

## Design of Citizen Fund Management Applications in Village Level Communities

*Case Study: Financial Manager for Pandanaran Village Residents, Banjarnegara*

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### ABSTRACT



Information technology in general can provide convenience for users in projecting data processing systems, in recording and recapping annual calculations as a distribution of the results of village level fund management ("*jimpitan*") for each member, causing officers to experience difficulties so that the process of sharing the results of village level fund management becomes long and sometimes inaccurate calculations between the officer's recording book and the records of each individual member of the Village community. The aim of this research is to analyze the daily transaction recording system, as well as a recap of annual calculations as a guideline for distribution for village members and then design a system to make it easier to record daily transactions, as well as a recap of annual calculations of distribution for community members in Pandanaran Village, Banjarnegara. The methods that will be used in this writing are analysis methods and design methods. The results achieved from this research are to produce a *cash fund management* fund management application that can assist officers in the process of recording daily transactions, as well as recapping the distribution of *cash fund management* proceeds for *cash fund management* patrol members in Pandanaran Village, Banjarnegara. So it is hoped that it can help and simplify its performance.

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## INTRODUCTION

Based on the regulation of the Minister of Home Affairs of the Republic of Indonesia number 113 of 2014, villages are villages and traditional villages or referred to by other names, hereinafter referred to as Villages, are legal community units that have territorial boundaries that are authorized to regulate and manage government affairs, the interests of local communities based on community initiatives, rights of origin, or traditional rights that are recognized and respected in the government system of the Unitary State of the Republic of Indonesia[1][2].

Within the scope of the Village, a Village Community Institution is formed based on the initiative of the Village Government and the community, where this institution is tasked with empowering the Village community and participating in planning and implementing development as well as improving Village community services[3][4].

The community group in question in Indonesia is known as "*Rukun Tetangga*" (RT) as one of the social institutions that has the most active role because it is the smallest forum for interaction compared to other social institutions because RT is an actor that plays a role in village development. In a similar study, it was explained that the current data management process still uses savings instructions that members must come and learn about savings and credit cooperative information and that it is difficult to register members which are not available online[5][6]. Data generated in the management process is less efficient and effective in collaborative studies of employees[7]. This research was conducted to facilitate the member registration process and savings and loan applications. Assisting the operational performance of members of cooperative and savings and loan cooperative data processing and cooperative information on the Site Design in System[8]. The result of this research is the creation of a web-based information fund system to make it easier for employees to obtain information about their cooperative and savings and loan services and to assist managers in monitoring cooperative savings service activities and cash flows and loans more quickly and accurately[9].

The role of managing the funds of Pandanaran Village Residents, Banjarnegara is as a medium for strengthening ties of brotherhood and mutual cooperation. Cash fund management activities aim to increase the sense of solidarity between residents and to foster a sense of mutual cooperation and build togetherness between residents[9][10].

When the cash fund management officer collects the cash fund management funds there will be interaction between residents, and the cash fund management also functions as a deposit or savings fund for residents, and as a medium for collecting residents' cash funds which are expected to function to support operations in activities both within the RT or Village scope[11].

In this case, the residents of Pandanaran Village Residents, Banjarnegara use cash fund management as a medium for collecting cash funds to make it easier for their residents in the process of raising cash funds, it is hoped that the cash fund management can be managed well.

In this case, the collection of cash fund management funds in this community association still uses books as a tool, whereas in recording the results of the cash fund management collection, a notebook is used as a support medium. The obstacles that often occur include the recording between books and notes for each resident, there are often differences. This was due to an error when the officer collecting daily cash fund management funds made a mistake in recording it between the cash fund management officer's notebook and the residents' records, while the residents were unable to find out about the error because they were only guided by the existing cash fund management records, in this case the residents could only find out the error after the results of the squeeze were shared. The distribution of the results of this citizen's picket collection is within a period of one year.

In the process of recapitulating the residents' manage funds, the officers recapitulate the data on the collection of manage funds funds in one year using a large notebook so that the process of recapitulating the manage funds is difficult and takes relatively more time and is tiring for the residents' manage funds treasurer.

