



Design and Development of Online Teaching Platform of Outline of Modern Chinese History Based on J2EE

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Abstract

Based on the knowledge and understanding of the Outline of Modern Chinese History (hereinafter referred to as "Outline"), this paper first expounds the meaning and importance of this course, then points out the problems existing in the teaching of "Outline", and then analyzes the solutions. Finally, based on B/S mode and J2EE standard, SSH framework is used to develop the online learning platform of the Outline of Modern Chinese History, and tries to design the teaching content and evaluation system reasonably by using appropriate teaching modes and methods. By synthesizing the innovative teaching mode and experience summed up in classroom teaching practice, and applying it to the auxiliary teaching platform, it will play a powerful role in promoting the teaching reform of Chinese modern history outline course and exploring the construction of the teaching mode of Chinese modern history outline theory course.

Keywords: *teaching platform of outline of modern history; J2EE; SSH framework; teaching mode*

1 INTRODUCTION

The Outline of Modern Chinese History is one of the public required courses in the ideological and political education of college students in China. As an ideological and political theory course with distinctive historical discipline characteristics, its content is characterized by a long time span, spanning more than 170 years of history. It covers a very rich content, involving many historical tasks, great martyrs, major events and so on in China's modern reform and development. The nature and orientation of this course is not a "history" subject, but by teaching the development and changes of Chinese culture, politics and society since the late Qing Dynasty, exploring the development laws of modern Chinese society, economy, politics and culture, and transforming the theoretical research of Marxism in China into teaching resources with practical significance and persuasiveness [3]. Combining the knowledge of the outline of modern history, ideological and political education should be carried out for students, so as to train them to think, analyze and solve problems with the basic viewpoint of dialectical materialism, and to enhance college students' ideological and political consciousness, national self-confidence and political identity.

As one of the main courses of ideological and political theory course, the Outline has strong historical

characteristics, times, frontier and authority, which requires students to master the basic trend of China's modern social development, learn the development theory of modern history and understand the law of historical development, especially the experience of Chinese people's revolutionary struggle under the leadership of the Communist Party of China. Students can deeply understand the reasons and inevitability of Chinese people's choice of the Communist Party of China, Marxism, socialist road and reform and opening up by studying the course Outline of Modern Chinese History. With the active efforts of teachers, the Outline Course of Modern Chinese History has achieved remarkable educational results. However, it is undeniable that there are some difficulties in the teaching of this course, and the teaching effect is still far from the requirements of the party and the state, such as inaccurate grasp of teaching objectives, lack of new design ideas in teaching content, lack of interaction in teaching process, imperfect teaching evaluation system, and low learning consciousness of students, which restrict the teaching effectiveness of this course and hinder the teaching development of the outline of modern Chinese history. Faced with this situation, colleges and universities need to reform the existing teaching mode. In the teaching process, teachers integrate teaching resources, apply advanced teaching concepts and methods to the Internet

teaching platform, and give full play to their advantages to realize the sharing of teaching resources, so as to fully stimulate students' initiative, improve their learning consciousness, and improve the teaching mode and evaluation system [1]. Teachers should pay attention to scientific teaching, combine it with practice, and teach students in accordance with their aptitude, so as to improve the teaching effectiveness of "Outline of Modern Chinese History". Using the network teaching platform is helpful to accurately grasp the teaching objectives and highlight the ideological and political nature; enrich teaching resources and highlight diversity; flexible use of teaching methods, highlighting the supply; reform the teaching evaluation and highlight the process; strengthen the communication between teachers and students and highlight the interaction [6]. The author thinks that using online teaching as a supplement to the traditional classroom can provide a new solution to the existing problems in the outline course of modern Chinese history. Therefore, this paper designs and develops a J2EE-based online teaching platform for the outline of modern history. The design of this platform is based on B/S architecture. Users can expand the teaching content and solve the teaching problems only by opening the platform in a browser. It mainly presents the relevant teaching content in the form of videos and data texts as an extension and expansion of classroom teaching. After the teaching is completed, teachers publish discussion topics and organize students to discuss online. In the network teaching, the practical task and stage test module are set, and then the teaching evaluation system limited in the classroom is extended to the network teaching to supplement the deficiency of the traditional teaching evaluation.

