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The Design of Web-based Thesis Management Information System to Increase the Quality and Efficiency of Guiding Process and Document Management

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Abstract

The effect of information and communication technology is growing fastest and has played a significant role in almost all areas of life, such as economic, social, cultural, religious, and educational, especially for colleges and universities. It aims to facilitate the delivery of information to lecturers and students. For students who are studying at colleges and universities, if they want to graduate and get a bachelor's degree, they are required to complete a final project or commonly known as a thesis. Students and lecturers can develop good communication and collaboration so that the final project can run effectively and efficiently. Communication between them can be direct and indirect wherever and whenever they are. Therefore, the design of a web-based thesis management information system can manage the entire thesis completion process and good communication between lecturers and students. The design of web-based management information system aims to make it easier for lecturers and students to share and exchange information anywhere and anytime by using the internet.

Keywords: thesis, guiding, document, management information system

1. INTRODUCTION

A thesis is a written report on the results of research conducted by students and supervisors who discuss a particular topic or field and has prepared at the end of the study program as one of the requirements for obtaining a bachelor's degree. Therefore, the management information system is needed so that the success of preparing the final report goes well and smoothly. From year to year, the registration to enter colleges and universities continues and increases. If the process is still done manually and slows down, the management information of the final project is not effective and efficient. Technology, information, and communication have overcome many of these obstacles and deficiencies through a web-based information management system, including managing student final projects and getting a lot of attention from around the world regarding managing the final project for student graduation.

2. METHOD

Currently, almost all levels of education, including colleges and universities, use information and communication technology in the learning, even for administration and management processes, it's not uncommon to use technology. They are now almost using a web-based thesis management information system that can be accessed anywhere and anytime online by using the internet. The selection of topics for student final project reports that are done online is more up-to-date and on target, when compared to the traditional method. Students and lecturers have no difficulty communicating the final project report, both in terms of education management and administration because they already use a web-based thesis management information system. This certainly has a positive impact in efforts to improve information management and work efficiency within the college and university environment.

2.1. System Design Principles

A web-based thesis management information system is the most popular application in colleges and universities. It's more practical, has a longer time, has a large capacity, flexible, and can be accessed by anyone and anywhere, so lectures and students will have a better experience in using technology.

2.2. Introduction of B/S Structure

The B/S (browser/server) structure is the structure that is accessed via the browser. This program structure can be used and operated via the web. Users only need to download infromation via the browser and follow the instructions ordered by the system. Application will access all information required by the user via browser application through the server.

2.3. Analysis of Individual Account Management Needs

For individual accounts that are used by students, they can complete their personal information, telephone number, research topics, and change their password on their own. For lecturers, they must complete biographical information like their personal information, telephone number, title, and other basic personal information. So that students can easily find out for themselves who is become their advisor based on the topic that their choice as a research topic. Students can choose several research topics and wait until the advisor decides whether the student has the appropriate assessment and criteria for that topic.

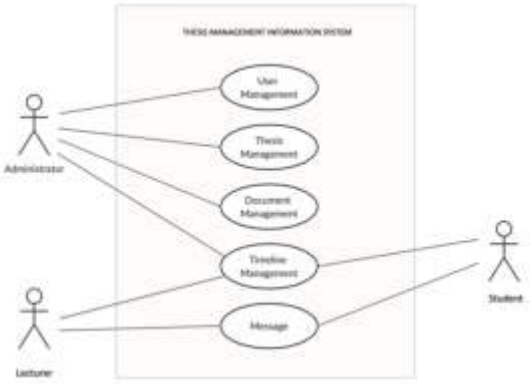

Figure 1. Use case diagram of whole system

2.4. Database Storage Structure

The database storages are grouped into high and low access levels, and data that changes frequently are created separately. It should be considered at the time of the request, storage space utilization, and post-maintenance. The database structure should be clear, concise, and complexly linked, while data storage has adjusted based on the size of the existing system and stored on the disk.

