Research Article

Design of Search Service System for Multimedia Music Resources Based on BS Music Performance

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With the rise of the Internet, traditional music performances have been unable to meet people’s needs for entertainment in life, and music performances based on computer networks have become the trend of the times. Nowadays, online multimedia resources, consisting of a combination of text, audio, video, graphics, and animation, are the easiest way of enjoying music by providing entertainment in an attractive and interactive manner. Aiming at the defects of monotonous images or text in traditional music performances, this paper designs a music resource search service platform based on computer systems to meet the needs of the user. The platform employs B/S service architecture, which allows users to audition or transmit music on websites, as well as the ability to search the website’s resources, to improve service and experience for people’s lives and pleasure. The technology has therefore made lives much better than before with quite fun.

1. Introduction

The rise of the Internet has brought new opportunities to our life and entertainment. The advantages of the Internet, such as interactivity, real time, richness, and convenience, prompt the rapid integration of the traditional entertainment industry into the wave of the Internet. Query information through the network [1, 2]. It has become a fashion in foreign countries to receive and download music.

The website music playback system is the product of multidiscipline and multifield integration and intersection of computer technology, network communication technology, multimedia technology, and data compression technology. The online music playing system has the features of interaction, friendliness, and digitization as compared to traditional information services. Its significance and value are that information users actively seek out multimedia material that meets their specific requirements. The first is sex, and the second is selectivity [3]. With its distinct features and benefits, online music playback system technology has made significant development both at home and abroad, and it is now widely used in a variety of fields, demonstrating tremendous vitality [4].

With the rapid development of network communication technology, multimedia technology, and data storage technology, music websites, as a popular web service, provide great convenience to music-loving network users and increase the choice of music users [5–7]. Due to a variety of factors, the society has selected to ban several music websites. The reasons mostly include on website design, query and browsing performance, and functional modules. Therefore, in order for users to conveniently, quickly, simply, and safely implement music search to find their favorite music, they can also listen to music in real time, download music, add music to their music box, order songs, and make their own suggestions. Writing to the message board for the improvement of the website, it is necessary to establish a free and safe music website [8]. This music website is designed and developed based on Dreamweaver using advanced HTML5 technology and Jquery framework.

2. Overview of the System Environment

2.1. Development Environment and Technology Introduction.

The design of this music website system is based on HTML5 and B/S architecture and MySQL database. This system mainly uses Dreamweaver and MySQL database.
2.1. Dreamweaver Introduction. Dreamweaver is a WYSIWYG (What You See Is What You Get) web page editor. It is a WYSIWYG web page editor developed in the USA by MACROMEDIA that combines web page creation and website administration. It is the first set of visualizations created just for web designers.

(1) Dreamweaver Features. (1). The Best Production Efficiency. Dreamweaver can use the fastest way to move Fireworks, FreeHand, or Photoshop files to web pages. Use the color picker tool to select a color on the screen to set the closest web-safe color. For menus, keyboard shortcuts, and formatting controls, all in one easy step. Dreamweaver can be combined with your favorite design tools, such as PlaybackFlash, Shockwave, and plug-in modules; without leaving Dreamweaver, the overall application process is smooth. In addition, Dreamweaver can automatically open Firework or Photoshop with a single click to edit and set the optimization of the image file.

(1)2. Website Management. Use sitemaps to quickly prototype, design, update, and reorganize web pages. Change the page location or file name and Dreamweaver will automatically update all links. Use search and replace functions that support text, HTML code, HTML attribute tags, and general syntax to make complex website updates quick and easy.

(1)3. Unparalleled Control Ability. It is the only design tool that provides roundtrip HTML, visual editing, and source code editing synchronization. It can be rendered on all popular browsers on any platform.

2.1.2. Introduction to HTML5. HTML5 is the most significant advancement in web development standards in the previous ten years. HTML5 is different from earlier versions in that it has a new mission: to transform the web into a mature application platform. Video, audio, pictures, animation, and computer interaction are all standardized on the HTML5 framework. HTML5 includes a lot of features. Tags for playing video and audio are also formulated in addition to generating two-dimensional images. Second, web application functionalities are quite adequate for ordinary individuals and for small- and medium-sized businesses/ enterprises.

2.1.3. Introduction to Jquery. After prototype, a great JavaScript code base, Jquery is a fast, brief JavaScript framework (or JavaScript framework). The goal of Jquery design is to “writeLess, Do More,” which means writing less code and doing more. It improves HTML document operation, event processing, animation design, and Ajax interaction by encapsulating the functional codes commonly used in JavaScript, providing a simple JavaScript design mode, and optimizing HTML document operation, event processing, animation design, and Ajax interaction. Jquery’s fundamental features are as follows: it has a unique chain syntax and a short and clear multifunctional interface; it has an efficient and flexible CSS selector that can be extended; and it has a convenient plug-in extension method and rich plug-ins. Jquery has compatibility with various mainstream browsers, such as IE 6.0+.FF1.5+, Safari2.0+, and Opera 9.0+.

