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Design and Analysis of Qurban Management Information System (SIMAQ) (A Case Study)

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Abstract*— The establishment of the Pos Keadilan Peduli Umat (PKPU) Human Initiative as one of the non-government institutions. Concentration on humanitarian issues should have a public service standard such as Management Information System (MIS). The goal is to fulfill role processing needs in qurban channel with modern management were more days the number of donors is getting more increase so that requires management to improve the service quality. Therefore the authors analyzed and designed the SIMAQ at PKPU East Jakarta. The method is used Rapid Application Development (RAD) through the Requirement Planning and Workshop Design stages with modeling Unified Modeling Language (UML) to provide SIMAQ. Due result of authorized PKPU interviews, the authors analyze and design include the integration of donor data management starting from collection transactions up to reporting on the distribution of qurban animals. The author designs start from the use case diagram that will explain the sequence of activities performed by actors and systems to achieve the system needed, such as identification of actors, identification of use case, design of use case, use case narrative, activity diagrams, sequence diagrams, and class diagrams. Also, the display of the system user interfaces SIMAQ based on the duties and authority of each actor

Keywords*— Qurban Management Information System, SIMAQ, PKPU, Rapid Application Development, Unified Modeling Language

I. INTRODUCTION

Nowadays, the need for information so fast, precise, and accurate the higher. The thing this is also supported by technological developments is increasing rapidly. Information often becomes the main key in the sustainability of an organization or company. One of the company activities that require information that is fast, precise, and accurate management of qurban data were more days the number of donors is increasing so require management to improve service quality.

PKPU has a management system qurban includes managing data from donors, distribution of sacrificial animals to remote areas archipelago, record, compile and computerized report distribution, but still applying applications or tools which is not integrated between one and the others such as storing donor data, recording transaction gathering, distribution, and reporting of animal stocks in printed book form. Therefore, if someone needs this information, it is not all data that can be searched with documents stored in Ms. Office. Besides, these data are have been printed in the book not up to date, there are old data that haven't updated, and existing data refurbished is still separated storage which causes reporting not maximal so it will reduce efficient management of qurban management.

This research aims to produce analysis and design qurban management information systems includes integrating donor data management starting from collection transactions up to reporting the distribution of qurban animals. System analysis and design of this information will be the basis of making SIMAQ PKPU Human Initiative to input qurban order data application-based software that can be accessed through the company's personal computer. The application is operated by an officer/admin who has been assigned with each work function is like a finance officer, CRM officers, distribution officers, cage management officer, and reporting officer.

II. LITERATURE REVIEW

A. *System Analysis*

System analysis is a process collect and interpret the facts that exist, diagnose problem and use both for improve the system [1]. System analysis is a decomposition of a system complete information into sections the component with the intention to identify and evaluate problems, chance-opportunity, obstacles that occur and expected needs so that improvements can be proposed improvement [2].

B. *System Requirement*

System requirement is a designing and determining ways processing information systems from the results of analysis system so that it can meet needs from users including among us designing user interfaces, data and activities process [3].

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C. *Management Information System*

Management Information System (MIS) is an information system already computerized that works because of it human and computer interaction. System Management information includes tasks which is very broad including decision analysis and as a tool for making decisions. To access information systems, users management information systems do division of tasks towards system resources management information, such as for example. The Data Base Management System (DBMS) used as a data storage media, models as a support tool for interpret stored data in the database and others. Information Systems management will produce output in the form of information that can be used as consideration (tool) to take or make a decision [4].

D. *Definition of Qurban*

The language of the word Qurban comes from Arabic which means approached him or approach him. Whereas according to the term syara' qurban is livestock slaughtered for draw closer to Allah on the day Adha, the 10th of Dzulhijjah and the days Tasyriq (on 11th, 12th, and 13th of Dzulhijjah month in Hijriyah year) [5].

E. *Rapid Application Development*

Rapid Application Development (RAD) is a model of the device development process soft which is classified as incremental technique (graded). RAD emphasizes short and fast development. Short time is the limit important for this model. RAD uses method iterative (repeat) in developing a system, where is the work model the system is constructed at the beginning of the stage development with the aim of establishing user needs. Work model used only occasionally as a design base and final system implementation [6]. The advantages of RAD model as selected system development as follow:

1) *The system is analyzed and designed is a simple system*
   The system is applied or implemented using the model RAD in related institutions, no takes a long time.
2) *RAD model has restrictions on a system to avoid changes.*
3) *RAD can solve problems about obscurity*
   The users need the system must be done later because users can interact directly with the system at the beginning. This ambiguity also usually caused by difficulty for users to express what is desired to the designer system.

