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The Development of System Monitoring and Evaluation of Research Output and Community Service (SIMONEL)

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Abstract

Information systems are currently needed by various companies in the world. Even more, Information systems provide convenience in helping companies to obtain desired target. This information system can also assist in Output Data Management Research and Community Service. In this case the research is conducted at LPPM (Institution Research and Community Service) In making this system, RAD (Rapid Application Development) method is used. This method is almost similar to the Waterfall method but the work done is faster.Because users and researchers copy work together in making this information systemimplementation, this application uses the Codeigniter Framework and MySQL as database. In making this information system, it is expected to facilitate lecturers in the UPN"Veteran" East Java to include research and support in terms of research and community service. And it is expected that the next writer will continue this research so that the current system must be further developed.

Keywords: Research management system, Output Data system, and rapid application development.

INTRODUCTION

The rapid development of information technology has affected many fields both in the world of business, services, education and others. Not to mention the world of education, especially tertiary education, is one of the fields that is strongly influenced by the development of information technology. Globalization of the education sector requires universities to be able to manage information well, so that the information needs of each interested party can be fulfilled quickly and precisely (Choldun, 2006). Higher education that does not develop information technology well will be increasingly left behind.

The University is an institution that organizes the Tridharma of Higher Education activities. The Tridharma of Higher Education activities include educational and teaching activities, research activities, and community service activities. Every academic community within the university is obliged to implement the Tridharma of Higher Education. The academic community in question is Lecturers and Students. Each lecturer is obliged to implement the Tridarma of Higher Education to fulfill his obligations as a lecturer. Every student is obliged to implement the Tridharma of Higher Education to fulfill the obligations as a student in taking lectures. The university has the task of facilitating and accommodating all the activities of the Tridharma of Higher Education conducted by both lecturers and students. The University of National Development "Veteran" East Java, is a college that has an institution that accommodates two of the three Tridharma activities of Higher Education. The institution in question is LPPM (Institute for Research and Community Service). Activities that are supported by LPPM are research and community service activities.

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LPPM is an institution that holds the mandate to accommodate research and community service activities in the University of National Development "Veteran" East Java. In order for the mandate to be carried out properly, research and community service activities in the tertiary environment are accommodated by a system that regulates the flow and can display the report information desired by its users. One standard of management of activities to be achieved is a standardized process, namely all activities must be planned, implemented, controlled, and improved in accordance with a continuous system of research quality improvement.

From the existing system at UPN Veteran East Java LPPM, it can be developed and sought for the shortcomings of the existing sub-systems, where the current system or called the Research and Community Service Information System (SIRIP) is able to process the proposal submission research and community service based on SKIM which was opened by LPPM UPN Veteran, East Java. So from this existing system, the system that needs to be developed is how to be able to evaluate and evaluate proposals that have been submitted by the proposing team or lecturers, where later those who can assess are lecturers appointed as reviewers, with the hope that the assessment process is also can be done with this system that can be named Information System Research and Community Service Evaluation (SIELIT) So that from this existing system, the system that needs to be developed is how to be able to monitor evaluations and outcomes where the proposer can upload the promised output at the time of presentation of the research proposal and the proposer can upload progress reports and final reports so that this system is expected to provide convenience for managers and proposers that can be named in Research and Community Service (SIMONEL).

There are two groups of approaches in defining systems, namely those that emphasize the procedure and which emphasize the components or elements. The system approach that emphasizes more on the procedure defines the system as follows: "A system is a network of interconnected procedures, gathered together to carry out an activity or to complete a certain goal". The system approach which is a network of procedures emphasizes the sequence of operations in the system.

System Design Before the system is developed in real terms, it is first made a series of system designs, namely a global picture of the system that will be further developed. The purpose of system design is to provide a general description of the user about the system to be built. The components of the information system that will be built include: a. System model b. System input c. System output. d. Database. From the depiction of the above components, at least it can give a detailed description to the user regarding the system to be built. The methodology used to give feedback to users includes data flow diagrams, interface designs, table structures, and table relationships (Cahyono, 2013)

According to (Cornford & Shaikh, 2013) Information Systems can improve organizational management in operating and helping to ease the work. This is achieved by collecting, storing, and processing and sharing data and information. The statement shows that the study of information systems requires four different but interrelated goals, including the following:

1. Computer-based digital technology.
2. Users become part of information systems.
3. Complete the expected tasks for specific needs and requirements.
4. Build a system.

