

Design and Implementation of Vocational Education Online Learning Platform

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Abstract: The online learning platform of vocational education has increased new. It spans time and space restrictions, introduces collaborative learning, cultivate students' cooperation exploration ability, improves comprehensive quality, and has become an innovative engine of vocational education. We borrowed the characteristics of Web2.0 and designed an online learning platform based on this concept for vocational education. "Vocational Education Online Learning Platform" uses B/S architecture to integrate modern frameworks such as Spring, Spring MVC, Mybatis, Vue and Achieves Java and MySQL. By fully integrated Web2.0 technology, the platform destroys traditional restrictions, brings more flexible and collaborative learning models to vocational education, and expands learning resources and space. This platform is not only a technical tool, but also a key driving force for vocational education reform, which helps future workplace training talents.

Keywords: Web; Online Learning; Vocational Education; Learning Platform

1. Introduction

1.1 The research background of the system

Online learning is an important form of modern education and an important part of education development. Through online learning based on the Internet, people can learn anytime, anywhere. At the same time, the development of online education is also the most effective and realistic choice for China's development education informatization and the development of education development. In order to better organize and integrate data and information, make knowledge more efficient, smoother, spread, and promote students to obtain more people's services, and meet the growing demand for web applications, develop high -quality web application systems to develop a high -quality web application system to in order To meet social needs and establish a high -quality online learning environment, it has become a popular issue for online learning and development. At present, most of the development of the learning platform will effectively use framework technology, and the framework will be used as the basis for the design and development of the entire platform. In the design and implementation of this framework, most of them include a large number of software technologies, such as database access, security, personalization, scalability, etc. These technologies should not only be integrated, but also communicate and access each other. Therefore, how to ensure the simple and effective programming of the online learning system; how to ensure the security, interaction and maintenance of the system; how to provide simple development and expansion methods; discuss and implement how to adapt to a complex network environment to meet the scholars' scholars' Framework construction plans for demand and improving platform efficiency are very important and meaningful. In order to achieve the research purpose of this theme and help developers establish a clear structure in a relatively short period of time, good repetitiveness, convenient maintenance and scalable web application system framework, it is necessary to integrate the current advanced technology. Design mode and development concepts, exploration and research more suitable platforms for current online learning teaching characteristics.

1.2 The research background of the system

Online learning has received extensive attention and research in the field of vocational education at home and abroad, and has achieved significant results. In developed countries such as the United States, Britain, Germany, online learning in

vocational education has developed for many years, and distance education has entered a mature stage in these regions.

The United States is a world education power. However, the United States continues to invest in a large number of human and financial development online. The U.S. government has also launched a highly anticipated InterNet2 program, which aims to connect schools, research institutions and government education departments throughout the country through large online learning platforms to achieve extensive collaborative learning and resource sharing schools, every classroom, and even every family. Educational resources can be obtained on the Internet.

Britain has also achieved remarkable achievements in the field of vocational education. The government established the national education network by 2002 to ensure that schools at all levels across the country can connect to the Internet, and each student has an email address. At the same time, the British government announced free and Internet Unicom across the country, and provided national long -range education services. Britain invested a lot of funds in online learning. Almost every school has an online learning college, even investing in online teaching in poor areas.

Australia is also in the world's leading position in the field of distance education. More than one -fifth of the age population receives online education in vocational education. The popularization rate of primary and secondary schools has been widely popularized, and nearly one -third of people continue to learn online. Online learning has become an indispensable part of Australia's economy and social life.

The application of vocational education in the field of vocational education has become an international trend. Education informatization has developed rapidly. The Chinese government attaches great importance to online learning. Through planning and resource investment, we have improved the quality of vocational education, the booming development of vocational education, and creating more opportunities for future talent training as a key measure.