F. *Unified Modeling Language*

Unified Modeling Language (UML) is a modeling language for systems or paradigmatic software 'object oriented'. Modeling is used for simplification of complex problems in such a way that more easy to learn and understand [7].

G. *Pos Keadilan Peduli Umat (PKPU)*

PKPU Human Initiative is built by ting from a sense of concern for humanitarian tragedy in 1997 to 1999, a group of young men took action social gives hope for the country [8]. Follow up on their accompanying actions awareness of philanthropic potential at Indonesia, as well as to optimize underprivileged people to be independent, born PKPU as social institution at 10 December 1999. Then on October 8 2001, PKPU was designated as the Amil Institution National Zakat (LAZNAS) based on Decree Minister of Religion No. 441. The vision is “Being a World Class Institution Trusted in Building Independence”. Also, the missions are:

1) *Utilization*
   Use it emergency program, recovery, empowerment in improving quality Life and Build independence.
2) *Partnership*
   Establish partnerships with community, business, government, media, world academic and civil society organizations basis on harmony values that adopted institutions.
3) *Research & Development*
   Doing study, research, development and relevant capacity building for increasing role effectiveness Civil Society Organizations.
4) *Cooperation*
   Active role and encourage the formation of various forums cooperation and social program, and others in national, regional, and global level.

III. Research Method

This research is a SIMAQ development using the stages in the RAD, namely: requirement planning and workshop design phase. Both methods are needed data collection by means of interviews with system officers or admins and questionnaires to system users

IV. Result

The following is an explanation of SIMAQ at PKPU Human Initiative with using RAD. There are only two stages used by the author, namely through stage of Requirement Planning and Workshop Design with UML.

A. *Requirement Planning Phase*

At this phase identification is carried out problems and analysis for making plans solution to the problem. Then the writer describes the system analysis into three analysis phase, namely:

1) *Problem Analysis*
   The analysis covers the system running, system narrative, and identification of current system problems.
2) *Requirements Analysis*
   The analysis include the proposed system and proposed system narrative.
3) *Decision Analysis*
   The results at this stage will be described in the form of rich picture (Fig. 1).

B. *Workshop Design Phase*

At this phase, the authors design and explain the design of

the system that has been proposed. This stage consists of three stages design, namely:

1) *Process design*
   The design covers use case diagram (Fig. 2), identification of actors, identification of use case, use case narration, activity diagram (Fig. 3), and sequence diagram (Fig. 4).
2) *Database design*
   It covers class diagram, database scheme, and database specification.
3) *Interface design*
   The design consist of display of the user interface.

The system design is described in UML diagram forms which visualized in diagrams as follow.

