Design of Graduation Thesis Management System Based on School Enterprise Cooperation Mode by B/S Architecture

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Abstract. The teaching reform of graduation project is an important content of the reform and development of higher education. With the change of the current talent training direction, many universities and enterprises have reached a cooperative relationship for students' graduation design, however in the actual management of students' graduation design, because this cooperative relationship involves three parties and personals, it is difficult to form a unified management. This paper studies and designs a student graduation thesis management system based on school enterprise cooperation, which can effectively manage the work related to student graduation project. This paper analyses the requirements of the system firstly, then design the student graduation thesis management system by B/S architecture. The data information storage is based on SQL Server.

Keywords: Graduation Thesis · School Enterprise Cooperation · B/S Architecture

1 Introduction

Undergraduate thesis is one of the important teaching links for colleges to achieve the goal of talent training. It requires students to use the basic theories and professional skills that they have learned to design and complete certain comprehensive and innovative projects under the guidance of teachers. It is not only a comprehensive test of students' theoretical level, innovation ability and professional practice ability, but also an important part of guiding students to contact cutting-edge disciplines and strengthening the connection between students and production practice [4].

The cooperation between schools and enterprises to guide students' undergraduate graduation design is conducive to college students to integrate theory into practice and realize the purpose of applying what they have learned in college teaching [1]. However, in the actual management, the results of students' graduation design may not be ideal due to the untimely communication between the school, enterprises and students. At the same time, there is no good mechanism for the supervision of students' graduation design, which leads to the low quality of students' graduation design.

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direction, many universities and enterprises have reached a cooperative relationship for students' graduation design, however in the actual management of students' graduation design, because this cooperative relationship involves three parties and personals, it is difficult to form a unified management. In recent years, with the increasing reform of colleges and universities, the student training mode has changed greatly. In order to improve the level of information management, we should explore a new school enterprise cooperation mode by taking information technology as the support platform, establish an efficient information sharing mechanism for universities, students and enterprises, then provide more accurate, scientific and reasonable decision support for them. Realizing the talent supply and demand mechanism of talent oriented training, training in need and scientific training, it is not only conducive to the early entry and employment of unemployed college graduates, but also conducive to the rapid allocation of talents required by enterprises, and reduce the combination period between graduates and job selection, expenses and other problems. A good cooperative relationship has also been established between colleges and enterprises. Not only do colleges and universities have the goal and pertinence of cultivating talents, but also colleges and universities will set up as many majors with strong employment demand as possible in cultivating students. It is very important to build a platform between students and enterprises that students who intend to complete their graduation design in enterprises can find the enterprise in time [2]. This can speed up the combination of theoretical knowledge and practical skills, improve students' practical ability and deepen their understanding of theoretical knowledge. School enterprise cooperation is not only the resource of schools, but also the resource of enterprises. Students' study and employment can be properly settled, which is more conducive to social harmony and stability.

In view of the above problems, this paper studies and designs a student graduation project management system based on school enterprise cooperation, which can effectively manage the work related to student graduation project, and effectively solve the above problems. This paper studies and designs a student graduation thesis management system based on school enterprise cooperation, which can effectively manage the work related to student graduation project. This paper analyses the requirements of the system firstly. Then, the design of the system software architecture adopts the B/S architecture, which divides the system into three layers. The application logic layer includes the related businesses of student graduation project management, which realizes the user's basic operation management of student graduation project. The data information storage is based on SQL Server. Through the system, the user can not only realize the basic information management of enterprises, schools and students, but also realizes the information operation of student graduation project management.

2 Requirements of Student Graduation Thesis Management System

The graduation thesis management system includes student, tutor (school, enterprise) and administrator. The functions of the three types of roles are as follows.

2.1 Functional Requirements of Student Module

This module contains the following requirements: login and modify password, view announcement and notice, upload and download data, maintain personal information, view all instructor information, upload topic, select topic, modify topic, view assignment, submit opening report, online communication, submit interim inspection report, submit first draft, second draft, defence draft and final draft, view defence arrangement, view score, etc.

2.2 Functional Requirements of Tutor (School, Enterprise) Module

This module contains the following requirements: login and modify password, view announcement and notice, upload and download data, maintain personal information, upload topic, view student topic selection information, select students, review opening report, mid-term inspection report and thesis, review student revision topic, online communication, enter results, modify results, etc.

2.3 Functional Requirements of Administrator Module

This module contains the following requirements: login and password management, notification and announcement management, student information management, teacher information management, examination management, mid-term inspection management, defence management, score management, upload and download data, thesis progress management, database management, system maintenance, etc.

