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Recommendations for Implementing the Distribution Policy, Price and Fertilizer Use Application

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ABSTRACT

The government has a policy on subsidized fertilizer for farmers in Indonesia aimed at a more prosperous farmer's life. Government Regulation Number 77 of 2005 is the basis for determining that subsidized fertilizers are goods under supervision and then refined into Government Regulation No. 15 of 2011 contains the importance of regulations to regulate the issue of procurement and distribution of subsidized fertilizer to farmers because of irresponsible parties who misuse the distribution of fertilizers[1][2]. Currently there are many irregularities even though there are already so it is necessary to conduct strict supervision for the distribution of subsidized fertilizer. Currently there are many irregularities even though there are already so it is necessary to conduct strict supervision for the distribution of subsidized fertilizer. Application is one that can be a solution to the occurrence of abuse, with the application that handles the distribution of subsidized fertilizers in accordance with government policy to reporting the distribution of fertilizers[3][4]. The purpose of this research is to equalize subsidized fertilizer and to minimize the scarcity of subsidized fertilizer and improve farmers' welfare[5]. Model V is the method used in this study, because Model V has advantages in representing concepts using formal language and the development of the waterfall method. This research was developed using the Object Oriented Programming (OOP) programming language, while the design uses Unified Modeling Language (UML)[6][7][8][9]. The research conducted resulted in the application of distribution and financial reporting, so that it can be used as a recommendation for policies in the distribution of subsidized fertilizers so that fraud and misuse in the distribution of fertilizers that occur can be minimized[10][11].

Key words : Laws, Farmers, Policies, Subsidized Fertilizers, Applications, Object Oriented Programming (OOP).

1. INTRODUCTION

The agricultural sector is a major livelihood for most community groups, and has a very crucial role[12]. Such crucial roles include food source and income source. However, farmers as the main actors in the agricultural sector experienced problems in the limited business capital and crop failure. Therefore, the government provides facilities for various agricultural infrastructure and facilities, such as subsidized fertilizer. Fertilizer is one of the important means to improve the products of the agricultural sector, hence the need for the government to provide fertilizer subsidies for farmers. In relation to protection and control to the distribution of subsidized fertilizers, to overcome all forms of misappropriation, the government has implemented various methods, including monitoring the procurement and distribution of subsidized fertilizers, including the type, quantity, price, place, time and quality. Nevertheless, the facts show that some farmers complain that continuous scarcity of subsidized fertilizer throughout the year in various regions, and there is plenty of abuse committed by economic renters[13][14]. The scarcity of fertilizer that occurs at the farmer level is resulted from the weak distribution system instead of the insufficient fertilizer production. Judging from data from the Ministry of Agriculture (*Kementan*); as of November 10, 2017, the absorption of subsidized fertilizer reached 77.88 percent of the total allocation of 2017 of 9.55 million tons. This realization is arguably ideal, and there are about 2.1 million tons of subsidized fertilizer stock including urea, SP-36, ZA, NPK, and organics. With the data, the scarcity of subsidized fertilizer does not occur[15].The application is one of the recommendations to supervise the distribution of subsidized fertilizers. Therefore, this research designs an application that can be used for supervision of distribution of subsidized fertilizer, accompanied with the reporting process [16][17].