2 TECHNICAL OVERVIEW

2.1 J2EE

In the enterprise-level applications, there are some common enterprise demand modules, such as database connection, mail service and transaction processing. However, companies have developed their own common modules, and there is a problem that middleware is incompatible among companies. Users cannot assemble these middleware to serve themselves, so the "standard" came into being. J2EE is a series of standards developed by Sun Company for building server-side applications

and cross-platform services. The core of J2EE is a set of technical specifications and guidelines, in which all kinds of components, development frameworks and technical levels abide by common standards, so that different platforms of various J2EE architectures can maintain good compatibility [2]. J2EE architecture has the characteristics of security, portability, reliability and scalability. This architecture is widely used in application servers, where data collection and application logic are integrated. This structure is a simplification for the design of platform framework and system development, and relies on reusability, extensibility and development of components and application servers to ensure the integrity and security of system development. At present, both multi-tier technology and enterprise application platform adopt J2EE structure.

The architecture of J2EE system adopts the layered architecture thinking of J2EE specification, and the structure design is divided into client layer, Web presentation layer, business logic layer, persistence layer and database layer. Different servers can be applied to different structure layers, which makes its structure have distributed basic characteristics. At present, J2EE is most widely used to develop server-side web applications. The main development frameworks include Struts, Spring, Hibernate, MyBatis, etc., including 13 related technologies and specifications. Struts framework implements the WEB presentation layer, which integrates Servlet, JSPs, custom tags and information resources, and realizes the separation of display logic and business logic. As shown in Figure 1, J2EE components are deployed in different containers. Spring framework implements the business logic layer, which takes the lightweight container based on IOC dependency injection as the core, adopts AOP's aspect-oriented programming idea, and realizes the non-invasion of coding [7]. Hibernate framework implements the persistence layer, which is specifically responsible for the ORM mapping between domain model objects and database tables, thus reducing the time of manually using SQL and JDBC to process data. Compared with other technologies, this technology has the advantages of cross-platform and JDBC API to solve complex problems such as management, development and deployment in enterprises. J2EE is a fast and efficient program development technology, and its advantages in stability, scalability and cross-platform are the most widely used development schemes in the industry.

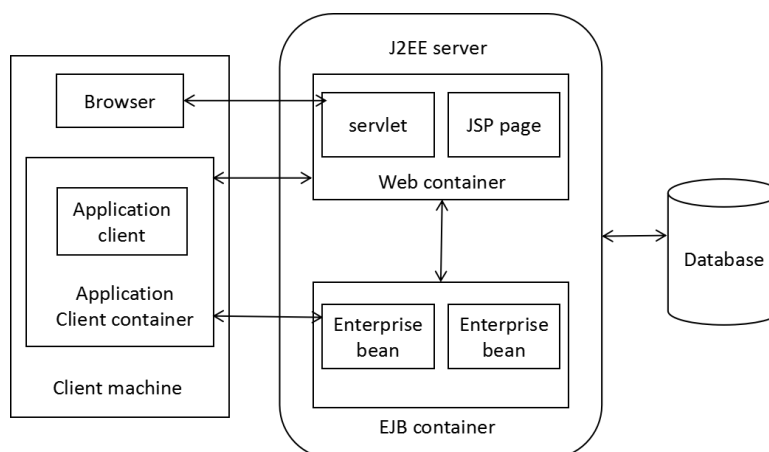


Figure 1: J2EE architecture diagram

2.2 SSH framework

SSH is an integrated framework that integrates the advantages of struts+spring+hibernate. It is a popular and highly used open source framework for Web applications developed based on JAVA language. The SSH framework integrated system is divided into four layers, namely, presentation layer, business logic layer, data persistence layer and domain module layer, in order to help programmers build Web applications with strong structure, good reusability and high maintainability in a short time. Figure 2 is the SSH composite architecture diagram, in which struts is used as the overall infrastructure of the system to realize the presentation layer and is responsible for the separation of MVC. The main work of the model part of Struts framework is to control the business jump, and hibernate framework is used as the technical support of the persistence layer. Spring is the manager of SSH, which is used to manage Struts and Hibernate and make them interact. SSH framework set is one of the most widely used frameworks when developing Java programs. The integration of Struts+Hibernate+Spring is developed based on MVC three-tier structure, in which Struts corresponds to the control layer of the server, Spring is responsible for the business logic processing of entity bean, and Hibernate is responsible for using Dao interface to complete the operation and database handover [4].