For graduate thesis management system, the students, tutors (school, enterprise) and administrators are three independent module roles, so they are divided into three subsystems as Fig. 1.
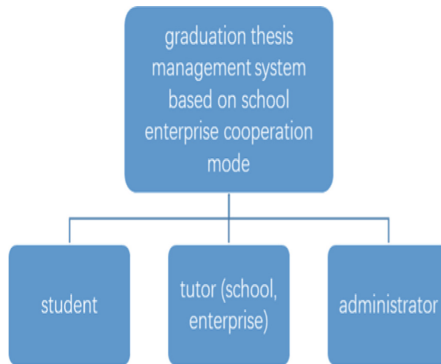

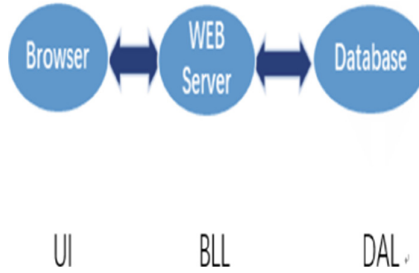
Fig. 1. The modules of the system.

Fig. 2. The B/S three-tier architecture of the system.

3   Design of the Overall System Architecture

Based on the school enterprise cooperation mode, the student graduation project management system adopts B/S architecture. The three-tier architecture includes presentation layer (UI), business logic layer (BLL) and data access layer (DAL). The functions of each layer of the three-tier architecture are as follows:

Presentation layer: the presentation layer is the outermost layer of the three-tier architecture, mainly the client and its components, including browser and page. The browser's pages are written in hypertext link language (HTML). This layer is mainly responsible for the interaction between the undergraduate thesis management system and users, and presents the system in front of users.

Business logic layer: the business logic layer is the middle layer of the three-tier architecture. This layer is mainly responsible for contacting the presentation layer and data access layer Net language, mainly including web server, and the work of web server and database server is divided into two parts: business logic and logic coordination. This layer includes the related business of student graduation project management, and realizes the user's basic operation management of student graduation project. Through the system, the user can not only realize the basic information management of enterprises, schools and students, but also realize the information operation of student graduation project management. In addition, the system also provides the function of information announcement management.

Data access layer: the data access layer is the innermost layer of the three-tier architecture. This layer is mainly responsible for calling and accessing the data from the web server to the database server, and feeding back the shielded data to the client. This layer creates a database application by SQL server and provides data information storage for the whole system (Fig. 2).

4   Design of System Key Process

The University's graduation thesis work includes the key business processes: subject application, assignment and opening report, students' modification of subject name and so on. The specific designs of some key business processes are as follows.
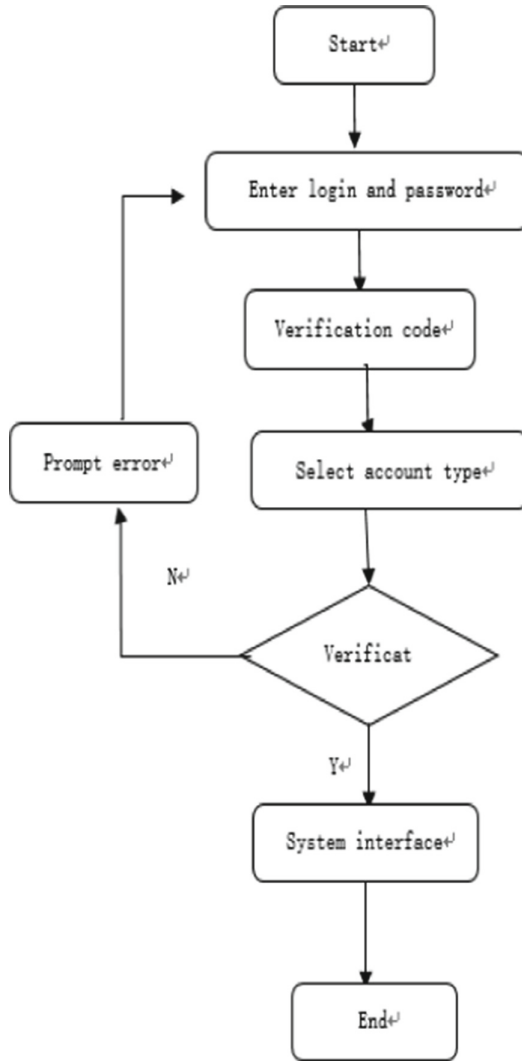
Fig. 3. System login flow chart.

4.1 Design of System Login Process

The system login flow chart is shown as Fig. 3.

4.2 Design of Project Application Process

Figure 4 is the low chart of subject application for tutor and Fig. 5 is the flow chart of subject application for student.

