



The Design and Implementation of Online Teaching System for Photography Major Under the Background of “Internet Plus”

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Abstract. In order to supplement the teaching of photography in colleges and universities, the author of this paper has developed a network teaching system for photography. The system uses Java language to design programs, uses SpringMVC framework to build processes, uses MySQL database to realize data storage and management, and sets up two different interfaces for students and teachers, thus establishing a learning platform for teachers and students to grow and progress together. And it can fully integrate education and teaching resources and teachers, mobilize students' dominant position in learning, exert the influence of online teaching of photography major, and cultivate photographers with both professional knowledge and more professional skills.

Keywords: internet+ · Photography · Network teaching · Spring MVC

1 Introduction

With the progress of science and technology and the improvement of people's living standard, the demand of photography professionals has increased dramatically and changed constantly, and the development of the industry is increasingly characterized by digitalization and networking. The photography major in colleges and universities is an important training channel for photography talents, and continuously delivers outstanding talents who keep pace with the times for the photography industry. But at present, the traditional teaching method of “students around teachers, teachers around books” is still adopted for photography majors in colleges and universities. The upgrading of teaching materials lags behind the development of technology, the construction of professional photography teachers is backward, and the classroom is the center, which leads to the lack of practical opportunities for students. All kinds of problems lead to the problem of “separation of production and learning” in photography majors. The education and teaching of photography major in colleges and universities need to be reformed constantly, starting from the aspects of teaching content, teaching form, teaching method, process control and evaluation system, etc., so as to realize the all-round upgrade of teaching mode and promote the informatization construction process of photography major education and teaching in colleges and universities, so as to meet the current social demand for photographers.

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In summary, the author believes that in view of the problems existing in the photography major in colleges and universities, we should comply with the educational reform brought by internet plus, and make use of the advantages of the Internet, such as real-time interaction, resource sharing and huge data, to develop an online teaching system for photography major. This system uses Java language for programming, SpringMVC framework for process building, data storage and management, and MySQL database, which completes a set of online teaching system for photography major with simple operation, powerful functions and abundant resources.

2 Key Technologies

2.1 Spring MVC

The Spring MVC is a lightweight Java language framework. With the separation of Model, View and Controller, the division of roles of web applications is realized, and the response speed of users' needs is accelerated. The Spring MVC is easy to expand, supports a variety of View technologies, integrates with the Spring framework, and supports a variety of mapping strategies for request resources. The components have a clear division of labor: front-end controller (DispatcherServlet), request mapping processor (HandlerMapping), HandlerAdapter (handler adapter), ViewResolver (view resolver) and view rendering (view) [1].

2.2 MySQL Database

The MySQL database is an open source relational database. The biggest feature of it is that it stores data in different tables, so it is more flexible and convenient to manage and use data. With a portable and distributed data management system, MySQL can share databases anytime and anywhere. Because MySQL is free, cross-platform, easy to operate, small memory footprint, fast running speed, rich interfaces (C, C, JAVA, PHP, Python, etc.), and suitable for many platforms (Unix, Linux, Windows), it has become the preferred database choice of many enterprises [2].

2.3 Development Process

According to the above application requirements, complete the configuration and deployment of the development environment of online teaching system for photography major. Firstly, the operating system of the system is Linux, Tomcat 8.0 is selected on the Web server, Eclipse is selected as the bottom development tool, JDK1.8.0_91 is used as the Java language development kit, and MySQL5.8 is selected as the database server.

The selected version of SpringMVC framework is SpringMVC5.3.20, which needs to be downloaded from Spring official website. The development kit JDK1.8.0_9 needs to be downloaded from Oracle official website. After preparation, configure SpringMVC in Eclipse2020: create a new project in Eclipse2020, copy the jar package to the WEB-INF/lib directory, and configure the web.xml file, which is mainly divided into four aspects: writing the configuration file [servlet-name]-servlet.xml, configuring the front-end controller DispatcherServlet, initializing parameters of contextConfigLocation, and

configuring listener Listener. After that, you can start running. In the framework of SpringMVC, the data layer is responsible for implementing business logic, and the view layer displays data to users. The control layer is responsible for the communication between the data layer and the view layer, and completes the quick response to the user's needs through division of labor. After the design of all system functional modules is completed, the simulation operation test is carried out. When the test is finished, all the files of the system are packaged and then deployed in Tomcat. After the IP address is set, it can be provided to the client.