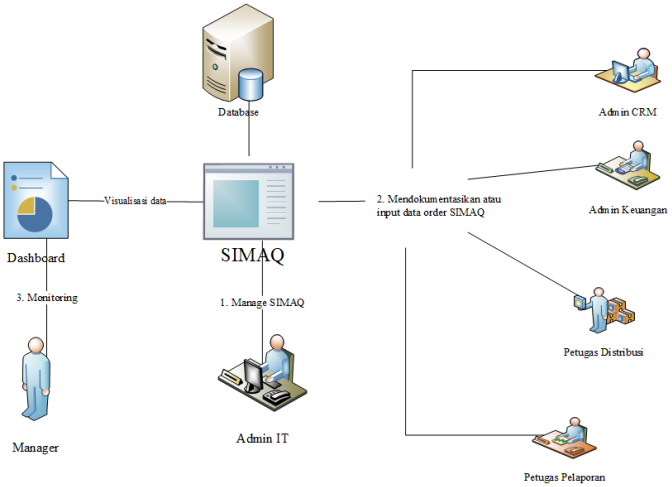


Fig. 1. Rich picture of proposed SIMAQ

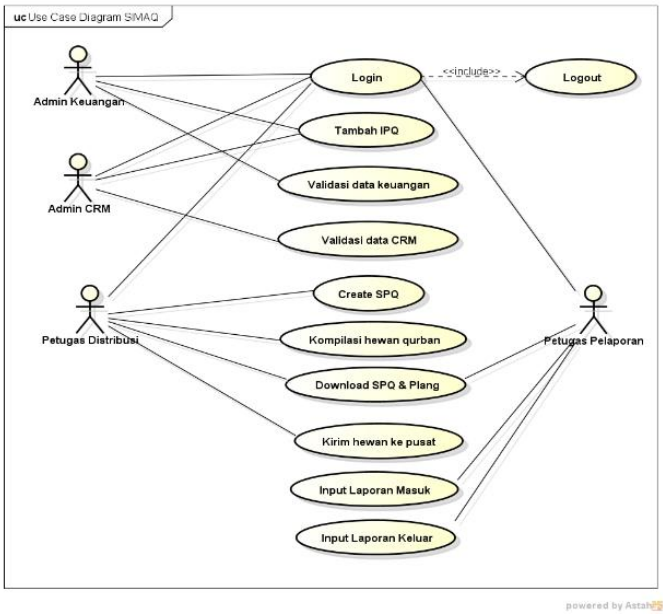


Fig. 2. Use case diagram SIMAQ

The following is an activity diagram for the qurban management information system. Fig. 3 and 4 show the activity diagram for log in to the system (login) and logout.