In our country, the development prospects of online learning are more optimistic. In essence, online learning is a new form of education developed by modern information technology such as network technology and multimedia technology. The development of modern online learning is a major strategy of improving the quality of education, improving the efficiency of school running, expanding the scale of education, establishing a lifelong education system, and running a good education. measure. my country's government education department has organized a large number of plans to accelerate the development of long -range education, and attach great importance to it as an important task to improve the quality of the whole people.

1.3 The main research work of this article

By analyzing the major online education platforms and business of the Internet, the platform is divided into the following major modules: academic affairs, users, permissions, logs, messages and courseware. Among them, public modules include users, permissions, logs, courseware. At present, most online learning institutions are in the normal teaching and management process, and their main roles include: administrators, students, teachers.

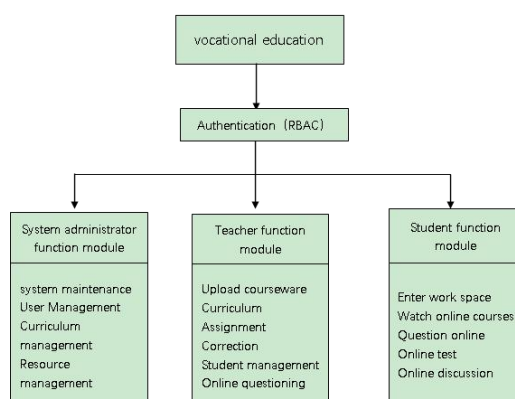


Figure 1: system function summary.

2. System feasibility analysis and demand analysis

The online learning platform is mainly divided into two major functional modules: the system management side module

and user use module.

1. The management side module is mainly responsible for the configuration of the entire system and the safe operation of the system. Management modules include five main modules, including user management, authority management, role management, log management and metadata management.

Including user management sub -modules, including adding and importing users, deleting users, and stopping the corresponding users. At the same time, the sub -module also has the function of editing users and granting role permissions for users.

The main power management modules are mainly used to set the permissions in the system, such as connection authority, metadata management, log operation, operation authority, system settings, and complete system administrators.

The main role management module is mainly a collection of permissions defined in the above permissions management module, including the role of administrators with different permissions and the roles of curriculum creators.

2. The user uses the module, including the two sub -modules of teachers and learners. Teachers and learners have different operating permissions in the system.

There are teaching modules, mainly two modules: creation courses and browsing courses. Create a curriculum module to expand many sub -modules, including adding learners, sending notifications, checking students' learning progress, discussing the information of the regional information, curriculum assessment results, and curriculum architecture design.

Learner module, there are browsing/learning curriculum modules. The sub -module is mainly composed of the curriculum structure module, notification module, note module, resource download module, discussion system module and operating module.

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3. Overall design

3.1 Feature design

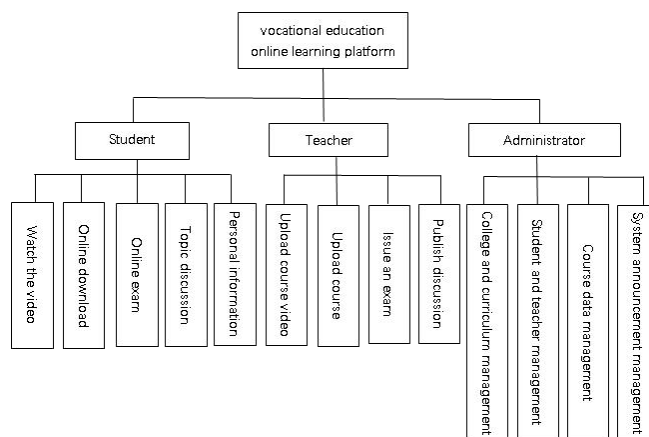


Figure 2: System function structure diagram.

(1) Available system with good operation capabilities. The guarantee system can provide correct and stable services, and can simplify the user's operating behavior, and the operating function entrance of the user is more intuitive.

(2) You can choose and configure the system storage function. When using the system, the system administrator can choose which storage mode to adopt freely according to actual needs.