2. METHODS

This research used Method V. Model V is the development of the waterfall model so that the stages are almost similar with the waterfall. The only one distinguishes it from the waterfall method is that the V method's process runs in branch. The relationship between the software development stage and the testing phase in V model is described as follows[18][19]:
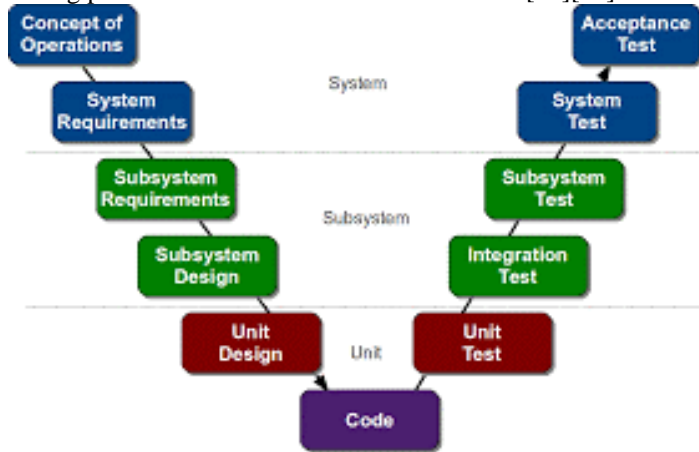

Figure 1: Process of Model V

Description:
1. Requirement Analysis & Acceptance Testing
   At the Requirement Analysis stage, it produces documentation of user needs. Acceptance Testing is the stage to review the results of the documentation received or not accepted by the users.
2. System Design & System Testing
   System analyst at this stage began to design the system based on the results of the documentation of the needs of the first stage. This stage produces software specifications such as general system organization, data structure, and produces examples of display and technical documentation such as Entity Diagrams and Data Dictionary.
3. Architecture Design & Integration Testing
   This stage is the basic selection of architecture that will be used. Basically it is the reuse of each module, the dependence of tables in the database, the relationship between interfaces, and the detail technology used. Therefore, this stage is called High Level Design.
4. Module Design & Unit Testing
   This stage is called Low Level Design. This stage is the breakdown of design into smaller modules. Explanations are given in each module so that the programmer is easy to code. The result of the stage is the breakdown of the program, namely: the function and logic of each module, error messages, input output process for each module, and others.
5. Coding
   The modules that have been formed are programmed.

3. RESULT AND SYSTEM DESIGN
3.1. Needs Analysis
The researcher analyzed the need for application development for subsidized fertilizer, using case modeling. Below is the chart of the proposed *use case system* on the application of subsidized fertilizers:
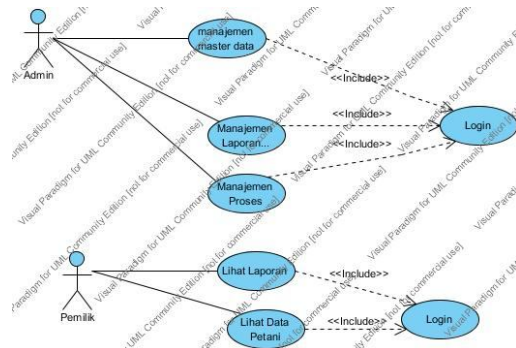

Figure 2: Use Case System submission.

   Administrator
➢ Management of Master Data
➢ Management of Reporting
➢ Management of Process
╋ Login
   Owner
➢ Viewing Reporting
➢ Viewing Farmer Data
╋ Login

Description:
The above case illustrates that the activity obtained from the application for Admin after logging in is data master management, report management and process management. As for the owner after logging in, they can see farmer reports and data.

4. SYSTEM DESIGN

System design comprises 3 diagrams: activity diagram, sequence diagram, and class diagram. There are two activity diagrams, for the login and interface design[20][21].
1. Activity Diagram
Is one way that is used to model events that occur in a use case in an essential way, activity diagram is almost the same as the flow chart (flowchart) The following activity diagram as a whole process that occurs in the application system[22].
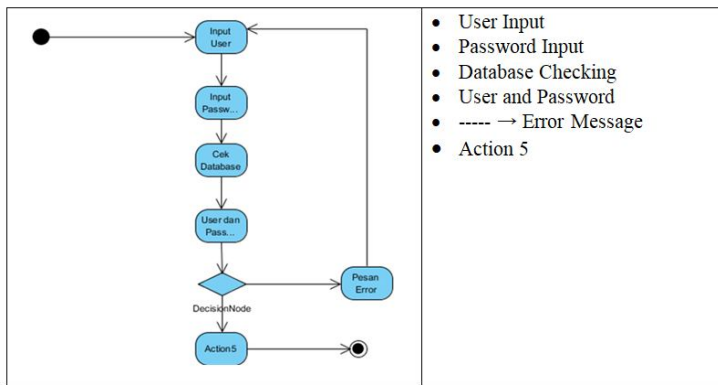
Figure 3: Activity of Login Diagram