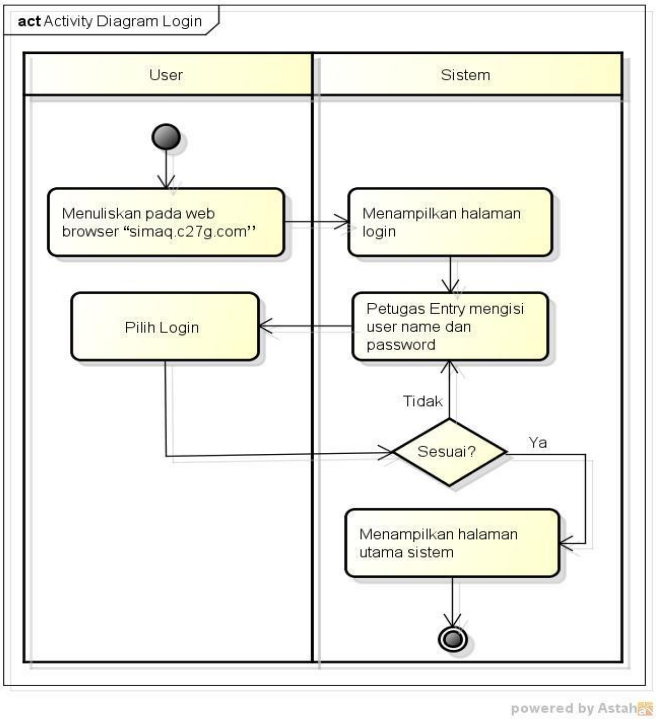


Fig. 3. Activity diagram login

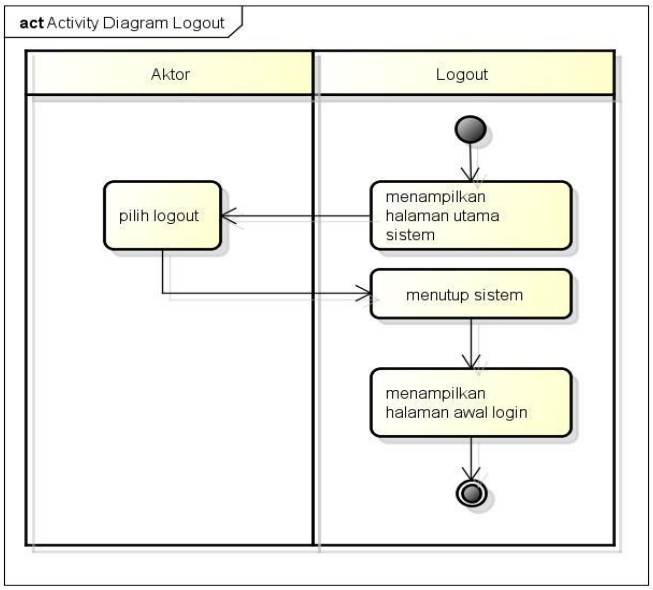


Fig. 4. Activity diagram for system logout

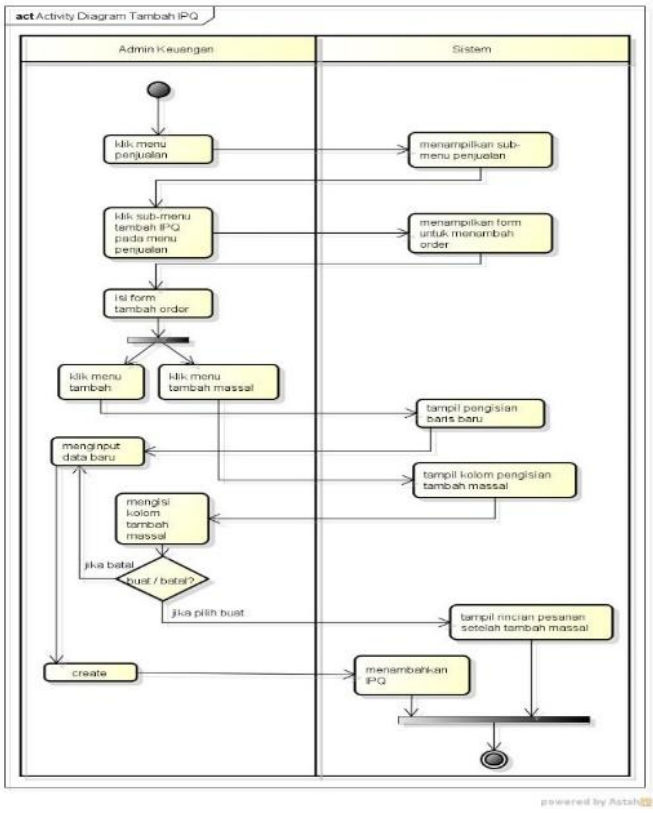


Fig. 5. Activity diagram for add IPQ (input for Qurban command) via SIMAQ

Next, the following is a sequence diagram for SIMAQ is shown in Fig. 6.

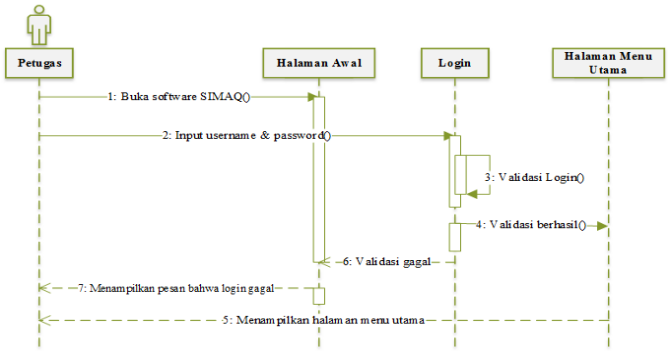


Fig. 6. Sequence diagram login

Fig. 7 shows the sequence diagram for user to exit the system (logout).

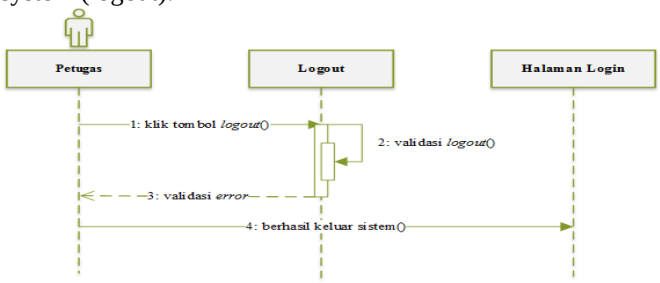


Fig. 7. Sequence diagram logout

Fig. 8 shows the sequence diagram for user to add IPQ through SIMAQ.

