Research on Intelligent System of Computer Aided Ideological and Political Course Teaching

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Abstract. This paper focuses on the design scheme of the auxiliary teaching system for ideological and political theory courses using J2EE architecture design. In this paper, the overall planning of the system's architecture, work flow, system function, data structure, etc. is carried out, and it is designed and implemented in detail. The system adopts B/S three-tier structure and uses JSP technology to design dynamic pages. Consider using JavaBean to encapsulate the key code of the program from the aspects of system security and code reusability. Use CASE tools and object-oriented modeling language in system design. Through UML modeling language, use VISIO, ROSE and other modeling tools to analyze and design the system to generate conceptual models and entities of the system. Through requirement analysis and detailed design, the user login module, network course module, online examination module, learning resource module and exchange forum module are finally realized. Finally, the thesis assists the realization of the functions of each module of the teaching system, and carries out corresponding tests and verifications, and the system is in the testing stage and plays a great role in practice.

Keywords: Computer system, ideology and politics, intelligent teaching system, B/S structure model, UML, database.

1. Introduction

The ideological and political theory courses offered by colleges and universities are the main positions and channels for ideological education for college students. Its quality and effect are directly related to the cultivation of college students and the quality and level of higher education in our country. It plays an important role in guiding college students to establish correct goals and lofty ideals, cultivating students' interests and hobbies, and providing excellent talents for the development of society. Therefore, how to cultivate useful talents is the fundamental problem that must be solved in the development of socialist education in our country, and it is also the primary problem for the existence and development of higher education [1]. It is related to the long-term stability of the party and the country, and the future and destiny of the nation. Therefore, how to strengthen the construction of theoretical courses in colleges and universities and explore the new teaching mode of theoretical courses in colleges and universities has important practical significance. The Internet is a very good platform that we can use. With the rapid development of the Internet, the Internet plays an irreplaceable role in people's daily life. At the same time, it is also subtly guiding the students' thoughts, psychology, and emotions, which also makes the discussion of the teaching system of ideological and political theory courses under the background of the Internet of great practical significance.

2. System requirements analysis

The user interface of the system needs to have a unified style, which is suitable for students to work for a long time without easily causing eye fatigue, and then realize all the functions of the Majin online teaching system, and finally needs to support a variety of shortcuts. In order to improve the friendliness of the user interface of the system, many related functions that conform to the user's operating habits have been added to the process and interface [2]. For example, post-classification processing of data query, various statistical data, file format determination, multi-language system interface, etc. By continuously strengthening the consistency of the user interface, the operability of

the system is made more intuitive, and various auxiliary measures are strengthened to help users to still understand various functions at a glance, perform smooth operations, and quickly find the required data. Users can directly switch the interface of different languages to facilitate the needs of different users.

2.1. Course slide management

Maintain and query the slides reported by teachers. The system can query the slides of the course through the interface. Teachers can report course slides, and students can report review slides.

2.2. Course Video Management

The functions involved in course video management are mainly to manage and configure the course video information in Maoist teaching. Course video management can perform operations such as creating course videos, deleting course videos, modifying course videos, and querying course videos for project information. The video information includes: the title of the course video, the location of the course video, the data size of the course video, the main content of the course video, etc.

2.3. Course Exam Question Management

Teachers can edit, save, and query the test questions. Teachers can use this function to complete the basic data maintenance of repair questions. The main functions of the teacher's editing and management of test questions include adding test item information, modifying test item information, deleting test item information, and querying test item information [3]. Teachers can edit, save, and query the test question bank. Teachers can use this function to complete the basic data maintenance of the test question bank. The main functions of the teacher's examination question bank management include adding examination question bank information, modifying examination question bank information, deleting examination question bank information, and querying examination question bank information.

2.4. Course Online Discussion

The online teaching system supports students to conduct online discussions in courses, helps teachers to grasp the teaching problems of learning in a timely manner, and timely understand the hot spots that most students pay attention to, so that teaching adjustments can be made in a timely manner to ensure the quality of teaching courses.

3. Intelligent system design of ideological and political teaching

3.1. System Architecture

According to the analysis of the functional requirements of the system, the overall frame diagram of the system can be obtained as shown in Figure 1 below [4]. The basic relationship of each module is shown in Figure 2 below:

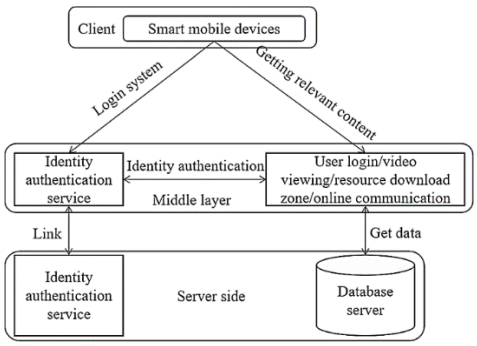

Figure 1. Intelligent system architecture of ideological and political teaching

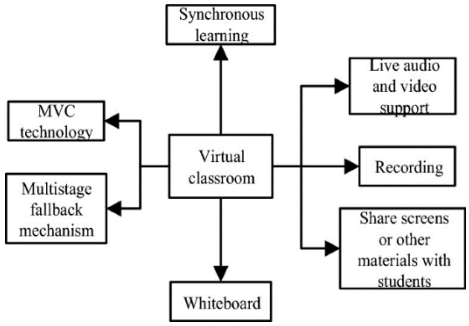

Figure 2. Diagram of the module relationship of the teaching intelligence system

3.2. System Structure Module

(1) User login module

Users can be divided into three types: students, teachers and administrators. First, the user initiates a login request in the login window. The login verification module verifies the login information submitted by the user according to the data information database, and returns the verification result to the user. The sequence diagram is shown in Figure 3 below shown:

