

Management and Benefits of Online Examination System

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ABSTRACT

Examination System is necessary to separate teaching and testing. A web-based Examination System is developed with PHP technology. The system provides the functions, including question management, paper generation and test online. Also the combination of client-side programming and server-side programming techniques are used and analyzed.

This Web Application provides facility to online examination worldwide. It saves time as it allows number of students/candidates to give the exam at same time and display the results at the end of the test, so there is no need to wait for the result. It is evaluated and generated by the server. Administrator has privileges to create and modify the test papers and its particular questions. User can register, login and give the test with his specific ids, and can see the results as well. It eliminates the use of items like pen, paper, etc.

Keywords: Online Examination System, PHP, online Test, Javascript.

INTRODUCTION

Examination System is helpful to separate teaching and testing. It promoted teacher to make the lesson planning and teach in the class carefully. It is also an important means of evaluating the teaching effect. Otherwise, it stimulates students to conscientiously study and attend a lecture, to do their homework independently. Therefore, the Examination System improves the teaching level by providing better technical support.

Within the Examination System that we are developing, the teacher could set the score and number of different types of question according to their need. And then, the Examination System generates an exam paper randomly in accordance with the requirements. Finally, the paper in standard format and its answer could be outputted.

Taking into account the development of course content, the Examination System could easily update and add questions, to make the teaching content developing with the technology synchronously.

The Examination System also provided online testing capability for students. Students could log in the system at any time in the campus network, test themselves, understand their learning level, and adjust their learning progress. Online course examinations are useful to evaluate the student's knowledge using modern computer technology without any effects on the traditional university course exam that uses Pens, Papers and invigilators.

Online exam can improve the standards of student's examination whereas the traditional examination system using the pen and paper requires more effort on the part of students and invigilators.

Online examinations are considered an important source for university exam, and the development of network technology polices has given the possibility to conduct the exams online. Thus, the university students can benefit from these services.

University course exams , using the multiple choice questions and allowing the students to choose only one answer from alternative answers or the true/false questions, are traditionally using the paper and pens and they have

always been a heavy load for both students and lecturers. Computer, an emerging technology or we say already emerged technology has been generally useful to the fields of education. In attitude and tools, the new computer technology gives the lecturer the advantage of an effective assessment.

DESIGN OF ONLINE EXAMINATION SYSTEM

Browser/Server model is an important network application development model. It is a special kind of Client/Server model, which used standard Web browser as Client-side, and Web Server as the Server-side. In Browser/Server model, the main business logic of program was implemented on the server side. Such application called Web application, has the advantages of good reusability and Easy maintenance. Our Examination System is developed using PHP, and runs on the campus network. It was called online examination system.

PHP has become the main technology to create Web applications, because it is easy to master and can achieve rapid development. The architecture of JSP Model is shown in Figure 1.

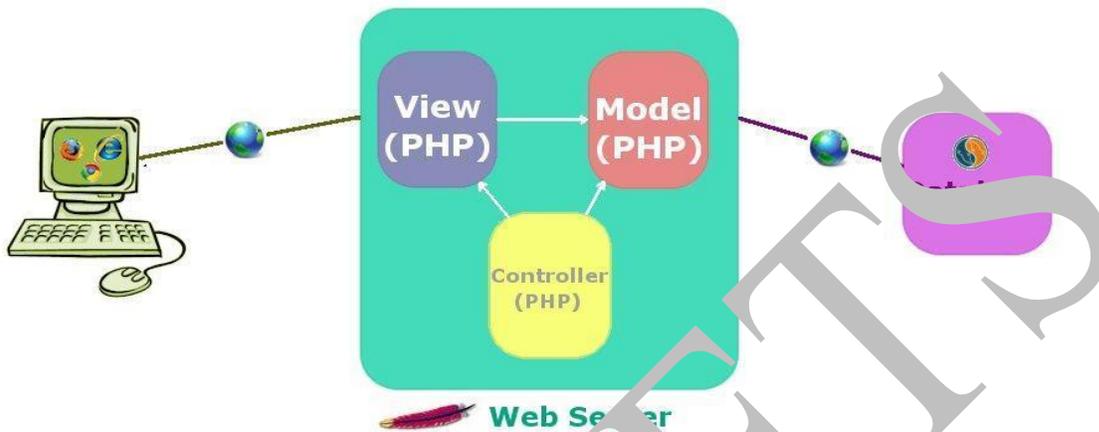


Figure 1 PHP Model

ARCHITECTURE OF ONLINE EXAMINATION SYSTEM

Figure 2 is the system structure of online examination system, which is designed based on above Model. In the system, Web browser is used as client, PHP Engine as the business logic tier to achieve its function, and database system as the data layer.

(1) Client: Client is Web Browser, which implemented the system's display logic. The function is to send request to Web Server (including PHP Engine) through the Web browser by users (teachers or students). While Web Server return the requested HTML pages or HTML pages dynamically generated by JSP page to the client, which are shown in the Web browser.

(2) Business Logic Tier: Business logic tier is achieved mainly by PHP. It responds to client requests and achieves the business logic with the Web Server. WAMP server is used as the PHP Engine and Web Server.

(3) Data Tier: Data tier was realized with database system, used to store the business data such as questions and papers and control data such as user data. MySQL was used to achieve the data tier.