Description:

Activity diagram of the use case Login is used by the admin to maintain the system so that it is safe from people who are not entitled to access the data on the system. In other words, the validation process becomes the key so that someone can process the system. Use case validation starts with the admin entering the username and password, then the system will check the database for the username and password that has been entered. If the username and password match the database, the admin can process the system further, while if the username and password are invalid, the form will display an error message[23][24].
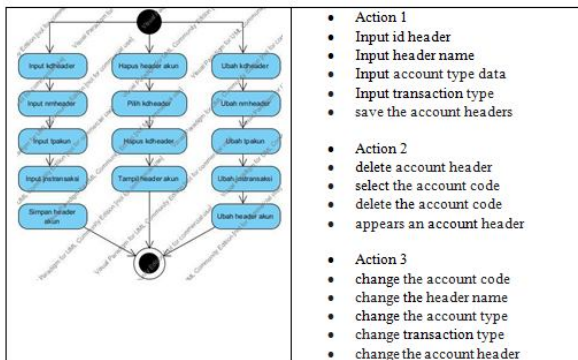

Figure 4 : Activity Diagram

Description:

Used by the admin to manage transaction data, here the admin can add, edit and delete the list of transactions

2. Sequence diagrams

Sequence diagrams are used by admin to process data in the database. Use case The master data management presents the interaction between admin and web pages, the processes that occur in it are as follows[25]:

1. Admin selects the submenu on the master data page
2. The masterdata.java page will be displayed if you select the edit submenu.
3. The administrator.java page will be displayed if you select the delete submenu.
4. While the administrator.java page will be displayed if you choose the added submenu
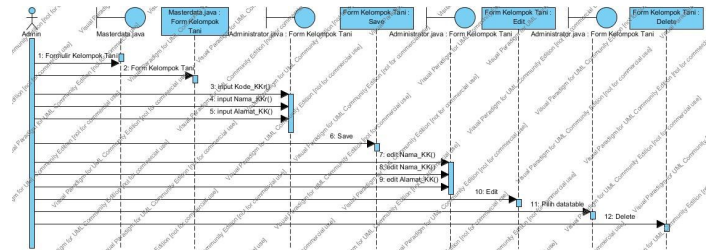

Figure 5 : Sequence Diagram

Description:

Explain admin interactions with the application page. Where on the application page for master data, admin can fill out farmer group forms using the getkodeKK () method to enter farmer data
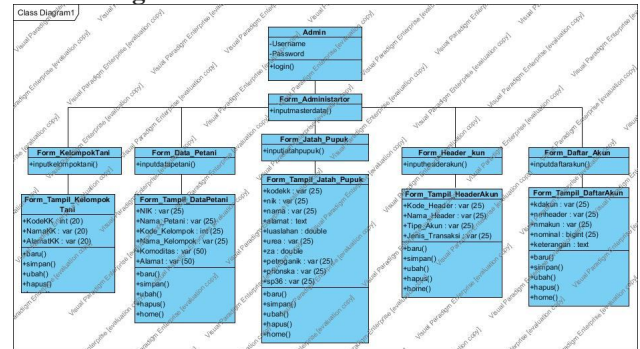
3. Class Diagram

Figure 6 : Class Diagram

Description:

Class diagrams are diagrams used to display several classes and packages that are in the system or software being developed. Class diagram provides a static picture or diagram of the system or software and the relationships that are in it[26][27].