By the introduction of the above key technologies and theories, the selection of the overall environment for system development, and the configuration of related software and toolkits, the feasibility of constructing the online teaching system for photography major under the Web technology is clarified.

3 Function Realization

3.1 Student Side

The students click to enter the online teaching system of photography major, and click to enter the “student portal” to register and log in. After logging in, they will see the following four modules:

Among the “Excellent Courses” modules, there are many categories of photography courses, which can be divided into two major systems: still picture photography and dynamic film photography. Under each system, there are required courses in our school, and teachers can record courses online or upload videos after recording themselves; There are also other famous schools' courses, which cooperate with other universities to share course resources, such as Film Light and Shadow and Photography Skills and Feature Film Photography Creation of Beijing Film Academy.

In the “homework” under the “self-examination and self-test” module, students can complete the photography-related homework assigned by teachers. It can be submitted in text, image, video and other formats. In the “Stage Self-Test” option, students can choose the corresponding question banks of different courses to brush questions, or click to enter the corresponding entrance of different courses to answer questions. After answering questions, they can submit their own papers or the system will automatically roll them up at the set time. In this module, a test paper can be composed of several different questions, and the same question can exist in several different test papers. The code of question bank is shown in Fig. 1 [3].

```
@Entity
public class Question{
    private Long id;
    @Column( length=65538)
    private String name;        //Question name
    private int type;          //Type of question (1 single choice, 2 multiple choice, 3 judgment, 4 subjective)
    private float point;      //Score of the problem
    private String rightAnswer;//Multiple choice questions are separated by commas.
```

Fig. 1. Question Bank Management Code (Original)

```

//1,Login to mail server
//MailUtils .createSession(Server address, direct name and password)
Session session = MailUtils.createSession("smtp.163.com", "jiwu_peng",
"peng593594")
System.out.println("test");
System.out.println(user.getEmail());
System.out.println(model.getTitle());
System.out.println(model.getContent());
//2,Create mail object
Mail mail= new
Mail("jiwu_peng@163.com",user.getEmail(),model.getTitle(),model.getContent()),
System.out.println("test2"),
//3, Send

```

Fig. 2. Email sending code (Original)

During the “Answering Questions and Answering Questions” under the “Communication and Sharing” module, students, teachers and students can interact with each other, ask questions publicly in the forum, or @ give a teacher a key reminder, or send emails for contact. The mail is written using CKEditor plug-in, and the mail is sent using mail-14.jar package. The code is shown in Fig. 2. In the “resource sharing” module, students can download photography-related education and teaching resources. It include classic curriculum resources, such as seven questions of photographic aesthetics and other books, as well as resources that keep up with the wind, such as digital media-animation, animation, virtual reality and other directions, and new media-short videos, micro-movies and so on [4].

In the “Personal Center” module, students can make personal data changes and log out of the system, view the downloaded resources, clear the cache, etc.

3.2 Teacher Side

The teacher clicks into the online teaching system of photography major, and clicks into the “teacher’s portal” to register and log in. After logging in, you will see the following modules:

In the “Course Management” module, teachers can edit all their own courses, including creating new courses, uploading PPT, uploading teaching videos, publishing course notices, and checking the course completion.

In the “homework management” under the “assessment management” module, teachers can edit and publish homework, set a deadline for completion, and correct the homework submitted by students accordingly. In the “examination paper management”, teachers can edit examination questions and answers online, and issue examination information to inform students.

In the “Sharing and Communication” module, teachers can upload high-quality network resources to the database, top and push important learning resources, or delete them. The teacher can exchange teaching experience with other teachers, reply to questions raised by students [5].

4 Concluding Remarks

The online teaching system of photography major under the background of “internet plus” can complement the traditional teaching mode of photography major, help college students of photography major to master classic professional knowledge, exercise professional skills that keep pace with the times, and also help to set up a team of photography major teachers with considerable scale and excellent ability, and form a talent source support system for China’s photography industry. In the future exploration and research, we will continue the online teaching reform of photography major, and continue to deepen the combination of online and offline, so that online teaching and education of photography major can exert greater influence and promote the sustainable development of photography industry.

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