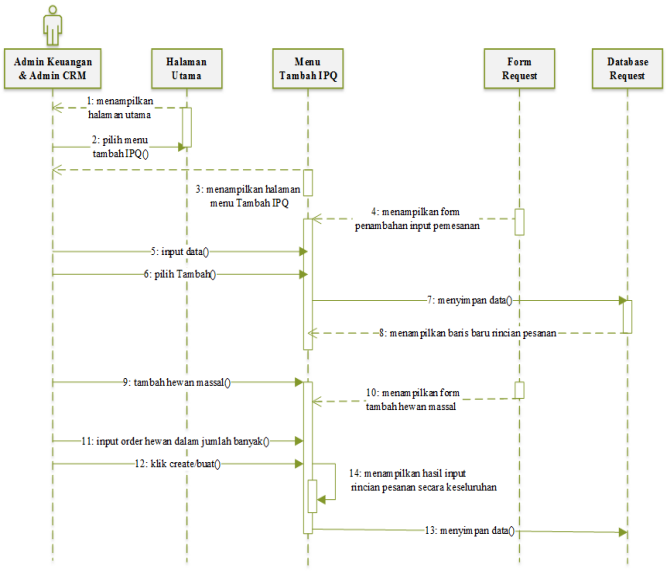


Fig. 8. Sequence diagram add IPQ

Database design for SIMAQ is shown by class diagram. Fig. 9 shows a part of class diagram to describe a collection of class and its relationship in SIMAQ.

The following figures are the interface visualization of SIMAQ.