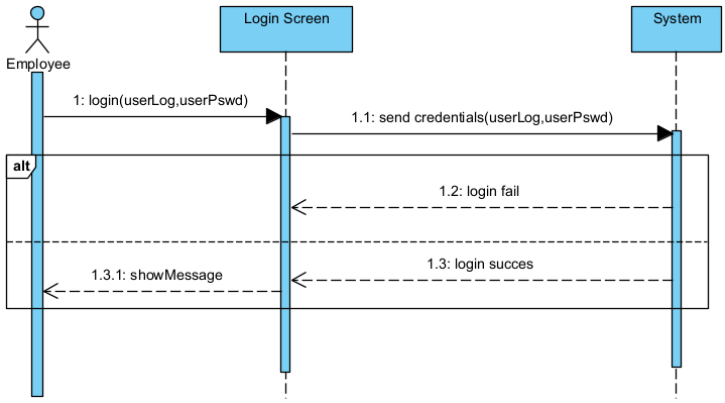

Figure 3. User login sequence diagram

(2) Online Course Modules

The online course module mainly displays the course title of the course on the home page. When logging in to the detailed interface, there will be a detailed introduction of high-quality courses such as pictures. At the same time, both administrators and teachers can maintain the course. When administrators or teachers add courses, they first interact with the maintenance window of the system to find out whether there is corresponding course information [5]. If there is, add it directly, if not, create the course. The sequence diagram and collaboration diagram of teachers adding courses are shown in Figure 4:

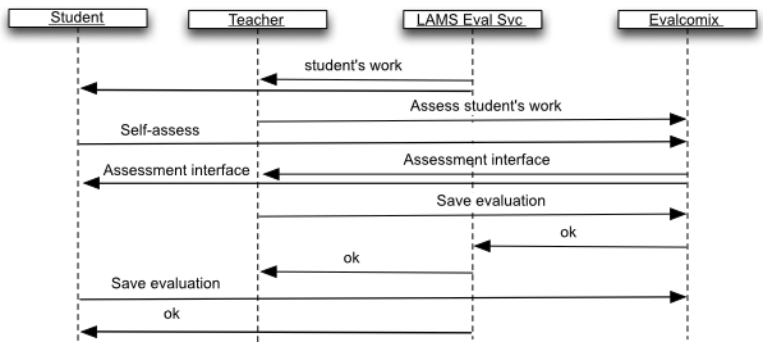

Figure 4. Teacher adding course sequence diagram

(3) Online Exam Module

The questions of the test paper are randomly selected from the question bank, and the question bank is managed accordingly by the administrator. The online examination system question bank

includes single-choice question bank, judgment question bank, and subjective question bank. The questions in each question bank are divided into three kinds of difficulty: simple, general, and difficult, which are used to control the difficulty of the test paper [6]. After the students answer the test papers, they are directly submitted to the server. After the teacher logs in to the management, he can operate the test paper, mark the paper, and add the test paper. Students can log in to the management background to check their test scores. Guestbook, visitors, students, and teachers can leave messages through the guestbook, give comments or suggestions to the system, and promote the development of the system. Then, according to the above functional modules, a solution is proposed, and a system with low cost, powerful functions, simple operation and strong practicability is developed, which is convenient for system upgrading and maintenance, and makes users feel convenient to use. Before the students take the online test, the teacher adds test questions and sets the test paper, and then the students randomly select the test paper to conduct, and then the system marks the test paper and generates a score. Timing tests throughout the exam process. After the test is over, the submitted test paper is shown in Figure 5 below:

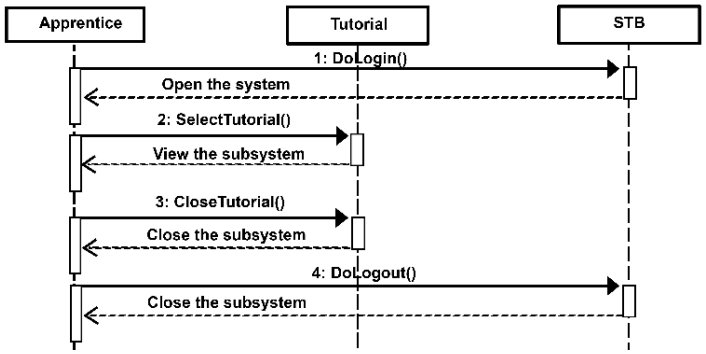

Figure 5. Online exam timing diagram

3.3. System software and hardware design

(1) System Hardware Framework Design

The server topology of the system is shown in Figure 6. The whole system includes WEB server, Mail server, directory server, database server and so on.