The annual recap of the results of village residents' collection of manage funds funds is less effective if using a ledger because in the process of recapping the collection of manage funds funds the officer inputs data on daily picketing of manage funds funds.

The time for the recap process carried out by officers is three months once in a year. So it slows down the distribution of residents' manage funds results, and manage funds members cannot find out the total update of their manage funds funds, so a manage funds fund management application is needed to make it easier for officers to recap data on RT manage funds fund collections and make it easier for residents to find out the total manage funds funds they have obtained and their allocation. citizens' cash in real time and transparently.

In terms of problems that exist among the residents of Pandanaran Village, they need a platform in the form of application media to enter, store and process data in real time and transparently. So it can be concluded that there is a need for applications for data processing to help speed up and simplify the management of citizens' savings funds.

### METHOD

In this paper, the system development method used is Extreme Programming (XP). The author chose to use XP because the XP development model in software development tries to simplify various stages in the development process, so that it becomes more adaptive and flexible[1][12]. Even though it uses the word programming, XP doesn't just focus on coding but covers all areas of software development. Process is the most widely used approach for rapid software development[13].

Extreme Programming development that uses an object-oriented approach as the desired development paradigm[2][14]. It includes a set of rules and practices that occur in the context of four activities. The XP framework is planning, designing, coding, and testing. The image below illustrates the XP process and shows some of the key ideas and tasks associated with each framework activity.



Figure 1, Extremem Programming Framework[15].

1. Planning.  
The planning stage is carried out by gathering requirements to understand the context of the community management application that will be created and getting a view of the application output as well as the main features and functions of this management application. This stage will create a system, then citizens as objects give priority values based on the business value of features or overall function.
2. Design.  
The design stage is carried out by making a simple design regarding the development of a pinch management application which will then be carried out by making a class diagram. The design in the system flow is created in an object-oriented context. Extreme Programming will use the Spike Solution where the design is made directly to the target. Extreme Programming also supports refactoring where the software system is changed in such a way by changing the code structure and simplifying it but the results of the code do not change. At this stage, the author designs the interface of the jampitan management application according to the results of the previous planning stage.
3. Coding.  
The coding stage in XP begins with building a series of unit tests. After that, development will focus on implementing it. At the coding stage there is a pair programming activity, namely coding in pairs. This activity was not carried out because the research that was carried out focused on individual research so that the application design process was carried out individually. This stage is the system creation stage by referring to the plans and designs that have been made.
4. Testing.  
The testing stage is carried out by testing the coding of the application using unit tests, namely black box testing. The final coding results that have been tested through unit tests are then tested by developers using beta testing or known as user acceptance testing. The results of this testing determine whether the application can be released or not. The application is declared ready to be released if the results of the final coding have been approved by the agency/association which states that the application is suitable for release, however, if there are suggestions or improvements to the results of the application coding, re-coding will be carried out in order to correct existing problems.

## RESULT & DISCUSSION

At this stage the researcher carries out the planning stage by setting goals, requirements and system needs to solve problems. The problems obtained based on interviews conducted with manage funds officers, manage funds treasurers, residents' treasury treasurers, and community leaders were information regarding the problems experienced, namely the absence of an application to manage residents' manage funds. In accordance with the results of interviews conducted by researchers, Manage funds residents need a web-based Manage funds information system to make it easier for officers to input, edit and archive, make it easier for Manage funds members to get information about Manage funds management and provide information to the public about residents' cash allocations in real time and transparently.

- a. The system has levels of access rights so that the process of managing membership data and housing information is in accordance with the duties of each access right.
- b. The system has validation so that in the data input process there are no errors and the data entered is valid.
- c. The system has a search feature on member name and number search data to make it easier to search for manage funds data.

At the design stage, the aim is to provide a general description of the system that will be created to users regarding the User Interface which uses general design to identify information components that will be designed in more detail for computer programming aimed at implementing the system that will be created in this research.