The system approach that emphasizes the elements or components defines the system as follows: "The system is a collection of elements that interact to achieve a particular goal". Systems approach which is a collection of elements or components or subsystems is a broader definition and is more widely accepted because in reality a system consists of several subsystems or part systems. Components or subsystems in a system cannot stand alone, all interact and interact with each other to form a unity so that the target system can be achieved.

Scott (1996) says that the system consists of elements such as input, processing, and output as shown in Figure 1. According to (Jogiyanto, 2005) in his book entitled Analysis and Design of Information Systems explains that: "The

system is the network of procedures - interconnected procedures, gathered together to carry out an activity to complete a certain goal "

Information is data that is processed into a form that is more useful and more meaningful for those who receive it, while data is a source of information that describes an event (collection of facts). Information systems, according to Leitel and Davis in his book "Accounting Information System" defines that: "Information systems are a system within an organization that brings together daily transaction processing needs, supports operations, is managerial and strategic activities of an organization and provides outsiders certain reports that are needed.

METHODS

To find out the financial processing flow of research and community service, a detailed financial recapitulation is needed between income or amount of funds obtained and the expenditure or allocation of funds, then an information system for financial recapitulation of research and community services is made using the Rapid Application Development (RAD) method.

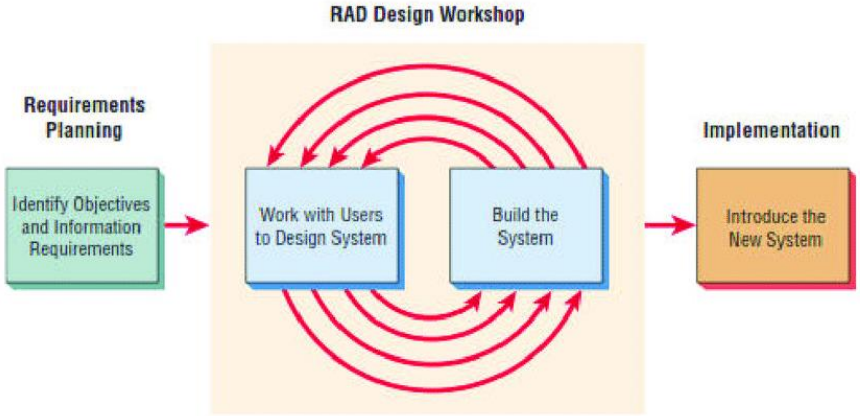

Figure 1. Rapid Application Development. (Source: reseacrhgate.net)

This system development method uses the RAD method (Rapid Application Development) because this method is very suitable for this software and the workmanship is relatively short, short, fast. The stages of the RAD method are as follows:

1. Requirement Planning, in this stage what is known to be system requirements, namely by identifying needs information and problems faced to determine goals, system boundaries, constraints and alternative problem solving. Analysis is used to determine system behavior and also for know what activities are in the system.
2. Design Workshop, namely identifying alternative solutions and choosing the best solution. Then design business processes and designs programming for data that has been obtained and modeled in information system architecture. Tools used in system modeling usually uses the Unified Modeling Language (UML).
3. Implentation, after the Design Workshop is done, then the system implemented (coding) into a form that is understood by machine that is realized in the form of a program or unit program. Stage system implementation is the stage of putting the system readyto be operated.

