Design and Implementation of Lecture Notes Management System based SSM Framework

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Abstract

Now education institutions at home and abroad have attached great importance to student’s education, so how to better education students, let students more easily to accept knowledge, can see the teacher after class to class information. This system can be divided into the foreground and the background, the front desk login system login system is divided into students and teachers, which can realize to upload, download learning materials, see the students and the teacher's information, and students can choose courses and view the results. Background administrator login system, can the teacher and student information management, information and publish the notification.

Keywords

Lecture Notes Management System; Java EE; SSM; MySQL.

1. Introduction

Traditional teaching is more rigid, and cannot create a vivid image in the classroom, and by the limitation of time and space, after all, the knowledge learned in the classroom is small. Even the students will lack the perceptual cognition of the problem, and after class they can’t get detailed answers to the problems they don’t understand [1-2]. Moreover, teachers are the center of traditional education, while students can only passively accept the textbook knowledge infused by teachers. Teachers are the masters in traditional education. They always ask questions, review, preview, give lectures and assign homework. It greatly kills the initiative and enthusiasm of students, makes students rely on teachers excessively, and lacks the pursuit, interest and willingness of students for knowledge.

This system can greatly reduce the tedious and boring lecture notes preparation of teachers, improve the learning efficiency of students, enable students to accept the classroom knowledge better, faster and more actively, enhance the interaction and communication between teachers and students, make teachers more vivid in class, make better class plan, make students more interested in knowledge acquisition, and add to students' life Add more rich content. It can be predicted that with the continuous development and wide spread of computer and Internet technology, network information will be more applied to our life and education, so this system can ensure the smooth development and personalization of lecture notes work, and can make the lecture notes management system to a new level.

2. Requirement Analysis and Functional Desgin

2.1. Requirement Analysis

This system is a lecture notes management system based on SSM. Its development mode is MVC three-tier architecture. For page logic and object persistence, Spring MVC and MyBatis are used, and Oracle database and web server are used. According to the needs of the system to establish
a communication platform between teachers and students, the system functional requirements include:

1. From the login end, you can select the user identity, and log in to the relative interface after verification and permission;
2. The administrator can log in to manage the information of teachers and students, and release the notice information;
3. Teachers' permission login can view teachers' information and modify their own user information, as well as view the notice information issued by the administrator, and upload the lecture notes;
4. Students' permission login can modify their own users' information and view students' information, download lecture notes and select courses and view scores online.

2.2. Functional Design

The lecture notes management system is a relatively independent system, which mainly helps students' daily learning. So the system module overview is an important work to describe the system function. According to the above demand analysis, we know that the system is mainly a lecture notes system for teachers and students, followed by administrators. The functional module diagram is shown in Fig.1.

![Functional Module Diagram](image)

**Figure 1.** Functional Module diagram

3. System Implementation

3.1. Architecture

The system is divided into four layers from the responsibilities: presentation layer, business logic layer, data persistence layer and domain module layer. It uses Spring MVC as the overall infrastructure of the system, responsible for the separation of MVC, technical support for the persistence layer using the MyBatis framework, and Spring support for the business layer.

Spring MVC is an MVC framework that uses an interceptor mechanism to handle user requests. The brief running process is: the client sends a request - the filter - determines the Controller that needs to be called - handles the request - finds the Controller class that needs to be called.
through the configuration file - instantiates the class - calls Controller - creates a Result and returns [3-4].

Spring’s J2EE system based on IoC and AOP simplifies the development of the business layer. A non-intrusive form is used to manage the code [5].

MyBatis is a popular persistence solution. It is an open source object-relational mapping framework, and it uses the mechanism for converting data between transient and persistent states in a program and persistence layer which is in in the hierarchical structure [6-7]. The data access layer is also called the persistence layer. The operation of persistence is completed the object is saved to the relational database, and the database in the relational database is taken out to be encapsulated in the form of the object.

3.2. UI Interface

The system selects a user role when logging in. The permissions, user name and password are authenticated through Java Script. If the login information is correct, different function management interfaces are entered according to different roles. If the login information is incorrect, the background will return the error message according to the error reason and prompt the user according to the processing error information. Pages are laid out in divs, nested in tables. The login interface is shown in Figure 3.

After entering the administrator interface, the basic operations include: modifying the user password; the teacher management includes: adding a teacher, managing the teacher; the student management includes: adding a student, managing the student; the notification management includes: adding a notification, managing the notification. A screenshot of the administrator function interface is shown in Figure 4.
After entering the teacher interface, you can view teacher information, student information, and notification information, and modify your own user information, as well as add, delete, modify, and search for lesson information and grade information. Secure exit by clearing the session or returning directly to the home page. The teacher function interface is shown in Figure 5.

After entering the student interface, you can view the lesson information, student information, grade information and notification information, and modify your own user information, and download the lesson plans. The student function interface is shown in Figure 6.

4. Conclusion

The system can greatly reduce the cumbersome and boring teaching plan preparation of teachers, improve the learning efficiency of students, and enable students to receive classroom
knowledge better, faster and more actively, and enhance the interaction and communication between teachers and students. It is more vivid in class and better to plan the class;

The SSM-based lesson management system is divided into four layers: the presentation layer, the business logic layer, the data persistence layer, and the domain module layer. It uses Spring MVC as the overall infrastructure of the system, responsible for the separation of MVC, technical support for the persistence layer using the MyBatis framework, and Spring support for the business layer.

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