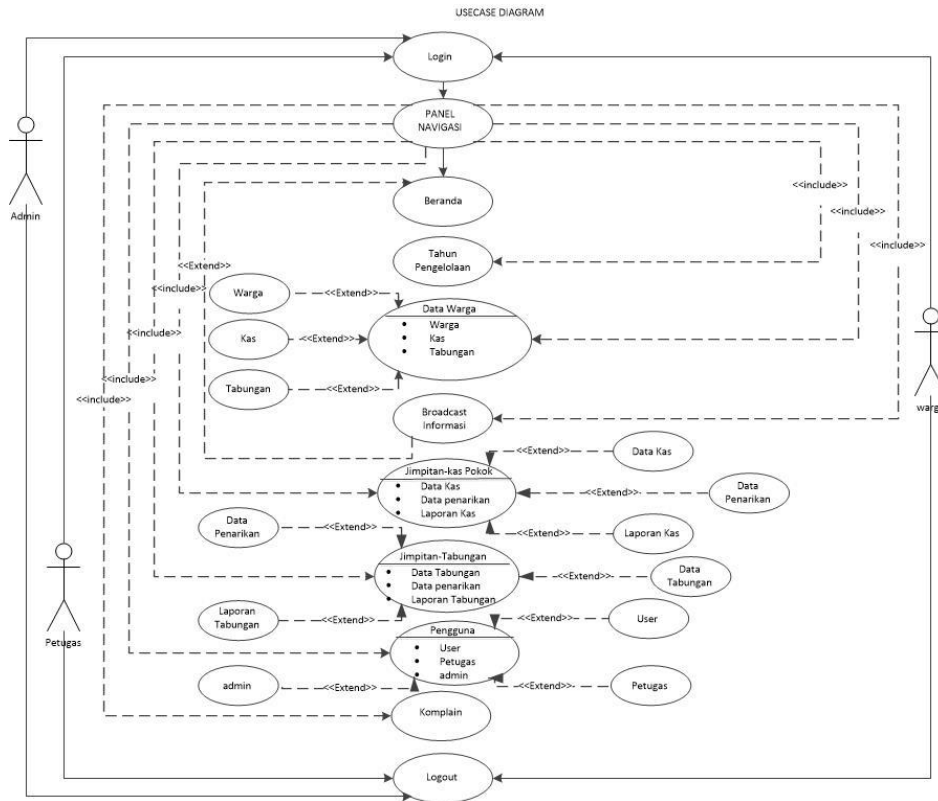


Figure 2, Use Case Diagram Model.

Table 1, The role of each system user.

Actor	Description
<b>Inhabitant</b>	People who have access rights to view homepage data, view personal savings information data, view cash allocation data, add data in the complaints menu, view complaint response data
<b>Admin</b>	People who have full access rights to all menus in the RT management system from the activation of the management year, add the latest information on the homepage, add, edit, delete in the citizen data menu, add, edit, delete and print details and summary reports, publish or unpublish the latest news in the Broadcast menu, adding, editing, new users in the User menu, viewing and responding in the Complaint menu.
<b>Officer</b>	People who have access rights can only add and view citizen data, manage funds and print manage funds reports in the RT management system except for the Management Year activation menu, there are no Broadcast and Complaint menus.

