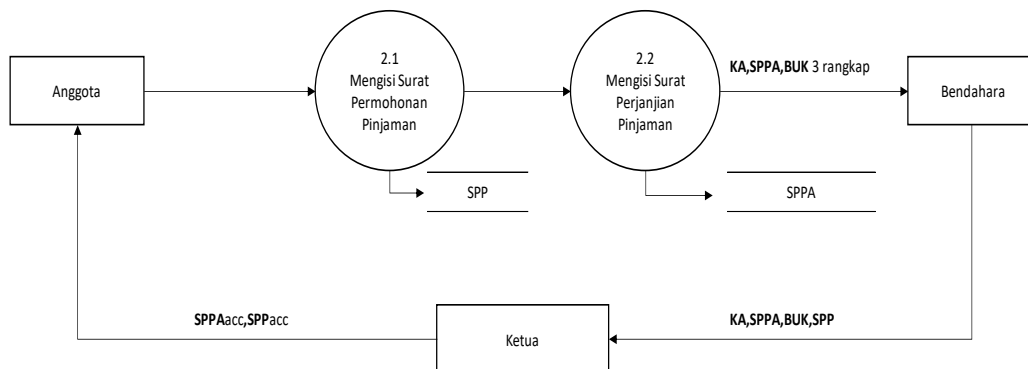
*name of corresponding author

Figure 4 DFD Level 1 Process 1
Source: Data Processed by Researchers (2022)

DFD Level 1 Proscess 2

Pada DFD Level 1 proses 2 menjelaskan bagaimana alur ketika anggota melakukan pinjaman, data yang harus dilengkapi oleh anggota sehingga dapat mengajukan pinjaman. Alur proses serta gambar DFD level 1 proses 2 adalah sebagai berikut: Anggota membawa buku anggota ke koperasi dan menyerahkan ke kasir untuk pengajuan pinjaman. Kasir memberikan surat permohonan pinjaman (SPP) dan buku anggota ke bagian pengurus. Jika diterima kasir membuat surat perjanjian pinjaman anggota (SPPA) dan membuat slip uang keluar (BUK) 3 rangkap. Kasir menyerahkan SPPA, buku anggota dan BUK untuk ditandatangani bendahara. Kemudian SPPA, buku anggota, slip uang keluar 2 (BUK2) dan slip uang keluar 3 (BUK3) dikembalikan ke kasir sedangkan slip uang keluar (BUK1) diarsip bendahara sebagai bukti uang keluar. Ketua menganalisa pengajuan pinjaman anggota dengan mempertimbangkan kelengkapan yang ada.

Gambar 5 DFD Level 1 Proses 2
Sumber: Data Diolah Peneliti (2022)

DFD Level 1 Proses 3

At DFD level 1 process 3 explains the flow of how the treasurer makes a journal from the results of the deposit process and the loan process. The following is the flow and picture of the DFD level 1 process 3: The treasurer does the archiving related to deposit data and loan data. The treasurer keeps a journal regarding deposit transactions and loan transactions.
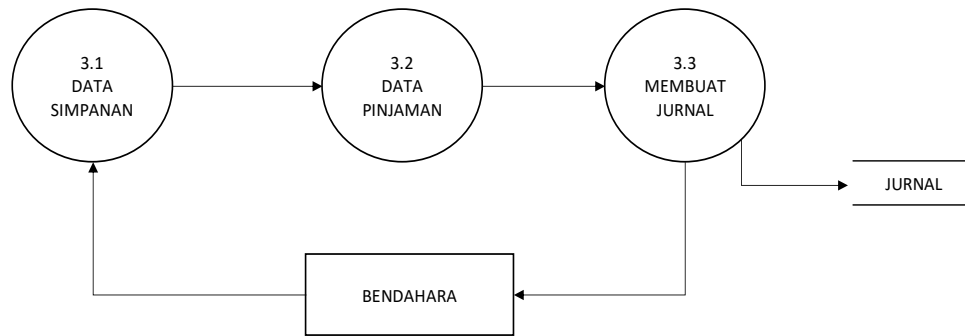
*name of corresponding author

Figure 6 DFD Level 1 Process 3
Source: Data Processed by Researchers (2022)

DFD Level 1 Process 4

In the DFD process level 1 process 4 explains the flow of the treasurer and also the chairman in making reports of the results of the deposit process and loan process. The process flow and drawings of the DFD level 1 process 4 are as follows: The Chairperson conducts inspections regarding the Deposit Report (LS) and Loan Report (LP) to ensure their validity. After being checked by the chairman, the treasurer forwards the deposit reports and loan reports and checks them for each member. The treasurer keeps the books and records loan data to be forwarded to the preparation of the report.
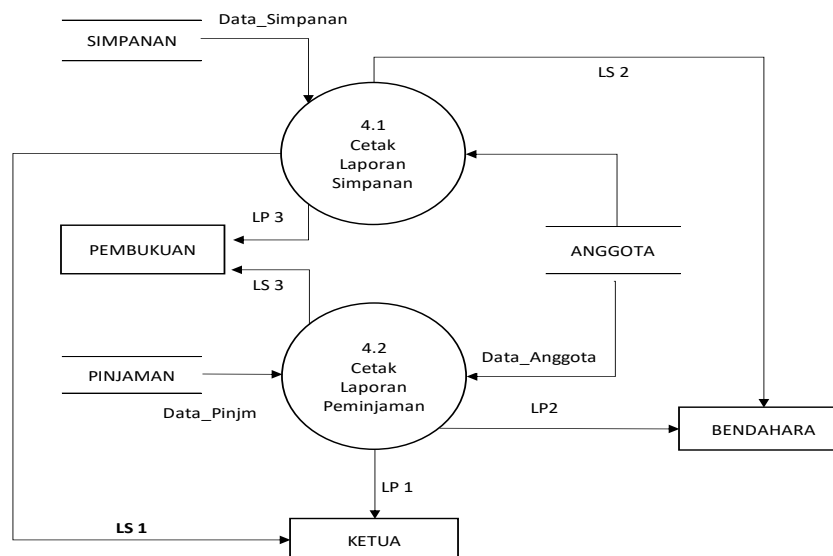

