



Big Data Platform System of Students' Comprehensive Ability Software Performance Test and Analysis

Ying Jin^{1(✉)} and Hantao Gu²

¹ Fushun No.1 high school, Fushun 113001, China
jinying2006@126.com

² University of Electronic Science and Technology of China,
Zhongshan Institute, Zhongshan 528400, China

Abstract. This system is mainly for classroom management system, including school situation analysis, event management, school files, daily tasks, etc., teachers upload information, students view information, in the visual studio 2015 development environment, using C language object-oriented programming, using framework 4.5 framework, SQLite database development. In the software test after coding, the students' classroom management system is more and more perfect.

Keywords: Software testing · Classroom management · C# · vs2015

1 Introduction

With the continuous development of science and technology, the position and function of computer and computer network are increasingly prominent. Network classroom management should become a very important teaching method, network classroom management system is more and more attention. This paper mainly studies the application and promotion of classroom management system. To solve the problem of multi-platform heterogeneous data integration, the content of student attendance, learning and teaching evaluation is completed through multi-system. By studying the forms of classroom management score report, attendance report, student information and related technology in the network classroom system, the original multimedia teaching technology is extended and the classroom performance of students is digitized by combining the traditional teaching mode.

Inspect and test the entire project to ensure the feasibility and normal operation of the program, including data testing for each module and each function, upon completion of the classroom management development. Through the automated test (including black box testing and white box testing) to shorten the test cycle software development, can make the product faster finish, automated testing is more efficient, make full use of hardware resources and save human resources, reduce test cost, also can enhance the stability and reliability of the test, improve the accuracy of software testing and accuracy, increase software's trust, is relatively easy to make the test software test tools work.

2 Demand Analysis

Students' requirements for system functions mainly include management and modification of personal accounts and passwords, inquiry of attendance records, inquiry of class results, praise from teachers or situations requiring improvement, class records, attendance summary records and other functions.

Administrators have information management, browsing and other rights. Includes records of teacher-student operations, including checks for data additions and deletions. From the perspective of user management and classroom management, user management mainly includes viewing and modifying the information of teachers and students, while classroom management includes adding, deleting, changing, checking and attendance records of classroom data, student scores and other information.

3 System Software Design and Actualize

3.1 Module Design

The user in the front end enters the account password through jquery and regular expressions to determine whether the user input conforms to the rules, including < HTML>Code and @ in accordance with the input, and to prevent SQL injection, not of the above, under the precondition of abiding by the rules of ajax, after click the button after winning two input function of the input value, the introduction of the value, the back-end through a user name to query the user list, if there is no query to the data, the user does not exist, the query to the later, the user to enter the password, and query to the password string comparison, through the if condition statements, if equal, login is success; If not, the password is wrong. Administrator login is three parallel and independent modules of student login and teacher login. The specific login name is similar to the system login name, which can take the input label from the front end and send it to the back end using Ajax for judgment and prompting.

Information management is mainly the operation of the teachers, students' class performance for a particular class, the students of class information, ratings, reviews, fill in comments on interface options, then click on the submit button, because the information has a nullable, but after filling the jquery + regular expression to determine whether the input avoid legal input HTML code and SQL injection, legally, in the same way through ajax filling is passed to the backend data, through the SQL statement to insert data into a specific table and insert specific information. Class management is mainly to classify the majors and classes of secondary majors in order to better index students, find students' corresponding classes and view specific information. Facilitate teachers and students to find their own class and performance.

3.2 Database Design

This project is mainly divided into the users table, table, teacher table, the table class, students information table, classification of secondary school, professional classification, campus information table, users table and students watch teachers and administrators table, is mainly responsible for user login, including class table and classification table and student ID, student table associated with secondary school and the professional classification. By operating the class table, the teacher adds and modifies the data of students' classroom performance. Here is the diagram.

Main user table is divided into three categories, including teachers, students, administrators, including the user table by teacher student ID, the details of the corresponding table query student ID or job number and password, the login page by getting the front end account password after compared with back-end query the database account password, if correct, the login is successful, to enter the main page (Fig. 1).

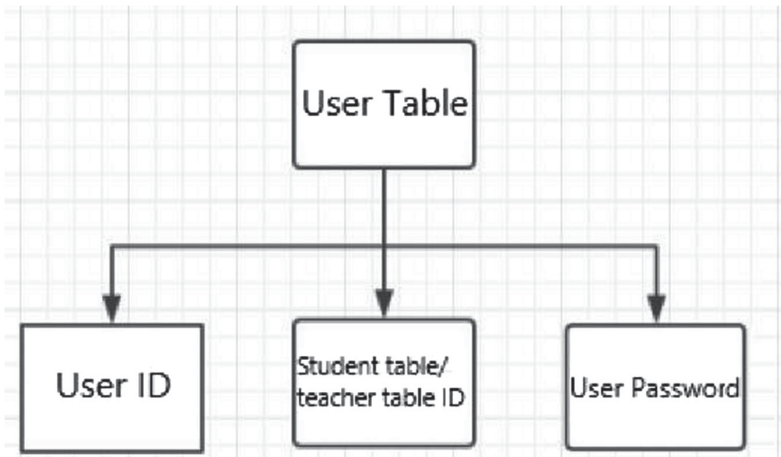


Fig. 1. The users table

The administrator is the identified teacher number. The administrator can act as the administrator as well as the teacher, adding, deleting, modifying and checking classroom records. The student only has the right to view classroom records and has no right to modify them, but the student can modify their own general information (Fig. 2).

