

## DESIGN OF ZIS MANAGEMENT INFORMATION SYSTEM USING WATERFALL MODEL

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### Abstract

Basically, the functions of computers are generally used as a medium for storing data and programs in which there are many applications that can facilitate and support a man's work. At the administration of the institution Baitul Maal Pupuk Kujang, data processing about zakat, infaq and sodaqoh (ZIS), reports, and data storage is done manually. Error and inaccuracies of data can be occurring in this case. To help simplify the ZIS management system in that section, program design is the best solution to solve the problems that exist. Data processing is more accurate because of the availability of the form data entry and storage media are centralized in a single database that will make the ZIS management system become more effective and efficient. This application program was created with a simple and interactive interface but can process data well and can meet the requirement of the system, so that users can easily use it.

**Keywords:** ZIS, Zakat Infaq Sodaqoh, management information system

### 1. Introduction

Information systems are often applied in all areas to facilitate work in institution. One of them is the fields of religion, in the management of zakat, infaq and sodaqoh (ZIS). Currently the level of awareness among Muslims to pay zakat more higher so that now many establishment of institutions or zakat committee to manage ZIS with the aim of facilitate the Muslims in ZIS easely.

According to language, the word zakat means to grow, develop, fertile or increasing. Refers to Yasin [1] said according to the term, zakat with certain retrieval names of certain assets, according to certain characteristics, and to be given to certain groups. Refers to Utomo [2], zakat means part of the estate with the specific requirements that are required of Allah.

Although it has stood many institutions of zakat management but not suitable with the system that applied in each institutions. Mostly on zakat management institutions are still applying the manual system in it and not computerized that make it less effective to conduct the operational of zakat management. One of them is the Baitul Maal Pupuk Kujang Cikampek. ZIS Management in Baitul Maal Pupuk Kujang still using conventional or manually, that write data of zakat to the register book and recorded after it was transferred into the computer but still using *Microsoft Excel*. Then the making of the report is less efficient for much data, and involve numerous employees to make that report. With this system, many problems are often encountered, such as sheets or archive data is vulnerable missing, precision is less accurate, the process is longer, and others.

Based on this, Baitul Maal Pupuk Kujang need solution to solve that problem with designing ZIS information system zakat based on *desktop* program to managed ZIS more effective and efficient and called ZISMIS (*Zakat, Infaq And Shodaqoh Management Information System*).

Gufroni, et al [3] in his journal said that management of zakat in a professional manner can increase the awareness of muzaki in the collection of zakat, for which zakat organizations

must have a database of muzaki and mustahik in their position. As one way to get the database is to use an information system, this is related to efforts to optimize zakat funds, for that BAZNAS is preparing an information technology system. This journal research about web based information system at Unit pengumpul zakat (UPZ) Baznaz Kota Tasikmalaya.

Hidayatullah and M Rudyanto Arief [4] have researched about zakat management information system based client server at Badan Amil Zakat Masjid Agung Baitul Qadim Loloan Timur and build an application so that separate data between groups can be integrated into the system integrated, so that the report is presented at the end activities are easier to make. This system is made with the Java programming language and based on desktop. This system uses technology RMI (Remote Method Invocation) and useMySQL as a DBMS (database management system).

### 3. Research Method

In this research, the authors use a waterfall model to analysis and design the ZISMIS (Zakat Infaq and Shodaqoh Management Information System). Refers to Rosa and Shalahudin [5] state that the Waterfall model provides the software life cycle approach sequentially or ordered starting from analysis, design, coding, testing, and support phase. Refers to Pressman [6] in Linear sequential, development software is done systematically and sequential starting from the analysis phase, design, implementation, testing and maintenance. The stages are done is: Explanation of the phases waterfall method used in the design of the program as follows:

#### a. Requirement Analysis

At this stage, the authors observed any problems in Baitul Maal Pupuk Kujang particular in zakat, infaq and shodaqoh management then define the problem. Author describes a system that is already running and provide recommendations for improvement, enhance or even replace the existing systems.

#### b. Design

Design and manufacturing applications concentrate on how the system is built to meet the requirement analysis phase, building the software to support the system includes database design using ERD (Entity Relationship Diagram) and system design using UML (Unified Modelling Language). Nugroho [7] state that UML (*Unified Modeling Language*) is a modeling 'language' for system software that are object oriented paradigm.