From Fig. 4, we can see that the system administrator needs to set the effective time of each module of the system according to the graduation thesis work plan and
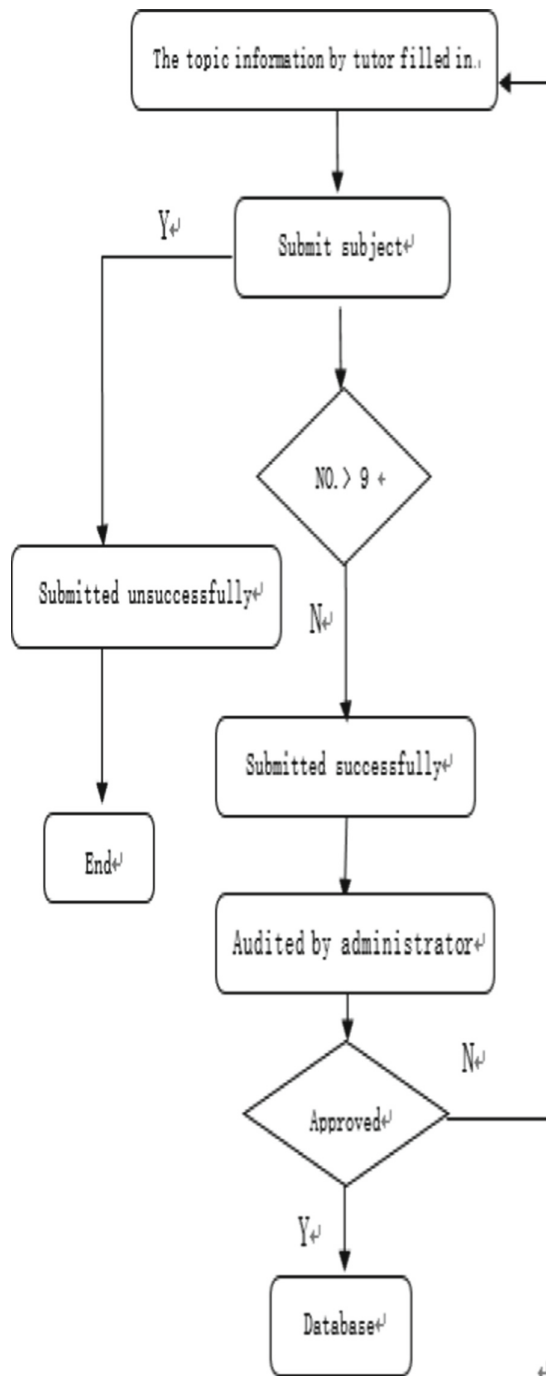
Fig. 4. Flow chart of subject application for tutor.
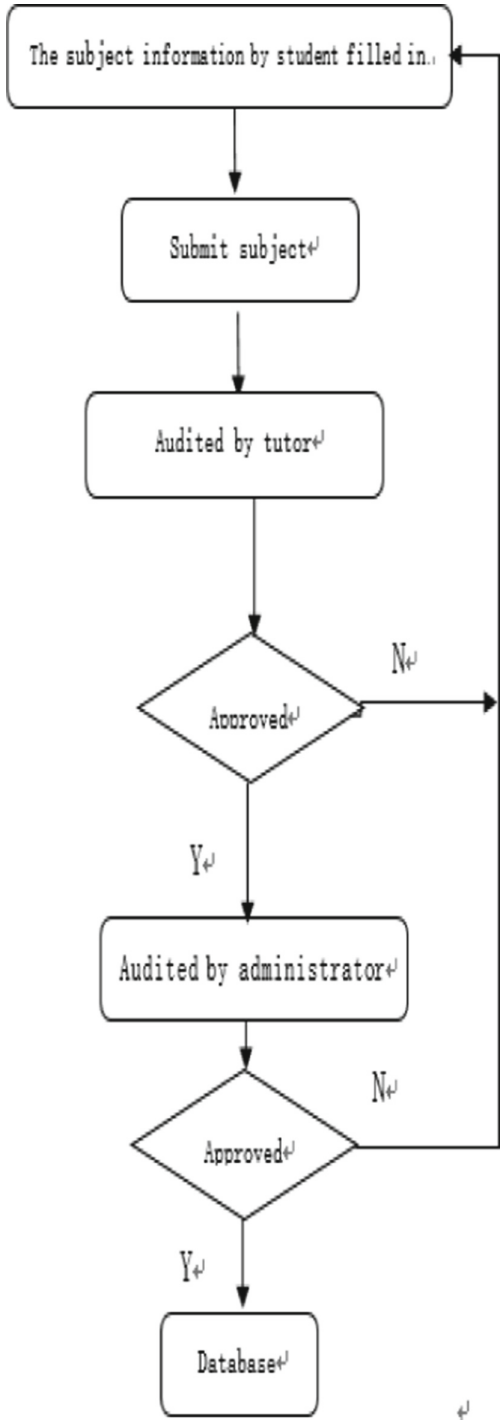
Fig. 5. Flow chart of subject application for student.
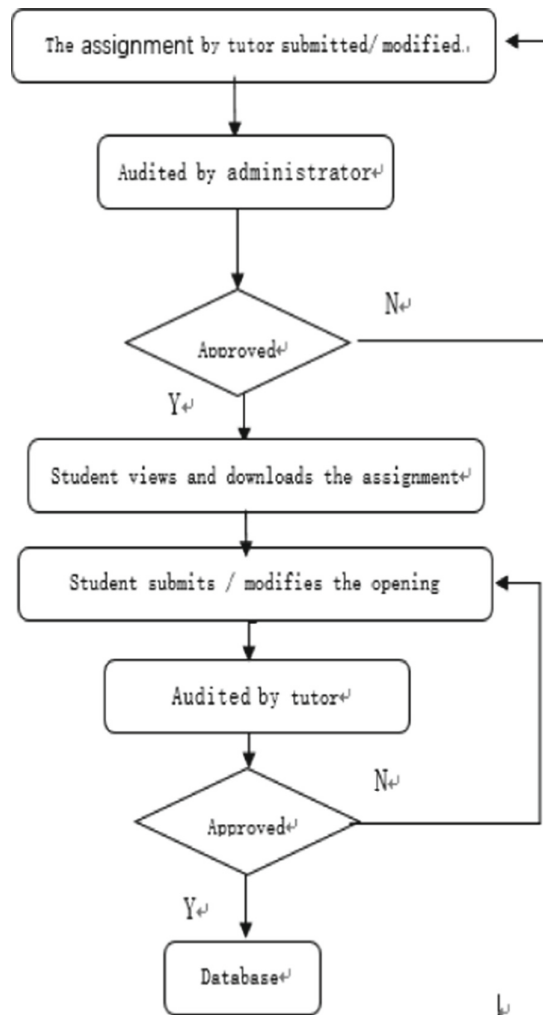
Fig. 6. Flow chart of assignment and opening report.

