



Application of Modern Information Technology in the Design of Music Course Auxiliary Teaching System

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Abstract. By applying Web Service, JSP, SQL Service and other technologies in the music-assisted teaching system, and constructing the B/S three-layer architecture, the music course-assisted teaching system can be further developed. In the music course assisted teaching system based on modern information technology, it includes functional framework, system framework, database and other design. Through the JSP development and framework technology, this paper further studies the music course-assisted teaching management, and optimizes the interaction interface between teachers and students and the computer. The system development and implementation also shows that the application of modern information technology in music course auxiliary teaching system is helpful to improve the function of music course auxiliary teaching system. Through the realization of the system functional module, it is also proved that the system can operate stably and meet the design purpose.

Keywords: JSP · Web Service · Java EE

1 Introduction

There is no doubt about the necessity of using modern information technology to design the music course auxiliary teaching system. Through modern information technology, the quality of music teaching can be improved, and the mode of music teaching can also be transformed, so that the music teaching can realize offline teaching. Secondly [1], modern information technology has improved the music course auxiliary teaching system, so that it has the functions of students' learning assessment, performance analysis, teachers and students, and can provide online information interaction for students and teachers to improve the efficiency of music teaching. In the design of the music course auxiliary teaching system [2], considering the needs of teachers and students, we adopt the JSP framework, and choose the Web Service mode, to improve the logic processing and interactive system in the music course auxiliary teaching system, improve the compatibility of the system, and further upgrade the system [3].

2 System Design

2.1 Functional Framework Design

The functional framework of the music auxiliary teaching system after the application of modern information technology is shown in Fig. 1.