2.1.4. Introduction to MySQL. MySQL is a database management system based on SQL; the MySQL database, a small relational database management system, is open source, despite the fact that MySQL is not an open source product [9]. The characteristics of MySQL database are small size, fast processing speed, and low overall cost, which makes the application of small- and medium-sized websites on the Internet very extensive. And it is better than its open source feature. There are many small- and medium-sized websites that will definitely choose the Mysql database as the website database in order to reduce the overall cost of the website.

When compared to other major databases like Oracle, SQL server, db2, and others, MySQL has some flaws in terms of stability and functionality. However, this will have no effect on its popularity because the MySQL database’s functionalities are quite adequate for ordinary individuals and for small- and medium-sized businesses/enterprises.

2.2. System Analysis

2.2.1. Register the Module. As a user of the music website, you need to register as a member of this website to enjoy all the rights of the website. Registration is the way to make ordinary users become members. The main task of this module is to prompt users to add their own basic information and to store user information. added to the database.

2.2.2. Login Module. After the user registers as a member of this site, he can log in to this website. In this module, it will determine whether the user is a registered member of this site and will determine whether the user’s user account and password match. If they match, the user information will be displayed. It can be executed. For other operations, if they do not match, the user will be prompted to enter the wrong user account and password. After logging in, users can choose to modify their personal data.

2.2.3. Add Music Module. After the user registers as a member of this site, he can log in to this site. In this module, it will determine whether the user is a registered member of this site and will determine whether the user’s user account and password match. If they match, the user information will be displayed and other operation; if it does not match, the user will be prompted to enter the wrong user account and password. After logging in, users can choose to modify their personal data.

2.2.4. Upload the Music Module. Uploading music is the main way for the website to add music. Users select their own music, select the album to which the music belongs, and finally upload the music.

2.2.5. Music Search Module. Music search is the core of music websites. Music websites should provide two basic music search methods: search by music name and music producer. In addition to these two basic ways of searching for music, there should also be search by album and music type. Search by music region, etc. The final list of music search results is displayed, and the user can click the corresponding attribute link to search or sort according to this
attribute. Click the corresponding music name to listen to the music. Table 1 lists the software environment requirements.

The hardware environment requirements are shown in Table 2.

2.3. B/S Structure. The structure of the browser and server is what the music appreciation teaching system uses. After the increase, the structure is a network structure model, and the browser is the client’s primary application software. Because this model unites the client and focuses the core part of the system function realization on the server, it is used to construct and develop the music appreciation teaching system. Only a browser can be installed on the client computer to access the server, making it easier for students to study in school or at home. The server installs the database, and the browser exchanges data with the database.

2.3.1. Advantages and Disadvantages of Architectural Software

(1) Simple Operation and Use. The most significant benefit of B/S is that it may be used everywhere without the need for additional software. It can be utilized if there is an Internet-connected computer, and the client is not responsible for any maintenance. The system can be easily expanded as long as you can connect to the Internet and have a username and password assigned by the system administrator. The system can automatically assign an account to the user, and the user can freely enter the system without human intervention, even if it is primarily through an online application and subsequently through the company’s internal security certification (such as a certificate).

(2) Simple Way to Upgrade and Maintain. At present, the technical upgrading of software systems is becoming more and more frequent, and the improvement is getting faster and faster, and the products of the architecture have more convenient characteristics. For larger units, if the administrator of the system runs back and forth between hundreds or even thousands of computers, the efficiency will be low, and the workload will be very complicated. The software of the architecture only needs to manage the server. All clients are just browsers and do not need to be maintained. No matter how the scale of users changes, the number of branches will not increase the workload of maintenance and upgrades, and all operations only need to be carried out for the server. If in different places, technicians only need to connect the server to the private network to realize remote technical maintenance, technical upgrade, and resource sharing. Therefore, the mainstream direction of the future informatization development is that the client will become more and more “thin” and the server will become more and more “fat.” Software upgrades and maintenance are becoming simpler and easier, saving users manpower, material resources, time, and costs. Therefore, the main form of maintenance and upgrade is that the client gets thinner and the server gets fatter.

(3) The Application Server Runs a Heavy Data Load. Since the architecture management software is only installed on the server side (network managers only need to manage the server, and the main transaction logic of the user interface is completely implemented on the server side (on the server side), and a very small part of the transaction logic is on the front end (implementation)), the client only has a browser, and the network administrator only needs to do the hardware maintenance of the server. However, the application server has a heavy load of data, and once the server “crash” occurs, the consequences will be disastrous. Therefore, many units are equipped with database storage servers to just in case.

