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Designing Implementation and Application of KRS Filling Using the Web (Case Study at the University)

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ABSTRACT

The development of technology is now very rapidly developing and making new breakthroughs and the increasing need for good information systems to encourage us to do all activities can run properly and we are encouraged to make a right decision and so that we can get a progress on the information system. One of the tertiary institutions also really needs an information system to make it easier for students to fill KRS and reduce errors and be able to collect data quickly. KRS system is needed and makes it very easy for students to fill KRS and increase student satisfaction with the system. Nowadays many universities have implemented KRS filling systems online. The method used is SLDC (System Development Life Cycle) and object-oriented development starting from analyzing a system that runs through UML (Unified Modelung Language). With the programming language used is PHP and the database used MySQL. The design of the higher education system produces computerized information technology benefits so as to minimize the filling of KRS online. In addition, it can produce application designs that can improve the operational performance of higher education. The design of the higher education system produces computerized information technology benefits so as to minimize the filling of KRS online. In addition, it can produce application designs that can improve the operational performance of higher education. The design of the higher education system produces computerized information technology benefits so as to minimize the filling of KRS online. In addition, it can produce application designs that can improve the operational performance of higher education.

1. Introduction

Current technological developments are indeed rapid and Web-based information is needed in educational facilities and can be utilized as an increase in the means of agency information such as data processing can be faster and more precise and can save time and costs.

As a good university, it must have a website for students to obtain information needed by students. Benchmarking the existence of an information system makes the public and students more aware of the information of the college they choose.

KRS is a Study Plan card that must be taken in the schedule and classes based on the class that is opened filling KRS is usually done a week before the start of lectures.

Filling in KRS using manuals makes it very difficult for students to choose courses to take in lectures and makes it very difficult for employees and provides additional alternatives for students to access KRS registration forms that can facilitate students and increase the smooth academic process of higher education

2. Theoretical basis

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2.1 Understanding System Design

System Design is a part of the description, planning and sketching or arrangement of several separate elements into a unified whole and functioning. To achieve the objectives of the system analysis must be able to achieve goals as a planning system that must be useful, easy to understand and easy to use later.

2.2 Understanding Information Systems

Information system is an orderly arrangement of interrelated activities and arrangement of interrelated procedures, which carry out and facilitate the main activities of an organization. Information is data that has been processed / processed so that it has meaning or useful benefits.

2.3 Definition of SKS

SKS is an abbreviation of semester credit unit. This SKS system is used generally in universities. With this system, students are allowed to choose their own courses that they will take in one semester

2.4 Definition of SDLC

SDLC is a process used by system analysis to develop information systems ranging from planning, determining needs, design, validation, to training, and submission to consumers.

2.5 Database Concepts (Database)

A database system is a compilation and management of records using a computer with the aim of storing or recording and maintaining complete operational data of an organization / company so that it is able to provide the information needed for use in the interest of the decision making process.

2.6 Hypertext Preprocessor (PHP)

PHP is a programming that is widely used for handling the creation and development of a web site PHP is a server-side script programming language designed for web development, PHP can also be used as a server side programming language because PHP is processed on a server computer

2.7 MySQL

MySQL is categorized as a software and database creation system that is open source (open source) and runs on various operating systems both on Windows and Linux. MySQL server is the most popular database management system, both of which are commonly used systems for storing and retrieving back end data.

2.8 UML (Unified Modeling Language)

Is a language for specifying, visualizing, constructing and documenting artifacts (part of the information used to be generated by the software manufacturing process, these artifacts can be models, descriptions or software) of software systems such as business modeling and other non-software.

The main parts of UML are View, diagram, model elements and general mechanics. View is used to view systems that are modeled from several different aspects.

There are four types of diagrams in UML namely:

a. Use case diagram
b. Activity Diagram
c. Clas Diagram
d. Diadram Sequence

2.10 Basic Concepts of Testing

Testing is a process made in such a way as to identify the incompatibility of the results of an information system with the expected results.

Black Box Testing functions on the functional requirements of the software and is a testing approach whose tests are derived from program or component specifications, also called behavioral testing or partition testing and black box testing enables software engineers to obtain a series of inputs that fully use all functional requirements for a program. Black box testing tries to find errors, namely:

a. Incorrect or missing functions
b. Interface error
c. Error in data structure or external database access.
d. Initialization error and termination error.