SSH framework is a new set of frameworks based on the traditional J2EE framework. Although SSH framework follows the layered architecture mode of J2EE, the implementation methods of the two frameworks are quite different from layer to layer. When j2ee framework and SSH framework complete the same computing task, SSH framework consumes less system resources than J2EE framework. SSH framework has no special limitation on the platform specificity of business objects. In SSH framework, business logic can be realized by ordinary Java objects. The technical advantages of SSH framework are embodied in four aspects: the separation of front and back ends is realized, and the reuse rate of server code is improved. The work between layers of the system is relatively independent, and the code is high in concentration and low in coupling. Even if it breaks away from the AOP mechanism of Spring environment, it will not hinder AOP from realizing business functions. Cross-platform technology used with SSH is extremely open-source, which promotes the rapid development of SSH framework. Because SSH technology includes the above advantages, the application system developed by SSH framework is very extensible and portable. At the same time, the open source SSH framework can greatly simplify the complexity and shorten the time of system development. The above advantages are also the reasons why the author chooses SSH framework to develop teaching platform.

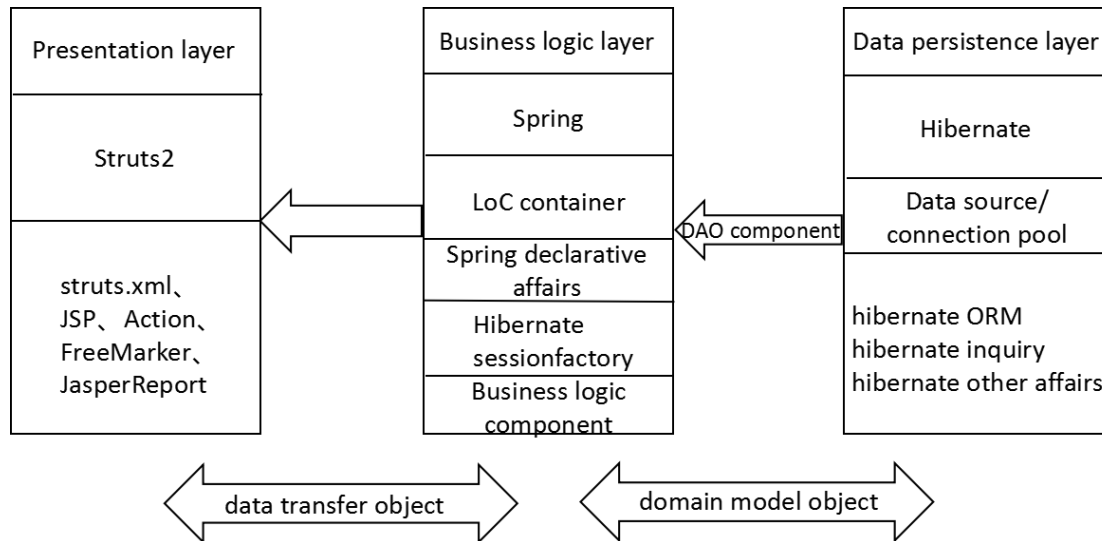


Figure 2: SSH composite architecture diagram

2.3 Development environment

The above technologies and frameworks are integrated to install and deploy the development environment of the online teaching platform of the outline of modern history, and the SSH framework is integrated. The development environment required for this development is as follows: Windows 7 64-bit is selected as the operating system; Choose JDK version 1.8 as the Java running environment; Tomcat7.0; is selected by the server; The Java development environment is Luna Service Release 2 (4.4.2) version of eclipse.

Next, the deployment of these environments is briefly explained: download and install jdk, and configure environment variables for it. In the path, create and fill in the installation path with variable name JAVA_HOME and variable value JDK, and check whether the configuration is successful. Press win+r, enter cmd,

```
private void startSSH() {
    String sshUser = "xxx";
    String sshPassword = "xxx";
    String sshHost = "xx.xx.xx.xx";
    int sshPort = xx;
    JSch jsch = new JSch();
    if (session == null || !session.isConnected()){
        session = jsch.getSession(sshUser, sshHost, sshPort);
    }
    session.setPassword(sshPassword);
    session.setConfig("StrictHostKeyChecking", "no");
    session.connect();
    System.out.println(session.getServerVersion());
    int assigned_port = session.setPortForwardingL(localPort, remoteHost, remotePort);
}
```