#### c. Code Generation

The author describes the design of the system by write code using Java programming language to help and solve the existing problems in Baitul Maal Pupuk Kujang. The authors write code with structured methods.

#### d. Testing

Testing is required for the assessment of the success of programs designed to immediately known weaknesses or function of application programs using a black box method.

#### e. Support

Support are efforts that being made in the development of systems designed to anticipate future changes or system development, the authors emphasize the selection of software and hardware used.

### 3. Results and Analysis

#### 3.1. System Procedure

##### A. Admission Process ZIS (Zakat, Infaq, sodaqoh)

Before pay the zakat, employees or potential tax payers are required to enroll as muzaki at Baitul Maal Pupuk Kujang Cikampek by completing a signup form muzaki to be input into computer application by the administration Baitul Maal Pupuk Kujang. The process continued with the consent payment ZIS (Zakat, Infaq, Sodaqoh) between muzaki and Amil and watched by people. Having declared valid in accordance with Islamic Shari'a money ZIS (Zakat,

Infaq, Sodaqoh) submitted by muzaki and accepted by Baitul Maal Pupuk Kujang. The administrative section input the transaction receipt into the computer as data.

#### *B. Distribution Process ZIS (Zakat, Infaq, sodaqoh)*

At Baitul Maal Pupuk Kujangs distribution program ZIS (Zakat Infaq Sodaqoh) consists of two methods, namely the distribution of regular program implemented directly by Baitul Maal Pupuk Kujang itself and the second is the distribution proposed by others to the Baitul Maal Pupuk Kujang. To carry out the distribution of ZIS (Zakat Infaq Sodaqoh) distribution unit of Baitul Maal Pupuk Kujang made a filing program distribution in *downpayment Form*. *Downpayment Form* is a filing that its contents are a program of activities that have been processed first by distribution unit with an amount estimated for the distribution activity and then submitted to the administration for the validation process is carried out if it is appropriate and right.

After validation of the administration board of the institution handed it to Chairman and Treasurer of the Baitul Maal Pupuk Kujang for the verification process, namely the ratification *downpayment Form* determine the activities to be approved or not. If approved, the chairman and treasurer provide a signature on the form as a sign of approval of the distribution of these and handed back to the administration, then store *downpayment form* that has been signed and the amount of money that has been approved to distribution unit. Then distribution unit archive *downpayment form* and can carry out the distribution activities.

### **3.2. Software Requirement Analysis**

ZISMIS is a development system that built for Baitul Maal Pupuk Kujang Cikampek by applying a *desktop based program* to support operations in managing Zakat, Infaq and Sodaqoh. The requirement specification ZIS (zakat, ifaq and shodaqoh) Management Information System based on the users are:

#### a. Administration

Administration can be logged on the login form before access program, manage data of muzaki, can manage data of mustahiq, manage data of employee, manage donation transactions, manage donations reports and can change their account passwords.

#### b. Distribution Unit

Distribution unit can log on the login form before access program, manage distribution transaction, manage report of distribution transaction and can change the password account.

#### c. Supervisor

Supervisor can be logged on the login form before access program., access all master and transaction forms, access all reports and supervisor can access the Manage Users form to manage registered user to access the program.

### **3.2 Software Design and Architecture**

#### **A. Use Case Diagram**

Usecase diagram is used to describe briefly who is using the system and what can be done. *Use Case Diagram* that will be described only associated with major process of managing the ZIS (Zakat, Infaq Sodaqoh) management information system can be seen at figure1 for Usecase Donation Transaction, figure 2 for Distribution Transaction and figure 3 for Report, as follows:

