Design of Integrated Online Management System for Wisdom Examination Based on B/S

Siping Hu, Yang Sheng and Luo Juan

ABSTRACT

This paper designs a comprehensive online management system for smart exams, which is based on B/S mode. It uses SSM framework and Maven to manage project structure. The system manages different user roles in different ways. The management system is a software for managing the online integration of exams. It includes processing to optimize the data generated by the software and record the data in real time. The system has a large number of questions, can automatically generate test questions, and can collect and record the wrong questions. Help users consolidate incorrect knowledge point information. The system interface is simple and generous, and the operation is simple.

1. INTRODUCTION

With the rapid development of the Internet era, the Internet has gradually entered the lives of people, and people's lives have become increasingly inseparable from the Internet. The advent of the Internet era has also facilitated people's lives, so that nowadays, they can fully understand the big events of the country without leaving home. Similarly, for all walks of life, the Internet is one of the necessary skills, any enterprise. If you leave the network,
its survival will be very tortuous, so now the company has high requirements for its employees on the Internet, focusing on cultivating employees' skills in the Internet to promote the company's stable development.

Many experts and scholars at home and abroad have done certain work in the theoretical construction and application of the smart campus. Despite the rich content of smart campus construction, few scholars have discussed the concept and application of smart exams. We believe that the Wisdom Exam should be an important part of a smart campus. The so-called wisdom test is simply considered to use cloud computing, Internet of Things and virtualization technologies to integrate real-time and field-based conditions on the basis of smart campuses through monitoring, analysis, integration, and intelligent response. Online testing, intelligent test papers, and smart training provide intelligent decision-making services for teaching management and personnel training in universities.

The Wisdom Exam comes from a paperless exam. Due to the development of information technology, paperless examinations have been greatly popularized. With the development of distance education and new media teaching at home and abroad, the paperless examination system has been widely used in various certification examinations in recent years. However, whether it is a traditional exam or a paperless exam, with the development of a smart campus, it has its own limitations. That is to say, the group test still consumes manpower and material resources. The series of steps such as teacher questions, student exams, teacher invigilation, and teacher reforms are extremely cumbersome and have statistical problems. Therefore, we put forward the above wisdom test concept on the basis of making full use of the smart campus. Further, we intend to develop a smart test system, which integrates many functions such as wisdom, smart test, and intelligent score analysis, in anticipation of becoming an important part of a smart campus.

2. SYSTEM FUNCTION MODULE ANALYSIS

The main functional modules included in this system:

Home module: The home page is mainly used to display the latest activity carousel map, and the right side is a list of all the conferences. The details of the conference minutes are listed in detail. You can click to view the conference details and the conference promotion pictures.

Login registration module: login registration module for users to log in and use, improve the information required for login and registration, as well as detailed error prompts for corresponding errors. Login also includes the implementation of some small modules such as remembering passwords and
registering immediately; it is necessary to upload the conference promotional image and the qualification certificate of the corresponding unit, and the registration can be successful after successful verification through the background.

Personal Center Module: After the user logs in successfully, the personal center module clicks on the personal center to display the user's user name, company name, contact phone number, copy of the company's business license, etc., which can be used for users to modify basic information and login. Password and other operations.

New conference module: This module is designed according to the user's role. Only the organizing committee has the operation authority. The participating unit cannot perform this operation. Fill in the relevant information according to the prompt information, and then submit it. After the background administrator performs the audit, the audit can pass. Released, the review failed, and the meeting could not be released.

Upload meeting data module: The organizing committee and the participating unit can upload the meeting materials to upload the meeting materials needed for their participation. At the same time, the meeting materials uploaded by the organizing committee can be used by the participating units to understand the spirit of the meeting in advance. The main purpose of the meeting is that the information uploaded by the participating units is private and will not be viewed by other participants.

New participant unit module: The organizing committee can gradually add participants.

Importing the participating unit module: The organizing committee can organize all the participants' information according to the fixed template, and the whole import is convenient and quick.

Download template module: for the organizing committee to download, organize the information of the participating units, and facilitate the overall import of all participating units.

Audit module: Only super administrators have this privilege, including auditing user registration, meeting auditing, and seeing registered user qualification certificates.

Use case diagram analysis can visually depict the interaction between the system and the user. It can clearly describe the basic function modules of the system. At the same time, the use case diagram is the predecessor of the function module diagram. The use case diagram is usually the user interacting with the system due to some external requirements. System use case analysis plays an important role in system analysis.