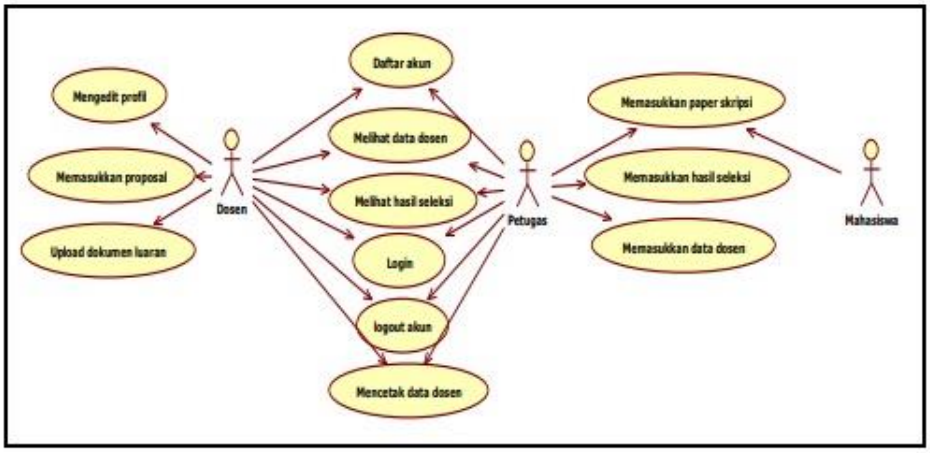

Figure 2. Use Case Diagram of SIMONEL

In the picture above it is explained that there are two main actors who play a role in the system, namely lecturers, officers and students. The lecturer actor can edit the profile, enter proposal, upload external documents, register account, view lecturer data, see results of selection, login, Lecturer, officers Register account Login, Edit profile, See lecturer data, Enter proposal, Upload external documents, logout account, Enter the selection results, See the results of the selection, Print lecturer data, Enter lecturer data, College student, Enter paper thesis, logout, print lecturer data. While the officer actor can enter the results of the selection, enter lecturer data, register account, view lecturer data, see results of selection, login, logout, print lecturer data. Actor students can enter thesis papers

RESULT AND DISCUSSION

The implementation process in the development of a Management Information System Output data at UPN "Veteran" LPPM East Java uses framework Codeigniter, PHP, HTML, CSS, and management systems MySQL database.

A. Login Interface Implementation

Login activity is a process to access system by entering identity of user account and password. Users who log in to system need a user account. A password is a character sequence in form of a key that is kept confidential. Figure 3 describes appearance of the information system login page for financial recapitulation of research and community service.

In Figure 3, is a login page that contains the username input, password, login button, forget password and register. For the appearance of the panel login system and above, namely the logo of UPN "Veteran" East Java. Login activity is used to maintain security of data as long as we access an information system. Each login user has their own access rights. Before logging in, User Lecturer or Admin must have an account and password. They can get user accounts when registering the system.

Figure 3. Login System

B. Implementation of Information System Dashboards

When logging in, the user is required to enter a username and password. This user and password is used to share access rights when it is entered into the SIREKAP system. Next is the admin level main page display.

Figure 4. Admin Level Dashboard

In figure 4, it is a dashboard page that contains several panels number of reports starting from proposals, outputs, progress reports, and final reports and user data. For the display that is on the left is the menu display. Then there is header and content.

C. Implementation of Master Lecturer

The Master Lecturer Interface is a lecturer data display that contains a table of lecturer data at UPN "Veteran" East Java. The appearance of the lecturer Master is as follows:

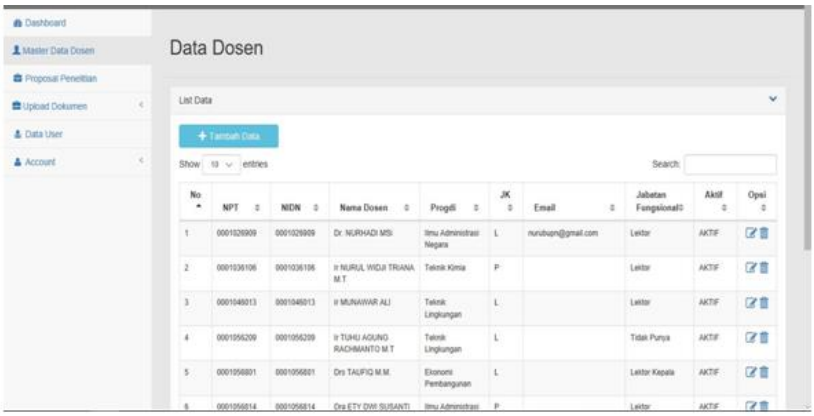

Figure 5. Master Lecturer

In figure 5, it is a lecturer Master page that contains lecturer tables along with the data. Then, there is the add data button to add new data. Search column to find lecturer data based on NPT. Edit button to edit existing data and delete buttons to delete lecturer data.

D. *Implementation of Output Interface Research*

Output Interface Research is a display of research output that contains output tables that must be entered by lecturers who will take part in the study. The Proposal display is as follows:

Figure 6. Master Output Interface Research

On Figure 6, it is the Output Speakers page which contains the output table and the data. Then, there is the add data button to add new data. Search column to find lecturer data based on NPT. Edit button to edit existing data and delete buttons to delete lecturer data.

CONCLUSION

The results of the research conducted by the researchers produced several conclusions, as follows : Research and community service information system using PHP, MySQL, CodeIgniter and Boostrap frameworks have been successfully created and worked accordingly as expected. The use of the RAD method has been carried out following the stages of the RAD method and already goes well according to the method. This information system has several

output categories, namely IPR output, external speakers, journal outputs, outputs of textbooks, and other outputs that will be filled by lecturers.

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