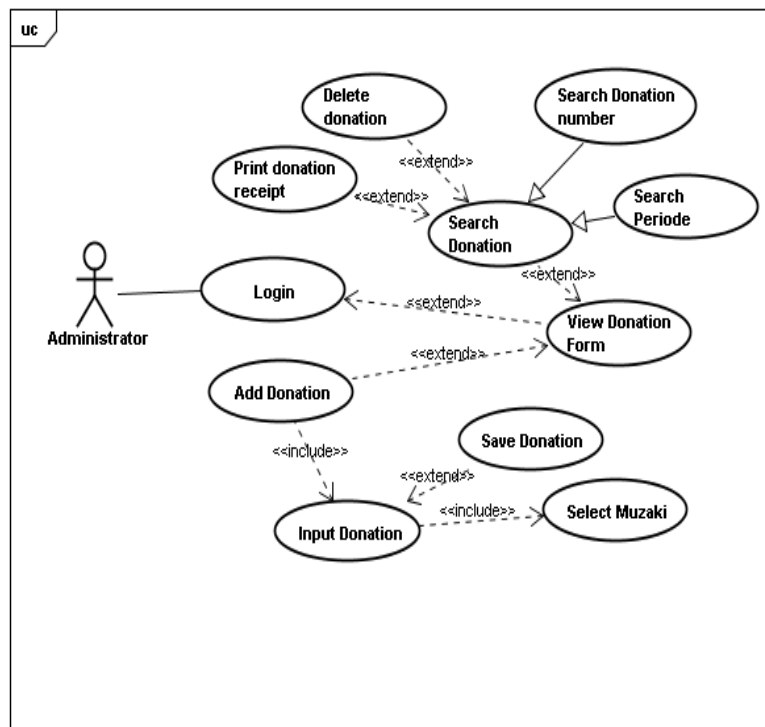


Figure 1. Usecase Diagram Donation Transaction of ZIS Management Information System

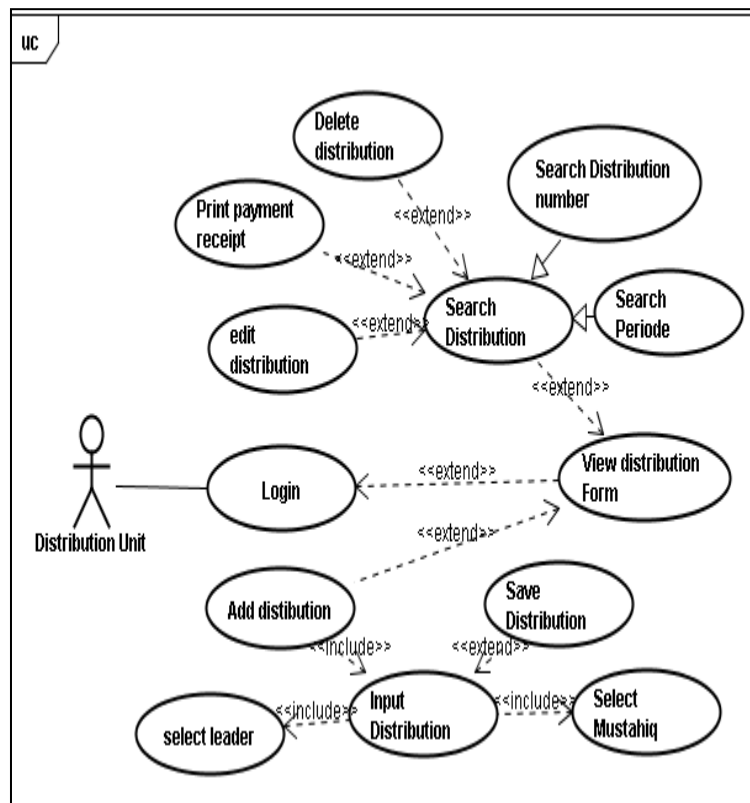


Figure 2. Usecase Diagram Distribution Transaction of ZIS Management Information System