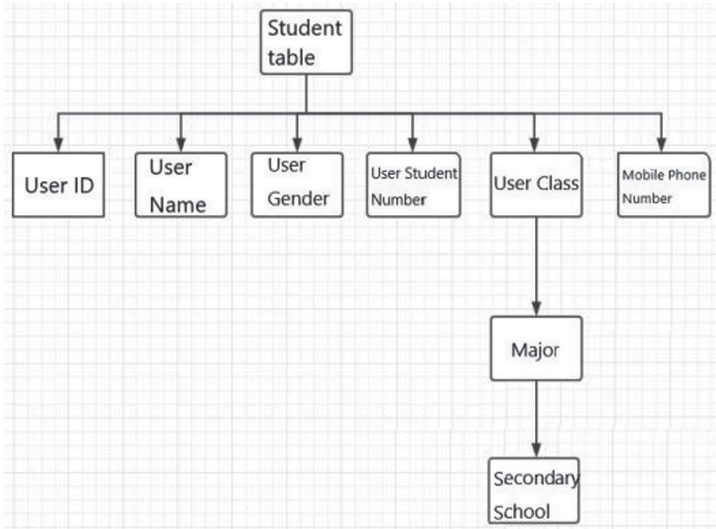


Fig. 2. The students table

The student table is the specific information of students, which is associated with other tables to obtain students' classroom performance and class rating, mainly including student ID, user name, gender, student number, class and corresponding major and secondary college of the class, and finally the mobile phone number.

The teacher table is similar to the student table, but the only difference between teachers and students is that the authority is higher than that of students. The teacher table identified is the administrator, and their relationship is that the administrator's authority is greater than that of teachers and students. To protect data and prevent data from misoperation (Fig. 3).

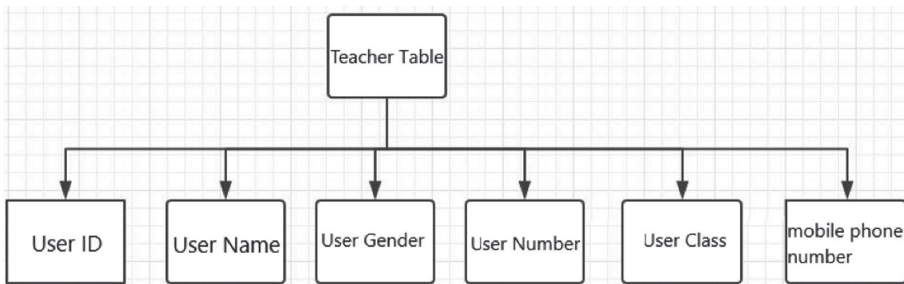


Fig. 3. The teachers table

The class table is similar to the class schedule, which records the current classroom classroom and class attending class. Each period has a teacher in charge of the current

classroom. For the convenience of classification, the class table includes the class ID, class classification, teacher, classroom, class attending class, and the cellphone number of the teacher or person in charge (Fig. 4).

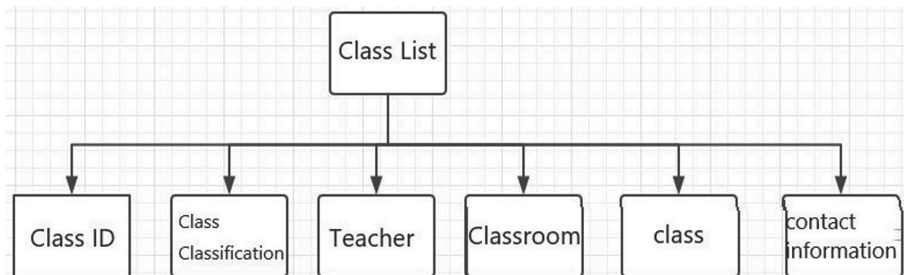


Fig. 4. The class table

Classroom performance information table is a big table, the data is also involved, mainly because the class information table and the table class, students table, table correlates to teachers, the performance of each student is a data, we can through the associated query, look at each of the students or the teacher's personal information, and each student of the teacher's classroom record, attendance, and students' classroom performance, grade class, etc.