Figure 3: SSH connection database

confirm, then enter java -version in the command box, print Hello world file and enter java hello in the command window. Download Maven and configure related environment variables for it. Download Eclipse, and then enter the installation directory of tomcat in the blank text box of Tomcat installation directory. Download Tomcat and add "variable name: CATALINA_HOME, variable value: d: \ program \ Apache-Tomcat-8.0.53" to the system variables. Download MySQL and complete configuration and connection, as shown in Figure 3, namely SSH connection to the database. Finally, integrate SSH framework in eclipse: import jar package, add Struts2, spring and hibernate containers, and then configure web.xml, struts.xml and hibernate.cfg.xml to complete. To sum up, the development environment mentioned above ensures the feasibility of the development and operation of the online learning platform for the outline of modern Chinese history.

3 REQUIREMENTS ANALYSIS

3.1 System requirements analysis

According to different roles, the online teaching platform of the Outline of Modern Chinese History divides its functions into teacher client and student client, and enters the corresponding subsystems through different authentication. When entering the student client, students can learn new knowledge by following the teaching videos, download learning materials for self-reading, complete virtual practice in the task area, participate in problem discussion and interact with teachers and classmates online, and enter the stage test function to check their stage learning results. Teachers can organize and upload teaching materials, assign practical tasks, assign discussion groups to discuss topics, and arrange stage tests. This teaching platform is an effective supplement to the existing teaching methods of the Outline of Modern Chinese History, provides another new way for teachers and students to teach and learn, and is an auxiliary tool for students to learn courses outside the classroom. It can not only improve students' learning efficiency and interest in learning, but also strengthen teachers' supervision of students and the communication between teachers and students, and has a good promoting effect on the development of the Outline course [8].

3.2 Global design

The teaching platform of modern history outline in this paper is developed based on B/S architecture and MVC design pattern. The server-side application of J2EE standard combined with SSH framework is used to realize business logic processing, data persistence and related management of the server-side. The overall interaction process is as follows: the user sends a request directly to the html page through the browser, and the html page is responsible for calling the server interface through Ajax and using json data for interaction. The server uses the most basic Servlet to receive and return json data, sends the data to the JSP page of the presentation layer, and then controls the Service through struts, forming dependencies and controlling its life cycle. At this time, the spring framework is used to control the Action object and Service class in Struts [9]. Spring's Ioc (Control Inversion and Dependency Injection) controls the inversion of dependencies between programs by containers, and then applies transaction processing through Spring's AOP. hibernate also has transaction management, and in Hibernate, transaction management is accomplished by creating and maintaining Session by Session Factory. With the help of the DAO base class provided by Spring for Hibernate, the DAO layer can easily implement various DAO components. The domain layer is composed of PO, and under the management of Hibernate Session, the database is accessed. The database layer uses MySQL database to store persistent data.

4 FUNCTION IMPLEMENTATION

4.1 Student client

When students log in to the platform for the first time, they need to verify their student ID and default password. After entering, they can modify their passwords according to their needs. If they forget their passwords, they can get them back by email. As shown in figure 4, the seekpassword () method is written in action, and the key code for the Service to retrieve the password through the mailbox is injected. After logging in again, students can see different functional modules of the navigation bar: teaching videos, information materials, online discussions, practical tasks and stage tests.

Teaching videos: Click to enter this function, and students can find the teaching videos they need to watch by searching keywords. For example, if you enter "outline timeline" in the search column, relevant video content will appear, and you can select videos with longer duration and higher viewing rate by screening. The watched videos will be automatically saved in the "my learning" sub-function, and the system will keep the viewing progress, so it is convenient and quick to watch them again next time. This function is a supplement to classroom teaching. The video is collected and released to this module by teachers according to students' learning situation and teaching content, which meets the individual needs of students' autonomous learning and achieves the effect of "understand the present by reviewing the past".

Information materials: This functional module is divided into two parts, namely, hot information and learning materials. Students can view real-time hot information and learning materials when entering this module. The materials in both parts are e-books, which can be buffered to their own terminals and read anytime and anywhere, such as "Definition and Principle of Special Government Recognition and Inheritance" and "On the Four Qualities of Marxist Human Rights Thought". The design of this functional module makes up for the shortcomings of the textbook content and the difficulty in understanding theoretical knowledge, and broadens students' understanding of the outline.