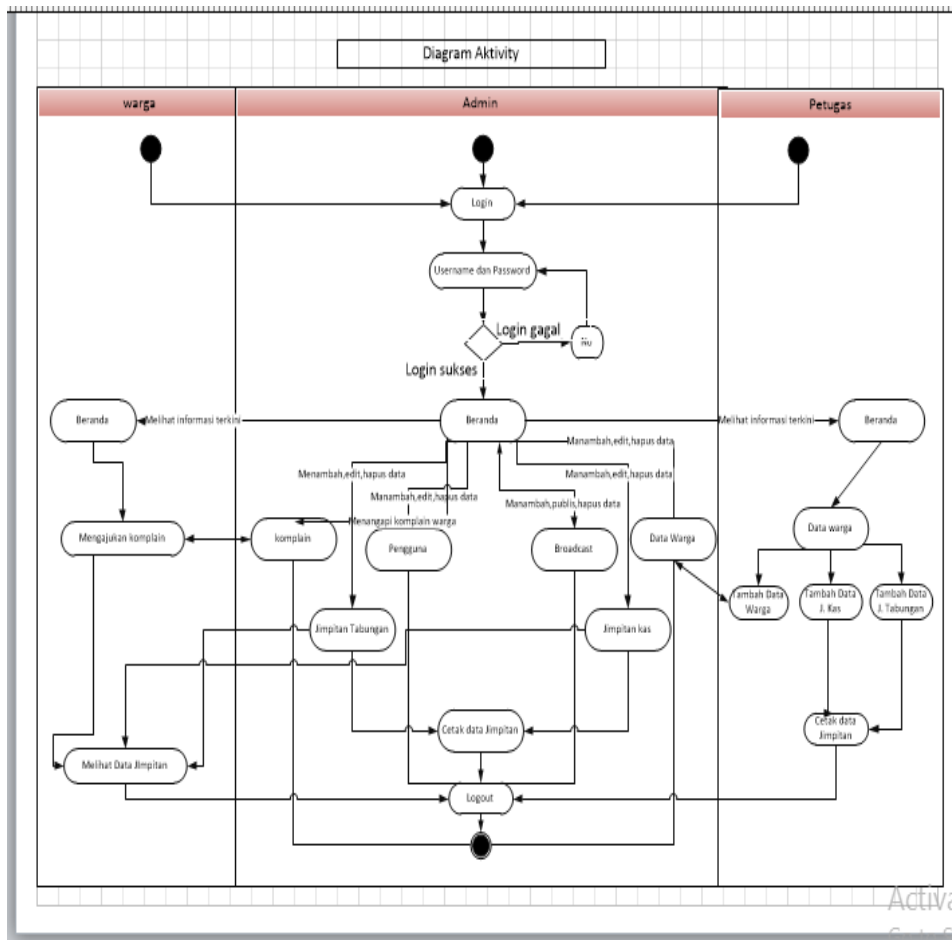


Figure 3, Activity Diagram Model.

Figure 3 explains the activity process of users (citizens, officers and admins) logging in to be able to access the main application form. The process involved is that the user logs in, enters their username, password, then the system will process it and access rights will be detected by itself, then the system perform validation, if the username, password and access rights level are valid then the user can enter the main application form, if they are not valid then the user cannot enter.

Then modeling on the class diagram. Class diagrams are used to display classes and packages in the system and provide a static picture of the system and the relationships between them. The following is a class diagram for the Padanaran Banjarnegara Village fund management system using a website.

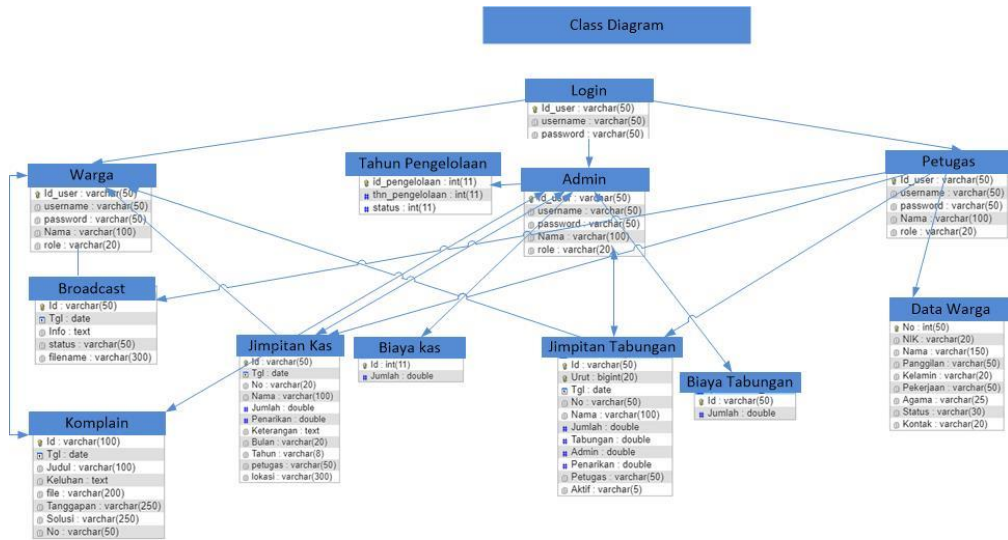


Figure 4, Class Diagram Model.