issue an announcement after the Academic Affairs Office of the university issues the graduation thesis work notice. The first important process of graduation thesis work is subject application. Each tutor can apply for up to 9 subjects, and each student can only apply for 1 subject. When applying for a topic, the tutor should not only fill in the name, type and source of the topic, but also fill in the introduction of the topic to avoid students choosing the topic blindly. After the subject is submitted, it needs to be reviewed and approved by the administrator of the secondary college before entering the process of double selection of tutors and students. If it fails to pass the review, the administrator of the secondary college will fill in the reasons for the failure in the system and reject it. The applicant can submit it again after modification, or choose to cancel the subject.

When applying for a project, students need to choose a tutor's name in addition to filling in the basic information of the above project application. After the project is submitted, it needs to be reviewed by the instructor and the administrator of the secondary college level by level. If the review is passed, the teachers and students will directly determine the guidance relationship and the name of the project. The student will no longer enter the process of double selection of teachers and students, but directly enter the stage of graduation thesis creation. If the review fails, the reviewer shall fill in the reason for the failure in the system and reject it, and the student shall submit it again after modification. When students submit again, they can choose to change the instructor or cancel the subject. The flow chart of students applying for projects is shown in the Fig. 5.

4.3 Design of Assignment and Opening Report Process

After completing the topic selection, the students need to instruct the teacher to issue the assignment according to the content of the topic. After the instructor fills in the assignment book in the system and is approved by the college administrator, the students can view and download the content of the assignment book from the system. The college administrator can export the assignment book uploaded by the teacher from (Fig. 6).

5 Conclusions

In general, we start with the system structure and use B/S as the overall framework to design an application system. This system provides all the online information function modules that students' need, which can save a lot of labor time, reduce the burden of management and facilitate management. The student graduation thesis management system based on school enterprise cooperation play a practical role in managing student graduation projects. The main purpose of the system is to strengthen the tripartite communication between school and enterprise students, clarify their respective roles and responsibilities in the management system, clearly divide the work areas of different roles through a set of practical schemes, raise students' interest and improve efficiency. This achieve the expectation of school graduation design, deepen the cooperation between school and enterprise, and improve students' practical ability.

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