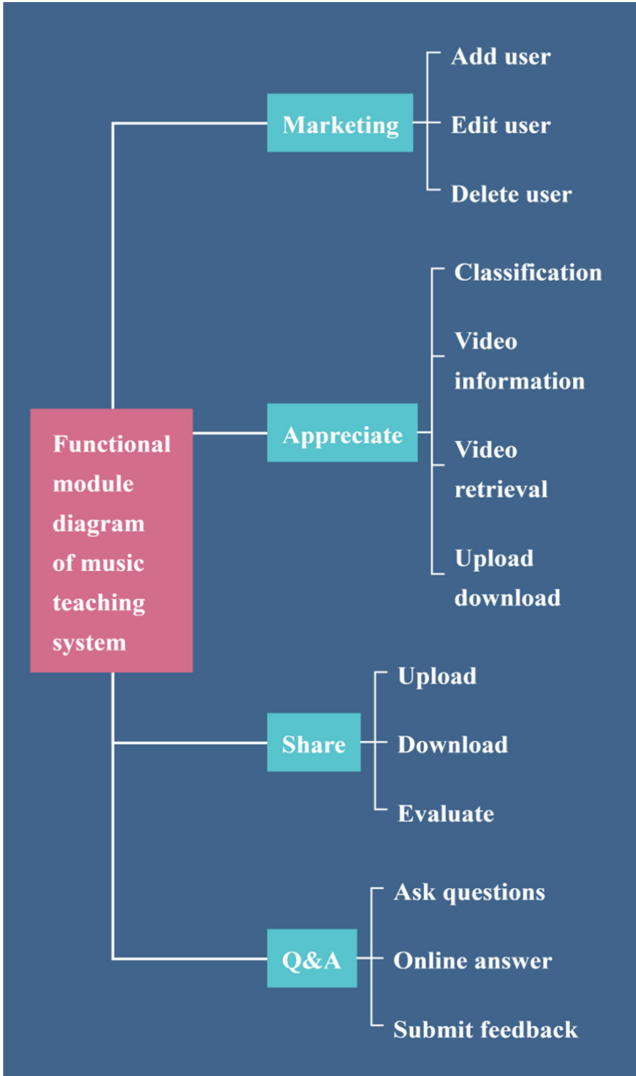


Fig. 1. Functional simulation diagram of the music teaching system

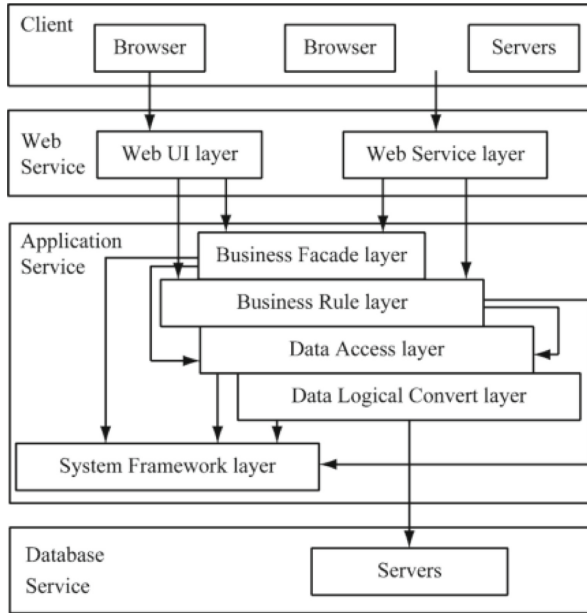


Fig. 2. System architecture diagram

2.2 System Framework Design

To apply modern information technology in the music-assisted teaching system, it is necessary to establish a three-layer B/S architecture, as shown in Fig. 2.

2.3 System Module Design

1) Login module design

The system login module belongs to the initial interface of the system. Users need to pass the verification to log into the system, [4] enter the system interface, and use the system functions. The system will give different users different operation interfaces, [5] and the process is shown in Fig. 3.

2) Design of knowledge learning module

Knowledge learning module is mainly divided into theoretical knowledge learning and common sense knowledge learning [6]. In the knowledge learning module, the knowledge content can be screened, searched, searched, viewed and downloaded. The specific process is shown in Fig. 4.

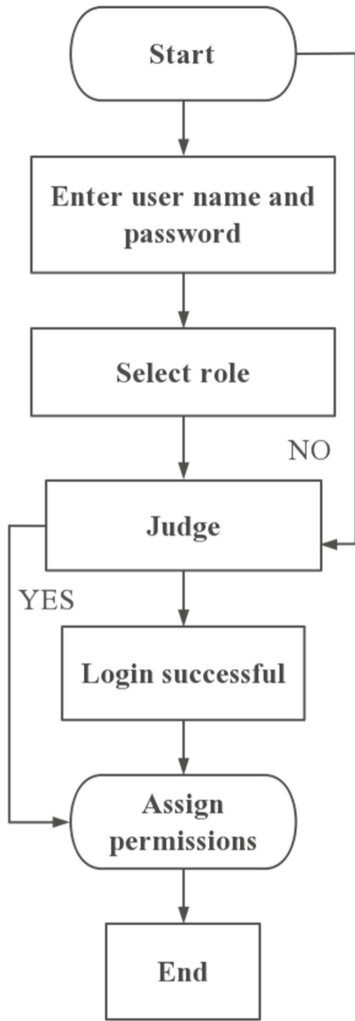


Fig. 3. System login process

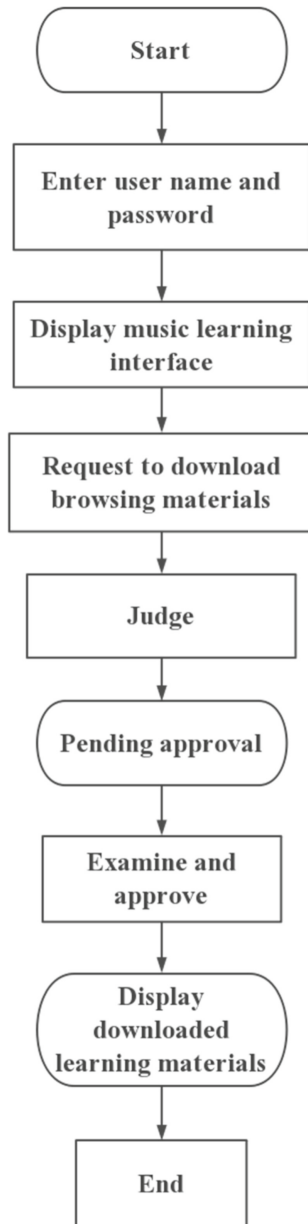


Fig. 4. Knowledge learning process

3 System Development and Implementation

3.1 System Implementation

The three-layer structure obtains the performance layer, data service layer and business logic layer. The way of the interaction between the client implementation and the database is to use the three-layer structure [7], put the business logic, data access, mapping and other work in the middle layer, and then build the connection between the controller [8].

1) *Performance layer*

Java script is not required in JSP structure framework, so JSP structure framework is more concise than other structure framework. However [9], JSF tag can have relevant data displayed on JSP structure page, and relevant pages can be generated through Net Bean IDE visualization [10].

2) *Data service layer*

The data service layer is mainly based on the SQL Service2008 implementation.