3. Research methods

The research method used is the SDLC development method and

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A. SDLC (System Development Life Cycle) Method

SDLC method is a method of developing software systems or software through several stages such as:

1) Analysis

Analysis is the first stage in SDLC where collecting as much information as possible for system development needs by utilizing an obsolete system and then developing it again with user input data.

2) The design

Design is a stage in making a flow or process and appearance of the system that will be made based on data from the analysis phase that has been done in the previous stage which will be continued at the next implementation stage as shown in the picture beside.

3) Implementation

Implementation is the stage of writing program code to create an interface design or interface based on the design stages that have been made in accordance with the flow of the process carried out.

4) Testing

Testing is the testing phase of the system that has been made whether the system is running well or not and whether it is in accordance with the wishes of the user.

4. Results and Discussion

4.1. Usecase Diagram

In the system design, a usecase diagram is made which is used as an illustration of the process flow and application features accessed by the admin.

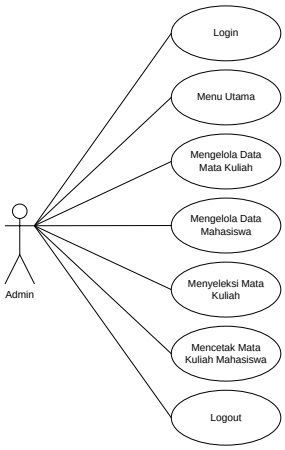

Fig 1. Usecase Diagram

The usecase diagram shows that the system only has one access, that is only an admin. Admin has all access to the application from the login, main menu, to manage data, student data, select student courses and print courses that have been selected by students.

4.2. Activity Diagram

In the next system design activity diagram is made which is used as a description of the process flow and application features accessed by the admin.

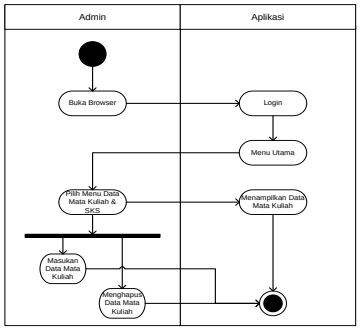

Fig 2. Activity Diagram

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In the activity diagram shows the business processes in the application carried out by the admin.

4.3. Squence Diagram

In the next system design activity diagram is made which is used as a description of the process flow and application features accessed by the admin.

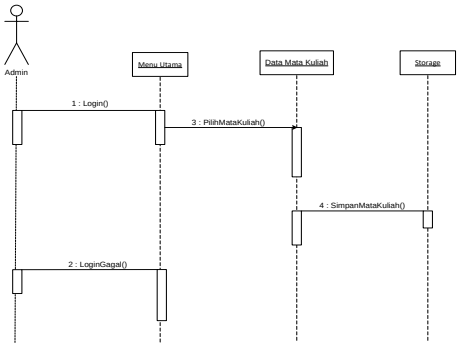

Fig 3. Squence Diagram

In the squence diagram shows interactions that emphasize sending messages made by the admin.

4.4. Class Diagram

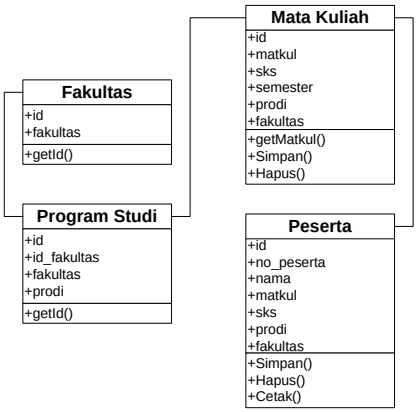

Fig 4. Class Diagram

4.5. Login Display

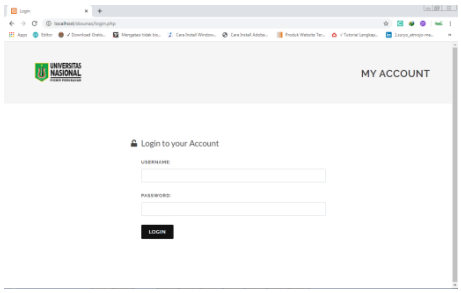

Fig 5. Login Display

In the login screen, the admin must enter the username and password that have been registered

4.6. Main Menu Display

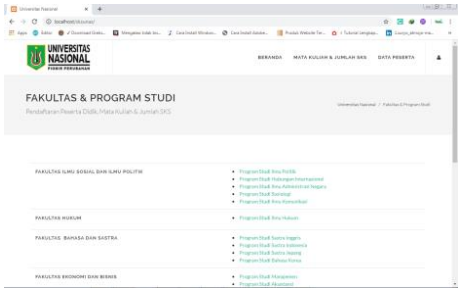

Fig 6. Main Menu Display

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In the main menu display the admin must choose one of the study programs in order to be able to select the courses that have been recorded.