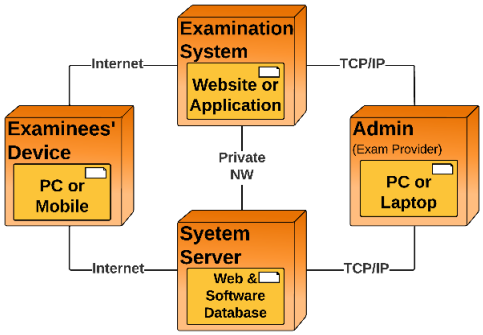

Figure 6. Server topology of the system

(2) System Software Architecture

In Figure 7, we divide the whole architecture into UI layer, service layer and persistence layer. Portal in UI: consists of two modules: one is the portal for user authentication and the other is the service layer. The administrator platform is a management platform for unified user rights and single login. One of them is a security authentication system based on digital credentials, which enables the login of passwords and credentials. The service supports reverse proxy and single sign-on of various user terminals (JAVA, PHP, ASP. NET); in different business systems, managers can obtain different function and role information from different business systems. Then authorize the user [7]. Certificate management: Issue electronic certificates to users through unified user rights and a single login method, and adapt to certification bodies certified by third-party CAs. The persistence level is the

data storage set up for later auditing. The main function of the Majin network education platform is to centrally manage the information of organizations, users and application systems, and to carry out unified identity verification and authorization for users of the Majin network education system.

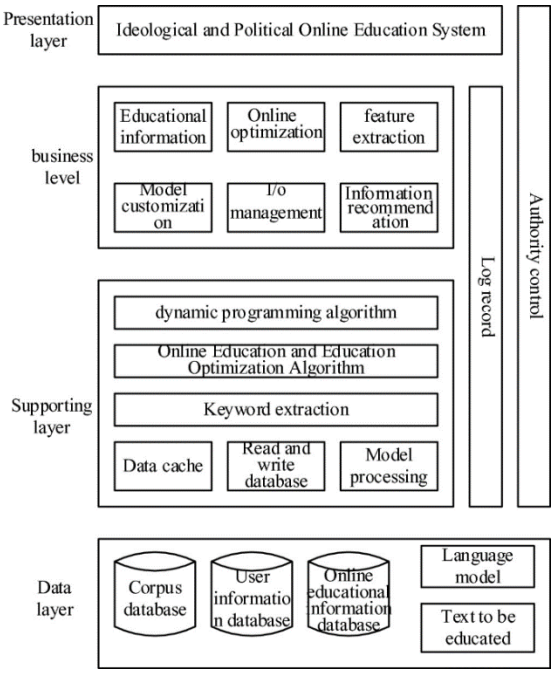

Figure 7. Software Architecture of Ideological and Political Online Teaching System

4. System Correlation Algorithm

This research system uses the TextRank4ZH system to segment students' discourse articles. Before extracting keywords, we will keep words whose parts of speech are nouns, verbs and adjectives, filter out other parts of speech, and use the established redundant word library to filter again, which can filter out colloquial expressions or unnecessary redundant words. To be more thorough, the filtered words will make the analysis results more accurate. Then use the weight calculation method introduced in the previous section to find keywords. First, calculate the word frequency percentage of all words in the article, extract the words that are often spoken by students, and compare the vocabulary established by this research. The percentage of word frequency by comparing the importance with the corpus, the weight value of each word can be obtained, and the level of the weight value can be regarded as the key degree of the word. When the number of students' discourse articles is enough, the obtained keywords can be input into the Apriori association rule for analysis.

The Apriori algorithm is used in the initial data reading. When $\overline{C_k}$ can be placed in memory, it is switched to Apriori Tid, which is called the Apriori Hybrid algorithm. Here, the size of $\overline{C_k}$ needs to be estimated. At the end of a database scan, you can get the value of the candidate item set in $\overline{C_k}$. When C_k has been generated, its size can be estimated based on this, which is $\sum_{\text{candidates } c \in C_k} \text{support(c)} + \text{N}$. If $\overline{C_k}$ is small in this scan and can be placed in memory, and the number of frequent itemsets is less than that in the previous period, it turns to Apriori Tid. The latter condition is added to avoid that $\overline{C_k}$ of this scan can be put into memory and $\overline{C_k}$ of the next scan cannot.

5. Conclusion

The research on the auxiliary teaching system is a hot topic in the current discussion of new teaching methods and methods. This paper studies the design and implementation of the auxiliary

teaching system. In the research process, combined with the software engineering ideas and methods, the system needs analysis formula and methods, and through reading and referring to a large number of literature materials, learning the development of computer-aided teaching systems The model technology compares various design methods, and combines the actual situation to determine the system design scheme.

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