Online discussion: The online discussion module is mainly for students to discuss the discussion questions issued by the teacher. The platform where the teacher publishes the discussion questions will pop up with a message, and students will enter the discussion group to check the discussion questions, such as "What is the Chinese dream, how to understand the Chinese dream" and "Why is the Constitution the core of the socialist legal system with Chinese characteristics". The teacher will give corresponding tips and comment on the answers of a certain classmate during the discussion, so that in the

process of discussing questions, we can not only deepen the learning content.

Practical tasks: Students enter the practical task module, check the practical tasks and task requirements issued by the teacher, complete the tasks according to the task prompts, and upload them to the platform as one of the results of the "outline" assessment. For example, briefly describe the "Xi'an Incident" task, and it is required to complete the task in the form of video (the duration should not be less than 3.5 minutes). Students can collect data and choose the way they are good at to complete the task, which can be a video explanation, or a microfilm can be made for role-playing with classmates to play the Xi'an Incident. This module is an important part of teaching evaluation, so that students' scores are not limited to sign-in and final written examination.

Stage tests: The teacher will release some test questions after the stage teaching, and students can click to complete the test. At this time, the timer will start, and the system will give a prompt and record the wrong answers, so that students can review and sort out the wrong questions after the test is completed. This module is combined with practical tasks as the result of teaching evaluation, so as to stimulate students' enthusiasm for

autonomous learning, and thus improve students' ideological consciousness of learning the Outline [10].

4.2 Teacher client

Teacher client has modules corresponding to student client, but the functions are completely different. Teachers' roles are different from those in traditional classrooms. On this platform, teachers' roles are more focused on the guidance, supervision and evaluation of online teaching activities of the outline of modern history [5]. As the publisher of platform learning resources and the designer of task test, teachers know the teaching content and progress best. The uploaded learning content is very useful for students, and the designed course tasks and tests also meet the actual teaching needs. After the teacher logs in to the teaching platform, the teacher completes the uploading of video teaching resources, real-time information and learning materials according to the set syllabus, so as to meet the students' needs of obtaining materials and autonomous learning. At the end of a certain teaching stage or class, teachers can issue some discussion questions, practical tasks and stage tests, which can not only increase the interaction with students but also test their learning effectiveness.

```
public String seekpassword(){
    System.out.println(admin.getAdminEmail());
    Admin newAdmin = adminService.seekpassword(admin);
    if(newAdmin == null){
        this.addActionError("User name and email address do not match!");
        return "WRONGEMAIL";
    }else{
        ApplicationContext context = new ClassPathXmlApplicationContext("applicatio
nContext.xml");
        JavaMailSender mailSender= (JavaMailSender) context.getBean("mailSender");
        SimpleMailMessage mail = new SimpleMailMessage();
        mail.setFrom("${username}");
        mail.setTo(admin.getAdminEmail());
        mail.setSubject("Learn platform password retrieval!");
        mail.setText("Dear administrator" + admin.getAdminUser() + ", Hello!"+"\n"
+ "You are in" + new SimpleDateFormat("yyyy-MM-dd HH:mm:ss").format(new Date())
+ "Submit a request to retrieve the password."
+ "The following is your account and password information:"
+ "\n"
+ "user name:" + newAdmin.getAdminUser() + "\n" + ", pass
word:" + newAdmin.getAdminPass() + "\n"
+ "This password is a temporary password, please change th
e password as soon as possible, thank you for using the system." + "\n"
+ "This is an automatic email sending, do not reply directly!
" );
        mailSender.send(mail);
        return INPUT; }
}
```

Figure 4: Key code for retrieving password

5 CONCLUSIONS

As one of the important courses of ideological and political education theory in colleges and universities, the "Outline of Modern Chinese History" plays a positive role in promoting students' correct view of history and national self-confidence. If teachers adopt traditional teaching methods, it is difficult to arouse students' learning enthusiasm and initiative. Therefore, teachers need to innovate and improve teaching methods to better meet the current teaching needs and meet the learning needs of contemporary college students. To innovate the teaching method of "Outline of Modern Chinese History", it is necessary not only to clarify the course nature and highlight the teaching theme, but also to stimulate students' interest in learning, emphasize students' dominant position, adhere to the teaching principle of integrating theory with practice, and give full play to the teaching advantages of the network platform, so as to achieve a good teaching effect.

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