

Zakat Calculation System Based on Desktop Application Using Waterfall Model in Serang District Baznas

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Abstract—This study aims to facilitate muzaki, the person who issues zakat to count the number of zakat issued by the Amil Zakat Agency, National University of Banten Jaya edyrakhmat@unbaja.ac.id (BAZNAS) of Serang Regency, the implementation of the zakat calculation includes the calculation of zakat maal and the calculation of zakat fitrah. Seeing from the development of the number of muzaki in Serang Regency which is quite a lot, along with economic growth in the city, it is necessary to have a system to facilitate muzaki in terms of zakat calculation more specifically with regard to information systems and systems that can handle the calculation of the amount of zakat systematically, where all activities running is still done by using general applications. Therefore an application system is needed in accordance with the conditions of the needs of the institution. The steps taken for the calculation of zakat as already mentioned above, is by inputting data and assets owned by muzaki easy to determine the determination of zakat to become a ready-to-use system. This designed system will make the data more structured and minimize processing errors. Important data for the institution. The output produced in the form of a zakat counter application that displays information on zakat guidance, zakat calculation and receipt and distribution reports of zakat.

Keywords: *zakat information, zakat calculation, maal, zakat fitrah, software engineering*

I. INTRODUCTION

Technological developments have penetrated into various sectors in human life, as evidenced by the increasingly easy of humans to do various things, both in the fields of education, agriculture, and public services. technological development is very closely related to information technology that is increasingly developing, because with information technology all things can be done more easily, whether it is easier for humans to exchange information, social media, and most importantly, data processing will be discussed by the author on occasion this.

Data processing at an institution is very important because it involves the growth and development of the institution, in this case the Zakat Distribution Institution, both in terms of zakat calculation, zakat receipt, zakat information, and so forth. In this problem a research location is needed that is expected to help the obstacles faced by these institutions into a ready-to-use application system. The National Amil Zakat Agency (BAZNAS) is the official and only body formed by

the government based on Presidential Decree No. 8 of 2001 which has the duties and functions of collecting and distributing zakat, infaq, and alms (ZIS) at the national level. In the Act, BAZNAS is declared as a non-structural government institution that is independent and is responsible to the President through the Minister of Religion.

Thus, BAZNAS together with the Government is responsible for overseeing the management of zakat that is based on: Islamic law, trust, expediency, justice, legal certainty, integrated and accountability. Seeing from the development of the number of muzakki (people who issue zakat) in Serang District which is quite a lot, along with the economic growth in the city, then a system is needed to facilitate muzakki in terms of zakat calculation and zakat information due to the absence of applications and systems that can handle systematic calculation of the amount of zakat, where all activities that are carried out are still done manually with the assistance of the institution based on data from the muzakki. Therefore an application system that is appropriate for the needs of the institution is needed.

Software

Software is all commands used to process information. The software can be either a program or procedure. A program is a collection of commands understood by a computer while a Procedure is a command needed by a user in processing information (O'Brien, 1999).

Software engineering is changing the software itself to develop, maintain, and rebuild using the principle of re-engineering to produce software that can work more efficiently and effectively for users. (Wikipedia.com).

The history of the emergence of Software Engineering is actually motivated by a software crisis (software crisis) in the era of the 1960s. The software crisis is a direct result of the birth of sophisticated 3rd generation computers, marked by the use of Integrated Circuits (ICs) for computers. Increased hardware performance, makes it necessary to produce better software. As a result, the software produced becomes several times larger and complex. The informal approach used at that time in software development, was not effective enough (cost, time and quality). Hardware costs are starting to fall and software costs are rising fast. That's why the thought arose to use engineering approaches that were more certain,

effective, standardized and measurable in software development.

Software Engineering (RPL), which is a translation of Software Engineering terminology, has a slight shift in meaning in the realities of the industrial, business, education and Information Technology (IT) curriculum in the country. Some people interpret RPL as limited to how to make a computer program. Though there are fundamental differences between software (software) and computer programs.

Software Engineering is not a branch of Computer Science that studies technical coding. But a discipline that discusses all aspects of software production, starting from the initial stage of capturing requirements (analyzing user needs), specifications (determining specifications of user needs), design, coding, testing to maintain the system after use.

The scope of knowledge in computer science is often described as a systematic study of algorithmic processes that explain and transform information (Denning, 2000).

Included here are theories, analysis, design, efficiency, application and application. There are several models of grouping sub-fields of science in computer science disciplines as shown in Figure 1.