After the design has been successfully designed, the next step is to create an interface display model. At this stage, the feature design interface is designed to be used to design data management applications.



Figure 5, Interface design view.

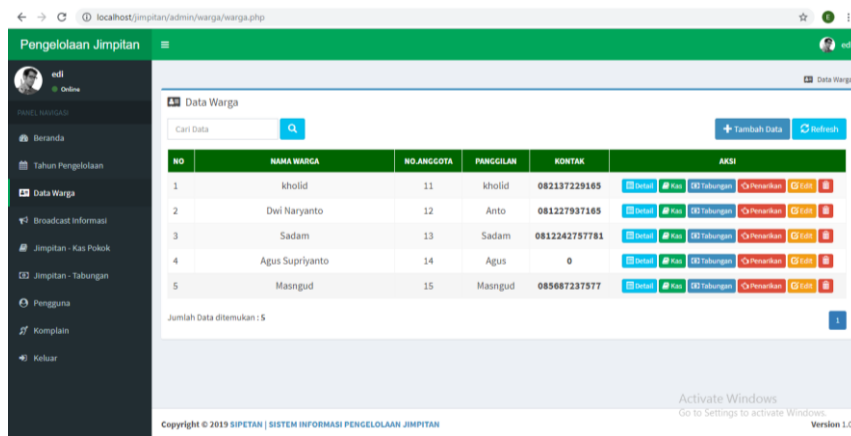


Figure 6, Interface Model.

After the program has been created, the program is then tested using Black Box Testing for program functional testing and application testing carried out by the user. Black box testing is program testing based on the function of the program. The purpose of black box testing is to find functional errors in the program. As well as user testing, which is a testing process that produces test results documents which will be used as evidence that the application has been accepted and meets the user's needs. The following is an explanation of the plan and test results of the features in the web-based application for managing funds for residents of Pandanaran Village, Banjarnegara, which are summarized and explained in the following table:

Table 2, Testing using blackbox technic.

No.	Part	Option Menu	Action	Result
1.	Login	Login Button	onClick	Functioning normally
2.	Dashboard	View, Latest information, Download files	onClick	Functioning normally
3.	Admin Menu	Display, Add Data, Activate	onClick	Functioning normally
4.	Citizen Data Menu			
	User Detail	View	onClick	Functioning normally
	Add User	View, Save data, Edit	onClick	Functioning normally
	Data Saving & Cash	View, Save data, Edit	onClick	Functioning normally
	Saving Data Menu	View, Save data, Edit	onClick	Functioning normally
	Withdrawal of cash funds	View, Save data, Edit	onClick	Functioning normally
5.	Broadcast & Announcement	View, Add data, Publish, Delete	onClick	Functioning normally
6.	Cash fund management menu	View, Edit, Print	onClick	Functioning normally
7.	Manage and Savings Menu	View, Edit, Print	onClick	Functioning normally
8.	User Menu	View, Edit, Delete	onClick	Functioning normally
9.	Complain Menu	View, Download files	onClick	Functioning normally

## CONCLUTIONS

Based on the research and discussion that has been carried out, the conclusions of this research are as follows:

1. This research has succeeded in designing and building a web-based application for managing residents' savings funds in P Pandanaran Banjarnegara Village, which is used to manage residents' savings funds and provide information to residents about residents' cash allocations and savings in real time and transparently.
2. Based on testing using Black box testing, the functions contained in the web-based application for managing funds for residents of Pandanaran Banjarnegara Village can run well and are in accordance with the functional system. And based on testing carried out by users using questionnaires, this application is running well and is in accordance with user needs.

The applications that have been produced still have shortcomings and limitations that need to be corrected. Therefore, here are suggestions that can help make the system that has been created better, including:

1. There needs to be an additional feature, namely the fine feature, where the fine is for residents who are subject to sanctions who have violated the applicable rules, for example: not participating in community mutual cooperation, not participating in night patrols, and so on, where the amount of the fine is in accordance with mutual agreement.
2. In the citizen fund management application, it is necessary to have a distributed citizen management feature so that citizens can easily get information and excellent service.

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