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Design and Implementation of Student Information Management System

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Abstract

With the booming development of higher education in China, the number of students in colleges and universities is increasing, and the management of student information is becoming more and more complicated. In order to manage students more clearly and easily, student information management system is especially important for colleges and universities. The management system designed by the author based on Java language and MySQL can realize the management of student information, teacher information and course information, which can greatly improve the management efficiency of college managers.

Keywords

JAVA; MySQL; Student Management System.

1. Introduction

With the increasing number of students in universities, student information management system is more and more important for universities. An efficient student information management system can not only greatly facilitate students to view their academic information, but also greatly improve the management efficiency of administrators. The most basic student information management system must have the functions of adding, deleting, changing and checking student information, teacher information and course information [2].

2. Demand Analysis

When users log in, they enter different interfaces according to different login identities: students log in to the student system, teachers log in to the teacher system, and college administrators log in to the administrator system, and different systems have different operation rights.The student system can be used to select courses, view grades, personal training program, course information and other operations.The teacher system can view the courses taught, textbook information and other operations.The administrator system can perform the operation of adding, deleting, and checking the identity of students and teachers[3].

Accuracy requirements: The information system has this batch of applications in the management of various affairs, which can greatly promote the efficiency of management work, but the information of the information system must have the integrity, stability, uniqueness of information and prevent the overwriting of information.

3. Technical Analysis

Development language: JAVA is used for development. JAVA inherits the advantages of the C++ language and removes the mechanisms such as multiple inheritance and pointers that are more difficult to learn in C++, so JAVA is much easier to use. And JAVA language is an object-oriented programming language, making the development of applications easy to use and save code[5].

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Development tools: Eclipse, very suitable for JAVA language, development, writing, error checking, compilation, help and other aspects of very convenient plug-ins powerful, open source, free.

Database: The database of this information system uses MySQL database, in MySQL database is small, fast, low total cost of ownership, open source[6].

4. Design Analysis

When users log in, they can log in to different systems through different identities. Students can enter the student system as a student to query information related to student status. Teachers can enter the student system as teachers to query information related to teachers' identities, and administrators can enter the system as administrators to add, delete, and check users' identities as teachers and students.

4.1. Functional Framework

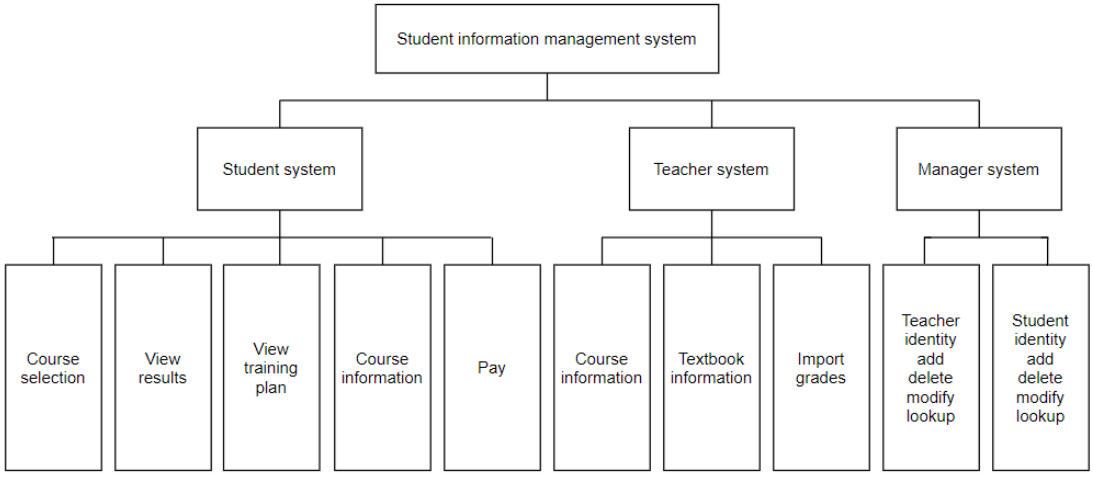

Figure 1. Framework of student information management system

4.2. Student System Module

4.2.1. Student Course Selection Module

This module allows users to select different types of courses, and users have a variety of options to choose from. They can use the search box to fuzzy query whether there is a relevant course they want to study in that semester, or they can use the designed tags to select courses that meet the conditions, such as public, departmental, and mandatory courses. At the same time, the course selection system automatically limits the number of courses selected by the user through an algorithm. If the user selects a course with more credits than the maximum required, the user will be prohibited from continuing to take the course and will be reminded.

4.2.2. Student Achievement Module

This module allows users to search for their grades. Users can choose to search for grades from previous semesters, or they can do a fuzzy search for grades of a course, or they can filter all the courses they have taken for a particular section of subjects. At the same time, users can query the grades of a certain type of course by the nature of the course, such as public, departmental, and mandatory courses.

4.2.3. Training Program Module

Users can view their own training program through this module, which can clarify the training objectives of their major as well as the master list of their course design. They can view the total number of credits, all courses, and practice time they need to complete during the whole university period respectively, which can make users more clear about their own orientation.

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4.2.4. Course Information Module

This module allows users to view information about their courses for the current semester, such as course nature, course credits, and course exams, which allows users to better define their learning goals for the current semester[1].

4.2.5. Payment Module

This module allows users to make school-related payments, such as textbook fees, accommodation fees, competition fees and other fees.

4.3. Teacher System Module

4.3.1. Information Module for Courses Taught

This module allows users to view information about the courses they teach, such as class locations, class times, exams, and other course-related information. This makes it easy for users to manage students more conveniently.

4.3.2. Textbook Information Module

Users can use this module to select the textbook for their relevant courses, and the system will ask the students who take this course to order this book, and the student users only need to confirm in the system to automatically order without independent purchase.

4.3.3. Import Results Module

This module allows users to import grades for students who have taken this course, simply by entering the grades into an excel sheet.[4]

4.4. Administrator System Module

4.4.1. Teacher Identity Addition, Deletion and Checking Module

This module allows users to add, delete, and check the identity of teachers by entering their name, gender, teacher number, home address, and other information to add a new teacher user to the system, while adding a new teacher user must have to meet the uniqueness, teacher number and other attributes must be unique and cannot already exist. When deleting a teacher user, you must ensure that the user exists. At the same time, the administrator can check the information of the relevant teacher by name and teacher number, and can also change the teacher's information.

4.4.2. Student Identity Addition, Deletion and Checking Module

Users can use this module to add, delete and check the student's identity. By entering the student's name, gender, school number, home address, parental information and other information, a new student user can be added to the system, while the uniqueness, existence and other attributes of the database must be met before the addition, deletion and checking of student users can be performed.

5. Conclusion

The student information management system can meet the current needs of college management, can greatly improve the efficiency of college management staff, accurate and efficient management of teachers and students' information. It is convenient for efficient management staff to add, delete, and check user information. At the same time, it can facilitate the daily operation of users with student status and teacher status, and make it easy to query related information. At the same time, this system has good portability, and can be used in other areas, such as extracurricular training institutions personnel management.

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