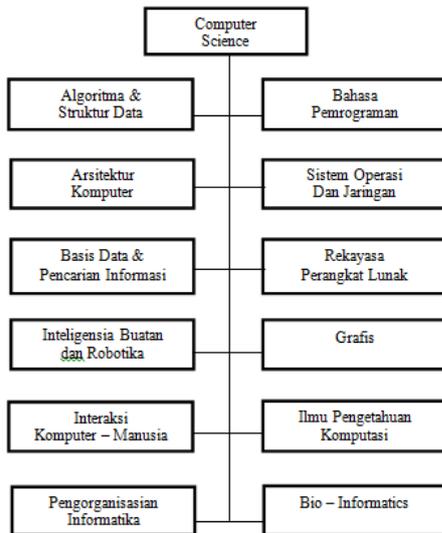


Fig.1 Classification of computer science disciplines according to Denning (2000).

Based on the grouping of Denning (2000), RPL is a sub-field of computer science which is equivalent to other sub-fields. Although it looks fragmented, in its application, the RPL sub-field always requires support from other sub-fields, especially the Algorithms and Data Structure, Programming Languages, Databases, Operating Systems and Networks, and Information Systems

Software Engineering Methods

In software engineering, many models have been developed to help the software development process. These models generally refer to the system development process model called the System Development Life Cycle (SDLC) as shown in Figure 2.



Fig.2 System Development Life Cycle (SDLC)

Each model developed has its own characteristics. But in general there are similarities to these models, which are:

- a. The need for a clear problem definition. The main input of each software development model is the definition of a clear problem. The clearer the better because it will facilitate the resolution of problems. Therefore understanding the problem as explained in Chapter 1, is an important part of the software development model.
- b. Regular stages of development. Although software development models have different patterns, they usually follow the general pattern of analysis - design - coding - testing - maintenance.
- c. Stakeholders play a very important role in all stages of development. Stakeholders in software engineering can be users, owners, developers, programmers and people involved in software engineering.
- d. Documentation is an important part of developing a soft framework. Each stage in the model usually produces a number of writings, diagrams, drawings or other forms that must be documented and are an inseparable part of the software produced.
- e. The output of the software development process must be of economic value. The value of software is actually rather difficult to rupiah. But the effects of using software that has been developed must add value to the organization. This can be in the form of reduced operating costs, efficient use of resources, increased organizational profits, increased organizational "image" and others.

There are many software development models, including The Waterfall Model, Joint Application Development (JAD), Information Engineering (IE), Rapid Application Development (RAD) including Prototyping, Unified Process (UP), Structural Analysis and Design (SAD) and Framework for the Application of System thinking (FAST). This research will discuss three development models, namely The Waterfall Model, Prototyping, and Unified Process (UP).

II. METHODS

Development or design methods in building systems in Serang District Baznas using the SDLC (System Development Live Cycle) method with The Water Fall Model which means the Waterfall Model, and the stages of the process are similar to its name, which is a multi-level waterfall. In this model there are 5 (five) steps to solve a case, which are as follows: Investigation, Analysis, Design, Implementation, and Maintenance.

The stages in The Waterfall Model are summarized as follows:

- The investigation phase is carried out to determine whether a problem occurred or whether an information system opportunity was developed. At this stage a feasibility study needs to be carried out to determine whether the information system to be developed is a viable solution

- The analysis phase aims to find the needs of users and organizations and analyze existing conditions (before a new information system is applied).
- The design phase (design) aims to determine the detailed specifications of information system components (human, hardware, software, network and data) and information products that are consistent with the results of the analysis phase.
- Implementation phase (implementation) is a stage to get or develop hardware and software (program coding), conduct testing, training and transfer to new systems.
- Stages of maintenance (maintenance) is carried out when the information system has been operated. At this stage, process monitoring, evaluation and change (improvement) are carried out if necessary.

III. SYSTEM PLANNING

A. System User Analysis

User analysis is related to who will use this program, program users are part of Utilization, and Treasurer.

This application is used for the calculation of the amount of zakat, muzakki data, muztahik data, zakat receipt transactions as well as zakat distribution transactions that take place at Baznas.

So that this application can be applied properly, the author will conduct training to the Utilization section regarding the procedures for using the application that is good and right.