3. System Design

3.1. System Function Design. This website is developed according to the needs and can be divided into the following modules: registration module, login module, add music module, upload music module, and music search module, as shown in Figure 1.

3.2. Database Design. Database is the core part of music website; all information processing subsystems will be based on some kind of database platform, in order to store the information resources processed by it completely and safely and manage and utilize it in various ways. Choosing a good database platform is very important. When choosing a database platform, the following factors should be considered:

(i) Performance: the data processing capability of the database

(ii) Openness: whether the database can be used under a variety of operating systems

(iii) Security: whether the database has a high degree of security

(iv) Reliability: whether the database has a high degree of reliability

(v) Parallelism: whether the database runs on multiple nodes in parallel

We chose MYSQL as the database development platform based on the actual needs of the development and
application of this website. The relationship between distinct entities is mostly depicted here due to the large number of entity attributes. For the detailed design, see the fields of the table structure in the database design, as shown in Figures 2 and 3.

3.3. Network Configuration Design. The system is configured as a three-tier architecture. To meet the system configuration requirements, the school must have a certain amount of hardware investment, add a music room, and add a management machine for the administrator of the educational affairs office. In addition, it also needs to be connected to the public. The internet is the network configuration of the system which is shown in Figure 4.

4. System Test

4.1. Overall Testing of the Interface

4.1.1. Reasonableness Test. The rationality of the interface refers to whether the interface is in harmony with the functions of the software and whether the color and layout of the interface are coordinated. If the interface cannot reflect the functions of the software, the function of the interface will be greatly reduced. Therefore, the rationality of the interface is the primary factor in the beauty of the interface. If there are too many or cluttered controls on an interface, it will cause inconvenience and difficulty for users to find fields or controls. The rationality of the interface is generally carried out through observation, for example:

(i) Whether the text, color, and other information of the elements in the interface are inconsistent with the functions

(ii) Whether the color matching of the foreground and background is reasonable and coordinated, and whether the contrast is too large

(iii) Whether the size and layout of elements in the interface are coordinated

(iv) Whether the proportion of the window is appropriate

4.1.2. Conformance Testing. Consistency refers to the same means of representing information, such as providing...
consistency in fonts, label styles, colors, terminology, and the
display of error warnings, among other things. The appear-
ance, layout, distribution mechanism, and information dis-
play kinetic energy of a good software interface and are all
comparable and similar. The user interface is highly consis-
tent, and users can decrease excessive learning and memory,
lowering training, and support costs.

The following factors should be paid attention to when
testing interface conformance:

(i) Whether the layout is consistent, such as the posi-
tion and alignment of all window buttons
(ii) Whether the wording of labels and messages is con-
sistent, such as generating the same terminology in
prompts, menus, and help
(iii) Whether the appearance of the interface is consis-
tent, such as the size, color, and background, and
whether display information of the controls should
be consistent
(iv) Whether the operation method is consistent, such
as double clicking an item in it, causing some
events to occur; then, every time you double click
any other item in the list box, the same thing
should happen

4.1.3. Icon Test. The icon of the image is very helpful and
makes it easy for people to understand its connotation.
The following points can be used as a reference:

(i) Whether the icon has a clear outline, an icon with a
clear outline can ensure that the image has a good
effect on different background colors
(ii) Pay attention to whether the size of the icon is
appropriate
(iii) Labels are generally required on the icon

4.2. System Function Test. The functional test of the sys-
tem is also called black box test. According to the needs
of users of each module of the music appreciation system, we test whether each function can be used normally and whether the program can properly receive input data and generate correct output information as shown in Figure 5.

4.2.1. Test for Password and Username Errors. The input is as follows: wrong password; wrong account input; and wrong user type selection.

For output, the prompt dialog box account password is incorrect, or the user type is incorrectly selected, and the input box is cleared.

4.2.2. Resource Search. For input, find complete music information, as shown in Figure 6.

For the expected output, a pop-up dialog box prompts the appearance of music resources, and the corresponding place is darkened.

5. Conclusion

This system adopts Htm5 and Jquery framework and takes JavaScript as development technology and MySQL as database. The system includes the production of players, the registration and login of users and administrators, music uploading and downloading, and comments, which basically meet the needs of users. The design of background management mainly realizes the management of various functions of the system and maintains and manages the data of the database. In general, the system has comprehensive functions and strong security.

Data Availability

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no competing interests.

Authors’ Contributions

The conception of the paper was completed by Yuanyuan Lv, and the data processing was completed by Yuanyuan Lv. Yuanyuan Lv participated in the review of the paper.

References