3) *Intermediate layer*

The middle layer exists mainly to separate the IPA entity layer and the business logic layer. Through the application of JSF + EJB3 + JPA [11], the middle layer can be divided into Service layer and MVC controller layer, and EAO layer. Among them, the Service layer can clarify the business logic layer rules to ensure that the business logic layer functions are well displayed [12], while the MVC controller layer will connect the middle layer and the performance layer to realize the interaction between the middle layer and the performance layer. In addition, the EAO layer is mainly the entity access object layer, which can query and modify the data, or add, delete [13].

3.2 Module Function Implementation

1) *Login module implementation*

The system can search the database for a match according to the user name and password entered by the user, and then show whether the password is wrong [14]. The correct password will automatically match the login role, matching the user name and password. Only with all the correct password can you enter the user function interface, and the system can be operated accordingly [15].

2) *Implementation of knowledge learning module*

After passing the identity authentication, you can successfully log on to the system, and use the system functions. Therefore, after entering the system, users can also choose the music knowledge learning system, and retrieve the relevant content in the database to start learning [16].

3) *Realization of appreciation module*

The music appreciation system is in the subsystem function interface, and users can retrieve the music appreciation video information in the subsystem function interface, and choose to play it. The database will automatically screen the video, marking out the excellent appreciation video, so that users can get twice the result with half the effort.

4) *Implementation of the job management module*

Enter the user name and user password in the management system interface, and you can successfully log in to the job management interface. After the login, the users can view the course they participate in, and enter the course to complete the homework and test.

4 Conclusion

In conclusion, the application of modern information technology in the design of the music-assisted teaching system not only can effectively promote students' music course learning, but also can effectively improve the quality of music teaching, so that the level of music education and teaching has made great progress. The music course-assisted teaching system based on Web Service and B/S network architecture takes Java as the development language, which realizes the diversification and refinement of the system functions. In addition, the combination of database and JSP framework, further improves the dynamic web page management. Through the system realization, the good application of modern information technology in the design of music auxiliary teaching system is shown, and the system is upgraded and improved within a certain level.

References

1. Yan B (2022) Takes Changchun School of Architecture as an example. *Heilongjiang Sci* 13(01):126–127
2. Zheng F (2022) Takes “geographic information system and its application” as an example. *Middle School Geogr Teach Reference* 02:57–60
3. Wang G (2022) Evaluation “college English teaching system and information feedback mode.” *Chin Sci Technol Paper* 17(02):239
4. Zhang H (2021) Teaching design and practice of “information system development technology” integrated into ideological and political elements. *Comput Age* (08):112–115+119. <https://doi.org/10.16644/j.cnki.cn33-1094/tp.2021.08.029>
5. Tao J, Dong W (2022) The application and practice analysis of the history-aided teaching system in junior high school under the concept of digital humanities. *Teach Manag* 03:73–77
6. Zhang J, Chen X (2021) Attention process: the teaching exploration of constructing the comprehensive quality evaluation system of information technology discipline. *Digital Teach Prim Second Schools* 07:28–31
7. Zhao M (2021) Takes the project-based teaching of “design of indoor temperature and humidity automatic control system” as an example. *Audio-visual Educ Prim Second Schools (Teach)* 07:59–60
8. Hu Q (2022) Takes “ordering system of youth library in Xinhui Community” as an example. *Inf Technol Educ Prim Second Schools* 01:72–74
9. Zhao S, Zhang N, Chen X (2021) Takes “power system analysis” as an example. *Comput Knowl Technol* 17(26):269–271. <https://doi.org/10.14004/j.cnki.ckt.2021.2675>
10. Yang T, Yang H (2022) Takes the course of information system analysis as an example. *Coll Educ* 01:70–75
11. Xiao T, Ya S (2021) Personalized teaching and teaching process evaluation for international trade major students based on information technology. *Gansu Educ Res* 08:18–24

12. Zhang W (2021) The practice and application of Shivo multimedia teaching system in primary school classroom teaching. *Examination Weekly* 54:19–20
13. Zhang X, Hou H, Li Z, Yao L (2022) Research on the teaching process evaluation system of automotive major under the background of information technology. *Automobile Maint Repair* 06:16–18. <https://doi.org/10.16613/j.cnki.1006-6489.2022.06.009>
14. Li X (2021) Research on curriculum informatization teaching design of geographic information system technology. *Geospat Inf* 19 (12):139–143 + 7–8
15. Li X (2021) The —— is based on the modified Flanders interactive analysis system. *Audio-visual Educ Prim Second Schools* 11:16–19
16. Chen Y (2021) The construction of diversified comprehensive teaching evaluation system in junior high school information technology. *Arts Sci Navig (Middle)* 10:74–75

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