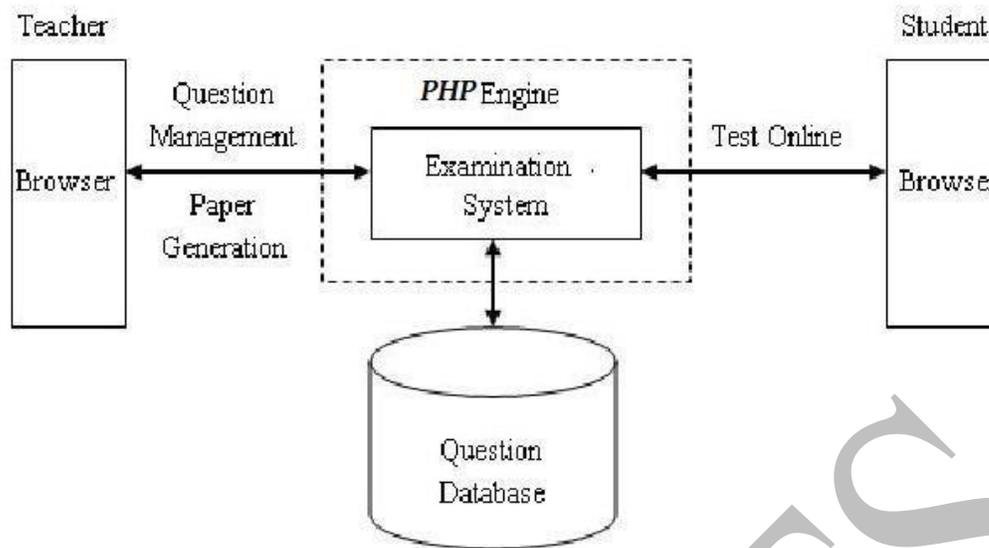


Figure 2 PHP Architecture

FUNCTIONS OF ONLINE EXAM SYSTEM

Figure 3 is the function module diagram of online examination system. There are three modules in the system, including question management, paper generation and test online.

1) Question Management: The functions of this module is querying, adding, deleting, and modifying the questions.

2) Paper Generating: The function of this module is randomly generating exam paper according to specified requirements. It was the core function of online examination system. The system randomly extracted questions from the question database in accordance with three restrictions, including question type, difficulty and chapter to generate an exam paper.

Here the term Paper Structure was a set of specified score and number of different types of question, which constituted a paper.

The term Paper was a paper generated by extracting questions from the question database in accordance with a Paper Structure. A Paper consists of a sequence of questions, which formed the paper.

3) Test Online: Student user could use the function of test online to randomly select a paper or use a paper designated by teacher, and login the system at any time within the campus network, self-test online, and understand their learning level.

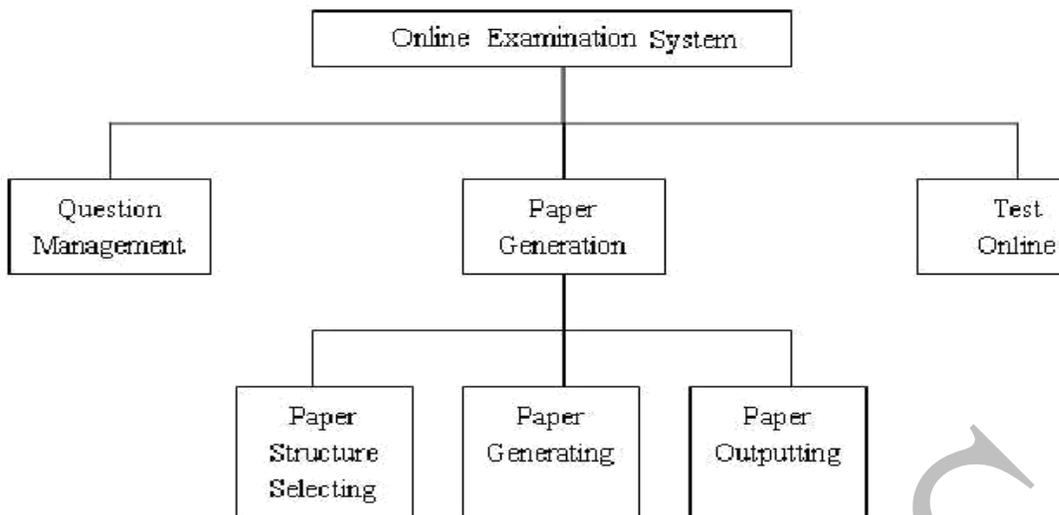


Figure 3 Functional module diagram of online examination system

KEY TECHNOLOGY IN IMPLEMENTING ONLINE EXAMINATION SYSTEM

In test online module, the function on online answering was achieved with HTML forms in the answer page. Here it was necessary to implement four types of submit, including going to next question, going to previous question, going to rating and going to answering. These functions should be submitted to different pages, but there was a function to save the user's answer of current question that should be achieved in all submits. To do so, the form should be submitted to one page to save the user's answer, and then forward to corresponding next page. It was important to distinguish which button made submit when the server received.

To implement this feature, a technology combined with client-side JavaScript and server-side PHP was used. On the client side, a JavaScript function was binding with each submit button. Before submitting to server, the corresponding parameter was set to a certain value firstly. And on the server side, PHP technology was used to distinguish which made the submission according to the parameter value, and then make the appropriate process.

CONCLUSION

The Examination System also provided online testing capability for students. Students could log in the system at any time in the campus network, test themselves, understand their learning level, and adjust their learning progress. Online course examinations are useful to evaluate the student's knowledge using modern computer technology without any effects on the traditional university course exam that uses Pens, Papers and invigilators.

Online exam can improve the standards of student's examination whereas the traditional examination system using the pen and paper requires more effort on the part of students and invigilators.

PHP Model development model was used to develop online examination system, with the combination of client-side and server side development technology. There are such functions as question management, paper generation and test online, which gave good aids for teachers to organize examination and students to study the course.

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