



Design and Implementation of E-Commerce Online Teaching System in Colleges and Universities Based on J2EE

Ting Li(✉)

Chongqing College of Architecture and Technology, Chongqing, China
893024403@qq.com

Abstract. In order to solve the problems of lack of teaching resources and single teaching form in online teaching system of e-commerce in colleges and universities, this paper takes e-commerce teaching as the research object, and develops a set of online teaching system of e-commerce in colleges and universities with the help of network information technology, database management technology and computer application technology. The system adopts B/S architecture, follows MVC design idea, uses Java language to write server and introduces Springboot framework to complete the overall writing and design of Web Server, and uses MySQL to realize data support. It provides a common resource pool for the teachers and students of e-commerce major in colleges and universities, and contributes to the development of e-commerce in China, which promotes the teaching of e-commerce major in colleges and universities.

Keywords: internet plus education · e-commerce · springboot · computer application

1 Introduction

With the rapid development of China's economy, e-commerce has gradually started and occupied a certain position in the economy. With the expansion of e-commerce, the demand for relevant talents is getting higher and higher. It is an important channel for talents training in colleges and universities, and it is responsible for providing talents support for China's e-commerce. However, at present, there are still many problems in the teaching of E-commerce major in China: Firstly, the content is numerous and miscellaneous, and the online class is obviously insufficient. Secondly, the teaching forms are mainly oral teaching by teachers in the classroom. Thirdly, textbooks and courseware are mostly used as the main media, with single form and lagging update. Fourthly, the construction of full-time teachers is backward and the level is uneven. All these reasons lead to the disconnection between production and study of e-commerce major in colleges and universities [1].

Through the analysis of the above problems and combined with years of teaching and research experience, the author of this paper has designed a set of online teaching

system of e-commerce in colleges and universities, which provides a new teaching mode and teaching means for college education. It has realized the high integration and timely update of online and offline teaching resources, effectively integrated theoretical knowledge and practical activities, formed a standardized curriculum system of e-commerce specialty, and promoted the development of e-commerce specialty and industry.

2 Key Technologies

2.1 J2EE

J2EE is an enterprise application development specification. At the client layer, the components supported by J2EE are JSP pages or Servlet programs. In the business layer, Session Beans realizes the temporary conversation between the business layer and the client layer, and the Message-Driven Beans allows the business layer components to receive JMS messages asynchronously [2].

2.2 Springboot

Springboot is a development framework of Javaweb. With the core idea of “contract is bigger than configuration”, it simplifies the complicated configuration of Spring, and integrates a large number of third-party libraries and makes them out of the box, which greatly simplifies the development of Javaweb.

2.3 Development Environment

According to the requirements of the above related application technologies, complete the configuration and deployment of the development environment of online teaching system of e-commerce in colleges and universities. Linux is used as the operating system, Tomcat 8.0 is used as the Web server, Eclipse is used as the bottom development tool, JDK1.8.0_91 is used as the Java language development kit, Springboot2.6.13 is used as the development framework, and MySQL5.8 is used as the database server [3].

3 Function Realization

3.1 Student Side

a) Course Center

There are high-quality online courses uploaded by teachers in “course center”, and there are also micro-course videos recorded by teachers themselves. Students can play barrage to interact with each other and grade the courses. Scoring is mainly carried out from five aspects: compliance, innovation, achievement, completeness and satisfaction. Figure 1 shows the scoring model of the course “E-commerce Operation Practice” [4] (Fig. 1).

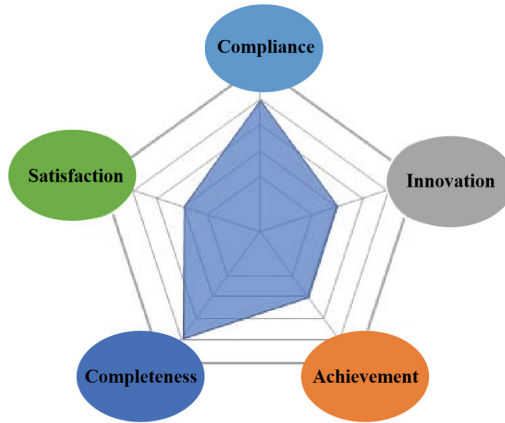


Fig. 1. Scoring model of “E-commerce Operation Practice”

b) Resource think tank

In the “resource think tank”, students can check the related e-textbooks and extracurricular books of e-commerce, as well as various forms of learning resources such as periodicals, newspapers, audio, video and courseware PPT [5]. Only the e-book download code is shown here, as shown in Fig. 2.