There are three types of user functions in the conference service system: super administrator (for auditing user registration and conference audit),
organizing committee (conference organizer, who can decide specific participants), participants (participants, participants) The committee decides that if the user logs in to the system, it will enter the corresponding page according to the user's role, and the corresponding user can operate the corresponding function module. The use case diagram of the conference service system is shown in Figure1:

![System use case diagram](image)

**Figure 1. System use case diagram.**

### 3. DATABASE ANALYSIS

The design of any system needs to consider the user data information. The conference service system is no exception. The user's personal basic information and the information that the user conference needs to upload need to be stored. For security, there is a high requirement for security. User data cannot be lost, leaked, etc. So far, there are two ways to save data: one is to save the data to the file system; the other is to save the data to the database, where the file system is not very safe for data storage, and for relationship comparison Complex data cannot be saved. For most systems, a database is generally used to store data in the system. The database is divided into relational databases and non-relational databases [15]. Relational databases are easy to operate, can save data with very complex relationships, but read
data is much slower than non-relational databases; non-relational databases process data very fast, but it is not particularly convenient for the storage of complex data. Mainly used for frequently reading data operations, used to quickly read data, reduce the pressure on the server, common Redis, NoSQL; in view of the comparison of the two databases, the Huitong system uses MySQL database to store user basic information and procedures the resulting data is used as a system back-end database development tool. Database analysis is to extract the conceptual model from the information world, and then transform this model into a specific type of RDBMS. Extracting the conceptual model from the information world usually involves two basic concepts of entity and connection.

4. SYSTEM OVERALL ARCHITECTURE DESIGN

The overall structure of the background of the test system is divided into three layers, namely UI layer, Service layer and DAO layer. The UI layer is mainly responsible for interacting with users. The Service layer is mainly used to process corresponding services, and the DAO layer is mainly used for database operations. The View layer of the conference system mainly uses static pages to display to the user. The foreground sends JSON format data to the background through the Ajax request. The background is processed according to the corresponding logic. After the processing is completed, the data of the front end is also returned to the front-end JSON format data for the front end. Judging and using; the system uses the SSM framework in the background, adopts the MVC design pattern, the structure is clear, and the division of labor is clear. The overall process of the system is as follows:

(1) First, the user accesses the system through the client, sends the request and carries the corresponding parameter data (JSON data), and the front-end filter DispatcherServlet is allocated to the Controller service control class with the corresponding annotation, and the control layer passes the received request. The data is processed, and then the corresponding business layer method is called, and the result returned by the business processing is returned to the front end for processing.

(2) The business layer accepts the call of the control layer, and the business layer performs corresponding operations on the data, and passes the data as a parameter to the DAO layer for data operation.

(3) The DAO layer uses the Mybatis framework and adopts the Mapper interface proxy mode. It only needs to define the corresponding SQL statement to directly operate the database, which makes the storage and retrieval of data simple.
(4) The system uses MySQL as a database to store and process the data in the system, and returns the corresponding data to the system according to the call of the program.

5. CONCLUSIONS

This article briefly introduces the concept and basic functional modules of the Wisdom Exam System. And implement various functional modules. Compared with traditional online exams, the system has certain advantages in security detection, system maintenance, and seamless integration with other intelligent systems in colleges and universities. The Wisdom Exam Integrated Online Management System is a software for managing the online integration of exams. It includes processing to optimize and record data in real time. The system has a large number of questions, can automatically generate test questions, and can collect and record the wrong questions. Users can not only operate on the computer, but also on the mobile platform. As an important part of the smart campus, this smart test system will play a more important role in the teaching and management of colleges and universities.

ACKNOWLEDGEMENTS

This research was supported by key scientific research projects of Doctor Initial Funding of Hubei University of Science and Technology (No. 2016-19XB003, BK1419), the Scientific Research Project of Education Department of Hubei Province under Grant B2018179 and B2017181 and B2018175, NSFC-Big Data Science Center Project of Guangdong , U1611262, Research and Development Fund of Hubei University of Science and Technology (2018-19GZ01).

REFERENCES

1. Um J.Y., Ahn J.S., Lee K.W. 2014. “Evaluation of the effects of a grouping algorithm on IEEE 802.15.4 networks with hidden nodes,” Journal of Communications And Networks, 16(1): 81-91.
2. D. Mcqueen, 2009. “The momentum behind LTE adoption,” IEEE Commun. Mag., vol. 47, no. 2, pp. 44-45, Feb.
3. Emmanuel Ufuophu-Biri, Lucky Ojoboh. 2003. “Social Media as a Tool for Political Resistance: Lessons from the Arab Spring and the Nigerian Protests.” Academic Journal of Interdisciplinary Studies, 6(1).
4. Camelia Muñoz-Caro, Alfonso Niño, Sebastián Reyes, Miriam Castillo. 2016. “APINetworks Java. A Java approach to the efficient treatment of large-scale complex networks,” Computer Physics Communications, 207.

5. B. Han et al., Mobile data offloading through opportunistic communications and social participation, IEEE Trans. Mobile Comput., vol. 11, no. 5, pp. 821-834, May 2012.