(3) Implement the management end with high efficiency and intuition. The management of the online learning platform mainly implements the division of permissions and the configuration of system metadata. The management side needs to achieve fine control of batch user permissions and user characters; the definition of specific role permissions and the

definition category of the permissions of various specific roles; You need to manage on the management side.

(4) This system is compatible with multi-browser. Because HTML5 is used to realize the visualized interface of the online learning platform, some browsers currently do not fully and effectively support HTML5 technology.

3.2 Data table design

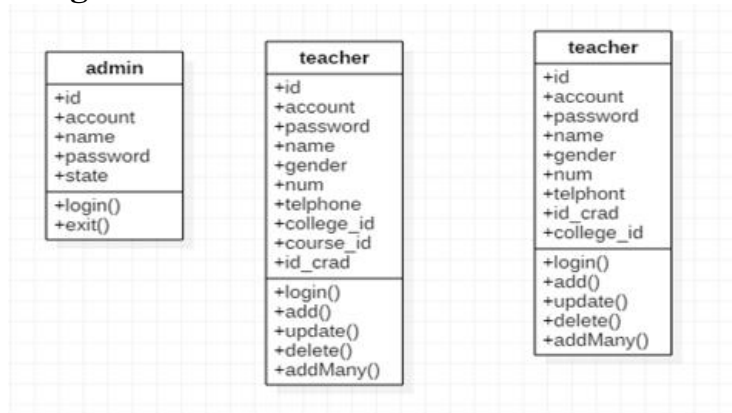


Figure 3: System character class diagram.

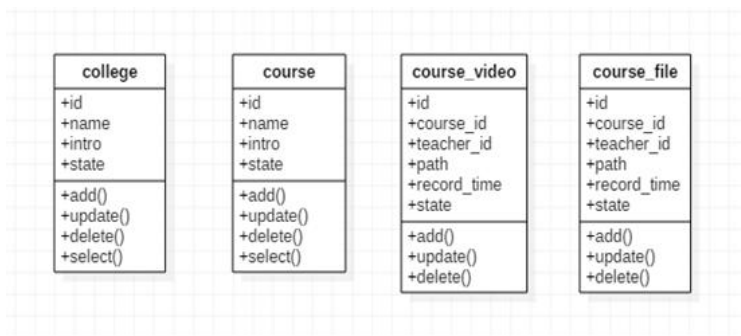


Figure 4: College, course, courseware diagram.

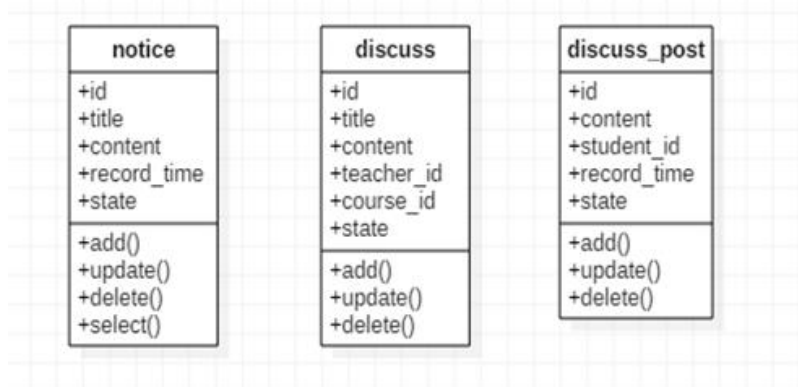


Figure 5: Announcement, Discussion, and Discussion Responsible.

At this point, the physical class of the online learning platform is basically analyzed. The relevant attributes of each entity class will be given in detail in the data table design.

After determining the system's physical class diagram, the concept layer needs to be further specific. The connection between the physical categories can be determined according to the specific situation. There are many teachers, many students, and many courses in a university. One of the courses and documents is in one course, and there are multiple discussion themes. There are multiple replies of a theme. A teacher can issue multiple exams, and one course can also release multiple teachers.