B. System Functional Requirements

The developed system has several functions which include:

1. Input bank data
2. Music data input
3. Zakah receipt transaction
4. Zakat deposit transactions to banks
5. Zakat distribution process
6. Processing reports to management

The features / modules owned by this system include:

1. Change the interface theme (customize interface)
2. Easy to use (easy to use)
3. Easy to learn (easy to learn)
4. Security (security)
5. Automatic database backup (auto-backup db)
6. User management

C. Data Flow Diagrams

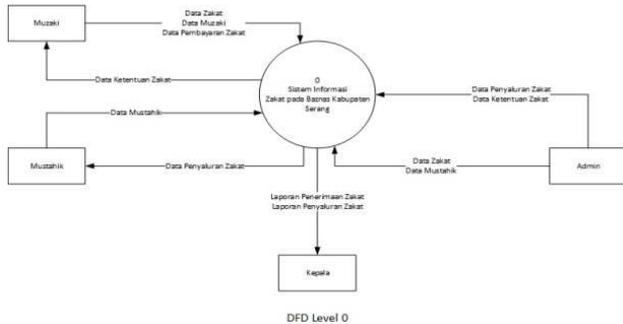


Fig.3 Context Diagram of Zakat Calculation System in Serang District Baznas

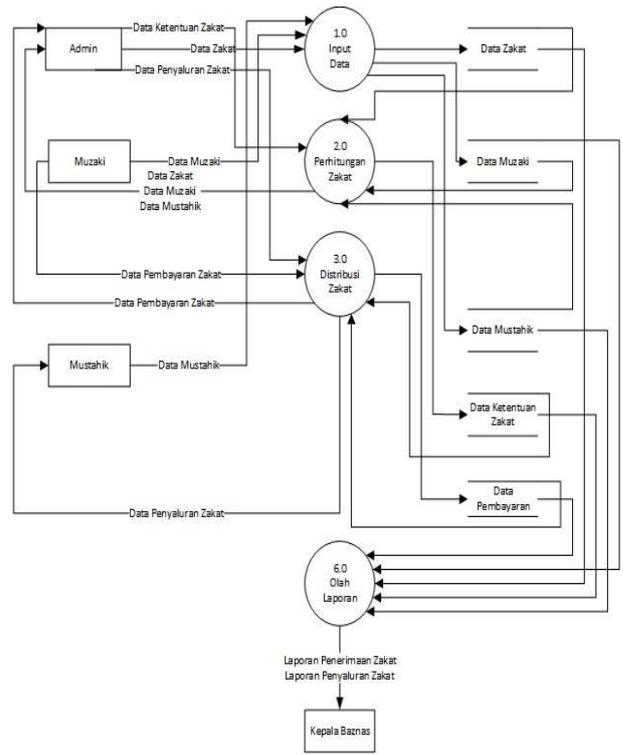


Diagram Overview

Fig. 4 Diagram Overview

D. Hasil



Fig.5 Main page



Fig.6 Login Main Page



Fig.7 Input Data Page



Fig.8 Form Dialog Transaction

No	Nama	Kategori	Tgl Terima	Jumlah Jua	Jumlah Terima
1	SMPN 4 Kragilan	Zakat Mal	2013-03-13		11.407.000
2	SMPN 1 Binuang	Zakat Mal	2013-02-30		5.162.100
3	SMPN 1 Mancak	Zakat Mal	2013-03-13		12.516.800
4	SMPN 1 Kibin	Zakat Mal	2013-03-13		35.203.600
5	SMPN 2 Cikande	Zakat Mal	2013-03-13		8.374.000
6	SMPN 1 Pulo Ampel	Zakat Mal	2013-03-13		8.003.040
7	SMPN 1 Anyer	Zakat Mal	2013-03-13		3.140.000
8	SMPN 1 Bopreng	Zakat Mal	2013-03-13		4.416.000
9	SMPN 1 Batas	Zakat Mal	2013-03-13		4.507.500
10	SMPN 2 Ciangra	Zakat Mal	2013-03-13		8.710.800
11	SMPN 1 Ciomas	Zakat Mal	2013-03-13		13.040.000
12	SMPN 1 Cikande	Zakat Mal	2013-03-13		16.910.000
13	SMPN 1 Anyer	Zakat Mal	2013-03-13		3.787.000
14	SMPN 2 Cias	Zakat Mal	2013-03-13		2.186.600
15	SMPN 1 Batas	Zakat Mal	2013-03-13		26.041.700
16	SMPN 3 Cias	Zakat Mal	2013-03-13		3.794.000
17	SMPN 1 Anyer	Zakat Mal	2013-03-13		29.798.900
18	SMPN 2 Wangi Kutug	Zakat Mal	2013-03-13		8.733.700

Fig.9 Transaction Income Zakat

IV. CONCLUSION

Based on the results of the research that has been done, it can be concluded:

- A computerized system with a computer program will be very helpful in solving a problem. This application is designed to simplify the process of calculating zakat, recording and storing data, so that this can optimize the process of making reports on receipt and

distribution of zakat, as well as neat and more structured institutional data;

- Transaction processing in resolving a problem of receipt and distribution of zakat transactions, so that Mustahik does not wait too long in the processing and processing of data by institutions.

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