Figure 7 DFD Level 1 Process 4
Source: Data Processed by Researchers (2022)

System Implementation

Development of the Avia Jaya Employee Cooperative accounting information system is an application based on Microsoft Excel using Visual Basic for Applications. The process of implementing Microsoft Excel using Visual Basic for Applications at the Avia Jaya Employee Cooperative is presented as follows:

Creating a Menu List, Creating Member Data, Making Member Loans, Making Journals, Creating Ledgers, Making Remaining Business Results (SHU), Making Balance Sheets, Make a list of accounts, create general worksheets, create forms (consisting of login forms, member data forms, savings forms, cash in and cash out forms)

*name of corresponding author

Maintenance

After the implementation phase, the next step is to pay attention to system maintenance problems. System maintenance includesbacking and viewing design defects (bugs). In addition, the implementation of the system created will experience changes due to errors in the system that must adapt to the new operating system.

The results of this study are in line with the results of research by Ramadhana dan Fatmawati (2020), Rahmadani *et al*., (2020) and Mantovani dan Gustina, (2020) which state that the existence of an accounting information system can provide convenience in transactions, preparing income reports, salaries and make the process more efficient and provide good and accurate information.

The limitation of this study is that it focuses more on the Avia Jaya employee cooperative application which can only be applied to the Avia Jaya employee cooperative. If this application is used in other cooperatives, it is necessary to make changes or adjustments to the input data from sheet the account list.

CONSCLUSION

Based on the results of research and the process of making the Avia Jaya Employee Cooperative Accounting Information System based on Macro Microsoft Excel, it can be concluded that the accounting information system creation process is based on the results of a case study by analyzing the Avia Jaya Employee Cooperative which does not yet have a system so that it hampers the process of running the accounting information system. in the cooperative. The existence of this application design can make it easier for cooperative members to carry out the process of preparing financial reports, which previously recorded manually into digital records and make it easier for users to make decision.

REFERENCES

Hernando, Luki. 2020. "Perancangan Sistem Informasi Keuangan Pada Unit Koperasi Simpan Pinjam." *Jurnal Teknologi Dan Sistem Informasi Bisnis (Jteksis)* 2(1):22–32.

Mantovani, Doni, and Dian Gustina. 2020. "Perancangan Sistem Informasi Keuangan Sekolah Berbasis Web Pada Sma Yapermas Jakarta Doni." *The Japanese Journal of Rehabilitation Medicine* 35(2):121.

Mursyidah, and Hari Toha Hidayat. 2017. "Pengujian Sistem Informasi Akuntansi Biaya Operasional Sekolah Dengan Black Box Testing." *Jurnal Infomedia* 2(2):7–14. doi: 10.30811/.v2i2.512.

Parassa, Yonatan, Mex U. Pesik, and Nathaniel L. Bijang. 2018. "Model Sistem Informasi Biaya Kunjungan Wisata Di Provinsi Sulawesi Utara." *Journal of Applied Informatics and Computing* 2(2):34–37. doi: 10.30871/jaic.v2i2.1043.

Rahmadani, Eka Lisna, Heni Sulistiani, and Fikri Hamidy. 2020. "Rancang Bangun Sistem Informasi Akuntansi Jasa Cuci Mobil (Studi Kasus: Cucian Gading Putih)." *Jurnal Teknologi Dan Sistem Informasi (JTSI)* 1(1):22–30.

Reyhannisa Erico Dwi Ramadhana, Reyhannisa Erico Dwi, and Azizah Fatmawati. 2020. "Sistem Informasi Manajemen Keuangan Di Pondok Pesantren Adh-Dhuha." *Jurnal Teknik Informatika (Jutif)* 1(2):93–99. doi: 10.20884/1.jutif.2020.1.2.20.

Sari, Dewi, and Kusrini Kusrini. 2011. "Perancangan Sistem Informasi Keuangan Pada Koperasi Simpan Pinjam Dasa Wisma Gunungkrambil Rt 01 Gunungkidul." *Data Manajemen Dan Teknologi Informasi* 12(3):11–13.

Sulina, Trisha, Made Arie Wahyuni, and Putu Sukma Kurniawan. 2017. "Peranan Sistem Keuangan Desa (Siskeudes) Terhadap Kinerja Pemerintah Desa (Studi Kasus Di Desa Kaba- Kaba, Kecamatan Kediri, Kabupaten Tabanan)." *Jurnal Akuntansi* 8(2):1–12.

*name of corresponding author

Suwirmayanti, Ni Luh Gede Pivin, I. Komang Agus Ady Aryanto, I. G. A. Ngurah Wisrama Putra, Ni Kadek Sukerti, and Rosalia Hadi. 2020. "Penerapan Helpdesk System Dengan Pengujian Blackbox Testing." *Jurnal Ilmiah Intech : Information Technology Journal of UMUS* 2(02). doi: 10.46772/intech.v2i02.290.

Undang-Undang No 17 Tahun 2012 Tentang Perkoperasian

*name of corresponding author