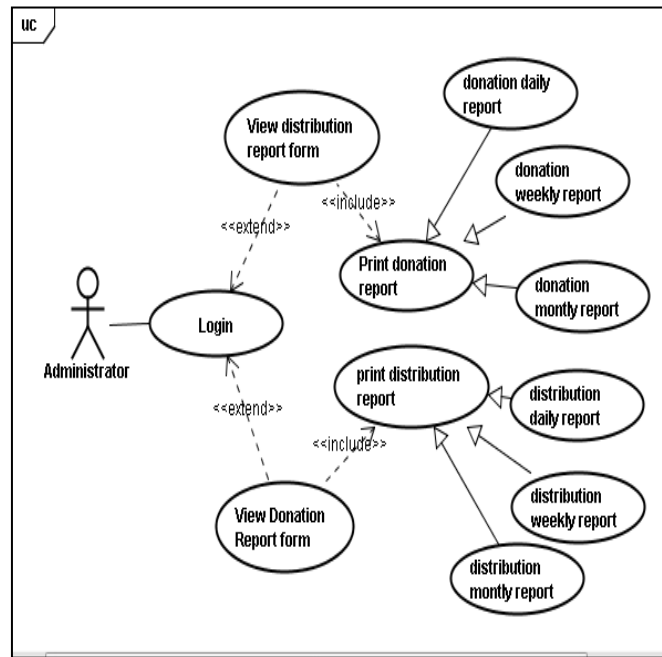


Figure 3. Usecase Diagram Report of ZIS Management Information System

**B. Database Design**

Database design are describing the relationship between tables. The description of database for ZIS Management Information systems at the Baitul Maal zakat Pupuk Kujang are using *Entity Relationship Diagram (ERD)* to specification the table or file needed for the application. The database design for ZIS management information system can be seen at figure 4 as follows:

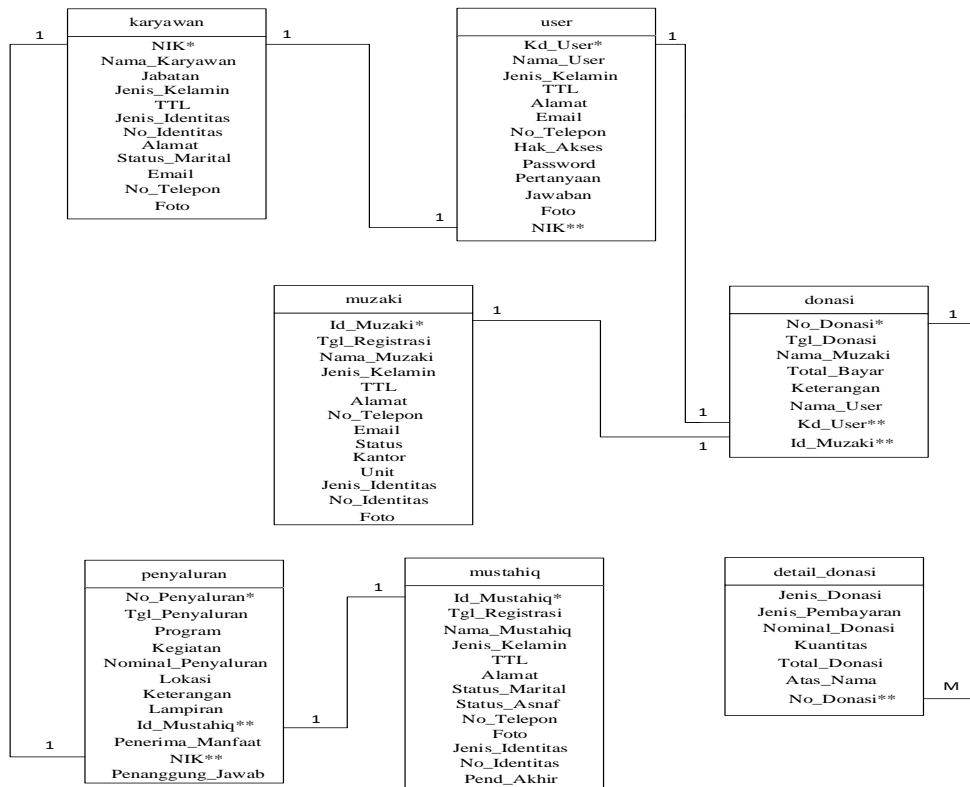


Figure 4. Database design ZIS management Information System

C. Component Diagram

Component diagram describing the structure and relationships between components of software tools, including dependence between them. *Component diagrams* can also be *interface* as a collection of services provided by other components. The component diagram of ZIS (Zakat, infaq, Sodaqoh) Management Information System, describe the components of software that built the ZIS application. The component diagram can be seen at figure 5 below.