4 System Debugging

4.1 Front-End Classroom Management Homepage Test

The implementation method of home page is relatively simple, mainly presenting class information. Click to enter the corresponding class management interface, which contains all class information and the name of the class teacher. The test here is mainly click test (Fig. 5).

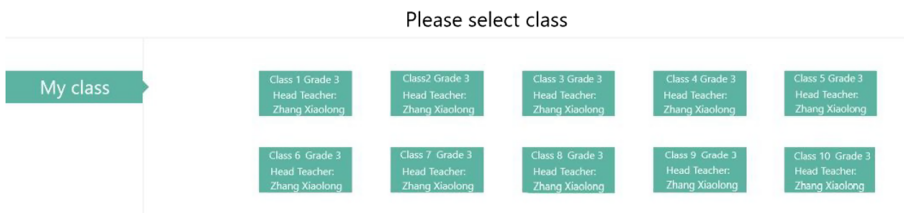


Fig. 5. Classroom management homepage

Click the corresponding class on the home page and enter the class management interface, which is divided into six functions, including class grading, class attendance, class report, class record, random selection and timer, as shown in the figure below (Fig. 6).

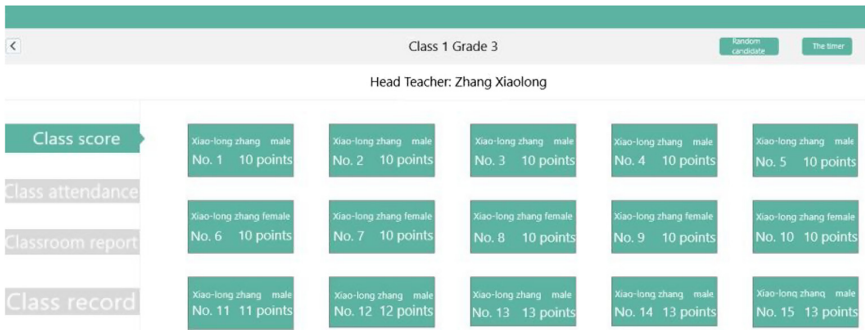


Fig. 6. Classroom grading interface

5 Conclusions

The tests should be designed for a specific purpose, and then tested for important aspects of one or more functions. Key test cases that are executed multiple times can be automated to properly evaluate the development and maintenance of automated test scripts. In general, manual testing can replace automated testing of any type and function, but automated testing is difficult to implement in situations such as multi-user concurrency. While the use of testing tools can improve the quality and efficiency of testing, the successful implementation of automated testing must follow the concepts of systematic, structured, and progressive testing.

References

1. Zhang, W.: Research on software development mode of automatic test system. *Electron. World* **2020**(06), 34–35 (2020)
2. Huang, Y., Xu, L.: Quality management of hospital information system based on full life cycle. *China Health Qual. Manag.* **27**(02), 81–83 (2020)
3. Liu, J., Wang, L., Yang, J.: Computer software testing method and application analysis. *Sci. Technol. Wind* **2020**(09), 119 (2020)
4. Zeng, X.: Application of ARIMA model in software test defect quantity prediction. *Fujian Comput. Sci.* **36**(03), 19–22 (2020)
5. Yu, Q.: Exploration of ideological and political teaching for software engineering course. *Fujian Comput. Sci.* **36**(03), 93–95 (2020)
6. He, W., Shen, X., Liu, B., Han, X., Tang, L.: Research on mission based ship equipment software test technology. *Comput. Measur. Control* **28**(03), 72–78 (2020)

7. Wu, X.: Hybrid teaching research and practice of ““software testing”” course. *Wirel. Internet Technol.* **17**(06), 94–95 (2020)
8. Xu, R., Jiang, F.: Application and comprehensive management of software testing technology. *Electron. Qual.* **2020**(03), 50–53 (2020)
9. Niu, F., Zhang, G., Su, Z., Yue, F.: Multi-stage multi- objective dynamic test resource allocation algorithm. *Comput. Eng. Des.* **41**(03), 656–663 (2020)
10. Baoyun, J.: Application of software automation test method. *Comput. Prod. Circ.* **2020**(03), 21 (2020)
11. Xu, L.X., Wu, H.Y.: Overview of software engineering methods based on swarm intelligence. *Comput. Res. Dev.* **57**(03), 487–512 (2020)
12. Niu, Y.: Construction and application of aerospace software test model. *Software* **41**(03), 268–271 (2020)
13. Zhong, R., Wang, T., Li, X., Zhang, X., Wang, J.: Heterogeneous multi-machine virtual simulation platform for aerospace control software. *Microelectron. Intell. Manuf.* **2**(01), 85–90 (2020)
14. Dohai, H.: Unit test case design and case analysis based on LDRA testbed. *Electron. Test* **2020**(06), 9–12 (2020)