4.7. Course Selection Display

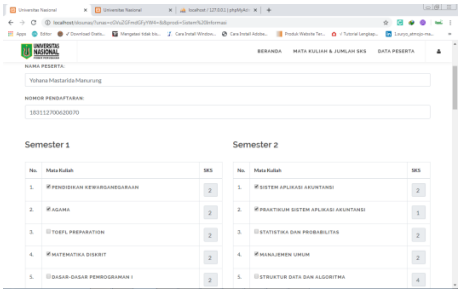

Fig 7. Course Selection Display

In this course selection view, the admin must select the courses that have been recorded.

4.8. Course Data Display

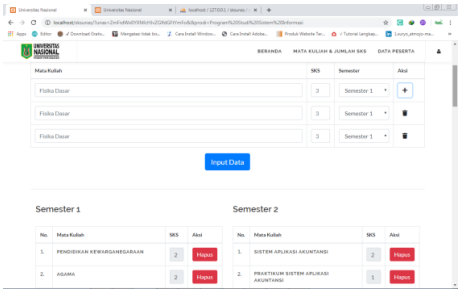

Fig 8. Course Data Display

In the course data display admin can add course data for each study program according to semester and the number of SKS and the admin can delete course data if needed.

4.9. Display of Participant Data

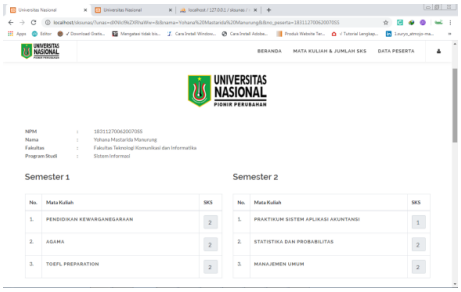

Fig 9. Display of Participant Data

In the data display the participants listed the results of the selection of courses that have been done previously and this data can be printed to be given to students.

4.10. Display Print Results

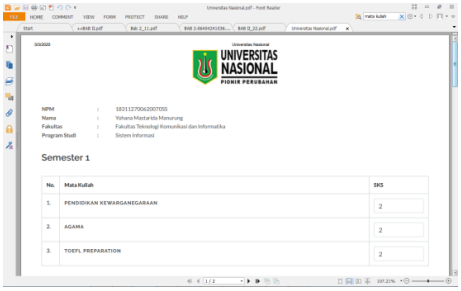

Fig 10. Print Results

In this printed display the results of the application used.

4.11. System Testing

Testing the device system used in the KRS Application using the Web is a black box that is a complete integrated program. Black Box testing is a software testing method used to test software without knowing the internal structure of the code or program

Testing the admin functions is shown in Table 1 below:

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Tabel 1
Testing the admin functions

Function Name	Form of Testing	Expected results	Test result
Login	a.Username and or Invalidb Password. Username and PasswordValid	a.Displays a message that the username and or password do not match b. The system accepts login access and displays the main page	a.Validas invalid, the system displays a message that the username and or password do not match. Validation, the system receives login access and displays the main page
Logout	Select the Logout menu	The system will disconnect the user's access rights and will display the login page again	The system managed to break the user access rights and re-display the blog page
Add Courses	Add courses according to the study program	The system can add courses based on faculty, study programs, semesters, and the number of credits	The system successfully added course data based on faculties, study programs, semesters, and the number of SKS
Delete subject	Removing courses according to the study program	The system can eradicate courses based on faculty, study programs, semesters, and the number of SKS	The system successfully removes course data based on faculty, study programs, semesters, and the number of SKS
Course selection	Select selected subjects	The system can determine the courses chosen based on the semester participant needs	The system successfully determines the chosen courses based on the semester participant needs
Print participant s' courses	Print participant data based on selected courses	The system can print participant data based on selected subjects, semeseter, faculties and study programs.	The system successfully prints participant data based on selected subjects, semeseter, faculties and study programs.

5. Conclusion

The conclusions that can be drawn from the KRS application design using the Web are:

a. Able to handle and process quickly and doesn't take long, uses hardware and is able to create multiple users with fast server connections,
b. Able to reduce student queues for taking KRS and facilitate students.
c. Not yet a facility for sending proof of payment of tuition on the server.

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