Design and Implementation of Graduation Thesis Management System

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Abstract. With the rapid, extensive and in-depth development of IT technology, the application of IT technology has been rooted in all aspects of social life and work, especially for higher institutions leading science and technology, cultivating students, the use of IT technology in various work and projects for innovation management, optimized management can make them serve teaching, serve teachers and students and serve the society, which has become the mainstream application at this stage. As an important part of vocational education work, "graduation thesis" is a platform to test students' comprehensive abilities and comprehensive quality. At the same time, graduation thesis management faces many teachers and students, and many majors, disciplines, internships areas, internships positions and other factors, which brings a lot of problems to the management of thesis. To this end, in terms of the management of graduation thesis, the following aspects of work shall be conducted, so as to improve and enhance the quality of education. This paper analyzes the actual situation of graduation thesis management system in recent years, and determines the basic functions and overall structure of the developed system.

Introduction

Graduation thesis is a step in the practice teaching of colleges and universities, and is the core of school teaching. It embodies a student's degree to master knowledge the degree and learning ability. Therefore, to ensure the successful completion of the graduation thesis teaching process, it is very important to manage the graduation thesis. In recent years, the major colleges and universities continue to expand enrollment, the number of colleges and universities students increase year by year. The way of manual management of graduation thesis in the past has been unable to meet the needs and their shortcomings appear more and more: cumbersome, error-prone, inefficient, poor communication between teachers and students, which slows down the teaching process of graduation thesis. With the rapid advancement of informationization and networkization, the information management of teaching management has greatly solved the shortcomings of the past through manual management. The development and research of the network system for graduation thesis management has also received more and more attentions by colleges and universities at home and abroad.

Research Background and Significance of Thesis Management System

After entering the 21st century information age, all schools develop to the direction of information technology. Each school has also built a campus network, which promotes the school teaching toward the direction of networkization, informationization, thus, the topic selection system of thesis emerges. According to statistics, many colleges and universities are currently using or will use the thesis management system. The system is to realize the two-way selection of graduation thesis conveniently through the network in a timely manner. The topic selection system of graduation project in the universities has the characteristics of immediacy and pertinence, using the online selection instead of traditional way to let the teachers and students realize the application of graduation project through computer and network, greatly reducing the work of educational administration. This approach improves the management level of graduation thesis application, and greatly improves the work efficiency.

System Design Principles

The application of college graduation project thesis management information system is popular. The system is designed to meet the principle of convenience and practicality of each user who uses the system. The system uses advanced and mature technology and framework to ensure the safety, ease of expanding, practicability, so that users have a good experience.

The system design process should follow the important principles as below:

(1) Practical principle: for the system users, practicality is essential, and it is the starting point and

(2) Maturity principle: the system uses a mature software technology, so that graduation thesis management system has a longer lifetime.

(3) High-performance operation principle of: the management system of college graduation project thesis needs to support many users at the same time; therefore, it requires the application must withstand the enormous pressure of intensive use.

(4) Openness principle: the graduation project thesis management system can meet the use of multiple roles, with clear functions, which requires the system having good openness, to achieve the organic integration of a variety of technologies and development platforms.

(5) High security principle: the graduation thesis (project) management system based on B/S is an open system that any person can access anywhere. Therefore, it is necessary to take the design on network security.

(6) Flexibility and scalability principle: the system has the openness that can make sure extended functions according to the needs. This is an important consideration for using the SSH framework.

Introduction of B/S Structure

B/S structure is namely browser/server structure. This way can put the interpretation and operation of the program on the server. It can facilitate the subsequent upgrades to weaken the client's function. The client only needs to install the browser and the database command in the program can be converted and implemented by database system. The results will be returned to Web server, which returns the results to the user.

Analysis of Individual Account Management needs

Individual account management is mainly used for student users modifying their own password, and completing their information. For teachers, they should complete their basic information, especially the contact and title and other personal basic information, which is very convenient, and conducive for students to search for their own teachers corresponding to their thesis topic easily, and after the topic selection, they can communicate with their advisers timely. For the student users, they also need to complete their basic individual information, such as personal contact and topic intention, which are the important basis to guide teachers to choose. Because a student can choose multiple topics and wait for the choice of the teachers corresponding to each topic, in the meantime, when the corresponding teachers choose students, the student's intention of topic is the basis and criteria for teachers determining whether to choose the student and judging if the student can meet their original mind of the topic. For other user roles, the main function is to modify their own password, as shown in Fig. 1.
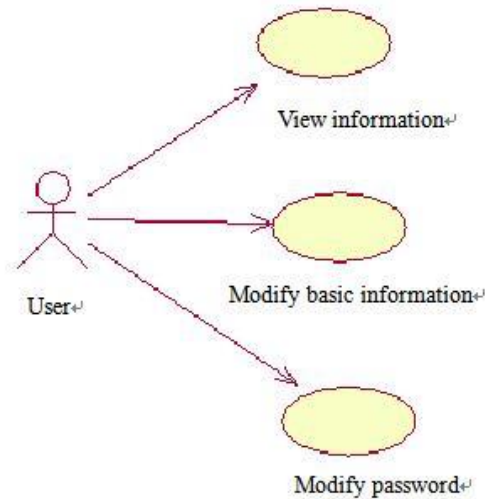
Figure .1 Use case diagram of individual account

Database Storage Structure

Determine the basic principles of database storage structure:

The data of high access rate and low access rate is stored separately. The data changing frequently and not frequently is stored separately.