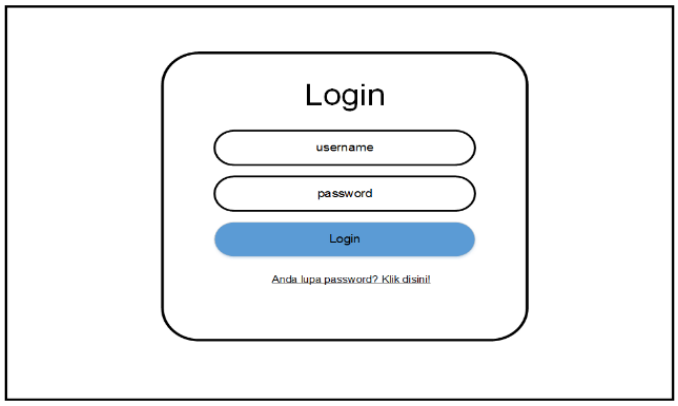


Fig. 10. User interface login

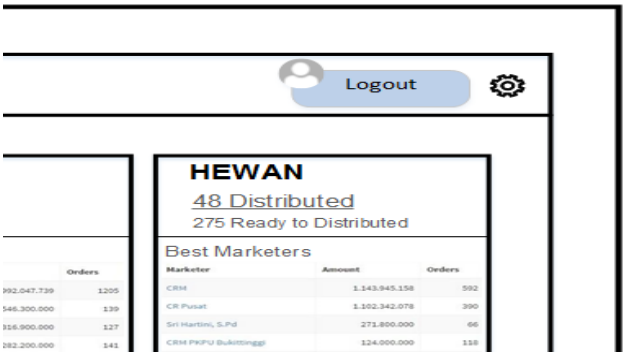


Fig. 11. User interface logout

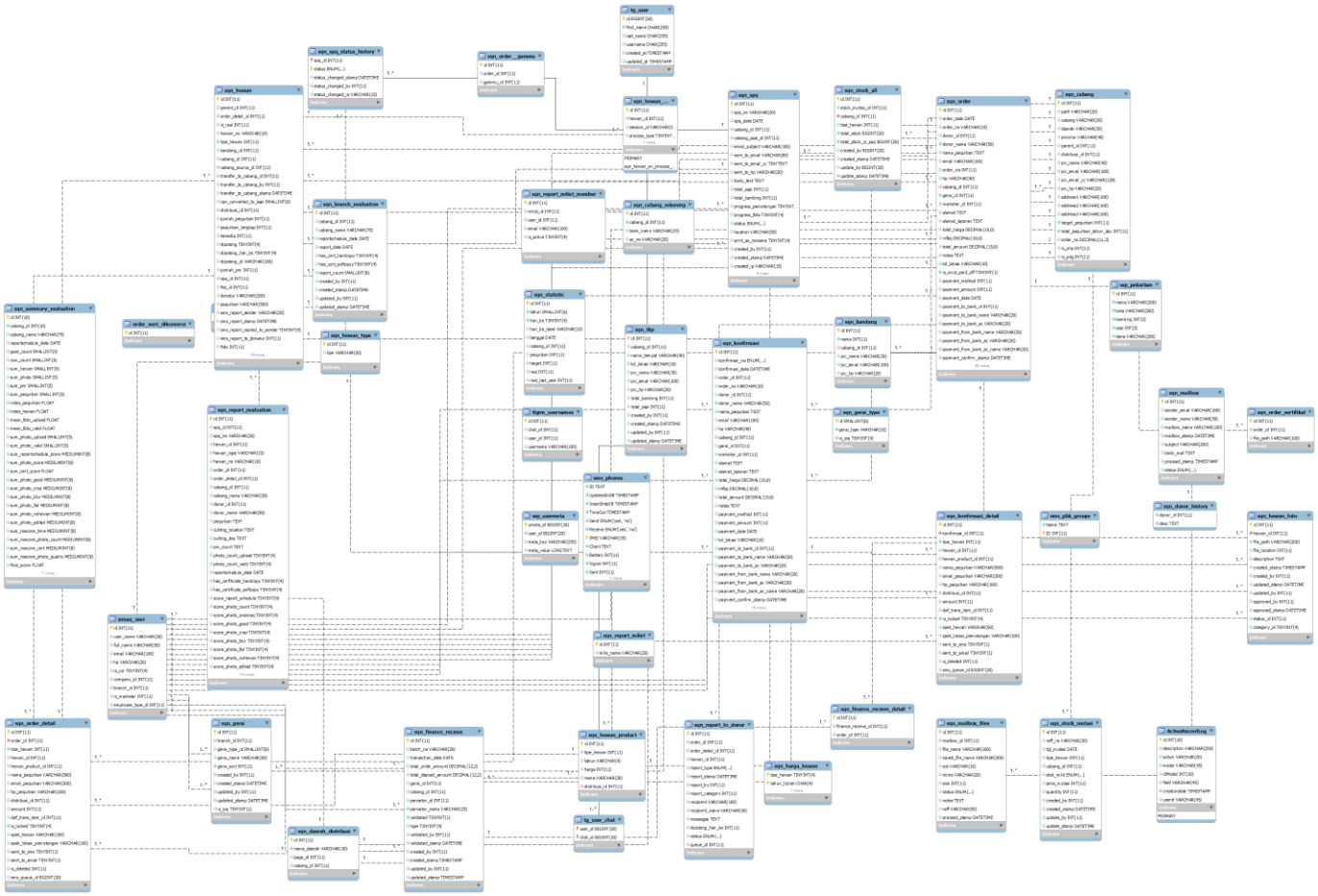


Fig. 8. Part of class diagram

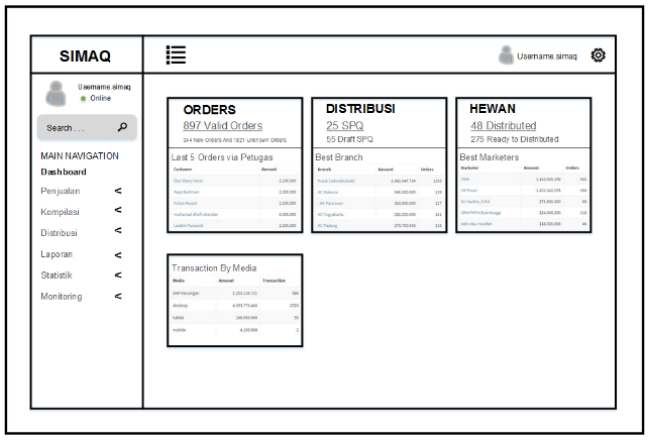
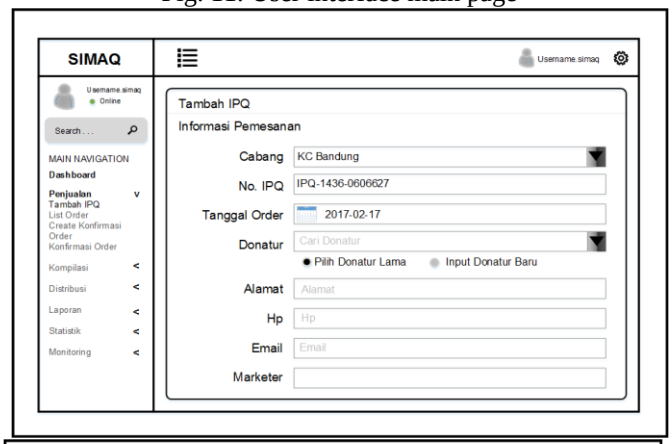