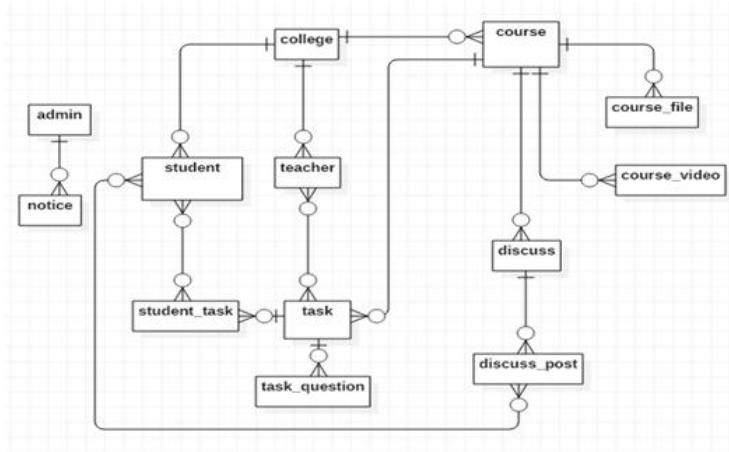


Figure 6: The overall E-R chart of the system.

According to the E-R chart of the system and the system, the system can determine that the 13 data tables are designed for the system. Course information table (Course), video information table (Course_video), file information table (Course_file), announcement information tables, topics discussion tables, discuss_post, test information form (TASK).

4. System implementation

Development tools: MyEclipse has attracted the support of almost all Java manufacturers with its complete open structure and powerful functions, and has won the favor of most developers.

Development tool: hbuilder, a web development ID that supports HTML5 launched by DCloud.

Unit test: Junit, the factual standard tools for unit testing, almost all conventional open source projects provide test-based use tools, almost all development tools provide it.

Server: Tomcat, the standard tool of JSP/Servlet container, after any new JSP/Servlet specification, it is almost the first support. It is the JSP/Servlet container recommended by Sun.

O/R mapping: Mybatis is a lightweight, powerful O/R mapping tool, which can be said to be the first choice solution for O/R.

Web framework: Spring: Let the majority of open personnel fully understand the powerful MVC frameworks of IOC and AOP, and use their own design concepts to attract the majority of open personnel to learn, learn and use.

Web framework: Spring MVC is the most widely used MVC framework with relatively simple development, rich resources, mature functions and more expansion support.

Log: LOG4J, widely used log tool package, first choice for open source projects.

Auxiliary tools: Jakarta Commons, which provides rich tool sets, short and smart, is also a learning system design and good resources.

Use MyBatis's reverse project to generate SQL mapping files and DAO interfaces, which greatly facilitates the operation of the database. Complete the realization of business logic in the server and complete the control forwarding in the Controller package. Because many coding logic in the system is similar, only the core code is given below. Such as login interception, user login, administrator functional module, teacher function module, student function module.

5. Insufficient and outlook

The platform has injected new vitality and possibilities into vocational education, combining advanced online learning concepts with technology to create a more convenient and richer learning environment for learners and educators. Vocational education online learning platforms make learning more flexible and personalized by breaking time and space restrictions. Teachers can obtain educational resources anytime, anywhere to improve their own quality. The platform focuses on collaborative learning, cultivating students' ability to cooperate and solving problems. At the same time, the platform provides a variety of learning resources and interaction methods, which enhances the fun and attractiveness of learning.

However, there are some challenges on the platform. Online learning puts forward higher requirements for students' self-discipline ability, and students need better time management and self-management ability. The interaction of the platform also needs to be continuously optimized to ensure that students can get enough interaction and feedback.

In the future, vocational education online learning platform will continue to develop and improve. With the continuous development of technology, the platform will have the opportunity to further improve the personalization and interaction of learning and achieve wider vocational education. Vocational education online learning platform is expected to become an important support for training high-quality talents and make positive contributions to the innovation and development of vocational education.

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