c) Training base

Students in the “training base” can participate in the on-campus competitions and practice activities initiated by teachers, or they can be the research and practice of the practical departments. After the practice activities are finished, they can upload practice reports. Teachers will grade the practice report, and the system will synthesize all teachers’ grades to calculate students’ practice report scores. [6] Mushroom cloud model and evaluation model are used here. The basic steps are: First, determine the factor set and weight (AHP); Secondly, determine the comment set; Then, a fuzzy matrix (evaluation matrix) is established; Finally, fuzzy comprehensive evaluation.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE hibernate-mapping PUBLIC
    "-//Hibernate/Hibernate Mapping DTD 3.0//EN"
    "http://www.hibernate.org/dtd/hibernate-mapping-3.0.dtd">
<hibernate-mapping>
  <class table="t_mvc_book" name="com.mwy.book.entity.Book">
    <id name="bid" type="java.lang.Integer" column="bid">
      <generator class="increment"></generator>
    </id>

    <property name="bname" type="java.lang.String" column="bname"></property>
    <property name="price" type="java.lang.Float" column="price"></property>
  </class>
</hibernate-mapping>
```

Fig. 2. E-book download code (in part)

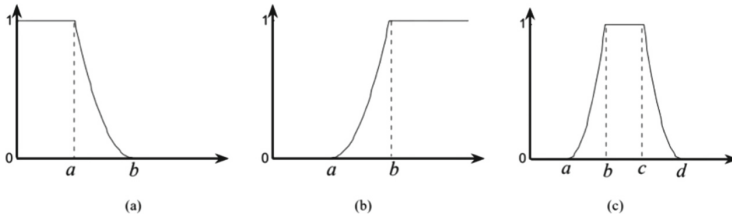


Fig. 3. K parabolic or semi-parabolic distribution diagram

The fuzzy distribution used in this paper is K parabolic or semi-parabolic distribution, and the distribution diagram is shown in Fig. 3.

3.2 Teacher Side

The main functions of the teacher side are resource management, student evaluation and activity organization. Teachers are responsible for uploading all kinds of resources and managing them, including editing and deleting information. Teachers can make comprehensive evaluation of students, including study and practice. Teachers need to upload information about competitions, practices and other activities, monitor the progress and problems in time during the activities, check the works or reports submitted by students, and give their own opinions or suggestions [7].

The author put the system into the test of teachers and students majoring in e-commerce in our school, and made an analysis from the aspects of client operation fluency, system utilization, background operation architecture design, database design, code implementation and other aspects, and made some optimization of the system [8]. The test results are shown in Table 1.

Table 1. Functional test results (part)

Test items	Test score (out of 100)	Utilization rate (percentage)	BUG quantity	Result analysis
Course center	77	63	2	Need to improve the attractiveness of the course
Resource think tank	80	77	4	System functions need to be optimized
Training base	76	86	2	The function needs to be rich

4 Conclusion

E-commerce online teaching system in colleges and universities can play a very good supporting role in the traditional classroom of e-commerce major in colleges and universities, effectively increase the class hours of e-commerce related courses, integrate a large number of network multimedia resources, and provide more opportunities for offline practice. Moreover, it forms a comprehensive evaluation model for students, which contributes to the cultivation of e-commerce professionals and injects power into the development of China's financial industry. In the future exploration and research, we will continue to deepen the research and improvement of e-commerce online teaching system in colleges and universities, so that e-commerce online teaching can better serve the traditional classroom, cultivate more e-commerce talents with solid professional knowledge and excellent professional skills, and make contributions to the sustainable and healthy development of e-commerce in China.

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