Fig. 11. User interface main page



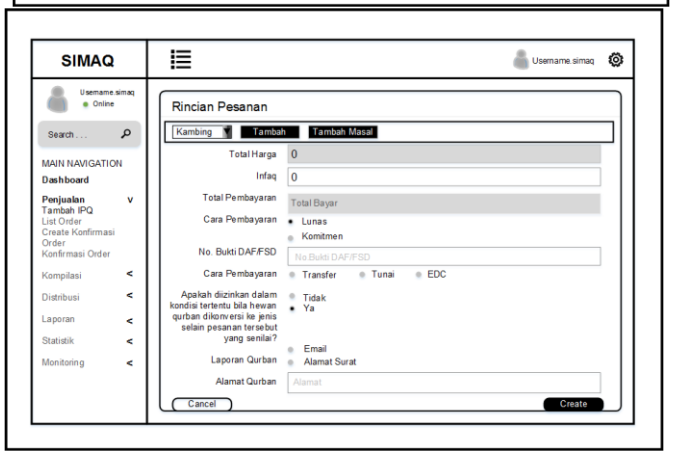


Fig. 12. User interface add IPQ

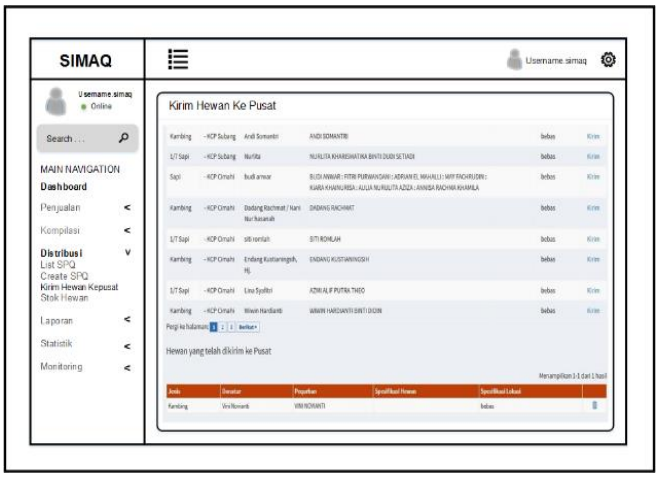


Fig. 13. User interface send animals center

Fig. 14. User interface entry report

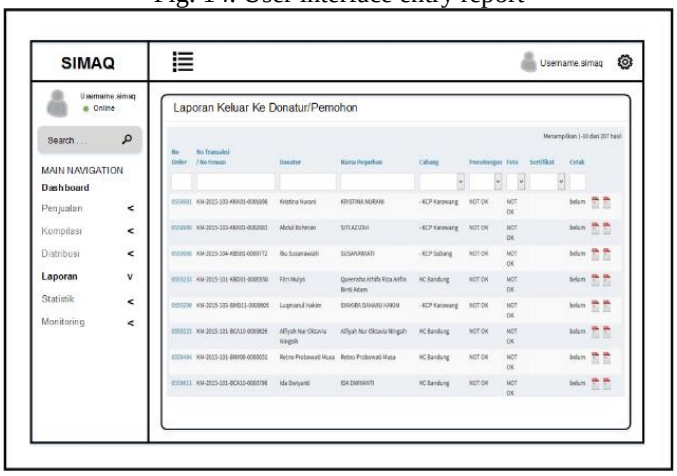


Fig. 15. User interface exit report

V. CONCLUSION

Based on the section Results and previous chapters, in analyzing and designing SIMAQ based on this desktop

application author use RAD through phase Requirement Planning and Workshop Design with UML. Also, besides, to provide solutions to ongoing problems, SIMAQ certainly gives benefits to PKPU Human Initiative on its performance in the process management of donor data, transactions finance, recording out and in and out qurban animals, report animal stocks qurban, archive and report making automatically and put together in the integrated system needed from starting to enter data until the output is a report desirable and can be used for the interests of PKPU and institutions others like public accountants, reduce risk of making mistakes report and do accumulation from data and funds used as well management that could be accounted for. For suggestions, to develop the analysis and design this SIMAQ with implementation and testing phases. PKPU Human Initiative employees are often delegated to service to the cutting location and distribution of qurban animals to regions certain areas, therefore next research could design the system mobile-based so employees don't need to delegate access rights. And, for further research implement e-security system commerce for donors.

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