4. Interface Design

The design of the interface consists of login menu and the main menu designs.
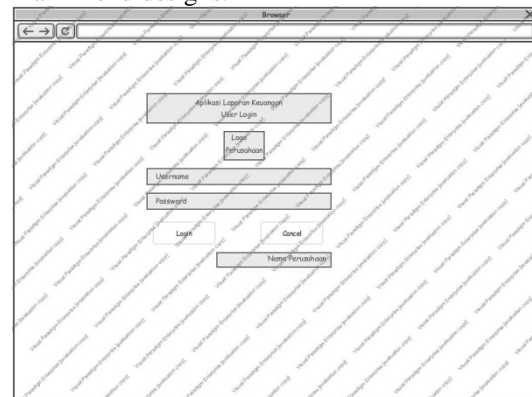

Figure 7 : Interface of Login

Description:

Explaining the design of the application to be built for the login form consists of the company logo in the header, username, password, login button, cancel button and the

company name is in the footer section. This login form design is used to enter the application so that it can input, edit and delete.
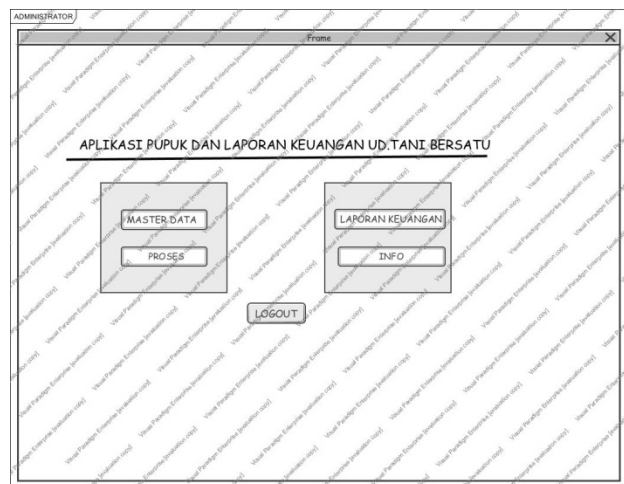

Figure 8 : The Main Menu Designs

Description:
Design the appearance of the application after logging in, it will display several menu options that can be selected including the application title, data master, process, financial report, info and logout button.

5. Implementation

After all steps are completed, then the next stage is the implementation for the application to build. The applications built are shown below:

Figure 9: Login Menu Display

Description:
To be able to enter the application, the admin logs in by entering the correct username and password, then press login and cancel if it does not enter the application. If the admin enters the wrong username or password, an error message will appear.
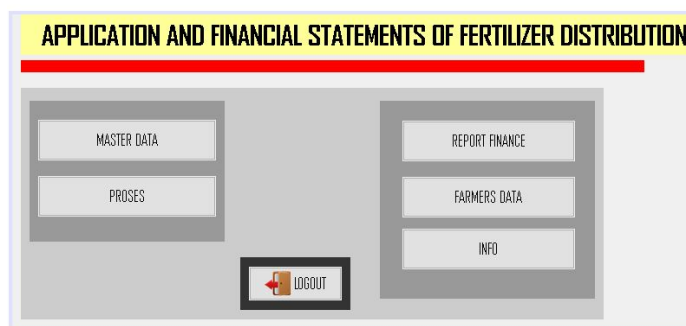

Figure 10: Main Menu Display

Description:
After the login is successful, the main menu page will consist of several menu options. The menu choices that can be selected include data masters, processes, financial statements, farmer data and info. The logout button is used when you want to exit the application.

5. CONCLUSION

Based on the results, the researcher concludes that:
1. This application is built to provide recommendations to the government on the policy of subsidized fertilizers; hence the distribution and abuses here can be eliminated.
2. It can be used to facilitate the supervision of the distribution and selling price of subsidized fertilizers.

6. . SUGGESTIONS

The researcher gives suggestion to implement and develop the application, both for its features and display, so that the application can eventually conform to the government policies.

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