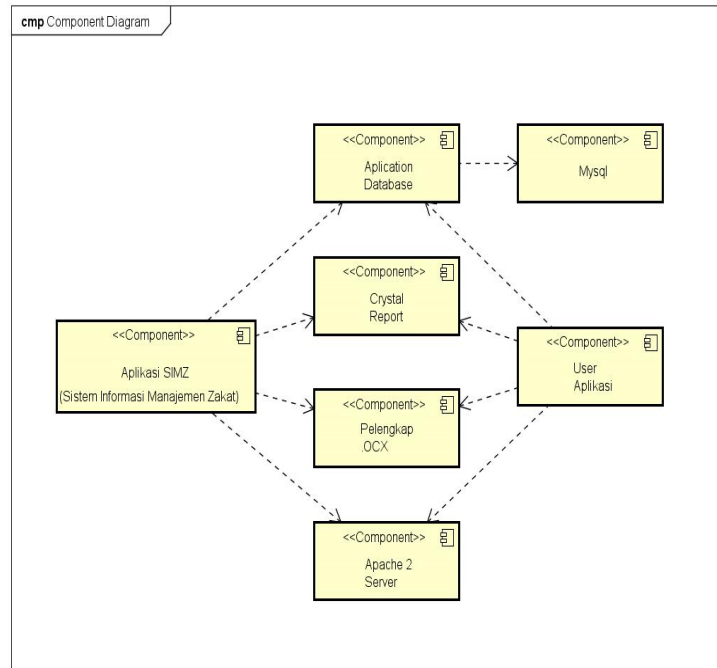


Figure 5. Componen Diagram of ZIS Management Information System

D. Deployment Diagram

Deployment diagrams provide an overview of how the system will be physically visible. The system is represented *by nodes*, where each *node* is represented by a cube. The line connecting the two cube showing the relationship between the two *nodes*. The deployment diagram can be seen at figure 6 below.

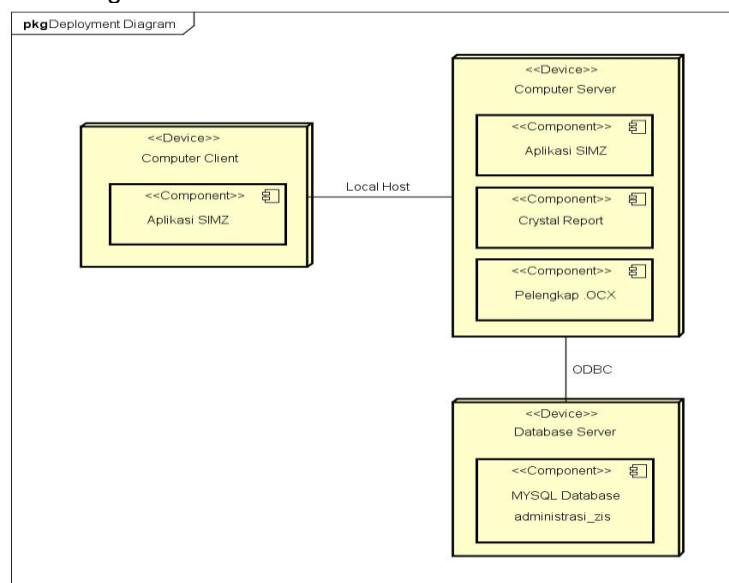


Figure 6. Deployment Diagram of ZIS Management Information System

### 3.3 user Interface

User Interface is the way of program and user communication. So it is very important to pay attention to several aspects in designing the interface of a program. The design should be made *user friendly* and should be comfortable to use, straight to the program content of the basic functions of the program was created, and can meet the needs of the system. The interfaces of ZIS management application can be seen at figures below.