Database storage structure design should be considered on many aspects, including query time, storage space utilization and post-maintenance. The database structure should be clear and concise, and can express complex relationships.

Determine the place for storage of data:

Taking into account the current size of the system is not great, separate storage will not bring a lot of optimization, but will bring the difficulty of maintenance, so the system will store all the data in a disk.

Design and Implementation of User Login Function

The table in database not only saves the username and password, but also saves the user role information through a separate table, and finally associates these two tables. The same user may have multiple roles, such as the role of head of the teaching and research section also has a role of teacher, but the role of teacher does not necessarily have head of the teaching and research section, and the same role will certainly be owned by multiple users. From the object point of view, user and role have many-to-many relationship. So a relational table in the database needs to be created to save the corresponding relationship of user and role.

Thus, when a user logs in the system, if the user enters the right user name and password, the system will find the corresponding role from the user role table based on the user's ID, and then find the permission corresponding to the role through role permission table, and show the page to be displayed. The flow chart is shown in Fig 2:
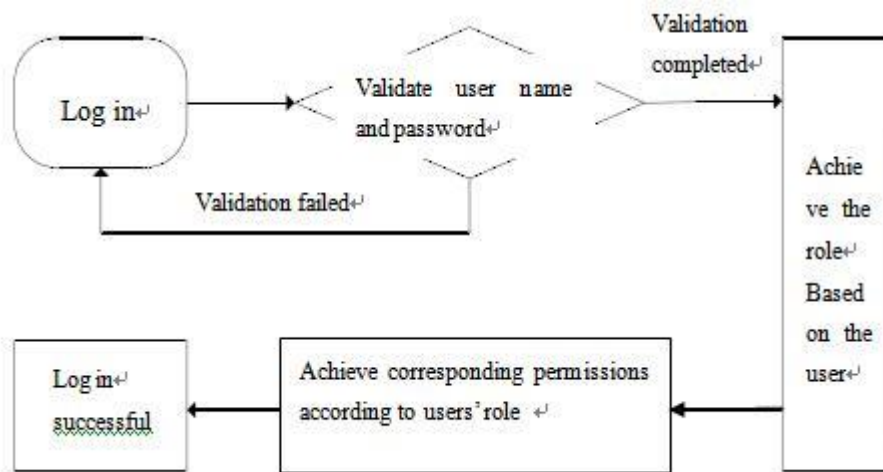
Figure 2. Process of system log in

System Function Test

From the software level, software function test can be divided into: unit test, integration test and system test. Unit test is the requirement for the system. The division is based on modules, and then the various tests are carried out to check whether the functions of the system can be achieved; system integration test is to test if the unit assembly will have problems based on based on the unit test. These questions include the following aspects: whether the function of a module will affect the function of other modules; if the combination of each sub-function is able to achieve the desired function; if the exposed vulnerabilities in the system will cause the system having function abnormality. System test: In the actual operating environment, carry out a series of tests for the system. This is the activity that the user can understand, and is usually combined with customer acceptance.

Conclusion

The system design has 2 most important functions: two-way selection and topic analysis. The two-way selection of graduation thesis design is that the graduates can choose their own interested topic based on the teacher's subject through the system. Teacher can also decide whether let the student complete the topic according to the students who select the topic and their topic intention. This will ensure that teachers and students can successfully complete the selection stage, to lay a good foundation for the follow-up work. The topic statistical analysis function is that the system provides a function of decision support for the system users, extracting the data information according to the users' needs, to fully exploit the potential information, and generate the report for filing.

Reference

[1]. Zhu J. Analysis on the Improvement of Computer Application Basic Teaching Reform in Higher Vocational Colleges[J]. Wireless Internet Technology, 2015.

[2]. Pei L. Design and Application of Computer Application Foundation Micro Vocational Course[J]. Wireless Internet Technology, 2015, 28(4):266-271.

[3]. Meng X. Reliability Testing Technology of Enterprise Computer Application System[J]. Wireless Internet Technology, 2015.

[4]. Zhou H Y, Zhou Y, Jian Y U, et al. Spectrum analysis system for computer application in professional voice assessment[J]. Journal of Harbin Medical University, 2015.

[5]. Yu Y. Discussion on the teaching method of computer application foundation[J]. Electronic Test, 2015.

[6]. Li-Fang H U, Zhang X L, Zi-Kai H U. Application Research on Flipped Classroom in Vocational Computer Application Foundation Course[J]. Computer Knowledge & Technology, 2015.

[7]. Lin Z. The Significance and Methods of Integrating Humanistic Quality Education Into the Teaching of "Computer Application Foundation" Course[J]. Wireless Internet Technology, 2015.

[8]. Januth S. Development and Evaluation of a New Tablet Computer Application for the Therapy of Brain-Injured Patients with Aphasia[J]. 2015.

[9]. Chen S C, Sze J Y, Chuang K J. Small-size WLAN MIMO antenna array with high isolation for laptop computer application[C]// Microwave Conference. IEEE, 2015:986-988.

[10]. Mustafa M. A Computer Application to Expedite Epidemic Monitoring and Resource Mobilization[J]. Plos One, 2015, 10(5):e0126906.

[11]. Dennis C L, Snyder R A, Boyle P J. Systems and methods for authenticating a user of a computer application, network, or device using a wireless device[J]. 2015.

[12]. Dong S Y. Discussion on Professional Construction of Computer Application Technology in Higher Vocational Colleges[J]. Heilongjiang Science, 2015.