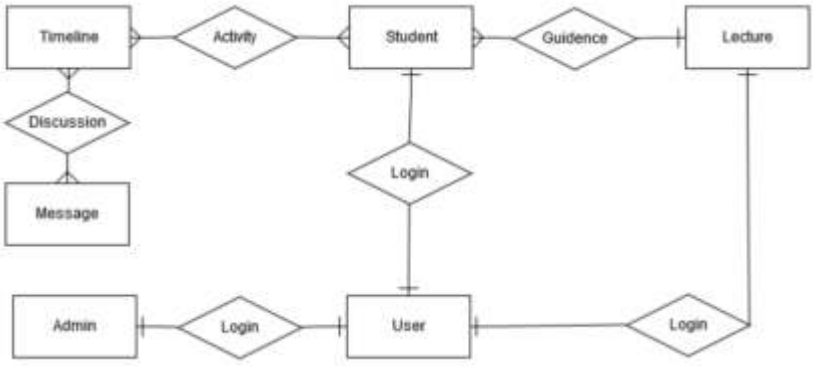

Figure 2. Entity Relationship Diagram (ERD) Design

3. RESULT AND DISCUSSION

System Implementation

The database not only stores user biodata and passwords, but it also stores user information separately. The same user can have multiple roles, The head of education and research can also as a lecturer, while the lecturer does not necessarily the head of education and research. Users and roles have many relationships. So, when the user logs into the system, if the user enters the correct username and password, the system will find the appropriate role of the user's information based on the user's identity, and then find the permissions corresponding to the information through the page view.

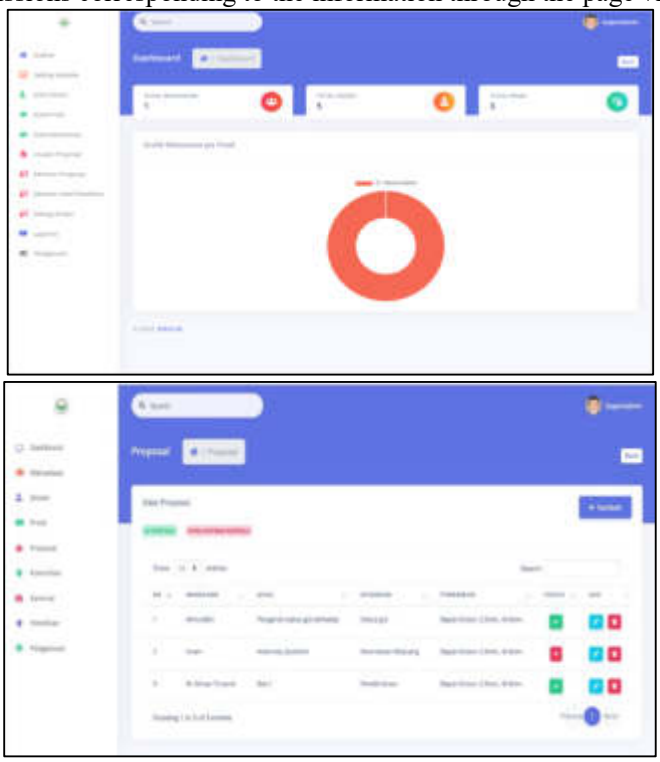

Figure 3. System Interface

System Testing

There are three function tests in the software, namely unit tests which are requirements to enter the system, where the distribution is based on modules, and then various tests are carried out to check whether the system functions can operate or not. After the unit test is successfully carried out, then proceed to the integration test which aims to test whether the unit assembly is experiencing problems after the unit test to find out whether the function of one module will affect the function of other modules, whether the combination of each sub-function can achieve the desired function or vice versa. After unit and integration tests have been performed, it then performs system tests in the actual operating environment and is usually coupled with customer acceptance.

4. CONCLUSION

Two-way selection and topic analysis are two important functions in designing a system. The two-way selection of web-based thesis management information system design aims to allow students to choose their topics based on the scope of the lecturer through the system. The lecturer can also decide whether to let the student can choose and complete a topic that fits the same goals and background. It's to ensure that lecturers and students complete the selection stage, and can proceed to the next stage. Meanwhile, the topic analysis provides support functions in the system for making decisions, separating

data information according to the needs of each user, and archiving the results of research reports made by lecturers and students.

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