#### A. Main menu Form



Figure 7 Main Menu of ZIS Management Information System

#### B. Data of Muzaki

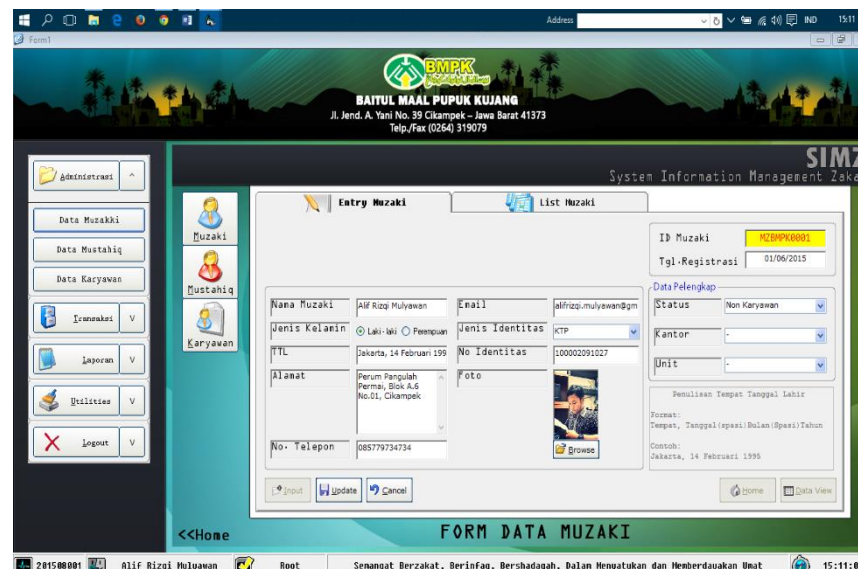


Figure 8 Data of Muzaki ZIS Management Information System

#### C. Data of Mustahiq

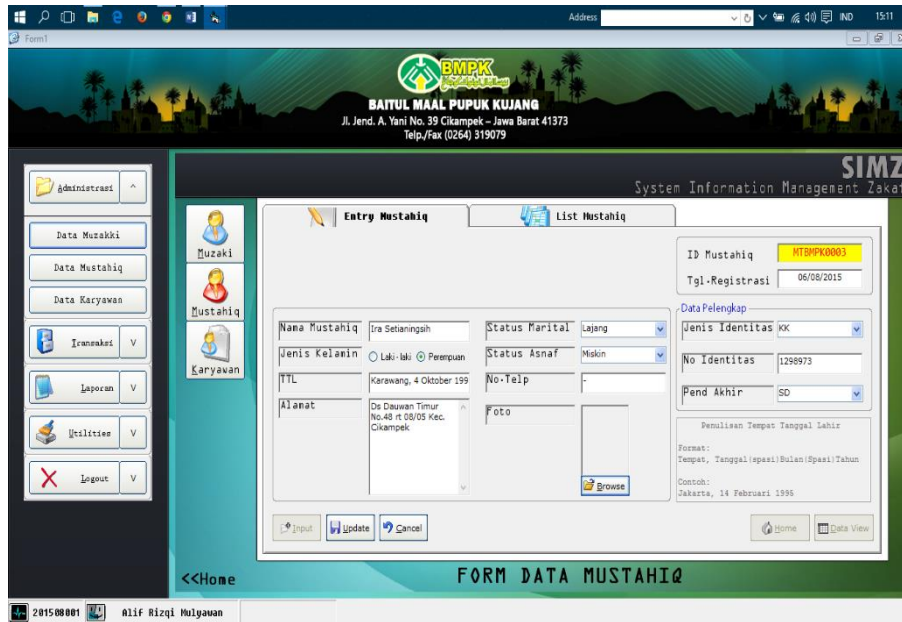


Figure 9 Data of Mustahiq ZIS Management Information System

D. Donation of Zakat

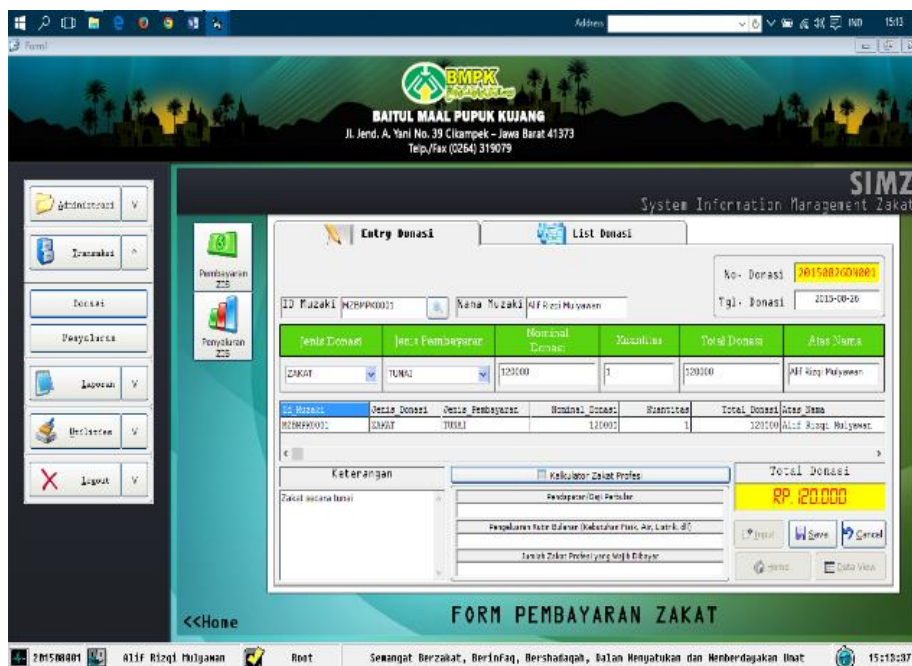


Figure 10 Donation of Zakat ZIS Management Information System

E. Distribution of Zakat



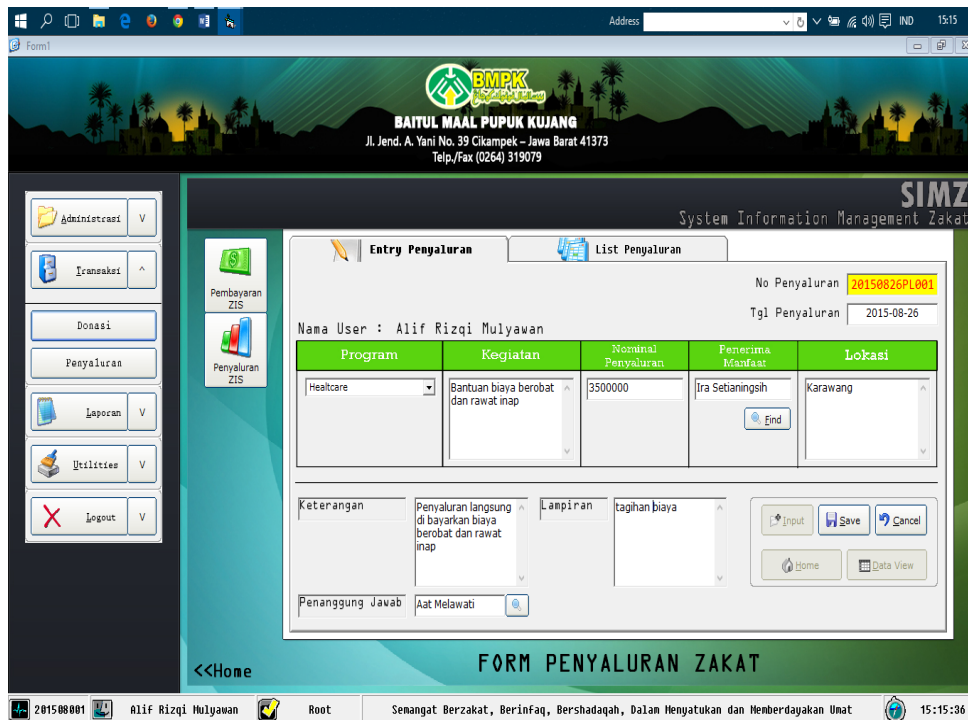


Figure 11. Distribution of Zakat ZIS Management Information System

F. Report Of Zakat Donation

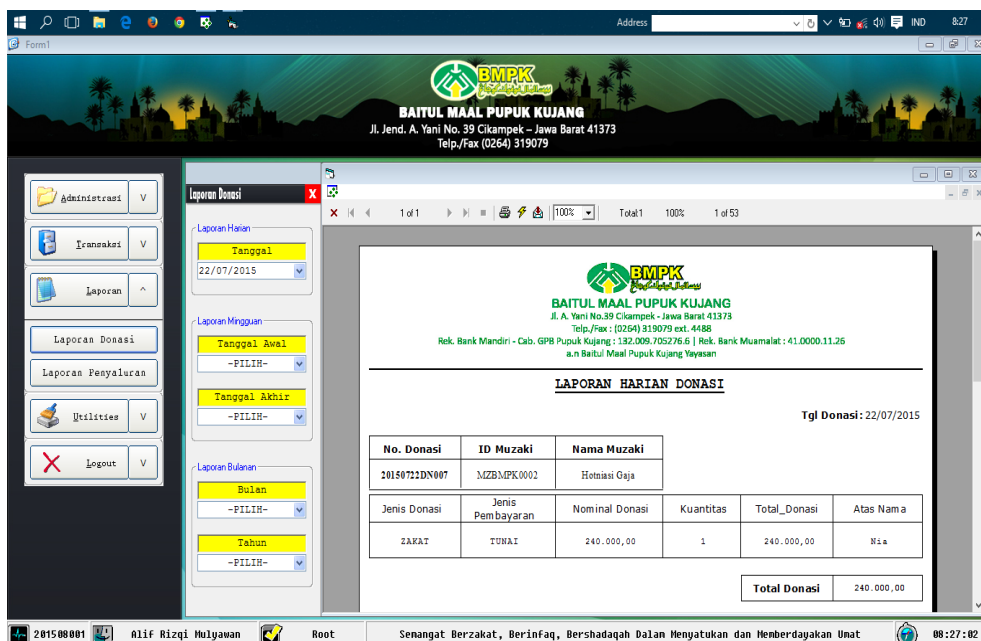


Figure 12. Report of Zakat Donation ZIS Management Information System

## G. Report of Zakat Distribution

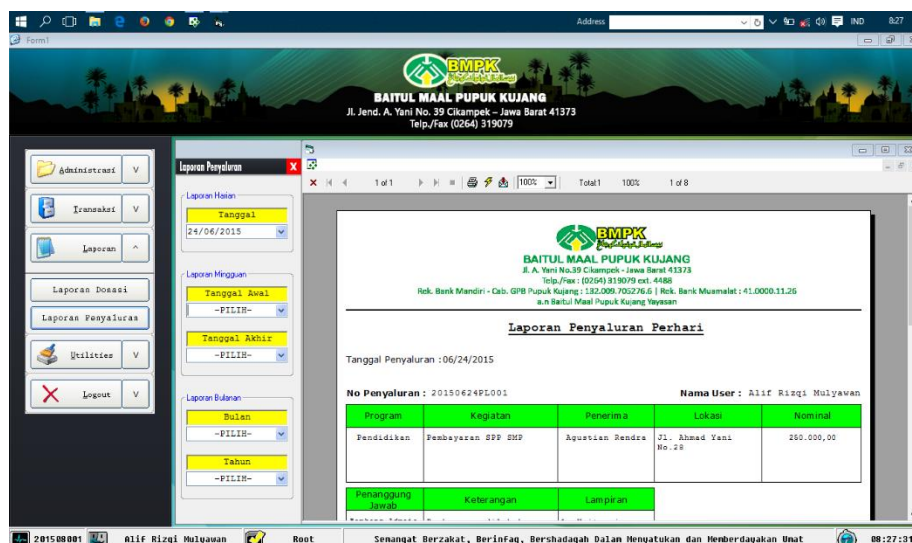


Figure 13. Report of Zakat Distribution ZIS Management Information System

## 4. Conclusion

Based on the results of research that observe and analyze the ZIS management system and processing data used in Baitul Maal Pupuk Kujang that need to be implemented computerized systems by designing a program that can help manage data more effective and efficient which will be able to replace the old system. The conclusion can be taken, that the existence of a computerized process provides a fundamental advantage for the company in the form of automation and improving the quality of information. In the administrative system ZIS found many weaknesses where process management data was not running optimally, but with an application program hopefully can overcome it. A good program is an application program that is able to meet all the requirements of the user and can accommodate large amounts of data. And ZIS Management Information system that built with Microsoft Visual Basic 6.0 can do that. With ZIS Management Information system, data management of donation and distribution zakat infaq and shodaqoh can be manage more effective and efficient and can make report easily and quickly.

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